ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Bachelor thesis Major accounting

Using ESG-scores to predict future audit risks.

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Date final version: xxxxxxx

Abstract

This paper looks into the relationship between ESG scores and the going concern risks of companies. We suspect that ESG scores have the potential to predict potential bankruptcies or other going-concern risks. We analyze this relationship in two ways: first, by conducting a case study on the Chinese real estate developer Evergrande. It turned out that poor corporate governance was ultimately reflected in the ESG-scores. This can have quite a negative effect on the going concern of a company. Beside this we ran a regression on 40 US companies and their impairments. It turned out that there is a limited relationship between some ESG scores and the impairments of a company. This then leads to the conclusion that non-financial factors need to be included in a going concern assessment, while financial factors are still highly relevant when making this assessment.

Keywords: *ESG, Going concern, Evergrande, CSR, Bankruptcy, corporate governance, impairments, ESG-scors*

Contents

1. Introduction

1.1 A change in finance

From asset management and environmental policy to accounting, few subjects have been able to captivate academia like ESG (environmental social and governance). Nowadays investors are seeking to produce a positive societal impact with their capital (Döttling & Kim, 2021). Some believe that it is their moral duty to invest their capital in a sustainable manner, while other believe that investing in companies with a “good” ESG-score produces a better return on their investment, even though the evidence in support of this claim of superior performance is still hard to verify consistently (Friede et al., 2015).

Most of the parties who provide ESG-investing products like ETF’s (exchange traded funds) tend to include or exclude companies based on their ESG- scores (Barzuz et al., 2019). ESG scores are grades given by external parties, much like the familiar credit score that companies receive. These scores are based on a myriad of variables, all weighted based on specific methodologies. All the larger ESG-score-providers use their own methodologies. These are often viewed as trade secrets and are therefore not always fully available to the public. However, there are some concerns about the accuracy of these scores and the possible threats of greenwashing.

Greenwashing is a type of sustainability fraud where a company provides inaccurate environmental information to create the appearance of sustainable operations while keeping the real impact of those operations hidden from the public. This fake data can make its way into the models of the ESG-score providers and influence millions of investors. To combat this risk, the European Union voted the CSRD (corporate sustainability directive) into law. CSRD lays out a reporting framework for ESG-reports and makes these reports mandatory for companies over a certain size (Gregory et al., 2014). While the larger public companies in the United States are also choosing more and more to adopt ESG-reporting guidelines voluntarily (Gipper et al., 2022) Furthermore, CSRD makes it mandatory for a company to obtain assurance on these reports from an accountant. The idea behind this is to limit the risk of greenwashing (ESG-fraud) in the same way as one would limit the risk of financial fraud by conducting an audit.

1.2 A challenge for accountants

But it remains to be seen if the accounting sector is up to the challenge. These additional reporting requirements will add to the already quite significant workload of the audit firms. And since these additional reporting requirements mainly pertain to large public companies (Frikkee, n.d.) one can expect that the enforcement of these extra regulations will fall on the same (big) 4 auditing firms, since they possess about 60% of the PIE (public interest entity) audit market in the EU (European commission, 2024). And herein lies the problem, because these four big accounting firm's (EY, PwC, Deloitte and KPMG) are struggling with the attraction and retention of staff (Ahn et al., 2024).

This talent shortage can create a vicious cycle of increasing work pressure, which then leads to more people leaving the firm, which then will lead to even more increases in work pressure. This increase in work pressure within firms leads to auditors working well above the amount of hours where they believe that the workload takes away from audit quality (Persellin et al., 2018).

1.3 Research Question and Hypothesis

Previous research showed that investments in ESG performance can also drive financial performance via three channels (Giesse et al., 2019), the cashflow channel, the idiosyncratic risk channel, and the systematic risk channel. The literary framework will cover these channels in greater detail, while the findings of this paper will go to show that good ESG performance might be indicative of a financially healthy company with lower going concern risk. This leads to the central question of this paper:

Can the ESG-score of a company be indicative of the company's going concern risk?

Based on the previously mentioned paper and the expectations that companies still prioritize financial performance so that they only invest in ESG-efforts when all other financial bases of the company are covered, it is hypothesized that:

A better ESG-score is indicative of a company with a lower going concern risk.

1.4 Relevance

This paper derives its social relevance from three current developments in the accounting field. First is the development of a myriad of sustainable reporting guidelines and the governments that force companies to apply them.

The second, also mentioned earlier in this paper, is the rise in work pressure at the biggest audit firms, which can lead to a decline in audit quality. Recently, both EY and PwC faced hefty fines for deficiencies in their audits of LCF (Foy, 2024) . One can only speculate on the reason behind these deficiencies, but pressure from imposed deadlines would not have helped. This paper can help these firms streamline their audits and hopefully lighten the workload of the auditors, resulting in a better quality audit.

Finally this paper adds to the current literature by Maso et al. (2020), which demonstrated that when both the financial and ESG-audit are carried out by the same firm, firms make less Type-II (false negatives) errors when providing a going concern opinion. This research will try to showthat there is an empirical connection between the ESG-performance of a firm and the going concern risk of said firm. This paper will expand on this idea by introducing ESG-scores into a regression model to see if ESG-scores can also be used as an indicator by said auditor.

1.5. Setup of paper

This paper will continue with a literature review, in which the relevant literature regarding going-concern risks and ESG reporting will be laid out. After which, three sub-questions will be answered:

1. How might ESG-scores predict going concern risk? (the case of Evergrande)
2. Do ESG-scores carry any actual indicative power with regards to going concern risks?

These first two questions will be answered right after the literature review by connecting the separate areas of research in this field. This paper will answer the third question by making use of data from the US audit analytics database for the going concern, the Refinitiv ESG database to obtain the ESG scores, and the Eikon database to obtain the control variables to run a multivariate regression. Before this regression is run, this thesis will provide an overview of the sample and the data used. After the second research question is answered, this paper concludes with a short conclusion along with recommendations for further research.

2. Literature review

This literature review can be divided into two sections. The first section will cover some of the relevant literature and accounting guidelines on the subject of going concern opinions and the variables that serve as potential warning signs for going concern issues. The second section will delve into the subject of ESG-scores and the added value of such ESG-scores for investors and other stakeholders.

2.1 The going concern opinion under US GAAP and IFRS

What is commonly referred to as a going concern opinion is a type of qualified opinion issued by an auditor when he has “substantial doubt” (ASC 24.5.2) on the ability of a firm to continue as a going concern. A going concern describes a firm that is able to keep on operating as a company for at least a year. But this definition leaves a lot open to interpretation, mainly to the threshold of when the doubt of the auditors is substantial enough to actually warrant a qualified opinion. Both US GAAP (with ASC 205-40) and IFRS with the IFRS interpretations committee issuing an opinion (going concern – a focus on disclosure, 2021) provide auditors with different guiding principles to assess this difference.

