The impact of annual report transparency and readability on the use of business failure prediction models

Research dissertation presented in partial fulfilment of the requirements for the degree of

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Candidate Declaration

Candidate Name: Tania Ramírez

I certify that the dissertation entitled:

submitted for the degree of: **MSc in Accounting and Finance Management** is the result of the my own work and that where reference is made to the work of others, due acknowledgment is given.

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Date:

Dedication

To my parents and my brother who always assisted me and provided me with the best opportunities, advices, and values.

To my friends and family who always were there for me to laugh and share.

To all the students and teachers that overcome the pandemic and despite that challenging event achieved their goals.

To the people that supported me and walked with me during this journey.

To life for letting me be where I am and who I am today.

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Abstract

The impact of annual report transparency and readability on the use of business failure prediction models

Tania Ramírez

The study aims to explain if the transparency and readability of the information released in the annual report affect the use of business failure prediction models. This study reports the results of an examination of the relation between the information transparency and readability in annual reports, on the use of business failure prediction models. Specially, this research aims to explain if the transparency and readability of the information released in the annual report affect the use of business failure prediction models. To explain this relationship, this study tested several hypotheses by using a correlation and a multiple regression analysis based on the primary data collected from a sample of 155 professionals using survey method.

Some of the findings of this research indicate the following: (1) annual report transparency is significant correlated to the use of business failure prediction models; (2) annual report readability is not significant correlated to the use of business failure prediction models; (3) the transparency and readability of annual reports are significantly correlated; (4) the transparency and readability in the annual reports are not significant to explain changes in the use of business failure prediction models; (5) improvements on transparency, disclosure, the presentation of the financial statements or complementary information in annual reports could increase the business failure prediction.

The results indicated that the studied variables together do not affect the use of business failure prediction model. Nevertheless, transparency and readability are correlated, but the correlation is weak as there could be other variables involve. Some of the suggested other variables were identified in this study. However future research is recommended. Moreover, as cases of business failure continue to be common across the world, future research on this topic is recommended in order to understand the variables that could improve the business failure prediction based on the information disclosed by companies given that the current literature do not fully assess this problem. In addition, this research highlights the need to define a standardize measure of information transparency and readability.

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1 Introduction

1.1 Overview

Overall, it seems that a lot of discussions surround the use of bankruptcy models. In the case of regulations, attention to business failures continues to be a controversial topic to study given that investors want to be protected and be sure to receive quality information. Furthermore, they want to predict, prevent, and receive warnings about early signs of business failure. Special attention was given to these issues after Enron's bankruptcy in 2001 when regulators started to address the factors behind a company's bankruptcy and to regulate corporate governance issues. However, nowadays, we still have cases of listed companies that surprisingly declared bankrupted in the absence of a warning sign from auditors or analysts.

The corporate world continues to experience cases of bankruptcies. Cases of bankruptcies across companies continued to be high according to the Insolvency Service for England and Wales, during 2019, company insolvencies increased to their highest point since 2013. Moreover, the reported number of companies' insolvencies according to the latest data published represented an increase of 6.8% insolvencies, as compared to 2018, reaching a total of 17,196 insolvencies. The industries with the highest numbers of insolvencies included the construction industry followed by the wholesale and retail industry and the administrative and support services industry (The Insolvency Service, 2020).

A recent case of a company insolvency was the case of Thomas Cook, which was a public British company founded in 2007, operating in the travel and tourism industry, that declared bankruptcy in 2019. Consequently, hundreds of tourists were left in holidays destinations without flights back home and hundreds of suppliers, airlines, and hotels were left unpaid as well (Bloomberg, 2020). The sudden declaration of bankruptcy by Thomas Cook was a surprise for the financial community and customers given that the process of bankruptcy seems to be more likely to be a gradual process rather than an unexpected event (Yang *et al.*, 2018).

1.2 Research Purpose

The purpose of this research is to explain if the transparency and readability of the information released in the annual report affect the use of business failure prediction models. The purposes of this research are as follows:

1. To determine if the transparency of the information released in the annual report impact the use of business failure prediction models.

2. To determine if the readability of the information released in the annual report impact the use of business failure prediction models.

3. To examine the relationship between the transparency and the readability of the information released in the annual report.

4. To determine if the transparency and readability of the annual report explain changes in the use of the business failure prediction models.

5. To provide insightful information regarding additional factors within the annual report that could increase the ability of users to predict business failure.

1.3 Significance of the Study

This research will contribute to relevant business and academic areas including International Financial Reporting and Analysis, Audit and Assurance, Portfolio Management, Law and Corporate Governance and Business Consultancy as it will aim to assess and understand the relationship between annual report transparency and annual report readability in the use of business failure prediction models.

Additionally, this research is of interest of the International Financial Reporting Standards Institutions as it provides insightful information regarding the relationship between the current disclosure in annual reports and the transparency and readability of the documents to allow users to make informed decisions based on valuations models, such as the businesses failure prediction models. This is especially useful for the amendments and improvements of the International Accounting Standard (IAS) IAS 1 — Presentation of Financial Statements as it provides information regarding improvements to the presentation of financial statements, and disclosure of relevant information for stakeholders.

1.4 Research Objective

The objective of this research is to examine how the annual report information, specially transparency and readability, impact the use of business failure prediction models as the number of bankruptcies continuous to be frequent in the corporate world. In addition, the objective of this research is to understand if the transparency and readability of the information released in the annual reports impact the use of business failure prediction models given that every year new amendments and recommendations are made by regulators in order to improve and provide accurate information to users so they can make informed decisions.

1.5 Structure of the Study

This research is structured in 5 sections. Section 1 outlines the research purpose and objectives. Section 2 includes the literature review, conceptual framework and the research questions and hypothesis. Section 3 establish the methodology and research design, including the definition of the studied variables and the research model to test the hypothesis and answer the research questions. The presentation and discussion of the research findings are presented in Section 4. Finally, Section 5 report the limitations and contributions of this research including recommendations for future research and conclusions.

2 Literature Review

2.1 Overview

Business failures continues to be frequent across the world which can be costly for stakeholders. To predict business failure in a timely effective manner, there are several business failure and bankruptcy prediction models based on the financial information reported in the annual report. The annual report is one of the most important financial reporting documents as it is the basis of valuations and financial modelling as the document enables users to get an understanding of the firms' strategies and management views.

However, literature demonstrates a continuous discussion regarding the disclosure requirements and compliance, as previous studies revealed that the transparency and readability of the information reported is insufficient and unclear. In addition, previous studies suggested that the accuracy of financial models could be compromised as a result of quality of information. Nevertheless, there is not enough evidence in the study of the information attributes of the annual report, such as the transparency and readability, and the impact on the use of business failure prediction models.

The key point is that the annual report is the base of business failure prediction models. Consequently, these models could be impacted as they may not effectively predict business failure because of the lack of transparency and readability of the information. In addition, studies conducted by regulators suggested an opportunity area to improve the quality of the information provided in the annual reports. Nevertheless, there is no evidence in the study regarding the impact of quality of information in the business failure prediction. Furthermore, the literature suggested studying the practicality of the models as they could be more theorical than practical. This study, therefore, set out to assess the relevance of the annual report transparency and annual report readability on the use of business failure prediction models.

2.2 Business failures

Failure is experienced in all industries and disciplines and has been studied by different sciences interested in learning from their errors to develop better projects or formulas (Coyne and Singh, 2008). However, the question is if business academics studied corporate failure as much as other sciences did as business failures continue to be reported across the world.

In support of business failures, the economic theory of survival proposed by White (1989) stated that there is an economic filter which eliminate firms which are inefficient and whose resources could be better use in other activities rather than the current one. This definition is similar to the

research of Ormerod (2005) which suggested that failure is the fundamental feature of biology, human and economic organisations. However, such approaches have failed to address the definition of business failure and the cost associated for those companies that did not survive.

Several attempts have been made to define business failure, however there is not a universal definition. Most studies that aimed to define business failure were focused on bankruptcy, business closure, financial distress and failure to meet expectations (Artur Raimundo, 2014). For this study, business failure is "when a firm is unable to meet its debts as they come due" (Altman *et al.*, 2019).

Nevertheless, despite business failure seems to be part of the economic cycle previous literature suggested that business failure does not happen suddenly as several factors that can lead a firm to declare in bankruptcy. Altman *et al.* (2019) proposed some of the most common factors involved in corporate bankruptcies. This view is supported by Daubie and Meskens (2002) which revealed that business failure is not an unforeseen event, given that it takes some time for a company to fail. Overall, these studies suggested that business failure could be predicted by the identification of early warning signals from the documents disclosed by the firms, such as the annual reports.

Regarding the identification of early warning signals to predict corporate failures, numerous studies have attempted to identified those (e.g., Beasley *et al.* (2001); Tennyson *et al.* (1990); Daubie and Meskens (2002)). However, one of the limitations with these studies was the timing of the information as most of them did not explain in which year or the period before business failure can be predicted. Consequently, business failure prediction models were created to prevent business failure in a timely effective manner.

2.3 Business failure prediction models

Business failure models were created because of the corporate failures due to financial crisis or corporate scandals. The models were created to predict business failure by users including lenders, investors, security analyst, rating agencies, regulators, auditors, advisors, among others (Altman *et al.*, 2019).

The first few studies in business failure prediction included the study of financial ratios, which later evolved in the study of univariate models, then advanced into multivariate studies and finally in the integration of technology by including the use of neural network and integrating non-quantitative data. In general, most of the models were developed based on the information

in the annual report on the year prior bankruptcy. Up to now, several studies highlighted factors that are associated with the use of the models including the information, the year base, and the practicality of the models.

Altman *et al.* (2019) considered that recent models are complex as they demand more knowledge and access to certain tools to process information. Those tools enable users to integrate external and macroeconomic factors to the models to have a better understanding of the firms performance as demonstrated by Lu *et al.* (2013). Together, these studies suggested that one of the main weaknesses of the models is that they require specific knowledge and information tools. Consequently, it is believed that these models are not accessible for all users as demonstrated by Desai *et al.* (2017).

Regarding the timing, critics such as Pompe and Bilderbeek (2005) argued that bankruptcy models based on a year prior bankruptcy are not effective as stakeholders do not have sufficient time to react. However, there is no general agreement on what a timely effective model could be as the effectiveness of bankruptcy prediction rely on many factors, including the integration of the qualitative information (Tennyson *et al.*, 1990). Consequently, given the intervention of multiple factors, previous research has established that the bankruptcy process is a complex exercise (Lajili and Zéghal, 2010).

Critics also argued that given the intervention of several factors and the need of certain skills and tools to process the information, the practicality of the models could be compromised. Given that most of the recent attention were focused on understanding if researches are developing new models instead of testing the usefulness of the current models (Bellovary *et al.*, 2007). Consequently, it has been highlighted the need to question the use and practicality of the models. In addition, studies suggested that future research should focus on assessing the model's practicality and use.

2.4 Annual report

The annual report is an essential financial reporting document that present the company's results and strategy through the disclosure of material information.

However, despite the importance of the document, there has been discussions by regulators and researches regarding the usefulness, transparency and readability of the information disclosed in the document.

Consequently, regulators frequently monitor the information disclosed by the firms and the compliance requirements. As a result, regulators expressed their concern regarding the readability of the information by finding areas where disclosure could be significantly improved

(SEC, 2003a). One of the reviews revealed that most of the firms used boilerplates and the information about trends and uncertainties were not included. Additionally, they found that the information disclosed about liquidity and capital resources was insufficient. Overall, these findings supported the notion about a decrease in the quality of the information released by firms, particularly about transparency and readability.

The key point is that the information quality is considered by investors as a valuable factor that enriches the understanding of the business and help them to have a comprehensive approach when performing a valuation (Hoffmann and Fieseler, 2012).

2.4.1 *Transparency*

Transparency is an essential element of the annual report as the annual report is the base of valuations and financial modelling. The information disclosed, including in the financial statements and narratives, is considered as valuable for analysts and investors as it enables them to have a better understanding and interpretation of a firm (e.g. Gassen and Schwedler (2010); Yang *et al.* (2018)).