IFRS differentiates between four scenarios: no significant doubts about the going concern, significant doubts about the going concern but mitigating actions judged to be sufficient, significant doubts about the going concern but mitigating actions judged to be insufficient, and a scenario where the firm intends to liquidate. In the first three scenarios, the going concern basis of accounting applies, while in the final scenario, alternative valuation criteria apply. Keep in mind that the IFRS foundation does not determine which specific alternative valuation criteria applies.

Under US GAAP (ASC 205-40) a more binary system determines whether either a firm is a going concern or not. Accountants use a two-step test to determine this. In the first step, management determines if there are conditions and events that may arouse doubts about the going concern of the firm. The second step concerns determining if the plans of management to alleviate these concerns are sufficient to negate them. Accountants carry out this second step with the use of information about both the past performance and the future performance of the firms, which can reasonably be predicted.

There are both similarities and differences between IFRS and US GAAP (KPMG,2023). Most notably, US GAAP provides multiple guidelines and examples to fill in the aforementioned two-step process. Whereas IFRS does not provide any specific method that is to be used in carrying out the going concern assessment,. US GAAP is also more binary in nature, where a firm is either a going concern or not, whereas IFRS provides a scale of 4 types of going concern disclosures. A smaller difference is the fact that the going concern assessment under US GAAP always covers the 12-month period after the release date of the financial statements. However, under IFRS certain circumstance can extend this period.

2.2 Determinants of a going concern opinion

Academics already cover this area of research quite heavily, since there are a larger number of factors that can possibly contribute to the issuance of a going concern opinion from an auditor. A chunk of this research is synthesized in Geiger et al. (2019). The authors identified several determinants to predict a going concern opinion in the second section of their paper, building on earlier research findings. These can be organized into five main categories:

- Measures of financial distress obtained from the financial statements
  These measures concern measures such as a lower quick or current ratio, less profitability, and a and a smaller size of the company, as well as the three ratios identified by LaSalle et al. (1996). Krishnan and Sengupta (2011) also identified off-balance items and liabilities as a highly relevant determinant of a going concern opinion.

- Variables that are not published in the publicly available financial statements.
  These variables can be divided into two main categories. First off are the market variables, such as the type of business strategy used and the expected industry returns. Take, for example, a prospector-type company, which has a much more volatile growth pattern and thus a higher going concern risk, versus a defender-type company with a steady product mix and growth pattern. Auditors view these two compagnies differently (Chen et al., 2017).
  The second type of variables are management choices and activities, such as management turn-around (Bruynseels et al., 2013) and management compensation (Fargher et al., 2014).

- Factors that affect the quality of financial reporting.
  Academics have scrutinized factors like these in recent years, but one study (Defond et al., 2016) has been identified that links the quality of financial reporting to a lesser likelihood of a going concern opinion. This study does focus on management conservatism in making accounting judgements, but the authors note that this correlation might be caused by auditors detecting a lesser audit risk instead of lesser going concern risks.

- Factors related to the clients corporate governance
  Some research papers also focus on several aspects of corporate governance as possible determinants of a going concern opinion, such as the tone at the top set by the CFO (Huang et al., 2017).

- Book values and liquidation values
  Expanding on the earlier ideas of conservatism used by auditors to help determine possible going concern issues, Kausar and Lennox (2017) find that auditors from time to time issue a going concern opinion to compensate for the fact that the book value of assets is relatively high compared to their realized values.

But as it turns out, the characteristics of the audit firm itself can also serve as a determinant of the frequency of going concern opinions (Osman et al., 2016). For instance, the specialization of the audit firm can influence the frequency of going-concern opinions. According to Lowensohn (2007), an audit firm that primarily engages in a specific industry tends to deliver higher audit quality and is therefore better equipped to issue a going-concern opinion when necessary. But it remains to be seen if higher-quality audits also lead to more going-concern opinions. Since higher-quality audits might reduce the number of false negatives (Not issuing a going concern opinion when the company goes under in the year following the opinion), they might also reduce the number of false positives (issuing a going concern opinion when the firm is able to keep on executing its operations for a year).

2.3 The origin and composition of ESG scores

The concept of SRI (socially responsible investing) traces back further than the ESG movement. A commonly used starting point for the phenomenon of SRI is the 1970's. SRI came up as a response to the paper by Friedman (1970). He argues that it is the main responsibility of a firm to produce profits for its shareholders and not to concern itself with any social goals it might have. Many persons disagreed with freedman with Freedman due to a variety of reasons, and from this disagreement with this shareholder view of Friedman, the concept of SRI was born to take into account the concerns of all relevant stakeholders.

SRI started out as a mostly value-based investment strategy where investors accepted the fact that the investments would not return profits as high as 'dirtier' investments but that the higher social returns would offset these differences. However, nowadays, some investors believe that investing in equities with a high ESG rating will also return higher financial profits (Eccles et al., 2020). However, as mentioned in the introduction, this link between higher ESG scores and better financial returns has never been fully proven.

In recent years, the field of ESG-data has expanded significantly. Vendors are estimating that there are some 630 different ESG scores available for investors to choose from (Refinitiv, n.d.). Each score caters to different needs. Some scores focused on the more (old-school SRI) value-focused investors. And some scores focused on the more financially focused investors (pagano et al., 2018). So, there are different scores for different people who use them for different investment needs.

But what are these scores actually made of? The specific sustainability variables, like CO2 emissions and shareholder rights, depend on the vendor. But these scores mainly follow a set of shared best practices (Clément et al., 2023), these are:

- Rule-based methodology; the provider uses a fixed set of rules to determine the score
- Context-specifically, rating agencies weigh the scores of different companies differently depending on the size and market sector of the company.
- Transparency: most rating providers post the methodologies used in their work publicly on their website, so that users are able to identify any possible shortcomings in time.
- Data credibility: can the rating providers trust their sources or not?
- With continuous revisions, all the major firms adjust their models regularly, which of course creates some troubles with regards to comparability. But it does provide investors with more relevant information in the present.

There are, of course, some limitations present on these scores (Jacobs & Levy, 2022):

- Overgeneralization: trying to use one and the same ruleset to create a score for all different kinds of companies does not sufficiently take the specifics of each company into account.
- Backwards-looking, the scores are never indicative of any future ESG risk. Just like past financial performance is not indicative of future returns,.
- Due to data supply issues, larger companies publish more information, which makes their scores more accurate than those of smaller companies. In more developed countries, better information is available.

2.4 The current uses of ESG scores (in determining going concern risk)

Investors and academics use ESG scores in different ways (Clément et al., 2023). In academia ESG is often used as a proxy for some other variables. ESG-scores, commonly used as proxies for sustainability, corporate social responsibility (CSR), performance disclosure, and risk analysis, served as the variables. In two ways, the current literature begs the question of whether the use of ESG scores is beneficial to the quality of scientific literature on these subjects. First there are significant differences between the methodologies of different vendors(Jacobs & Levy, 2022). So one investor/academic who uses one dataset might come to a completely different decision than someone who carries out the exact same research with a dataset from a different vendor. The second way is an extension of the first, since it becomes a challenge for users to compare results because of these differences. With this, comparing results over time also becomes a challenge due to the ever-changing models used by different vendors.