Transparency implies a classification and release of information by management by considering what information should be disclosed and under which circumstances. Nevertheless, one of the major discussions about transparency is if the amount of information disclosed is influenced by the information disclosed by competitors. This view is supported by Li *et al.* (2012) which stated that the level of disclosure may be influenced by the competitors as there could be concerns about the learnings and insights that the competitor could get by reading the annual report.

Consequently, another discussion about transparency is the management dilemma on disclosing information since management incentives to disclose negative information are not clear (Skinner, 1994). Skinner (1994) showed that in cases where in management disclosed negative news they tend to attribute those negative earnings to bear costs as they do not want to admit that they fail to make the proper disclosure. By contrast, the study revealed incentives for management to disclose including the decrease of legal cost and the reputational damages. However, there is an inconsistency with this argument as this suggest that there is no generalisation on the management incentives to disclose bad news but there are some advantages on such disclosure. Moreover, in the case of voluntarily disclosure, Skinner (1994) showed that there is an asymmetry in managers to disclose voluntarily information as negative disclosures are presented as qualitative statements and positive disclosures are presented as quantitative.

The key problem is that a lack of transparency in disclosing the appropriate information could result to misestimation of a firm as demonstrated in literature, including the studies of Bawa (1976); Barry and Brown (1985); Coles and Loewenstein (1988); Clarkson and Thompson (1990); and Handa and Linn (1993). However, these studies did not mention the impact of transparency on the accuracy of the valuation models as Barth and Schipper (2008) suggested that the accuracy of a company's assessment is linked to the financial reporting transparency. Similarly, the study of Lehavy *et al.* (2011) revealed that analyst forecasts are highly related with the company clear and proper disclosure of information. This was exemplified in the study by showing that analysts forecast was widely disperse and inaccurate since the annual reports of firms are hard to interpret.

The evidence presented in this section suggests that transparency is linked to the accuracy of financial models as misstatements of valuations could happen when users do not have all the information, or the information is inaccurate or unclear.

2.4.2 *Readability*

Readability difficulties arise when the quantity of information and the language used to report information is excessive and complex (Deloitte, 2019). On this vein, previous studies (e.g. Collins et al. (1997); Francis and Schipper (1997); Lev and Gu (2016)) suggested that one of the causes of readability difficulties could be that companies have more complex structures and items to report. Consequently, they have to report more information that result in an increase in the number of pages (Deloitte, 2019).

This can also been seen in the study conducted by Cascino *et al.* (2014) which concluded that there is an increasing concern regarding the complexity and volume of information provided by the companies. However, the study did not assess if the complexity and volume was attributable to the requirements of certain reporting standards. As complying with reporting standards implies that firms must disclose more information which consequently increases the volume of the reports and according to Fuller (2018) may not like users. Another implication of compliance stated by Lord (2002) is that after the Enron case, regulators want to be sure that companies would disclose sufficient information to prevent those events. Nevertheless, some questions need to be asked. First, if there is an incentive to abbreviate the report, as important information could be omitted. Second, to assess if there is a way to increase the usefulness and effectiveness of the information.

As one of the key issues with readability and the volume of the annual report is that users tented to scan information rather than fully reading the report as demonstrated by David (2001). Another key issue of readability is the excessive use of boilerplates and the lack of quantifiable information in management statements as demonstrated by Deloitte (2019) and Fuller (2018).

However, one criticism of previous literature on the length of the annual reports is if the length of the annual report increases the usefulness of the information, given that the volume does not necessarily means quality. Soyode and Ariyo (2014) supported this view by stating that increasing the amount of information disclosed does not imply an increase on the adequacy of the information.

In the case of the readability, critics such as Simpson (2000) questioned if companies may appeal to the ignorance of the users in order to make disclosures more complex so they need more expertise to fully assess the information. Tennyson *et al.* (1990) supported this as the study found that the availability of the sources to process information is greater for larger investors. Overall, to overcome the readability difficulties, certain information tools, expertise and certain skills are required. This view is also supported by Yang *et al.* (2018) who showed that the complexity and technical terms in the annual report demand more skills and expertise from users.

Another contribution regarding the difficulty to read the annual report are the studies conducted by Moreno and Casasola (2016); and Lord (2002) which found that annual reports are considered to be difficult or very difficult to read. Together, these studies indicated that the annual report is recognised as a complex document to read that requires certain skills and information tools to fully understand the information disclosed in it.

Consequently, companies have been trying to present the information in a more friendly manner by using graphs and pictures. However, David (2001) criticised that despite the grow in the use of graphs as this arts could cause distractions. Moreover, Simpson (2000) also criticised the readability questioning if the use of graphics provide valuable information or it is just a distractor providing subjective information that could be misleading for users instead of being straight-forward and clear. On this vein, Simpson (2000) suggested that one of the reasons why information could be presented as blurry is attributable to the risk that competitors could identify the strategic information from the reporting company. This study is also supported by previous literature mentioned in this chapter about the management dilemma to disclose information.

The key problem with these findings is that readability could compromise the user's ability to identify relevant information as it is suggested that firms are disclosing excessive volume of information and they are also using complex language that require more skills and sources from users.

2.5 Literature gap

These aforementioned studies clearly indicate that there is a literature gap between the use of business failure prediction models and their relationship with the information provided by firms especially in the annual report.

In all the studies reviewed here, it is recognised that researchers and regulators consider transparency and readability of annual reports as opportunity areas that will allow users to have a better understanding of a company. Given that, poor transparency and readability could imply some costs for a company as analysts are not willing to invest resources by trying to valuate a firm that is not disclosing appropriately or that is disclosing misleading information (Lehavy *et al.*, 2011). However, the study did not cover if analyst could make poor assessments of companies when the information is difficult to read or is insufficient. Nevertheless, the study by Barth and Schipper (2008) pointed out that the accuracy of a company assessment is linked to the financial reporting transparency as information is understandable and accurate. However, Barth and Schipper (2008) did not focus on the use of business failure prediction models and did not address the readability of annual reports.

On this vein, studies such as Tennyson *et al.* (1990) and Cascino *et al.* (2014) encouraged researching on other aspects of information in the annual report. Tennyson *et al.* (1990) proposed to study other sections of the narrative (excluding Presidents letter section) and the interaction with business failure prediction models. Moreover Cascino *et al.* (2014) suggested the study about how the annual report information is used by capital providers as the study considered information on these studies is scarce. Additionally, Altman (1984) suggested future research on the use and practicality of business failure prediction models.

Previous studies about annual reports and the prediction models include the study by Laitinen (1993) which suggested to study the relationship between annual reports variables and the use of business failure prediction models as the study revealed that annual report variables contained incremental information. However, the study did not address the relationship between the transparency and readability and the use of business failure prediction models. Additionally, one of the limitations of the study was that it was based on small firms with less than 100 employees and it was just focused on Finland. On this vein, Altman (1984) suggested to study the functionality of the models as the research expected that the quality and reliability of business failure models increase as the quality of firms' information improves. However, there is no existing literature on this topic after comprehensive review of the literature.

Together, these studies indicated that business failure prediction models could be influenced by the transparency and readability of the information released in annual reports. Nevertheless,

despite being considered as an encouraging area to study, previous researchers have not studied the relationship of these variables.

2.6 Conceptual Framework

After comprehensive review of the literature review, a conceptual framework for this research was developed to study the relationship between the studied variables. These variables were identified in the literature review as areas that could impact the use of business failure prediction models. More details are found in **Figure 1**.

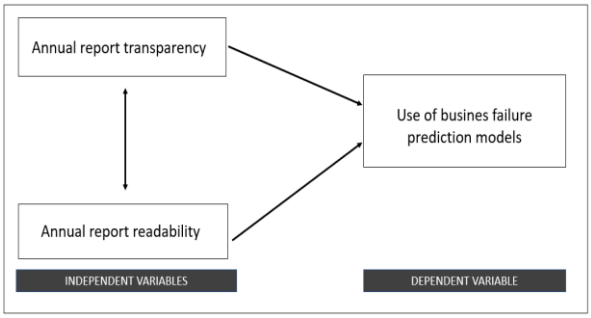


Figure 1: Conceptual framework.

Based on the conceptual framework, the research questions for this study are the following:

- How does annual report transparency relate to the use of business failure prediction models?
- How does annual report readability relate to the use of business failure prediction models?
- How does annual report transparency relate to annual report readability?
- How does annual report transparency and readability affect the use of business failure prediction models?

Having presented the research questions, following are the hypothesis developed to answer the research questions in line with the research purpose and objectives of this study.

Hypothesis 1

- Hypothesis 1 ($H1_0$): There is not a significant relationship between annual report transparency and the use of business failure prediction models.
- Alternative Hypothesis 1 ($H1_A$): There is significant relationship between annual report transparency and the use of business failure prediction models.

Hypothesis 2

- Hypothesis 2 ($H2_0$): There is not a significant relationship between annual report readability and the use of business failure prediction models.
- Alternative Hypothesis 2 ($H2_A$): There is significant relationship between annual report readability and the use of business failure prediction models.

Hypothesis 3

- Hypothesis 3 ($H3_0$): There is not a significant relationship between annual report transparency and annual report readability.
- Alternative Hypothesis 3 ($H3_A$): There is significant relationship between annual report transparency and annual report readability.

Hypothesis 4

- Hypothesis 4 ($H4_0$): Annual report transparency and readability do not predict significance variance in the use of business failure prediction models.
- Alternative Hypothesis 4 ($H4_A$): Annual report transparency and readability predict significance variance in the use of business failure prediction models.

2.7 Conclusion

All the studies reviewed here supported the hypothesis that annual report transparency and readability could impact the use of business failure prediction models. Overall, there is not enough evidence on how annual report transparency and readability affect the use of business failure prediction models. Additionally, previous researchers suggested this as an interesting area to research.

3 Methodology and Research Design

3.1 Overview

To answer the research questions and test the hypothesis established in the conceptual framework, this study will use the quantitative approach of collecting and analysing primary data. The research strategy used by the researcher is using online survey questionnaires to collect the primary data needed to test hypothesis and answer the research questions. The data will be analysed to test the hypothesis established in the conceptual framework in relation to the research questions using a correlation and multiple regression analysis. These analyses, together

with other complementary analysis, will allow the study to examine the relationship between the studied variables and, thus, answer the research questions.

3.2 Research Philosophy and Approach

The research philosophy applied in this research was the positivism as the study attempted to establish a relationship between the studied variables (i.e., annual report transparency, readability, and the use of business failure prediction models). The positivism research approach was also relevant for this research as this was a quantitative research based on the research process illustrated in the conceptual framework. The structured approach applied to this research given that, this approach implies the imposition of a structure, based on theory, hypothesis, and concepts in order to answer the research question (Saunders and Lewis, 2017).

As a result, the deductive approach was used to test the hypothesis developed based on existing literature and proposed relationships between studied variables as illustrated in the conceptual framework and will be tested empirically by collecting primary data. Additionally, the deductive approach was considered for this study, as the study attempted to explain relationships between variables (Saunders and Lewis, 2017).

3.3 Research Strategy

The researcher applied quantitative approach using online survey questionnaire as the suitable research strategy to collect primary data to test hypothesis and answer the research questions. Ethical procedures were implemented throughout the process as the consent form was included as mandatory in the questionnaire. The consent form is available in Appendix A.

There were no available instruments measuring the variables studied in this research. Therefore, the questionnaires used in this study were developed by the researcher based on the review of literature and by integrating topics and questions as suggested by previous researchers. Additionally, a data requirements table, based on Saunders *et al.* (2009), was developed to examine if the identified variables were included in the investigative questions based on theory and key concepts identified in the literature review. Overall, the questionnaire was structured in sections based on the studied variables and the hypothesis developed in line with the research questions and objectives.

3.4 Collection of Primary Data

3.4.1 *Sources*

The researcher collected primary data gathered through an online survey questionnaire using Google Docs. The data was collected for two weeks in the month of July 2020 by sending an

invitation to potential respondents through Linked-In, which is a professional networking application.

The questionnaire was organised in sections. The first section were the screening questions that enable the research to identify and check that the respondents met the sample criteria. Then the following sections were based on the variables studied and, in the hypothesis developed according to the research questions. The main sections to measure the studied variables were as follows: Section I: Demographic questions; Section II: Business failure prediction; Section III: Transparency; Section IV: Readability; and Section V: Open-ended question. More details are found in Appendix B.

The questionnaire was sent using survey techniques to improve the response rate. Those techniques included special attention to the day and time when the questionnaire was sent and attention to the invitation sent by making every message personal.

In addition, a pilot testing was applied to test the effectiveness and clarity of the questions. After the pilot testing, some questions were removed as they were redundant and the time for filling up the survey was approximately 10 minutes. Additionally, some typos and wording were corrected.

In terms of secondary data, secondary data was used for literature purposes, including literature review of the studied variables and information regarding questionnaire development and design and deciding the appropriate statistical analysis (Saunders *et al.*, 2009).

3.4.2 *Sample and Population*

The population for this study included analysts, investors, and portfolio managers as identified users of the annual reports based in North America, Latin America, Europe, Africa, and Asia. The population was selected based on the main users of business failure prediction models (Altman *et al.*, 2019). However, not all the groups were included as this study was focused only on investors, analysts and portfolio managers and excluded regulators and auditors due to time and budget constrains (Altman et al., 2019).

The sample for this research was identified by using the snowball method which consisted in identifying a small group of users which through their networks invited other users to participate (Warner, 2007). The first participants were previous contacts and this method was selected as it was difficult to define the total number of users of annual reports and business failure prediction models.

Regarding the sample size calculation, this research used G Power software 3.1.9.7 version (Faul *et al.*, 2009) which enable the researcher to calculate the sample size when population is

unknown. This sample size calculation was selected for this study as there were no previous studies on the research questions studied in this research and as the population was unknown. G Power is used in several researches for many statistical test in several sciences including medicine, social, biology and others (Faul *et al.*, 2009) as it allow researchers to establish several parameters to run the statistical tests such as the level of confidence, the power and effect size.

The type of power analysis used for this research was the a priori type, as the population for this study was unknown, for two statistical tests including the bivariate correlation and multiple regression analysis.

The level of confidence selected for this study was 95% with a significance level of .05%. For the correlation analysis, the effect size assumed was 30%, which conventionally is considered as medium effect size (Buchner *et al.*, 2020). Given the previous parameters, the sample size suggested by G Power was 115 for the correlation analysis and 107 for the multiple regression analysis. More details are found in Appendix C. For this study, the researcher collected a total of 155 respondents which was more than the recommended sample size by G Power which implied a level of confidence of 95%, a significance level of .05%, and a medium effect size.

3.4.3 *Access and Ethical Issues*

The access to the information was mainly through LinkedIn invitations. The participants were informed about the research topic and objectives before they participate as they had to accept an informed consent form. Even after agreeing to participate, participants were informed that they were free to withdraw from the study at any point. Participants were not pressured to participate, and they were invited only if they met the criteria established in the data collection as explained in the information sheet. Part of the data collected was sensitive as it was based on the skills and models used by the respondents. Nevertheless, to tackle this risk, this research was anonymous and was not focused on compromising ethical standards of the participants.

3.4.4 *Nature of data*

The nature of the data collected for this study was mainly quantitative data which was gathered from primary sources that met the sample criteria. The questionnaire included different types of questions including pre-coded questions, close-ended questions, and an open-ended question. The data collected by those questions was nominal and ordinal data. In addition, the open-ended question was added to gain insights regarding the elements within the annual report that could help to improve the respondent's ability to predict business failure.

3.4.5 *Measures and variables*

Following is the description of the sections included in the questionnaire and the variables that each section attempted to cover according to the conceptual framework.

Demographic variables

Demographic information was collected from respondents in Section I of the questionnaire by seven closed and pre-coded questions. Those questions included information about region, age range, experience, degree of studies, type of analyst or investor, industry sector that they were covering and the number of companies that they were covering as well. The purpose of collecting demographic data was to make a better classification of the respondents and understand the role, experience, and region. The nature of the data collected in those questions was nominal.

Dependent variables

Use of business failure prediction models('y'). The dependent variable was selected based on the literature review and is illustrated in the conceptual framework. The variable measures the use of business failure prediction models in the Section II of the questionnaire which consisted of six items. Likert scale was used in this section and the scale ranged from 1 ("Strongly disagree") to 5 ("Strongly agree"). Three of the six questions were written in negative, therefore, to analyse the scores, the questions were coded based on the reversed score. The purpose of this variable is to evaluate the perception regarding the use of business failure prediction models. The nature of the data collected in those questions was ordinal.

Independent variables

Annual report transparency ('x_1'). The independent variable annual report transparency was selected based on the literature review and is illustrated in the conceptual framework. The variable measures transparency through user's perception regarding the level of disclosure and the use of boilerplate information in the annual reports. The variable was measured in the Section III of the questionnaire which consisted of six questions using the Likert scale which ranged from 1 ("Strongly disagree") to 5 ("Strongly agree"). The purpose of this variable was to evaluate the perception regarding annual report transparency and the nature of the data collected in those questions was ordinal.

Annual report readability ('x_2'). The independent variable annual report readability was selected based on the literature review and is illustrated in the conceptual framework. The variable measures readability through user's perception regarding the length, required skills and the language complexity in the annual reports. The variable was measured in the Section IV of

the questionnaire which consisted of seven questions using the Likert scale which ranged from 1 ("Strongly disagree") to 5 ("Strongly agree"). The purpose of this variable is to evaluate the perception regarding annual report readability and the nature of the data collected in those questions was ordinal.

3.5 Approach to Data Analysis

The data collected in this study was analysed using descriptive and inferential statistics as the information collected was mainly quantitative. Descriptive statistics were used to summarize the profile of respondents and the variables. Inferential statistics were used to test the hypothesis and answer the research questions. The software used to interpret the data collected was Excel and SPSS.

The statistical test used in this research to test the hypothesis was the Pearson correlation analysis (Hypothesis 1-3) and the multiple regression analysis (Hypothesis 4). The purpose of using those analysis was to first examine the relationships between the variables and second to examine how much of the dependent variable (use of business failure prediction models) can be explained by changes in the independents variables (transparency and readability).

In order to test the relationship between variables and answer the research questions, the model proposed for this study is illustrated in **Figure 2**. The purpose of the model is to explain the relationship between the dependent variable and the independent variables through a correlation and a multiple regression analysis.

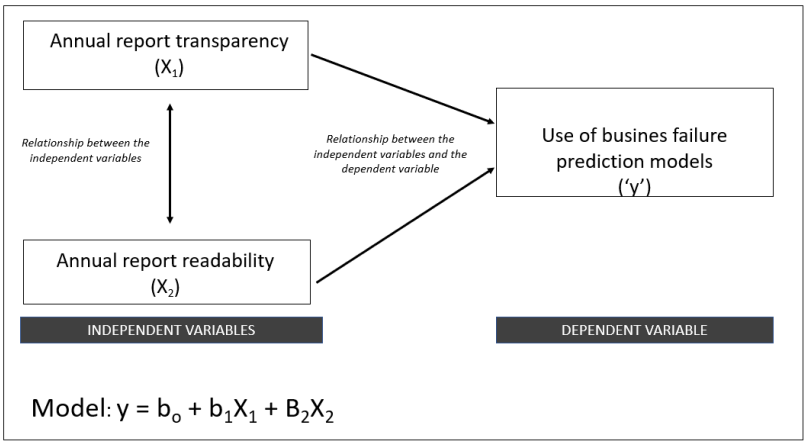


Figure 2: Research Model to explain the relationship between variables

Where: y= use of business failure prediction models; b_o = the intercept; b_1=coefficient transparency; X_1=annual report transparency; b_2=coefficient readability; X_2=annual report readability.

However, to be able to test the model through the multiple regression analysis several checks and assumptions were covered (Brandon C. Foltz, 2015) by conducting the following:

1. **Evaluation of the relationships between each independent variable and the dependent variable.** In this case this researcher evaluated first, the relationship between annual report transparency('x_1') and use of business failure prediction models('y') and second, the relationship between annual report readability('x_2') and the use of business failure prediction models('y'). The analysis to examine the relationships was made through scatter plots analysis and Pearson correlation analysis. To have significant dependent variables it is important that the results of the correlations between the dependent and the independent variables were significant and stronger, according to the guide developed by (Cohen, 1988).

2. **Evaluation of the relationships among independent variables.** In this case the researcher evaluated the relationship between annual report transparency('x_1') and annual report readability('x_2'). The analysis to examine the relationships was made through scatter plots analysis and through Pearson correlation analysis. To have significant independent variables for the study, the independent variables must not be highly correlated. This relationship will be further analysed in one of the assumptions in the multiple regression analysis (4.2.7 Section III: multicollinearity) which imply no multicollinearity.

3. **Conduct multiple linear regression for both independent variables.** In this case, the researcher ran a multiple linear regression for both independent variables to explain variances in the dependent variable and answer the research question. To measure how the dependent variable change by changes in the independent variables, the researcher analysed the coefficients (F-value, p-value) and the R^2 and the R^2 adjusted. The model ran in the multiple regression was as follows:

   1) $y = b_o + b_1X_1 + b_2X_2$

   Where: y= use of business failure prediction models; b_o = the intercept; b_1=coefficient transparency; X_1=annual report transparency; b_2=coefficient readability; X_2=annual report readability.

Moreover, an analysis of the open-ended question was conducted to find opportunity areas for future research and insights regarding the answers of the respondents on how their ability to predict business failure can improve using the annual report.

3.6 Conclusion

This research is mainly a quantitative analysis based on primary data collected that will be analysed by a correlation and a multiple regression analysis. Correlation and multiple regression

analysis are appropriate for this research as this analysis attempt to explain the relationship between variables. The variables studied were previously identified in the literature review and in the conceptual framework and were the base of the research questions and hypothesis developed for this study. After the data analysis, this study would be able to test the hypothesis mentioned in the conceptual framework to answer the research questions.

4 Presentation and Discussion of the Findings

4.1 Overview

In this section, the researcher presents the results of the different statistical analysis performed in order to answer the research questions by testing the hypothesis stablished in the conceptual framework. Some of the statistical analysis performed in this study include the following. First, Pearson correlation analysis to test the relationship between variables; Second, scatter plot analysis in order to have a visual representation of the relationship of the variables; Third, several analysis to test the multiple regression assumptions, including normality test, multicollinearity and independence of observations; and finally, the multiple regression analysis and the assessing of the model through the analysis of the summary and the coefficients. Moreover, this section presents the discussions of the findings, after applying the methodology and analysing the studied variables. Additionally, this section also provides answers and insights to have a better understanding of the findings regarding the research questions studied of this research.

4.2 Findings

4.2.1 *Preliminary analysis and coding*

The total number of respondents for this study was 189. However, 34 responses were eliminated because they did not meet the sample criteria or because they left blank answers. Excluding these, the total number of respondents for this study was 155 which represented 40 more than the suggested number of respondents calculated in the sample size, previously mentioned in Section 3.4.2 Sample and population.

The answers of the respondents were exported from Google Docs to Excel to code the data according to the Likert scale used in each of the questions. In cases where the questions were negative, the reverse score technique was used to analyse the scores of the questions. The reverse score technique was used for two items measuring the variable ‘use of business failure prediction models’ as they were negatively phrased.

To generate the total scores for each of the studied variables, new variables were created in SPSS for each of the studied variables which total score of all items used.

4.2.2 *Reliability of the scale*

Chronbach’s Alpha coefficient was used to test the reliability of the questions used to measure each of the studied variables and to examine if the questions properly measure the studied

variables, especially as this research developed its own questionnaire (Taber, 2018). As the items to measure each of the variables were less than 10, the acceptable Chronbach's Alpha coefficient was considered $\alpha>0.5$ given that in scales with less than 10 items, Chronbach's Alpha coefficient is usually low and less than 0.5 (Pallant, 2010). For this research, all the items per variable remained for the study, except for item 1 ('Business failure prediction is a complex process') of the variable 'use of business failure prediction models' which was removed to improve the Chronbach's coefficient of this variable. More details can be found in **Table 1** below.