Despite these shortcomings, ESG scores can still be of use when it comes to determining the going concern risk of the company via three main channels (Giese et al., 2019).

2.4.1 The Cash Flow Channel

In 2014 Gregory et al discussed this value channel for the first time. The argument was that companies with a robust ESG profile tend to benefit from a reduced cost of capital, leading to improved long-term growth prospects and fewer going concern risks arising from higher borrowing costs. Moreover, companies with a strong ESG profile often exhibit better human capital development and innovation management, providing them with a competitive advantage, which again limits going-concerning risks, as mentioned in earlier sections of this paper. Finally, these factors contribute to stronger cash flows over time, resulting in a higher valuation based on the discounted cash flow model. Consequently, companies with higher ESG ratings tend to demonstrate better gross profitability compared to their lower-rated competitors, as confirmed by Giese, Lee, Melas, Nagzy, and Nishikawa (2019).

2.4.2 The Idiosyncratic Risk Channel

Idiosyncratic risk is significant in the financial industry, as well as for auditors. Godfrey, Merrill, and Hansen likened the relationship between strong ESG measures and idiosyncratic risk to a form of pseudo-insurance during periods of negative publicity, which can be attractive to investors who dislike the volatility associated with such events. This channel's relevance for auditors lies in the association between a strong ESG profile and better risk control, particularly within the governance pillar of ESG.

Currently, auditors perform control tests to assess the functionality and effectiveness of internal control mechanisms installed by companies to prevent fraud and corruption. To use ESG scores to predict companies with weaker internal controls, the methodology behind these scores must be robust.

2.4.3 The Systematic Risk Channel

This valuation pathway is based on the belief that companies with high ESG scores are more resilient to market shocks because they invest heavily in efficient production methods to reduce emissions. This efficiency helps mitigate the impact of resource price shocks, resulting in lower stock price volatility compared to other companies. Therefore, this attracts more investors and increases the overall value of the company.

This increased responsibility underlines the importance of auditors remaining careful. In instances of greenwashing or other forms of ESG fraud, a significant portion of the company's value could be lost in the eyes of investors.

2.5 Relevant assumptions and variables

The following assumptions flow from this literature:

First off, this paper assumes that going concern issues are judged by the same degree of prudence and conservatism regardless of whether a company applies US GAAP or IFRS guidelines. Since the underlying question from both standards is the same, namely whether or not a company is able to continue it's operations for another year. This is also the main determinant used in this thesis when judging whether or not a company is a going concern or not. This assumption is relevant in the answering of the first research question with regards to the case study.

Second, this thesis assumes that it is possible to predict the bankruptcy of a company in most cases. There are always black swans on the loose in an economy which can hit a company at any time and cause an abrupt bankruptcy. But in most case, a company has been struggling for quite some time before the bankruptcy is ultimately filed.

Third, this paper assumes that this prediction can be made accurately with the use of a various amount of variables. These variables can come from anywhere, both from the financial statement available to the public, but also variables only available to insiders within the company, like the quality of the financial reporting of the firm and the corporate governance of the company. But also non-financial variables like the business strategies employed by the company, and (presumably) the ESG scores of the firm. Despite this, this paper assumes that financial factors which can contribute to a bankruptcy can be captured and measured using the publicly available information. This paper applies tis assumptions both because of academic reasons and practical reasons. The academic reasons comes down to the fact that a bankruptcy of other kinds of seizing of operations is ultimately a financial fact, which must need financial reasons to occur. These reasons and warning sign must then sooner or later appear on the balance sheet. The practical reasons comes down to the availability of data. Since internal data of companies is often confidential, and judgement on the quality of the applied strategies of companies is highly subjective.

Then, the paper assumes that ESG-scores are sufficient to capture non-financial factors that can contribute to the going concern challenges of a company. ESG scores have their limitations, they are backwards looking, often overgeneralized and suffer from data supply issues. But given that there are no alternatives, and ESG-scores cover a wide range of variables. ESG scores are still the best alternative to capture some non-financial characteristics of a company, due to the lack of alternative measurements.

Finally this thesis assumes that a solid CSR strategy, and the resulting higher ESG scores, will result in added value for the company in question. This added value will flow through three channels, the cashflow channel, the idiosyncratic risk channel and the systematic risk channel. Therefore, it is safe to assume that even though the stock price of a company might not reflect this, a high ESG scores can be indicative of a stable company. Thus the management of this company wants to raise said ESG-scores.

From these assumptions flow the hypothesis:

A better ESG-score is indicative of a company with a lower going concern risk.

This hypothesis was formulated based on the fact that the thesis assumed that non-financial factors can contribute to bankruptcy, and that ESG scores accurately indicate these non-financial factors, and that therefore parties can use these scores to indicate a possible going concern risk.

This hypothesis will be tested with the use of variables mentioned in these assumptions. These variables will be dividend into three categories. The first being the ESG scores, five kinds of scores were used:

1. Enviromental
2. Social
3. Governance
4. ESG combined
5. ESG score

These were selected since using to many scores can crowd out each other's effects. These scores cover most ESG categories. The enviromental, social and governance scores cover the aspects of ESG separately, while also covering the overal ESG picture with the last two variables.

The second category covers variables to represent the going concern risk, this variable only contains one variable, namely the impairments faced by the company. For the reasons behind the selection of this variable, please see the methodology section of this thesis.

The third category covers the control variables, which mainly concern balance sheet items which can represent the possible financial factors of a present going concern risk, like cash and net income. Other variables control for the size of the company, since larger companies logically face larger impairment. Think of variables like, latest revenue, total assets, total book value and market capitalization. For definitions of these variables see table 1.

3. Methodology and data

This research will answer the first sub-question with the use of a case study of one of the most recent examples of the failures of auditor to accurately assess the going concern of a company, the case of the Chinese real estate developer Evergrande. This case study is guided by the relevant literature on the role of corporate governance and environmental factors on the performance and bankruptcy risks of companies. We selected this company for the case study due to the relevancy of the bankruptcy, since developments in this case tend to dominate global headlines for weeks at a time (Evergrande | Search, 2024). Evergrande is also quite a sizeable company, so other sources of information are readily available to assist in this case study.