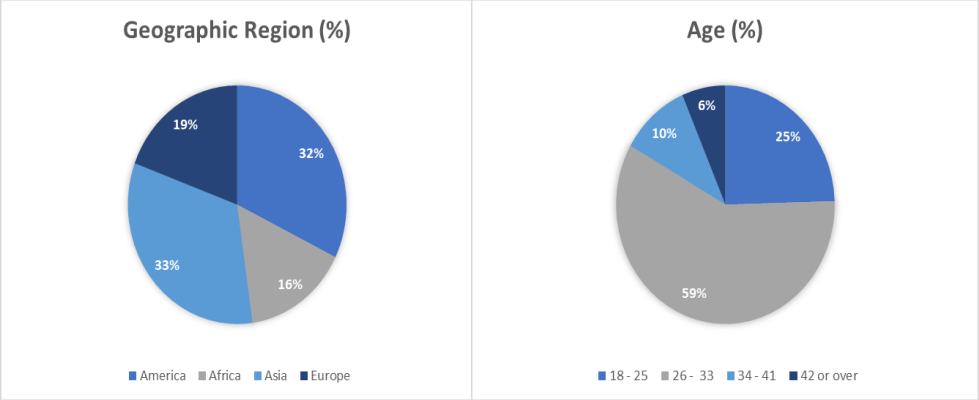
Table 1: Chronbach's coefficient

Variable	Cronbach's Alpha	N of items
Business failure prediction	0.515	5
Transparency	0.582	6
Readability	0.691	7

4.2.3 *Descriptive statistics*

The respondents were distributed across the world, 33% of the respondents were based in Asia; 32% in America (including North America and Latin America); 19% in Europe; and 16% in Africa. Most of the respondents were between 26 and 33 years old. This segment of the respondents represented 59%, followed by respondents between 18 and 25 years old which represented 25%. Respondents around 34 and 41 years old represented 10% and 42 years old or over were 6% of the respondents. This could be explained as a result of conducting the online survey through LinkedIn. More details can be found in **Table 2** below.

Table 2: Profile of the respondents

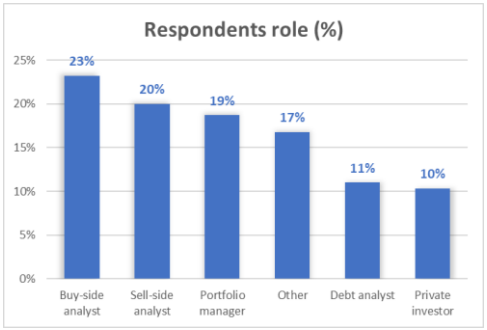


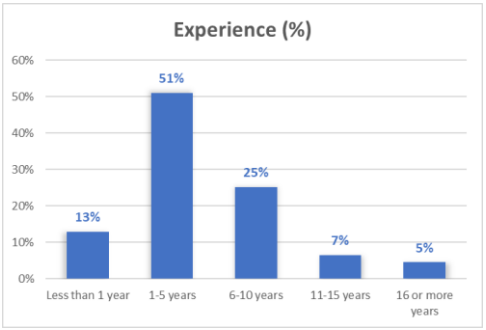
The role of the respondents was classified as Buy-side analyst, Sell-side analyst, Debt analyst, Portfolio manager, Private investor, and Other. Most of the respondents were distributed across all categories as the role of the respondents were 23%, 20%, 11%, 19%, 10%, and 17%,

respectively. However, as the Other category was a closed question, this study was not able to identify what another role the analyst could have. More details can be found in **Table 3** below.

Regarding the years of experience, most of the respondents had 5 to 10 years of experience as this was represented by 51% of the respondents, followed by 6 to 10 years of experience by 25% and less than 1 year with 13% of the respondents. Respondents with 11 to 15 years of experience represented 7% of the respondents and respondents with more than 15 years represented 5%. More details can be found in **Table 3** below.

Table 3: Respondents role and years of experience





(1) Other include specific type of role that was not included in the list. Other can not be specifically identified as the answer was closed.

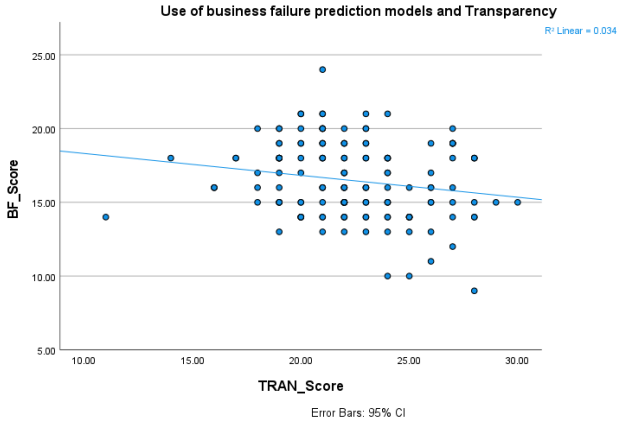
Overall, the demographic profile of participants included participants from all over the world from different ages, distributed among different roles and with different years of experience.

4.2.4 *Annual report transparency and the use of business failure prediction models*

To answer the research question 'how does annual report transparency relate to the use of business failure prediction models?' through testing Hypothesis 1 as established in the conceptual framework regarding the relationship between one of the independent variables (annual report transparency) and the dependent variable (use of business failure prediction models), a scatter plot and a correlation analysis were conducted.

The scatter plot analysis was selected as it helped to explore the relationship between variables, as the plot give a visual insight before calculating the correlations (Pallant, 2010). After running the scatter plot for the research question 1, a relationship between the studied variables was found. However, this graphical data was needed to be tested by the Pearson's r correlation coefficient in order to describe the strength and the direction of the relationship between variables (Pallant, 2010). For this study, the correlation between the studied variables was examined to test Hypothesis 1 and to understand the relation between variables in order to answer the research question. More details can be found in **Table 4** below.

Table 4: Research question 1: scatter plot



BF_Score=Use of business failure prediction models; TRAN_Score= Transparency

The Pearson correlation test enabled the research to understand the direction and strength of the relationships by calculating a coefficient based on a significance level. This research used the generally accepted significance level of $p<.05$ (Pallant, 2010). The Pearson correlation for the variables revealed that there is a significant negative correlation between annual report transparency and the use of business failure prediction models as $r=-.185$, $p<.05$. However, the strength of the correlation could be considered as very weak (Evans, 1996) or small (Cohen, 1988). More details can be found in **Table 5** below.

Table 5: Pearson correlation

		1	2	3
1	TRAN_Score	-	.268**	-
2	READ_Score	.268**	-	-0.067
3	BF_Score	-.185*	-0.067	-

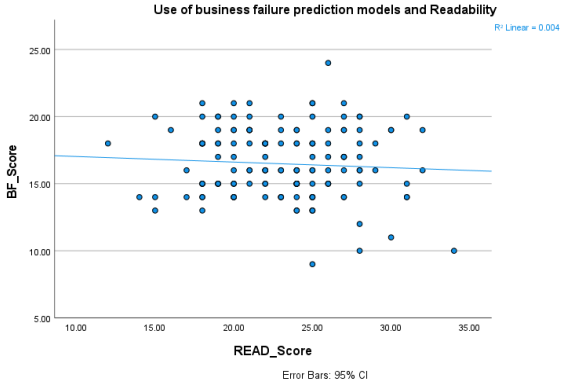
*. Correlation is significant at the p<0.05 level (2-tailed); and **p<0.001 level (2-tailed).
BF_Score=Use of business failure prediction models; TRAN_Score= Transparency;
READ_Score=Readability

4.2.5 *Annual report readability and the use of business failure prediction models*

To answer the research question 'how does annual report readability relate to the use of business failure prediction models?' through testing Hypothesis 2 as established in the conceptual framework regarding the relationship between one of the independent variables (readability) and the dependent variable (use of business failure prediction models) a scatter plot and a correlation analysis were conducted.

The scatter plot analysis demonstrated that there was not clear relationship between readability and the use of business failure prediction models. However, the graphic was tested by the Pearson's r correlation coefficient. The Pearson correlation test revealed that there was not a significant correlation between annual report transparency and the use of business failure prediction models as $r=-.067$, $p>.05$. More details can be found in **Table 5** and **Table 6** below.

Table 6: Research question 2: scatter plot



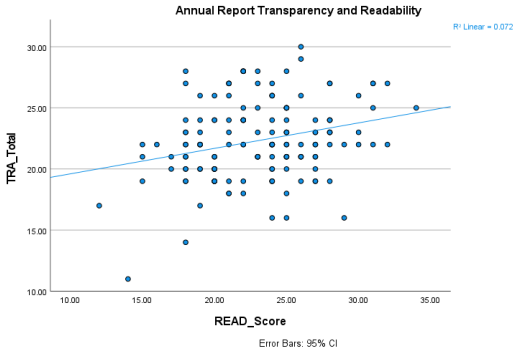
BF_Score=Use of business failure prediction models; TRAN_Score= Transparency

4.2.6 *Annual report transparency and annual report readability*

To answer the research question 'what is the relationship between annual report transparency and annual report readability?' through testing Hypothesis 3 as established in the conceptual framework regarding the relationship between the independent variables (transparency and readability), a scatter plot and a correlation analysis were examined.

The scatter plot analysis demonstrated a relationship between the studied variables. In addition, the graphical data was tested by the Pearson's correlation. The Pearson correlation test revealed that there is a significant positive correlation between annual report transparency and annual report readability as r=.268, p<.05. However, the correlation could be considered as weak (Evans, 1996) or small (Cohen, 1988). More details can be found in **Table 5** and **Table 7**.

Table 7: Research question 3: scatter plot



4.2.7 *Annual report transparency and readability and the use of business failure prediction models*

To answer the research question 'how does annual report transparency and readability affect the use of business failure prediction models?' through testing Hypothesis 4 as established in the conceptual framework regarding how much variance in the dependent variable (use of business failure prediction models) can be explained by changes in the independent variables (transparency and readability) this study conducted a multiple regression analysis. The multiple regression analysis was selected to answer this research question as the analysis enable the

researcher to explore the interrelationship between a set of variables. Nevertheless, to conduct a multiple regression, several assumptions regarding the information were tested first. ((Pallant, 2010); (Field, 2017)) as follows:

I. Variable types

For this research, the variables studied included two independent variables (transparency and readability) and one dependent variable (use of business failure prediction models). The variables were measured through the sum of the scores and all the scores were quantitative scale variables. Therefore, this study is in line to conduct a multiple regression analysis as all the predictors variables must be quantitative (Field, 2017).

II. Independence of observations

Regarding the assumption of a lack of autocorrelation between variables, this assumption was tested with the Durbin-Watson statistic as this statistic test serial correlations between error. The values for this statistic vary between 0 and 4 and generally, values close to 2 are not considered as correlated (Field, 2017). The Durbin-Watson statistic for the studied variables was 1.75. Therefore, there is independence of observations and the variables comply with the assumption to conduct the multiple regression analysis. More details can be found in **Table 8** below.

Table 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.186[a]	.035	.022	2.50343	1.758

a. Predictors: (Constant), TRAN_Score , READ_Score

b. Dependent Variable: BF_Score

BF_Score=Use of business failure prediction models; TRAN_Score= Transparency; READ_Score=Readability

III. Multicollinearity

There should be no multicollinearity between the independent variables. Consequently, there must not be strong correlation between variables (Field, 2017). Multicollinearity exists when the correlation between the independent variables is r=.9 or above (Pallant, 2010). For this study, there is no multicollinearity as the Pearson correlation coefficient was r=.268, p<.05. More details can be found in **Table 5**.

Additionally, this research tested collinearity by using the SPSS variance inflation factor (VIF). Generally, VIF greater than 10 and below 0.2 indicates serious problems (Field, 2017). As each of the values for the studied variables are less than 10 and more than 0.2 then the assumption is

met indicating no problems of multicollinearity between the independent variables. See **Table 9** below.

Table 9: Collinearity statistics

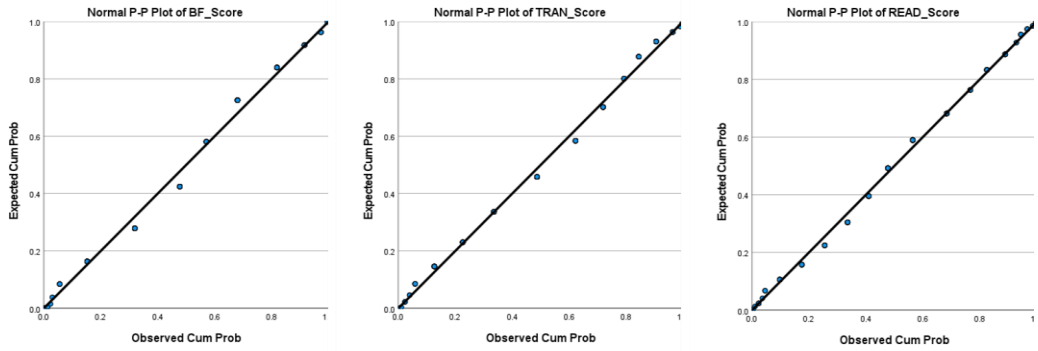
	Collinearity Statistics	
Model	Tolerance	VIF
(Constant)		
READ_Score	.928	1.078
TRAN_Score	.928	1.078

BF_Score=Use of business failure prediction models; TRAN_Score= Transparency; READ_Score=Readability

IV. Normally distributed errors

Another assumption to conduct multiple regression analysis require that errors are normally distributed. The errors for the variables studied in this research were normally distributed as the P-P Plot showed that the points are generally following the line (UCLA, 2020). More details can be found in **Table 10**.

Table 10: Normal P-P Plot

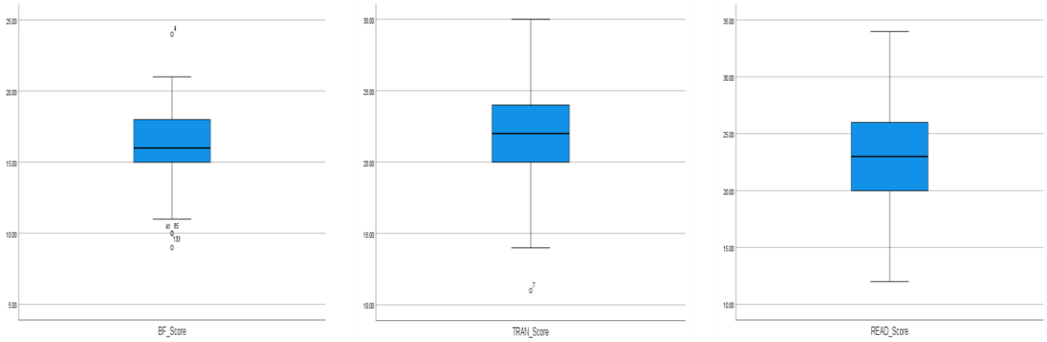


BF_Score=Use of business failure prediction models; TRAN_Score= Transparency; READ_Score=Readability

V. Outliers

Outliers are extreme scores for the studied variables that could be considered as unusual points which can impact the multiple regression as the multiple regression in very sensitive to outliers (UCLA, 2020). The outliers for this research were analysed by using the Outliers Explore Statistics in SPSS. Outliers were found for transparency (1) and the use of business failure prediction models (4). However, the outliers can remain in the model as the Casewise Diagnostics indicates that outliers are between -3 and 3 standard deviations can remain in the model (e.g. ReStore (2011), Field (2017), Tabachnick *et al.* (2019)). More details can be found in **Table 11**.

Table 11: Outliers

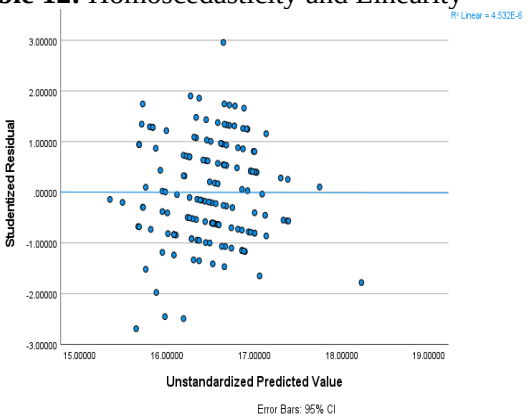


BF_Score=Use of business failure prediction models; TRAN_Score= Transparency; READ_Score=Readability

VI. Homoscedasticity and Linearity

Homoscedasticity and Linearity is measured by the variance of the residuals by the unstandardized predicted value and the studentized residual. For this study, the variance of the residuals is constant as the spread of the residuals is similar across the model (Field, 2017). More details can be found in **Table 12.**

Table 12: Homoscedasticity and Linearity



VII. Assessing the model

After testing and meeting the required assumptions to conduct the multiple regression model, a multiple regression was conducted to examine the multiple regression model established in the methodology section, to answer the research question ‘how does annual report transparency and annual report readability affect the use of business failure prediction models?’ and test the Hypothesis 4. To assess how the multiple regression model can explain if annual report transparency and annual report readability affect the use of business failure prediction models, this study analysed the descriptive statistics for regression analysis, the significance of the multiple regression model and the summary of the model and the coefficients. More details can be found in **Table 13, Table 14** and **Table 15** below.

Table 13: Descriptive statistics

	N	Mean	Std. Deviation
BF_Score	155	16.484	2.531
TRAN_Score	155	22.329	3.156
READ_Score	155	23.077	4.064
Valid N (listwise)	155		

BF_Score=Use of business failure prediction models; TRAN_Score= Transparency; READ_Score=Readability

The ANOVA test was conducted to test the significance of the model. For this study, the ANOVA revealed that the results are not statistically significant as ($F(2,152)=2.720$, $p>.05$). Therefore, changes in the independent variables do not explain changes in the dependent variable (Pallant, 2010). More details can be found in **Table 14:** ANOVA below.

Table 14: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	34.099	2	17.050	2.720	.069[b]
Residual	952.610	152	6.267		
Total	986.710	154			

a. Dependent Variable: BF_Score

b. Predictors: (Constant), TRAN_Score , READ_Score

BF_Score=Use of business failure prediction models; TRAN_Score= Transparency; READ_Score=Readability

To explain how much of the variance in the results was explained by the model, this study showed that predictors (annual report transparency and annual report readability) are useless at predicting variances in the outcome variable (use of business failure prediction models) as the R Square value is .035. This is also supported by the Adjusted R Square of .022 which indicates that 2.2% of the variance in the dependent variable (use of business failure prediction models) was explained by the independent variables (transparency and readability). More details can be found in **Table 15**.

Table 15: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.186[a]	.035	.022	2.50343

a. Predictors: (Constant), TRAN_Score , READ_Score

b. Dependent Variable: BF_Score

BF_Score=Use of business failure prediction models; TRAN_Score= Transparency; READ_Score=Readability

Moreover, to know which of the predictor variables was contributing to this result this study analysed the Coefficients. The coefficient analysis demonstrated that annual report transparency did significantly affect the use of business failure prediction models (*Beta* =-.144, $t(155)$=-

2.177, $p<.05$). However, annual report readability did not significantly affect the use of business failure prediction models (*Beta*= -.018, $t(155)$= -.223, $p>.05$). More details are found in **Table 16**.

Table 16: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	19.974	1.644		12.147	0
	READ_Score	-0.012	0.052	-0.018	-0.223	0.824
	TRAN_Score	-0.144	0.066	-0.18	-2.177	0.031

BF_Score=Use of business failure prediction models; TRAN_Score= Transparency; READ_Score=Readability

4.2.8 *Other findings: study of specific items*

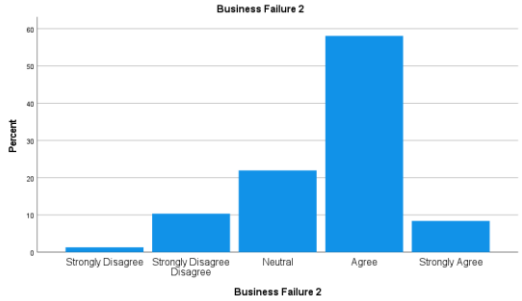
Other findings include the analysis of specific questions regarding each of the studied variables. Analysing the answers of specific questions is relevant for this research as it provides insights and potential explanations to the findings in order to have a better understating to answer the research questions. Some of the most relevant questions used to measure the studied variables were analysed by descriptive analysis based on the respondent's percentage.

Use of business failure prediction models

Three items were analysed for the use of business failure prediction models variable. This study analysed first item 2 ('The annual report incorporates information to predict business failure'), followed by item 3 ('Bankruptcy models are not applied by most of analysts and investors'), and finally by item 5 ('The utilization of bankruptcy models impact business failure prediction').

The analysis of item 2 revealed that 67% of the respondents Agree (58.1%) or Strongly Agree (8.4%), while 21.9% were Neutral, and 12% Disagree (10.3%) or Strongly Disagree (1.3%) with the statement 'The annual report incorporates information to predict business failure'. See **Table 17**.

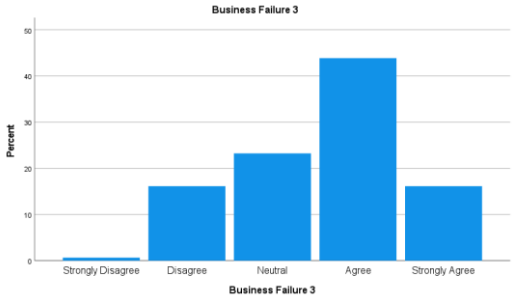
Table 17: Descriptive analysis for item 2 (%)



Business Failure 2: 'The annual report incorporates information to predict business failure'

Regarding item 3, 60% of the respondents Agree (43.9%) or Strongly Agree (16.1%) that most of the bankruptcy models were not applied by most analysts and investors. See **Table 18.**

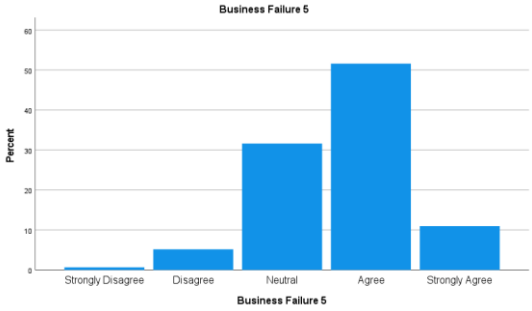
Table 18: Descriptive analysis for item 3 (%)



Business Failure 3: 'Bankruptcy models are not applied by most of analysts and investors'

Finally, regarding item 5, 63% of the respondents Agree (51.6%) or Strongly Agree (11.0%), while 31.6% were Neutral, and 6% Disagree (5.2%) or Strongly Disagree (0.6%) with the statement that the utilization of bankruptcy models impact business failure prediction. See **Table 19**.

Table 19: Descriptive analysis for item 5 (%)



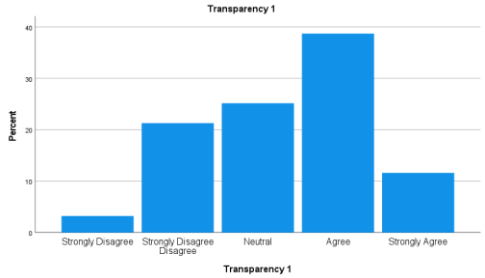
Business Failure 5: 'The utilization of bankruptcy models impact business failure prediction'

Annual report transparency

Three items were analysed for the variable annual report transparency. This study analysed first, item 1 ('Most of the information released in the annual report is boilerplate text'), followed by item 4 ('The information disclosed in the annual report is insufficient to predict business failure'), and finally item 6 ('Information transparency is crucial to predict business failure').

The analysis of item 1 revealed that 50% of the respondents Agree (38.7%) or Strongly Agree (11.6%), while 25% of the respondents where Neutral and 25% Disagree (21.3%) or Strongly Disagree (3.2%) with the statement that 'Most of the information released in the annual report is boilerplate text'. See **Table 20**.

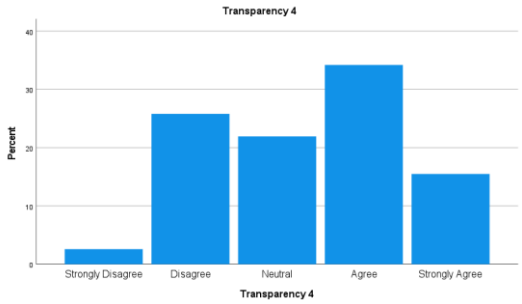
Table 20: Descriptive analysis for item 1(%)



Transparency 1: 'Most of the information released in the annual report is boilerplate text'

Regarding item 4, 50% of the respondents Agree (34.2%) or Strongly Agree (15.5%), while 22% of the respondents where Neutral and 28% Disagree (25.8%) or Strongly Disagree (2.6%) believed that the information disclosed in the annual report is insufficient to predict business failure. See **Table 21**.