This paper will answer the second and main question of this paper by conducting empirical research on data from two different databases. We used the ESG scores from the Refinitiv Database, furthermore we used the audit analytics database to obtain the data on the impairments and control variables. To form the sample 40 Us compagnies who occurred in both datasets were selected. We selected only publicly traded US companies so that all the companies in the sample operated in a roughly similar economic environment. The companies cover a wide range of industries to better represent the overal population. The data which forms the samples was selected in the timeframe of 2019-2021 for these companies. This timeframe was chosen because it had the best data availability with regards to the ESG scores, but also because a significant number of companies had to impair more assets than usual due to the COVID pandemic (Vichitsarawong & Eng, 2023). Some companies in this sample had missing ESG scores in some of the years in the timeframe. Other than this, no other observations were deleted from the sample which bring the total sample size to 120 (N=120), with some smaller number of observations on the ESG scores, for an overview of the different amount of observations per year, please see table 4 in the appendix. This presented the opportunity to analyze whether companies with higher ESG-scores had to impair fewer assets than companies with lower ESG-scores during this pandemic. Since the length of this thesis is limited, we will not dive further into the question on whether or not ESG scores accurately reflect ESG performance. It is therefore assumed that this is the case. After the sample was selected, the data from the two databases was reconciled and formatted into panel data. this data in to our data analysis tool where the program then summarized the data and checked for correlations, after which we ran the random effects regressions. Random effects are the most fitting for the regression. since there is no intent to capture constant characteristics across observations. The results can be viewed later on in the paper. See the appendix for an overview of the correlations and a summary of the data. The appendix also contains graphs concerning the distribution of these variables.

3.1 Variables definitions

In this paper, the following variables will be used:

Tabel 1:

Variable	Definition
enviromental	The environmental component score on a scale of 1-100, extracted from the Refinitiv ESG database.
govermental	The govermental component score on a scale of 1-100, extracted from the Refinitiv ESG database.
social	The social component score on a scale of 1-100, extracted from the Refinitiv ESG database.
ESGcombined	The ESG combined score solely based on the previous three component scores, again a scale from 1-100
ESGscore	The overal ESG score of a company based on the three component score and an extra ESG controversies component score.
Impairment	The impairments in USD reported by the company.
Latest Ebitda	The earnings before interest, depreciation, taxes and ammortisation in USD of the firm from the latest completed fiscal year.
latest net income	The earnings in USD of the firm from the latest completed fiscal year.
latest revenue	The revenue in USD of the firm from the latest completed fiscal year.
latest cash	The cash and cash equivalents reported on the balance sheet of a firm in USD from the latest completed fiscal year.
latest total assets	The total worth of the assets of a company in USD at the time of the completion of the most recent fiscal year
Latest balance sheet book value	The total book value (assets – liabilities) of a company in USD at the time of the completion of the most recent fiscal year
marketcap	The total marktcap of the company at the time of the completion of the most recent fiscal year in USD.

4. How might ESG-scores predict going concern risk? (the case of Evergrande)

One of the more recent examples of an auditor not giving a going concern warning while a firm still went under is the case of Evergrande. Evergrande was a Chinese real estate development firm that went bankrupt in 2021 after it missed a coupon payment. After a lengthy process, a judge ordered to liquidate in early 2024 (hale et al., 2024). After this liquidation a Hong Kon judge appointed the firm Alvares and Marshal (the same firm behind the liquidation of Lehman brother in 2008) to wound up the firm. But in this process, the liquidators took actions to open up the possibility of suing the accounting firm PwC in the future (Wiggins & Ho-Him, 2024). As of the writing of this paper, it remains unclear as to whether or not an actual lawsuit will be filed, since PwC had already resigned as auditor in 2021 (Hale & Leng, 2023). But even for the years 2019 and 2020 PwC might not be in the clear since the China Securities Regulatory Commission accuses Evergrande of inflating its revenues by 80 billion renminbi (Hale & Ho-Him, 2024).

But the legal aspects of this case will not be the focus of this part of the paper. This paper will use Evergrande as an example of how investors and other stakeholders might utilize ESG-scores and ESG risks to spot any potential going concern risks.

As is evident from the figure above, Evergrande was not the most sustainable real estate developer on the market. But did this directly lead to the ultimate demise of the real estate developer, or was the low ESG score merely an inconsequential side effect of a company that was way overleveraged until it could no longer refinance its debts? In the rest of this chapter, This paper will argue that both the lower corporate and social scores contributed to higher credit risks than first met the eye.

4.1. (A brief) History of Evergrande

Evergrande was a Chinese real estate development firm founded in 1996 by Xu Jiayin in Guangzhou, with a primary focus on residential real estate. A key aspect of the rapid rise of Evergrande was the rapid accumulation of debt. With some 700 billion HKD of debt on its last balance sheet per 2022, with a portion of 660 billion HKD being current debt (Journal, n.d.).

After its founding years, Evergrande expanded rapidly all over China, ultimately leading to its IPO in 2009 on the Hong Kong stock exchange. After this IPO, Evergrande continued its expansion with ventures into EV's (electric vehicles) with Evergrande New Energy Vehicle Group, healthcare with Hengda Health, and soccer with Guangzhou Evergrande Football Club. Evergrande used both foreign and domestic dept to fuel this rapid, with the belief that Evergrande could always refinance.

Until Evergrande could no longer refinance due to the implementation of a new policy by the Chinese government, the so-called three-red-line policy,. There were three financial ratio's that developers need to comply with before regaining access to credit from China's banks and other financial institutions. Evergrande went over all three of the red lines and subsequently lost access to the credit it needed to survive, since foreign lenders were frightened by the thought of an Evergrande not being able to refinance. This, in combination with the slowing urbanization rate and overestimation of customer demand, is believed to have led to the ultimate demise of Evergrande (Financial times, 2022).

4.2. CSR and Bankruptcy risk

The discovery of a connection between CSR (Corporate social responsibility) and bankruptcy risk will, in addition to helping auditors focus their efforts, also shine light on the debate between the shareholder view of corporations and the stakeholder view of corporations. Because one of the stakeholders most effected by a bankruptcy are the creditors, who tend to carry the largest direct costs in the case of a bankruptcy (Eckbo et al., 2016). Since the supporters of the stakeholder view might use this connection between CSR and bankruptcy risk as an argument as to why shareholders need to be proponents of CSR as well,.

Initially, the ways in which CSR can prevent bankruptcy seem easy to theorize. Improved social policies for employees could potentially mitigate the impact of major work accidents and subsequent lawsuits on the company. Whereas more responsible environmental policy might prevent government actions such as fines with regards to pollution. On the other hand, proponents of the shareholder view might argue that the best way for a company to prevent bankruptcy is to make a profit.

Cooper and Uzun (2019) researched this theorized connection in their paper. This went on to show that a possible connection between CSR performance and bankruptcy risk does exist, but that this connection also comes with some caveats. First off, the larger the companies, the stronger the results. This can be an indicator of the lackluster CSR strategy of Evergrande (see figure 1 appendix) which was always considered a larger company. The second caveat of theirs is the fact that higher leverage ratios did not seem to affect the relationship between CSR and bankruptcy risk. This implies that, in the case of Evergrande, the high level of leverage employed does not take away from the possible effect that the lack of CSR had on the bankruptcy risk of the firm. Finally, they also took a look at some other often-used indicators to measure the extent of corporate governance employed at a firm. Think of indicators such as board diversity and the employment of a dual CEO or chairman of the board. They also found some signs of a possible relationship between corporate governance, CSR, and bankruptcy risk. We will discuss this relationship on a deeper level in the next section.