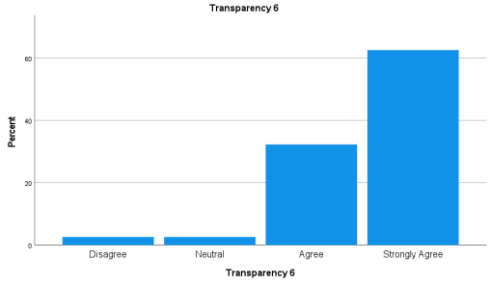
Table 21: Descriptive analysis for item 4(%)



Transparency 4: 'The information disclosed in the annual report is insufficient to predict business failure'

Finally, regarding item 6, 95% of the respondents Agree (32.3%) or Strongly Agree (62.6%), while 2.6% of the respondents where Neutral and 2.6% Disagree that the information transparency is crucial to predict business failure. See **Table 22.**

Table 22: Descriptive analysis for item 6(%)



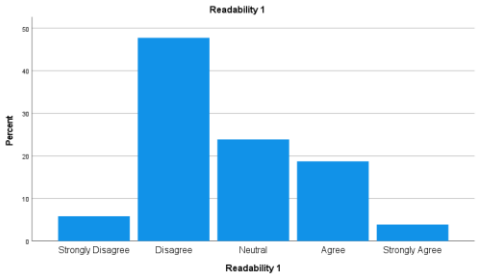
Transparency 6: 'Information transparency is crucial to predict business failure'

Annual report readability

Four items were analysed for the variable annual report readability. This study analysed first, item 1 ('The annual report is written using complex language'), followed by item 4 ('The skills and knowledge of annual report users influence their ability to predict business failure'), item 5 (The length of annual reports is excessive'), and finally item 7 ('Increasing readability in annual reports will improve business failure prediction').

The analysis of item 1 revealed that 23% of the respondents Agree (18.7%) or Strongly Agree (3.9%), while 23.9% of the respondents where Neutral and 54% Disagree (47.7%) or Strongly Disagree (5.8%) with the statement that the annual report is written using complex language. See **Table 23**.

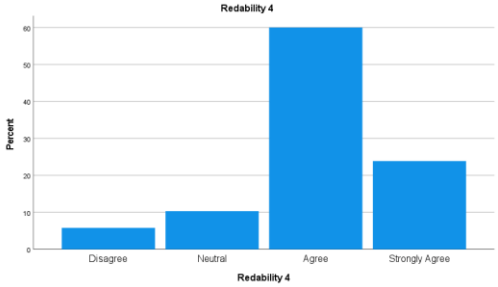
Table 23: Descriptive analysis for item 1(%)



Readability 1: 'The annual report is written using complex language'

Regarding item 4, 84% of the respondents Agree (60.0%) or Strongly Agree (23.9%), while 10.3% of the respondents where Neutral and 5.8% Disagree with the statement that the skills and knowledge of annual report users influence their ability to predict business failure. For this item, none of the respondents answered Strongly Disagree. See Table **24**.

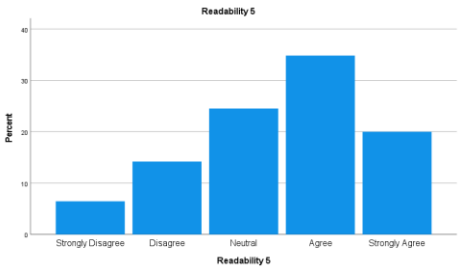
Table 24: Descriptive analysis for item 4 (%)



Readability 4: 'The skills and knowledge of annual report users influence their ability to predict business failure'

Moreover, answers to item 5 showed that 55% of the respondents Agree (34.8%) or Strongly Agree (20.0%), while 24.5% of the respondents where Neutral and 21% Disagree (14.2%) or Strongly Disagree (6.5%) with the statement that the length of annual reports is excessive. See **Table 25**.

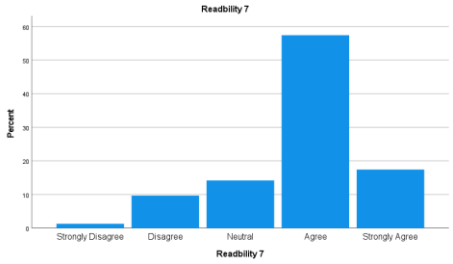
Table 25: Descriptive analysis for item 5(%)



Readability 5: 'The length of annual reports is excessive'

Finally, regarding item 7, 75% of the respondents Agree (57.4%) or Strongly Agree (17.4%), while 14.2% of the respondents where Neutral and 11% Disagree (9.7%) or Strongly Disagree (1.2%) with the statement that increasing readability in annual reports will improve business failure prediction. See **Table 26**.

Table 26: Descriptive analysis for item 7(%)



Readability 7: 'Increasing readability in annual reports will improve business failure prediction'

4.2.9 *Other findings: study of open-ended question*

Other findings also include the study of the open-ended question ('In your opinion and based on the information provided in annual reports, what is the best factor that could increase your ability to predict business failure'). The answers to the questions were classified by groups and four main groups of improvement areas were identified including transparency, disclosure, presentation of the financial statements and complementary information. Following is a summary of the topics and relevant comments provided by the respondents to be considered for further analysis.

I. Transparency

More transparency regarding the firm specific risks and the forward-looking statements and assumptions was one of the most common answers. Following are the comments quoted by respondents regarding improvement areas within transparency that could improve user's ability to predict business failure.

Transparency regarding firm specific risks

> *"While a typical business failure can be seen as a process and becomes evident through time, the real difficulty resides in assessing the risk exposure to "black swans"*
>
> -Sell-side analyst, Latin America, 1-5 years of experience

> *"Disclosure of new technological changes that can disrupt the industry"*
>
> -Sell-side analyst, Latin America, 1-5 years of experience

"More information on early risk signals in the portfolio and more granular breakdown of income sources"

-CFA, Asia, 1-5 years of experience

"Full transparency on company's obligations (including contingent) that would provide a good view on the company's financial position"

-Buy-side analyst, Asia, 6-10 years of experience

Transparency regarding forward-looking statements and assumptions

"I think the way to improve my ability to predict business failures would be transparency on the drivers behind the growth of the company. While it is understandable that information of that nature is proprietary and could affect the competitive advantage of a company, it can be argued that this would hinder investors from making optimal decisions about their portfolio. Annual reports, while comprehensive, are carefully constructed by companies, and because of accounting standards, I think that many companies stick to the minimum required disclosures with boilerplate language. This makes it difficult for any retail investor to do his or her own research and analysis on companies, so many have to rely on those with expertise in the market."

-Latin America, CFA covering more than 15 firms

II. Disclosure

More disclosure regarding the level of debt and maturity, about qualitative information and about Key Performance Indicators (KPIs) and operating measures was suggested by several users in order to improve their ability to predict business failure as quoted by respondents below.

Disclosure on debt (level of debt, maturity):

"More in depth on their relationship with creditors"

-Private investor, Asia, 1-5 years of experience

"A full disclosure of off-balance debt would positively improve analyst predictions"

-Sell-side analyst, North America, 1-5 years of experience

"Availability of secured credit lines, short-term minimum fixed payments by concept. Also, contract details."

-Sell-side analyst, Latin America, 6-10 years of experience

Disclosure on qualitative information (MD&A):

"The qualitative information poured by the company's management team in the MD&A section."

-Portfolio Manager, Latin America

Disclosure on KPIs metrics:

"They should disclose more operating measures, not all companies do it"

-Portfolio Manager, Europe, 1-5 years of experience

III. Presentation of the financial statements

Improvements on the presentation of the financial statements were also discussed by several respondents as they suggest the inclusion of historical information within the financial statements, notes to accounts, reporting standardization and the inclusion of financial ratios could improve their ability to predict business failure, as quoted by respondents below.

Presentation of the financial statement: historical information

"Instead of having a "free cash flow statement" taking into account only the current year, it should be asked a free cash flow statement discounting futures cashflows (from now to 10 years a head)"

-Debt Analyst, Latin America, 6-10 years of experience

Presentation of the financial statement: Note to accounts

"Look at the annual reports' footnotes, annexes, and additional statements (holding structure, affiliates' debt and cashflow, guarantees, etc) that help give a much better picture of bankruptcy risk on a consolidated level. Companies try to hide these risks but have to be disclosed as per auditors' requirements."

-Portfolio Manager, Europe, CFA, with 11-15 years of experience

"Understanding certain accounting procedures that are usually disclosed in the notes of Financial Statements"

-Portfolio Manager, Latin America

Presentation of the financial statement: standardization

"The standardization of annual report contents across regions. Usually companies that are required to publish 10-K/20Fs under the SEC rules provide a lot more detail than companies reporting under their local market rules, especially in Latin America."

-Sell-side analyst, Latin America, 6-10 years of experience

"Standardising annual reports for comparability and following US 10K reporting standards would be great."

-Buy-side analyst, Europe, 1-5 years of experience

Presentation of the financial statement: Capital structure and Financial ratios

"All reports should include leverage and capitalization metrics"

-Sell-side analyst, Latin America

"Best elements to predict business failure is the true financials of the company which must be signed-on by the Auditors as being correct"

-Buy-side analyst, Africa, 6-10 years of experience

"Ability to cover short term obligations and steady income streams"

-Private investor, Latin America, 6-10 years of experience

IV. Complementary information

The release of complementary information including benchmarking and economic indicators was suggested by several respondents in order to improve their ability to predict business failure based on the annual report as quoted by respondents below.

Complementary information: Benchmarking

"There should be comparison between company's performance with peers to analyse numbers with industry standards"

-Debt analyst, Asia, 1-5 years of experience

"Understanding competitive landscape and company's position"

-Buy-side analyst, North America, 6-10 years of experience

Complementary information:economic indicators and macroeconomic environment

"It is true that sometimes Financial Statements means getting trustworthy information but not always in a timely manner. So, it is important to read that information in the context of macroeconomics and sector's indicators. Frequently, what helps is looking for information that complements annual reports. For instance, in the case of the agriculture business, the expected yield of the current campaign."

-Portfolio Manager, Latin America, 1-5 years of experience

4.3 Discussion

Following is the discussion section regarding the findings of this research in order to answer each of the research questions.

- **How does annual report transparency relate to the use of business failure prediction models?**

There is significant correlation between annual report transparency and the use of business failure prediction models. However, despite the correlation being statistically significant, the nature of the correlation is weak and negative.

The relationship between annual report transparency and the use of business failure models could be consistent with the literature, as financial statements, within the annual report, are the most reliable source of information which is used as the base for valuations and business failure prediction models (Gassen and Schwedler, 2010). However, it is not clear if these results are in line with previous studies (eg. Lehavy *et al.* (2011)) which stated that the accuracy of the analyst forecasts increases with clear and proper disclosures as the findings of this study suggest that the use of business failure prediction model decrease when the annual report transparency increases.

Regarding the level of the correlation between annual report transparency and the use of business failure prediction models this could be explained because of the several factors involved in the process of business failure prediction. In accordance with the present results, previous studies have demonstrated that business failure process is a complex process that involves many factors (Lajili and Zéghal, 2010). Therefore, the weight and the strength of the correlation of other variables could be stronger than transparency in the use of business failure prediction models. These other variables could include the variables identified in this research. Prior studies have noted the importance of the availability of certain resources and information tools to users in order to process the annual report information as suggested by Tennyson et al. (1990) and Gassen and Schwedler (2010).

The current study found that additional factors related with business failure prediction and the information contained in annual reports include additional disclosure, improvements to the presentation of financial statements, standardisation and comparability among annual reports, and the inclusion of complementary information including benchmarking and macroeconomic environment. Surprisingly, the open-ended question suggested that transparency is one of the most important factors in business failure prediction. Nevertheless, as the researcher developed their own questionnaire it could be the case that the reliability of the questions to measure the variable business prediction impacted the correlation of the variables. Additionally, the

theoretical framework was limited to measure transparency through the perception of two factors including the content of boilerplate text and the level of disclosure in the annual report. However, the findings could be used as a sign regarding the relationship of the variables and aa a basis for further study on developing a better measure of both.

In the case of the negative correlation between the annual report transparency and the use of business failure prediction models, it could be explained as a result of the improvements to disclose more information and the use of the models as suggested by Altman (1984). Additionally, this finding is consistent with that of Hoffmann and Fieseler (2012) who stated that the quality of information is considered as valuable for investors. It is possible, therefore, that as users trust more in a company that is more transparent, the less they use the business failure prediction model.

Another important finding about measuring transparency was that it is still not clear if annual reports are perceived to contain just boilerplate text as the frequency of the responses regarding this statement was not clear. However, the findings of the current study did not support the previous research of Deloitte (2019) which found that there was an excessive use of boilerplate information in the annual reports of companies in the UK. It may be the case therefore that these perceptions vary among users depending on where they are based on, what type of analyst they are, how many years of experience they have or in which industries are they focusing on. This finding has important implications for regulators to develop strategies to assess the amount of boilerplate text used by companies by segmenting users and the geographical regions. These results further support the idea about the scarcity of research on what information of the annual report is used and how is it used as suggested by Cascino *et al.* (2014). However, this finding may be somewhat limited by the exclusion of regulators and auditors in the sample of this study.

Moreover, what is surprising is that most of the respondents agree that the information disclosed in the annual report is insufficient to predict business failure (See **Table 21**). This finding was also reported by Soyode and Ariyo (2014) which revealed that information contained in the annual reports may be insufficient for the needs of the users. Additionally, this finding is consistent with that of Yang *et al.* (2018) who demonstrated that financial statements do not provide all the information to assess a firm. It may be the case, therefore, that these perceptions suggest that regulators must urgently address if users need more information to predict business failure. This result may be explained by the fact that users consider the need to increase transparency in some sections including information regarding the risks, forward-looking statements, and debt as suggested in this study by the respondents (See Section 4.2.9). These data must be interpreted with caution because this research developed its own questionnaire, the

sample size was calculated by using G*power with a medium effect size and regulators and auditors were excluded from the sample.

The present results are significant in at least two major respects. First on the need to develop a universal measure to the annual report transparency and second on the need to assess and compare the current level of transparency in annual reports across the world and industries. Consequently, regulators can understand if users' needs are fulfilled especially in the field of business failure prediction.

- **How does annual report readability relate to business failure prediction?**

Annual report readability and the use of business failure prediction models are not significantly correlated. As a result, changes in annual report readability are not associated with changes in the use of business failure prediction models. In accordance with the present results, previous studies have demonstrated that business failure process is a complex process that involves many factors (Lajili and Zéghal, 2010) which also was supported by the respondents in the studied survey. Therefore, the strength of the correlation of other variables could be more relevant than the annual report readability.

These other variables could include variables mentioned by previous studies (e.g. Tennyson *et al.* (1990); Gassen and Schwedler (2010)) and the variables identified in this research including more disclosure, more transparency, improvements to the presentation of the financial statements and complementary information. Hence, it could conceivably be hypothesised that the interpretation of readability could be impacted by several factors including the user expertise, the region, the background, or degree of studies.

However, what is surprising is that despite not having a significant correlation between annual report readability and the use of business failure prediction models most of the respondents believe that increasing readability in annual reports will improve business failure prediction. This is consistent with Altman (1984), which suggested that the quality and readability of the business failure prediction models could improve if the information disclosed by the companies improved as well. However, these data must be interpreted with caution because of the reliability of the questions to measure the variable readability as this study developed its own questionnaire.

Another important finding (See **Table 23**) was that users do not believe that the language used in the annual report is complex. This finding is contrary to previous studies which have suggested that regulators were concerned regarding the language complexity (SEC, 2003a) and that disclosures were written by using complex and technical terms (Yang *et al.*, 2018) which could suggest that the studied sample was highly sophisticated and knowledgeable regarding the

complexity and language used in the annual report. However, it could be also the case that this characteristic is not just about the sample and is an attribute of the population.

However, most of the users believed that users' skills and knowledge influence the ability to predict business failure. These results are consistent with those of Tennyson *et al.* (1990); Simpson (2000); and Yang *et al.* (2018) which stated that the ability of investors to access and process information depends on their skills and sources and that just the most experienced and qualified users will be able to understand all the information provided in the annual reports. It seems possible that these results are due to the lack of a universal definition on readability and the relevance of several factors impacting the users. Further research should be undertaken to investigate the relationship between users' skills and knowledge and the ability to predict business failure.

Regarding the length of the annual report, these results match those observed in earlier studies (e.g. Cascino *et al.* (2014); Fuller (2018); Deloitte (2019); and David (2001)) regarding the amount of information provided in the reports. These results provide further support for the hypothesis that regulators must be sure that companies disclose enough information to investors and that they comply with the accounting standards as suggested by Fuller (2018) and by Lord (2002).

The results of this study do not explain a significant relationship between annual report readability and the use of bankruptcy models. However, these findings suggest that further research must be conducted in developing a standard measure to assess annual report readability and on studying the relationship between annual report readability and the accuracy of the business failure prediction models.

- **How does annual report transparency relate to annual report readability?**

Annual report transparency and annual report readability are significantly correlated. As a result, changes in annual report transparency are associated with changes in annual report readability. However, despite the positive correlation, the values for the relationships between the variables is weak. This study supports evidence from previous observations (Lehavy *et al.*, 2011) that states that analysts forecasts increase with clear and adequate disclosures.

However, the low level of relationship between the variables can be explained in part by David (2001) and Soyode and Ariyo (2014) which suggested that the increase in the numbers of graphs or the number of pages do not necessarily imply an increase in more accurate and straight-forward information. Therefore, it is understandable that the improvements in transparency may not imply improvements in readability.

Nevertheless, this study showed that respondents believe that annual report transparency and annual report readability are essential in business failure prediction. It is possible, therefore, that both variables can improve the business failure prediction models, but they are not strong enough to fully attribute changes in transparency by changes in readability.

Further research should be undertaken to investigate the relationship between transparency and other variables as suggested by Li *et al.* (2012), Kasznik and Lev (1995), and Skinner (1994). These studies suggested relevant factors for transparency including the role of the disclosures made by competitors and the management dilemma when deciding which information to disclose.

The test was successful as it was able to identify correlations, although low, between variable that enable the researcher to test the hypothesis by the construction of the multiple regression model.

- **How does annual report transparency and readability affect the use of business failure prediction?**

Variances in annual report transparency and annual report readability do not explain changes in the use of business failure prediction models. A possible explanation for this might be that most of the business failure prediction models do not usually use the information provided in the annual report narratives as suggested by Tennyson *et al.* (1990). It is possible, therefore, that most of the business failure prediction models are just used based on the quantitative information provided in the annual report. This result may be explained by the fact that the models developed recently require more sources and technology to interpret it as suggested by Altman *et al.* (2019). Additionally, it could also be explained accordingly by Tennyson *et al.* (1990), which revealed that the access to certain resources to process the qualitative information into quantitative is limited. This observation may support the hypothesis that annual report transparency and readability is not related to the use of business failure prediction models as most of the models are based on quantitative information due to limited resources. These results therefore need to be interpreted with caution due to the impact on the reliability of the questions used to measure the studied variables as this research designed its own questionnaire.

However, what is surprising is that most of the participants believed that most of the investors and analyst do not use the business failure prediction models (See **Table 18**). This could be consistent with the previous literature (Bellovary *et al.*, 2007) suggesting the lack of practicality of the models and the lack of literature regarding the current use of the models. These results are likely to be related to the resources, skills, and information access to integrate the qualitative information contained in the annual report into the business failure prediction models. This is an important issue for future research.

Additionally, in future investigations, it might be possible to test the relationship between annual report transparency and annual report readability on the accuracy of the business prediction models instead on the use of the models. This is an important issue for future research, as in this study, most of the respondents believed that the annual report incorporates information to predict business failure (See **Table 17**).

- **Other findings**

The current study found that additional factors that could be related with the user's ability to predict business failure, based on the information provided in the annual report, include the following. First, respondents mentioned the need of additional transparency regarding the risk assessment of the firm and the forward-looking statements (See Section 4.2.9). This finding was also reported by Deloitte (2019) which suggested that companies do not disclose all the information regarding risks and market overview.

Second, respondents mentioned the need to increase disclosure, especially those regarding debt, operational metrics, and management views. These results are in agreement with those obtained by Barth and Schipper (2008) which associate disclosure to the cost of capital; by Skinner (1994) who also mentioned costs involve in not disclosing properly; and by Li *et al.* (2012) which suggested that companies may not disclose information as competitors can take advantage. Additionally, these results were supported by the SEC (2003a) which identified the MD&A and the accounting policies and the presentation of information as areas that could be significantly improved.

Third, respondents mentioned the need to improve the presentation of financial statements, especially regarding the standardisation and comparability among annual reports and regarding the integration of historical information. These results seem to be consistent with other research which found that companies may have to comply with several accounting standards which imply an increase on the volume of information and may not like users (Fuller, 2018). Additionally, the SEC (2003b) supported these findings as the regulator suggested that the globalization and geographical expansion of some firm increased the complexity in financial reporting as they may have to complain with different regulations in the countries where they operate. Moreover, the study by Pompe and Bilderbeek (2005) supported these findings as they revealed that the annual report may not contain enough information about the performance of a company in prior years.

Lastly, respondents mentioned the need to include complementary information including benchmarking and macroeconomic environment. These results corroborated the ideas of Pompe and Bilderbeek (2005), who suggested that business failure prediction models must be updated

as the market conditions may suddenly change and by SEC (2003b) which suggested that the globalization among companies increased the financial reporting complexity and therefore the comparability between companies in the same industry.

4.4 Conclusion

This study has shown that the more transparency in annual reports the less use of business failure prediction models as it is possible that users tend to rely solely on the annual reports since it gives them all the information that they will need. Additionally, this study has identified that the annual report readability does not impact the use of business failure prediction models. The research has also shown that there is a positive association between annual report transparency and annual report readability. However, variances in these variables do not sufficiently explain changes in the use of business failure prediction models. Nevertheless, it could be argued that the results were influenced by the reliability of the questions used to measure the studied variables.

However, these findings may help us to understand the user's perception whether information disclosed is sufficient to predict business failure and the need of regulators to assess and further study these topics. Additionally, the present study raises the possibility that there could be also four main factors that could significantly impact the user's ability to predict business failure based on the information released in the annual report.

Overall, the present results are significant in at least two major respects. First, on contributing to the literature regarding the use of the business failure prediction model and the use of the annual report information, and second, on contributing in giving a global view on the users' perception across the world.

However, several questions remain unanswered at present, there is abundant room for further progress in determining 1) the relationship between annual report transparency and readability on the accuracy of the business prediction models; 2) the use and integration of qualitative information in business failure prediction models; 3) if the factors identified in this study have stronger relationship with the use of business failure models prediction as compared to transparency and readability; 4) the relationship between users' skills and knowledge and the ability to predict business failure; and 5) the standard measure to assess annual report transparency and readability across different companies over the years.

5 Concluding Thoughts on the Contribution of this Research, its Limitations and Suggestions for Further Research

5.1 Implications of Findings for the Research Questions

The implications of the findings for the research questions are the following:

1. This research demonstrated that annual report transparency and the use of business failure prediction models have significant negative correlation. This finding suggests that users trust more on the annual report information provided by the company, as they consider the information to be more transparent. Consequently, the lesser the use of business failure prediction models as the confidence and trust on the information provided in the annual report is valuable for them which justify decreasing the use of business failure prediction models for those companies.

2. This study has shown that there is not a significant relationship between annual report readability and the use of business failure prediction models. Consequently, the findings of this research suggest that increases in the annual report readability do not impact the use of business failure prediction models. A possible explanation could be that readability does not have an impact on the use of the models but might have an impact on the accuracy of the models. Therefore, additional research could study the relationship between the readability of the reports and the accuracy of the models.