In summary, for large companies with inadequate corporate governance measures, it seems that there is a relationship between CSR and bankruptcy risk.

4.3. Policy, corporate governance and bankruptcy risk

Current literature (Darrat et al., 2014) has shown that corporate governance variables can carry some significant power in predicting future bankruptcies in addition to the more traditional accounting ratio's and variables. These corporate governance variables are:

- Larger boards
- The proportion of inside directors
- The diversity of the board
- The power of the CEO
- Poorly performing management still in place

The performance of Evergrande on these variables gives a mixed to negative view of corporate governance. First off, Evergrande employed a board of a total 9 directors (China Evergrande Group, 2023), which might seem quite large at first. While the average size of the board of directors of the companies in the S&P 500 was 10.8 (M. Tonello, 2023). This might seem like a small difference of just 1.8, but Evergrande was significantly larger than the average company in the S&P 500. The size of Evergrande is even more relevant since Darrat et al. (2014) found that, especially for larger and more complex companies, a larger board tended to be negatively correlated with bankruptcy since the board has more relevant outside experience to advise and direct management on.

It is safe to say that Evergrande qualifies as a 'complex' company since Evergrande is large, diversified, and highly leveraged. This is conform the factors which Darrat et al. (2014) identified.

Only three independent directors took a seat on the board of directors of Evergrande, making up only 33% of the total board. While the average percentage of independent directors hovers between 55% and 66% (Hamza & Mselmi, 2018). Which cloud be an indication of a higher bankruptcy risk (Darrat et al., 2014). Another aspect of the board composition is the female-to-male ratio of said board, which at Evergrande was just 11% (1 out of the 9 directors being female) (Annual report China Evergrande Group, 2023). This percentage lies at around 25% (Csonka et al., 2024), once again pointing at a higher bankruptcy risk (Darrat et al., 2014).

The long time CEO the company Hui Ka Yan was arrested in 2023 for supposed "illegal crimes" (McMorrow et al., 2024), but before this time he was quite the powerful CEO with a long tenure at the company (since 1997) and, more importantly with almost 60% of the outstanding shares in his ownership (China Evergrande Group MarketScreener, n.d.). Which enables him to take all the corporate decisions by himself. A powerful CEO such as Hui Ka Yan can yet again be a sign of increased bankruptcy risk.

The final aspect of a change of leadership when the company falls into bad financial times is not well applicable in the case of Evergrande, given the political circumstances of the bankruptcy and the forced resignations and arrests of some senior management. Therefore, one cannot evaluate Evergrande on this criteria.

But was this corporate governance risk accurately reflected in the ESG score of Evergrande (see figure 1)? With a governance score of a C-, which would put Evergrande as one of the least corporately responsible companies *in the sector*. The score is poor on both the management and shareholder rights aspects.

5. Results

The regression-formulas that were compiled in this study are as follows:

$$IMPAIRMENT = ENVIROMENT * \beta_1 + GOVERMENTAL * \beta_2 + SOCIAL * \beta_3 + ESGCOMBINED * \beta_4 + ESGSCORE * \beta_5 + LATEST\ EBITDA * \beta_6 + LATEST\ NET\ INCOME * \beta_7 + LATEST\ REVENUE * \beta_8 + LATEST\ CASH * \beta_9 + LATEST\ TOTAL\ ASSETS * \beta_{10} + LATEST\ BALANCE\ SHEET\ BOOKVALUE * \beta_{11} + MARKETCAP * \beta_{12} + constant$$

Which lead to the following values significance levels can be found in table 2 in the appendix. From table 2 (appendix), it follows that, apart from the control variables, only the ESG combined score carries any statistical significance. This somewhat follows the formulated hypothesis that various ESG scores can be indicators of possible going concern risks. However, as shown in the graph, only the ESG combined score is significant, whereas it was expected that some of the other ESG scores could carry some weight as well. The ESG combined score was also the only ESG-variable with a positive value. Something that jumps out as well is the very high significance of some control variables, which was somewhat expected as the variables were selected based on their possible relation to going concern risks, like cash on hand, and various measures of the size of the company.

With the results of this regression, a closer look was taken to see if only the ESG combined score was enough to build a regression with adequate significance.

The equation used for this regression is as follows:

$$\begin{aligned} IMPAIRMENT = {} & ESGCOMBINED * \beta_1 + ESGSCORE * \beta_2 + LATEST\ EBITDA * \beta_3 \\ & + LATEST\ NET\ INCOME * \beta_4 + LATEST\ REVENUE * \beta_5 + LATEST\ CASH \\ & * \beta_6 + LATEST\ TOTAL\ ASSETS * \beta_7 \\ & + LATEST\ BALANCE\ SHEET\ BOOKVALUE * \beta_8 + MARKETCAP * \beta_9 \\ & + constant \end{aligned}$$

In this regression (whose values, significance levels and 95% intervals can be found in table 3 of the appendix) the ESG combined score loses all significance but remains positive. This might be an indicator that ESG combined on its own is not enough to draw any meaningful conclusion on the going concern risk of a company. But when looking at all different kinds of ESG scores, one must pay particular attention to the combined ESG score. But other more traditional going concern indicators, such as cash on hand and company size, are still invaluable to take into account for the auditors when evaluating the going concern of a company.

6. Conclusion

ESG scores can be useful in some cases to help with the ongoing concern assessment. But financial measures still need to be taken into account, more so than ESG-scores. The regression has shown that the ESG combined score carries the highest significance, which is somewhat expected since the score is representative of the core three ESG measures while not being disrupted by the ESG controversies score. This is then somewhat unexpected, as one can imagine that controversies can cause significant going concern issues for a company. But when a real-world case like Evergrande is analyzed, it can be seen that a controversy is not always necessary to cause going concern issues.

6.1 Conclusion Evergrande

How might ESG-score predict going concern risks?

The case study went on to show that low ESG scores can predict governance issues within a company, which then can indicate going concern risks, like the case of evergrande

This real-world case went on to show that poor ESG performance can in fact cause going concern issues. In the case of Evergrande, poor corporate governance allowed a strong CEO to take irresponsible decisions, which can cause going concern issues. The risks were adequately captured by ESG rating agencies. Therefore, investors could have been warned of these risks and handled them adequately.

6.2 conclusion regression

Do ESG-scores carry any actual indicative power with regards to going concern risks?
In short, this research did find slight evidence that certain ESG scores can indicate going concern risks.

Based on the case study, it can be expected that after drawing a sample of 40 US firms the regressions forms a similar story. But that could no be further from the truth. Specifically, not all ESG-scores tend to carry the same weight in predicting possible going concern risks. One can see that in table two all but one ESG score carry significant statistical weight in indicating possible going concern risks. Mainly the combined ESG-scores look to be the most significant variable in predicting ESG-scores. This then also the only ESG-variable with a positive coefficient, which indicates that a higher combined ESG-score then leads to a <u>higher</u> going concern risk. Which goes against the hypothesis formulated earlier in this thesis. But the second regression run went on to show that this score alone cannot, on its own, predict going concern risks.