3. One of the more significant implications of the findings that emerged from this study is that there is a significant relationship between annual report transparency and annual report readability. Consequently, improvements in annual report transparency improve annual report readability. However, despite the relationship, the association of the variables is considered weak. One of the possible explanations of this result is that there are other factors involved between the variables that may have a strong association. Additionally, another possible explanation, as suggested by literature, is that improvements in readability do not necessarily means improvements in transparency or improvements in the quantity and quality of such disclosures.

4. Another significant implication of the findings of this study was the result of the multiple regression analysis which revealed that annual report transparency and annual report readability do not predict significance variance in the use of business failure prediction models. An implication of this is the possibility that several factors are related to the use of business failure prediction and consequently is difficult to rely just

on transparency and readability. Additionally, as supported by the results of this study, it could be the case that the associations between other factors and the use of business failure prediction models are more relevant that the ones studied in this research. Other factors could include those identified in this research which include disclosure, transparency, presentation of the financial statements, and complementary information.

5.2 Contributions and Limitations of the Research

Contributions

The findings of this research provide insightful information to financial reporting regulators regarding opportunity areas where annual reports could be significantly enhanced to improve business failure prediction. The findings of this research also provide insights to users and regulators regarding the current use of business failure prediction models and regarding the relevance of the annual report transparency and readability.

The results of this study can be utilised by regulators, companies, governments, analysts, and investors interested in the use and promotion of business failure prediction models based on the annual report information. As a result, regulators could promote transparency, readability, and the use of business failure prediction models to identify in a timely effective manner firms in financial distress in order to prevent and decrease associated costs to stakeholders.

Despite the limitations, this study contributes to the general understanding regarding the relevance and use of annual report information in business failure prediction as previous literature have not studied the interaction of transparency and readability in business failure prediction. Additionally, this study provides insightful information to promote the generation of measures to improve annual report transparency and readability to enhance business failure prediction models. Consequently, there could be a potential decrease in costs for stakeholders and regulators as they could better identify oncoming bankruptcies by having more transparent and readable annual reports.

Limitations

Regarding the limitations of this research, the most important limitation lies in the fact that this study required the design of a survey, as there were no questionnaires available to study the relationship between the variables studied (annual report transparency, annual report readability and the use of business failure prediction).

This study was also limited by the absence of more experience respondents as the study was conducted through an online survey in a professional social network (LinkedIn). Consequently, a segment of the population was more representative than others. Additionally, because of the months were the study was conducted, some of the respondents were on summer holidays and therefore they were difficult to reach. Another limitation about the sample includes the geographic distribution of the respondents as the time difference made it difficult to connect people from certain geographical regions.

Moreover, it was not possible to assess the progress in the perception of the studied variables as this study was a cross-sectional study in a given point in time. Therefore, it was not possible to assess changes in the perception of the studied sample over time or if the perception of the participants changed recently or it has been constant over the years.

Additionally, since the study was limited to analysts, investors and portfolio managers, it was not possible to include to regulators and auditors that are also one of the main users of annual reports and business failure models according to Altman et al. (2019). Moreover, an issue that was not addressed in this study was whether transparency and readability are easy to measure and how companies and users can measure improvements on these variables over time.

Regarding the sample size, this study was limited by the sample size calculation by using the statistical sample size calculator G power with a medium effect size. As this study was limited by time and budget and the population was considered as unknown.

5.3 Recommendations for Practice

This study has clear implications for practice, which were summarised as follows:

I. Standardization to measure transparency and readability

This research supports the need to standardise the measures of information transparency and readability. The findings of this study suggest the lack of a standardise measure to track information transparency and readability in the information released in the annual report. There is a need to develop standard measures to those variables so regulators, companies and users' can assess the quality of information by following a standardise process that enable them to monitor the information released in a universal method that allow users' and regulators to compare the quality across industries and countries. Consequently, there will be less bias and subjectivity regarding how to measure the information quality, specially transparency and readability, and how to assess and assure that the information quality of certain companies is better than others. Additionally, the development of standardised measures on those variables will allow users and regulators to set the minimum standards required by following a standardised and a global process.

II. Definition and availability of business failure prediction models

Continued efforts are needed to make business failure prediction models more accessible to users as this research suggest that just the most experienced and prepared users will be able to run those models. Additionally, it was found that the business failure prediction also needs certain information process tools which make the models less accessible for all users. Additionally, there is also a need to standardise the models and the need of regulators to promote the use of the models to avoid the costs involved for stakeholders when a firm is declared bankrupt.

III. Users of Annual reports and business failure prediction models

The results of this research support the idea that it is relevant to study and include the different type of annual report and business failure prediction models users across the world. It is important to include regulators, auditors, and other users as there could be different information needs among users and the approaches that they take to analyse the information could be different as well. As a result, the perception of the information and the business failure prediction models could be different. Consequently, this could imply asymmetry of information or the need to improve disclosures to fulfil users' needs across professions and regions in order to avoid asymmetry of information and get an understanding about the different use of information.

5.4 Recommendations for Future Research

This research has thrown up many questions in need of further investigation. First, regarding how to monitor improvements in annual report transparency and readability. Second, by taking a longitudinal approach to study the behaviour and changes of those variables over time. Third, to enhance the sample size by including other stakeholders such as auditors and regulators.

Future research should be focused on comparing the level of annual report transparency and readability for different firms and the business failure prediction. Considerably more work will need to be done to determine an effective measure to calculate and monitor improvements in transparency and readability over time to determine how users and regulators should monitor those variables. Future research should stablish a standardise method to measure those variables and allow the comparability among industries and companies to set the minimum standards required and to monitor progress over time.

Additionally, a further study could take a longitudinal study approach to study if there has been a change in the annual report transparency and readability and the business failure prediction over time. Future research should be focused on studying certain industries and the changes on perception over the years regarding annual report transparency, readability, and business failure

prediction in order to know if there has been an improvement over time or by certain industries. Therefore, future research should be focused to analyse if certain industries are perceived as more transparent and readable and therefore easy to predict business failure.

Regarding the sample, further studies need to be carried out including regulators and auditors to have a more complete view and a different perspective as they are more focus on fairness and regulation rather than profits or performance such as analysts, investors, and portfolio managers. Additionally, the sample size calculation method could be carried out by using G power with a small effect rather than a medium effect or by using other sample size methods such as Cochran's sample size formula.

5.5 Final Conclusion and Reflections

The purpose of the current study was to explain if annual report transparency and annual report readability affect the use of business failure prediction models given that business failures and bankruptcies continue to be frequent across the world. The results of this study indicate that transparency and readability together do not explain changes in the use of the business failure prediction models. However, annual report transparency could be associated with changes in the use of business failure prediction models as this study suggests that the more transparent the information of a company is, the less use of business failure prediction models. In the case of annual report readability, this study found that there is no association between the readability of the information and the use of the models. Nevertheless, in the case of the association of annual report transparency and readability, this study found that the variables are associated as more transparency imply more readability. However, the association of the variables was considered as weak as there could be other factors with a stronger level of association. Future studies on the current topic are therefore recommended as additional analysis must be conducted to define how to measure annual report transparency and readability and on how to promote the use of the business failure prediction models. Additionally, future studies must be conducted by increasing the sample by including all users and by finding a standard measure of annual report transparency and readability. Moreover, this study found additional factors that could be related with the use of business failure prediction models. Therefore, future research could study the interaction and relevance of the additional factors included. The study contributes to the general understanding of how annual report information, especially transparency and readability, affect the use of business failure prediction modes. Additionally, these findings contribute in several ways to understand the several factors involve in the use of business failure prediction models and the possible intervention and relevance of others, including the presentation of the financial statement and the release of additional information, as founded by this research.

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Appendices

Appendix A – Consent form

Consent Form

Welcome to the Survey!

Dear respondents:

The research working title is "Perception of external analyst on business failure prediction". The purpose of this study is to explain if the use of bankruptcy models, transparency and readability affect the ability of annual reports users (analyst and investors) to predict business failure.

The research is being conducted by Tania Lizeth Ramírez Silva who is currently studying in the Griffith College Business faculty. The research study will be conducted to receive the degree of MSc Accounting and Finance by Griffith College in Dublin, Ireland. The researcher can be contacted at tania.ramirez@student.griffith.ie or tlramiezs@gmail.com if you have any questions regarding the survey.

Participants should be analyst and investors users of annual reports to participate in this survey. Participants are required to answer a sets of questions about demographic information, perceptions related to the use of annual reports and the interaction of the practicality of bankruptcy models and the transparency and readability of annual reports and an open-ended question in the end.

The survey format is on the form of box-ticking and open-ended question and the estimated time of answering is 5-8 minutes to complete. This survey will be conducted anonymously and voluntary as participants may wish to withdraw from the study at any point. In addition, the information collected will be used for the sole purpose of completing a master's dissertation.

The completion of the survey questionnaire will be taken as an informed consent. If participants have concerns about this study and wish to contact an independent person, please contact Dr. George E. Iatridis at george.iatridis@griffith.ie

Thank you very much for giving your time to participate in this survey.

1.By clicking 'Yes' below, you have read and understand the above information and you agree to participate in this survey

Yes
No

Appendix B – Survey

Screening questions

2. Are you an investor, analyst, or portfolio manager?

Yes

No

3. Do you use corporate annual reports?
Yes
No

Demographic questions

4. In which region are you based on?

North America
Latin America
Africa
Asia
Europe

5. What best describes your current role?

Buy-side analyst
Sell-side analyst
Debt analyst
Portfolio manager
Private investor
Other ___

6. How long have you been working as an analyst, investor, or portfolio manager?

Less than a year
1-5 years
6-10 years
11-15 years
16 or more

7| What is your age?

18-25
26-33
34-41
42 or over

8. What is the highest degree or level of education you have completed?
Bachelor
Postgraduate diploma
MBA or MS.c
CFA
PhD

9. How many companies do you cover or hold?

1-5
6-10
11-15
More than 15

10. Which of the following sectors* are you covering or holding?

** According to the Global Industry Classification Standard (GICS) If other please specific*

Communication Services
Consumer Discretionary
Consumer Staples
Energy
Financials
Health Care
Industrials Consumer Discretionary
Information Technology
Materials
Real State
Utilities
Other __

Section I: Business failure prediction

Instructions: the evaluation of the variable business failure prediction is measured by a 5-point Likert scale. Based on your opinion, please select a rate from (1) "Strongly Disagree", (2) "Disagree", (3) "Neutral", (4) "Agree" or (5) "Strongly Agree" that best describes your view about the following statements.

	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
Business failure prediction is a complex process					
The annual report incorporates information to predict business failure					
Bankruptcy models are not applied by most analysts and investors					
Bankruptcy models are not viable, subsequently business failure prediction is difficult					
The utilization of bankruptcy models impact business failure prediction					
The utilization and viability of bankruptcy models influence business failure prediction					

Section II: Transparency

Instructions: The evaluation of the variable of bankruptcy prediction models it is measured by a 5-point Likert scale. Based on your opinion, please select a rate from (1) "Strongly Disagree", (2) "Disagree", (3) "Neutral", (4) "Agree" or (5) "Strongly Agree" that best describes your view about the following statements.

	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
Most of the information released in the annual reports is boilerplate text					
Business failure prediction could improve with less boilerplate text					
The quality of the disclosures is poor					
The information disclosed is insufficient to predict business failure					
The prediction of business failure could increase if the quality of the disclosures increase					
Information transparency is crucial to predict business failure					

Section III: Readability

Instructions: The evaluation of the variable of bankruptcy prediction models is measured by a 5-point Likert scale. Based on your opinion, please select a rate from (1) "Strongly Disagree", (2) "Disagree", (3) "Neutral", (4) "Agree" or (5) "Strongly Agree" that best describes your view about the following statements.

	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
The annual report is written using complex language					
Language complexity influence the ability to predict business failure					
Just the most experienced users will understand all the information released in annual reports					
The skills and knowledge of annual report users influence their ability to predict business failure					
The length of annual reports is excessive					
If annual reports were shorter, failure prediction will increase					
Increasing readability in annual reports will improve business failure prediction					

Section IV: Open-ended question

13. In your opinion and based on the information provided in annual reports, what is the best factor that could increase your ability to predict business failure?

Appendix C – G Power sample size calculation