The high significance of control variables (see again table 2 in the appendix) also goes to show that financial variables are still invaluable in predicting ESG risks.

6.3 Limitations and future research opportunities

Every research project has its limitations; this paper is, of course, no different. The most obvious is the limited sample size. We made the decision to limit the sample because the two databases need to be joined together by hand, so due to time constraints, a larger sample could not be drawn. Concerns also arise when taking the limited availability of data into account. Due to the significant number of companies with missing ESG-scores in this timeframe, some valuable correlations were not taken into account due to the lack of data. Finally, there are also some concerns with regards to the external validity of this research, since the timeframe lies some 6 to 3 years in the past and only covers the US market. This might make it hard to replicate these results at different times in different markets.

At the end of the day, the economic world is a complex place. There are millions of ways a company can book success in the market. But there are even more ways in which a company can go under!

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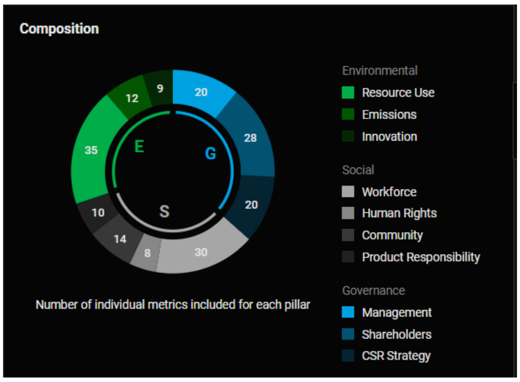
8.Appendix

FIgure 1



	31/12/2020
Environment Pillar Score	59,24% (B)
Resource Use Score	28,88% (C-)
Emissions Score	82,67% (A-)
Environmental Innovation Score	70,13% (B+)
Social Pillar Score	52,84% (B-)
Workforce Score	65,53% (B)
Human Rights Score	22,14% (D+)
Community Score	39,37% (C)
Product Responsibility Score	69,62% (B+)
Governance Pillar Score	32,25% (C-)
Management Score	33,60% (C)
Shareholders Score	38,47% (C)
CSR Strategy Score	16,19% (D)

Figure 1: Refinitiv ESG scores of Evergrande, source : Degiro

Tabel 2:

Regression ran with all available variables.

Impairment	Coefficient	Standard error.	z	P>|z|	[95% confidence. interval]	
enviromental	-3239870	2829723	-1.14	0.252	-8786025	2306285
govermental	-479057.9	3571472	-0.13	0.893	-7479014	6520898
social	-3690438	5033004	-0.73	0.463	-1.36e+07	6174068
ESG Combined	1.35e+07***	4736270	2.85	0.004	4207443	2.28e+07
ESG score	-6299312	1.11e+07	-0.57	0.571	-2.81e+07	1.55e+07
Latest Ebitda	-.0101776**	.0045824	-2.22	0.026	-.0191589	-.0011962
latest net income	-.090035***	.0131882	-6.83	0.000	-.1158834	-.0641866
latest revenue	-.0008354	.0011027	-0.76	0.449	-.0029966	.0013258
latest cash	.0915759***	.0147423	6.21	0.000	.0626815	.1204704
latest total assets	.0005934	.0005363	1.11	0.269	-.0004577	.0016446
Latest balance sheet book value	-.0083452***	.0011454	-7.29	0.000	-.0105902	-.0061002
marketcap	.0008222***	.000151	5.44	0.000	.0005262	.0011182
constant	-8.25e+07	9.36e+07	-0.88	0.378	-2.66e+08	1.01e+08

Note: The definition of the variables can be found in chapter three, * corresponds with a p-value of <0.1, ** corresponds with a p-value of < 0,05 and *** corresponds to a p-value of < 0,01.

Table 3:

Impairment	Coefficient	Standard. error	z	P>|z|	[95% conf.	interval]
ESG Combined	245699.8	1667580	0.15	0.883	-3022696	3514096
Latest Ebitda	-.0159078***	.004291	-3.71	0.000	-.024318	-.0074977
latest net income	-.0730895***	.0126301	-5.79	0.000	-.0978441	-.048335
latest revenue	-.0008931	.0011259	-0.79	0.428	-.0030999	.0013137
latest cash	.0705023***	.0130398	5.41	0.000	.0449447	.0960599
latest total assets	.0008945*	.0005308	1.69	0.092	-.0001458	.0019348
Latest balance sheet book value	-.007234***	.0011321	-6.39	0.000	-.0094528	-.0050151
marketcap	.000613***	.000139	4.41	0.000	.0003405	.0008855
_cons	-6.00e+07	7.10e+07	-0.85	0.398	-1.99e+08	7.91e+07

Note: The definition of the variables can be found in chapter three, * corresponds with a p-value of <0.1, ** corresponds with a p-value of < 0,05 and *** corresponds to a p-value of < 0,01.

Tabel 4:

Summary of data (with scientific notation for some variables)

Variable	Obs	Mean	Standard deviation.	Min	Max
enviromental	102	36,28608	33,20145	0	91.71
govermental	102	49,76235	20,09791	10.31	93.73
social	102	49,92206	24,94351	10.43	94.85
ESGcombined	102	41,29931	18,26537	14.08	87.2
ESGscore	102	46,65186	21,6021	14.08	89.95
Impairment	120	-1.01e+08	3.53e+08	-2.63e+09	0
Latest Ebitda	120	9.17e+09	1.58e+10	-2.27e+09	5.41e+10
latest net income	120	3.92e+09	7.73e+09	-2.22e+09	3.00e+10
latest revenue	120	4.64e+10	8.06e+10	1.328.000,00	3.44e+11
latest cash	120	5.18e+09	9.33e+09		3.77e+10
latest total assets	120	7.95e+10	1.59e+11	- 2.22e+08	7.66e+11
Latest balance sheet book value	120	1.29e+10	5.73e+10	-9.37e+10	2.94e+11
marketcap	120	1.44e+11	3.28e+11	9.34e+07	1.58e+12

Note: The data concerns 40 US companies over 3 years, so one would expect 120 variables, but in some cases, ESG data was reported first in 202 or 2021. Therefore, the number of observations is lower for the ESG variables than for the impairment and control variables.

Figure 2

Boxplots of the environmental, governmental, social, ESG combined, and ESG scores of the sample.

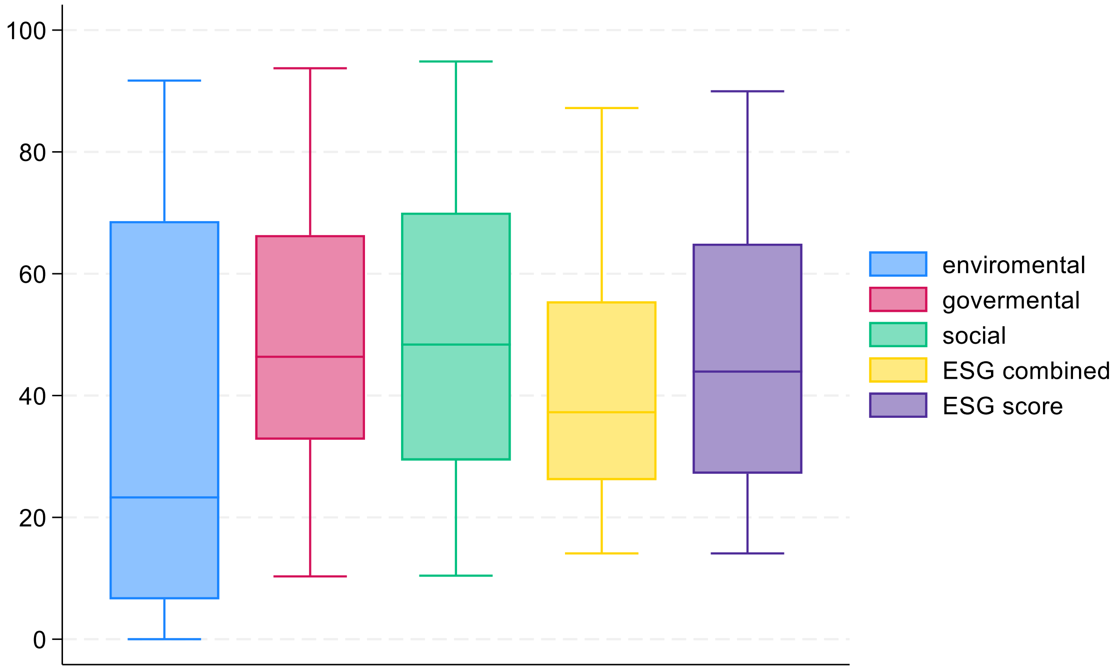


Figure 3

Boxplot of EBITDA and Net Income of sample

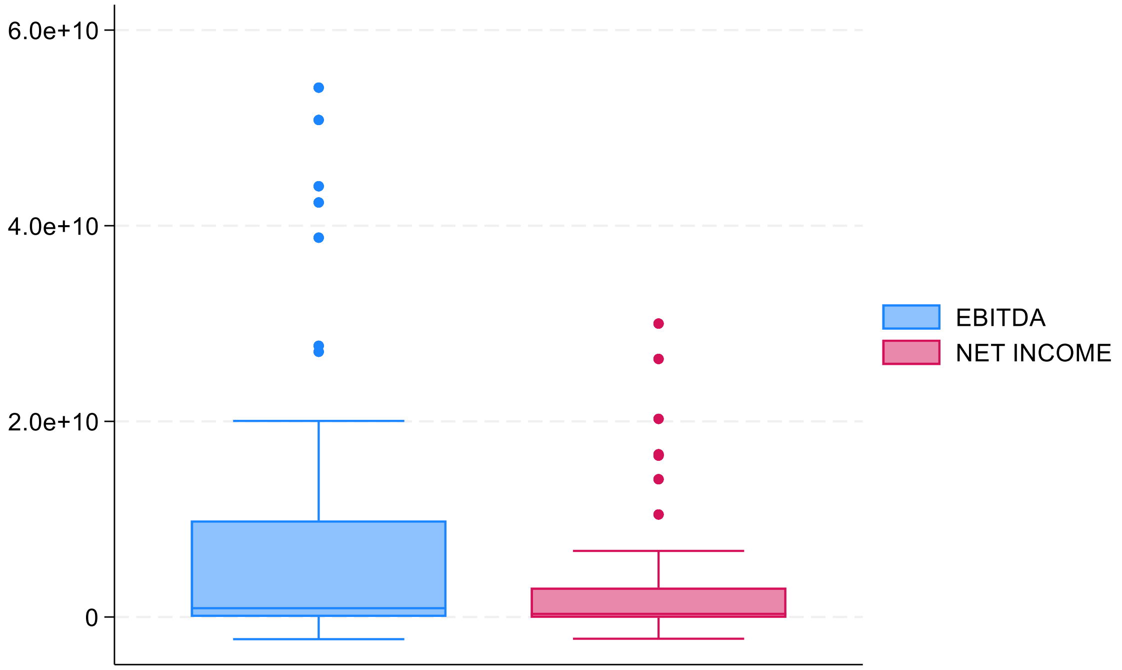


Figure 4

Boxplot of revenue of the sample

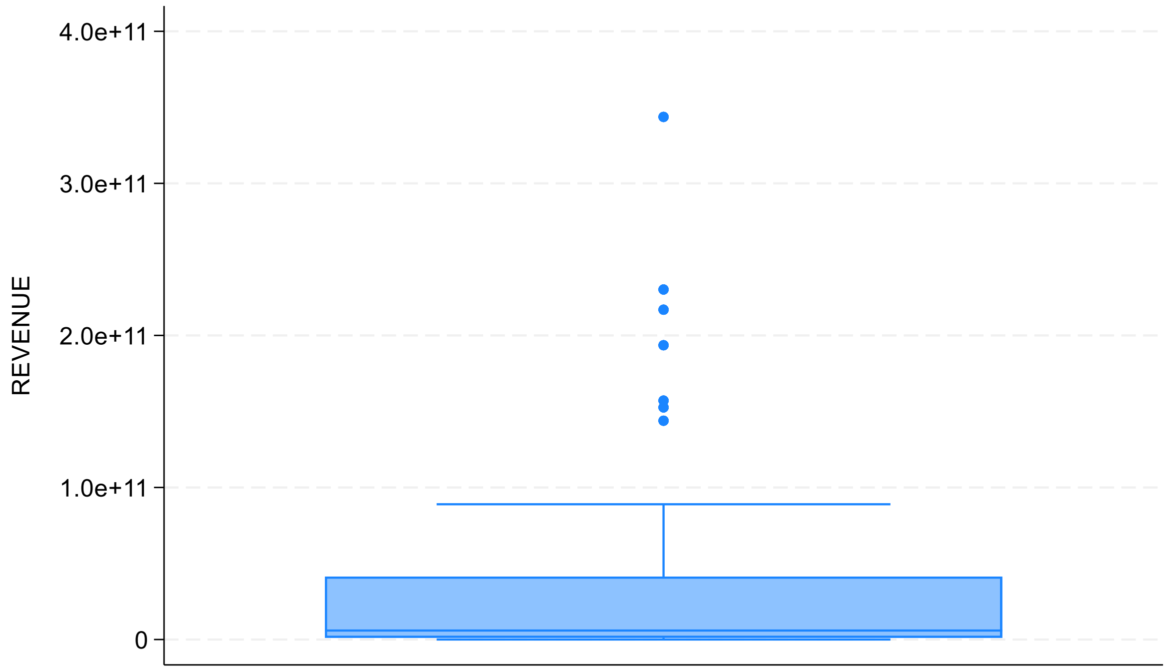


Figure 5

Boxplot of cash and cash equivalents of the sample

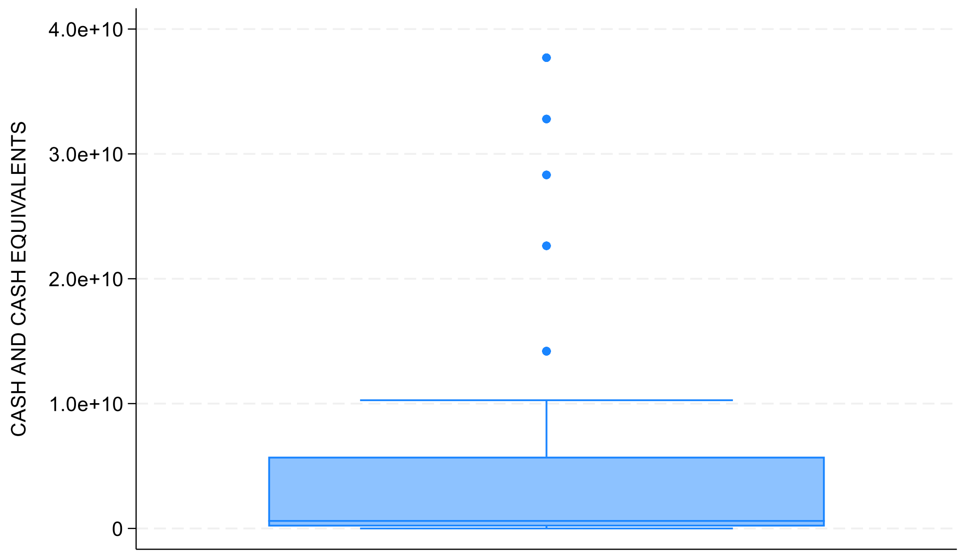


Figure 6

Boxplot of total assets of the sampl

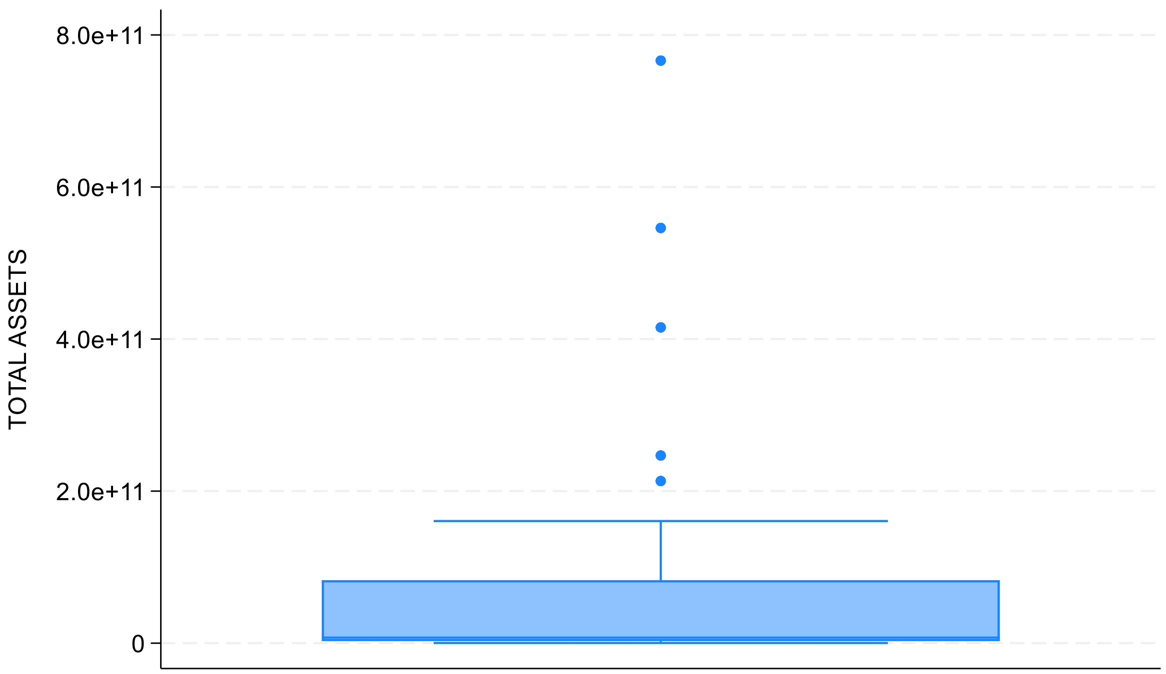


Figure 7

Boxplot of market capitalization of the sample

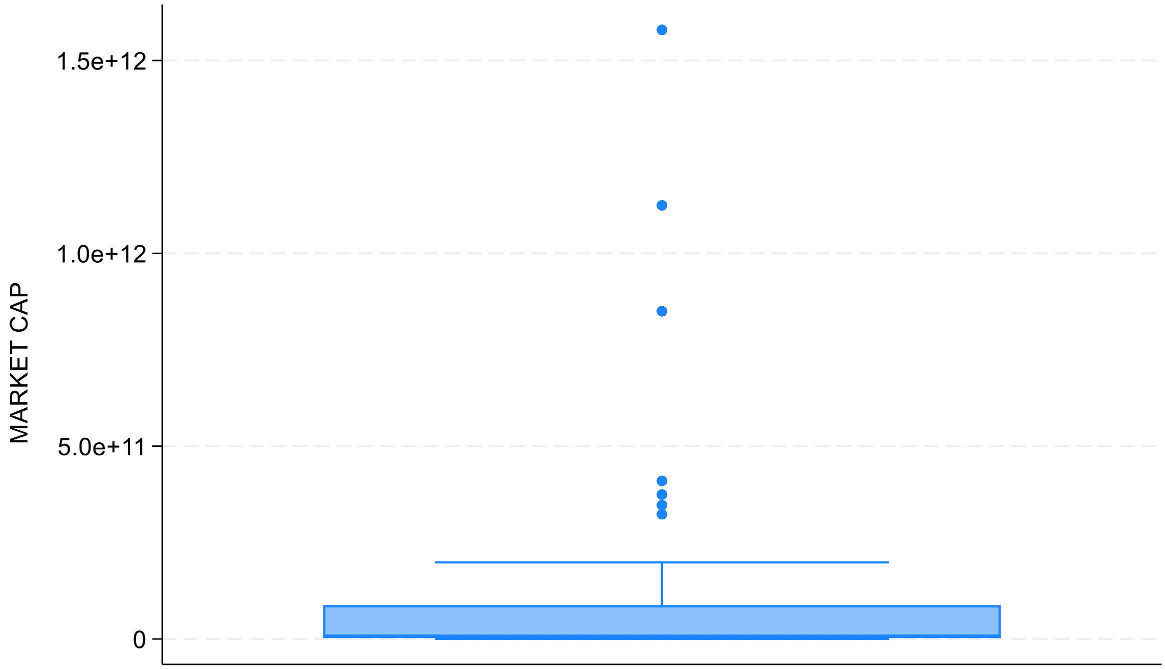


Figure 8

Boxplot of the impairment of the sample with outliers removed

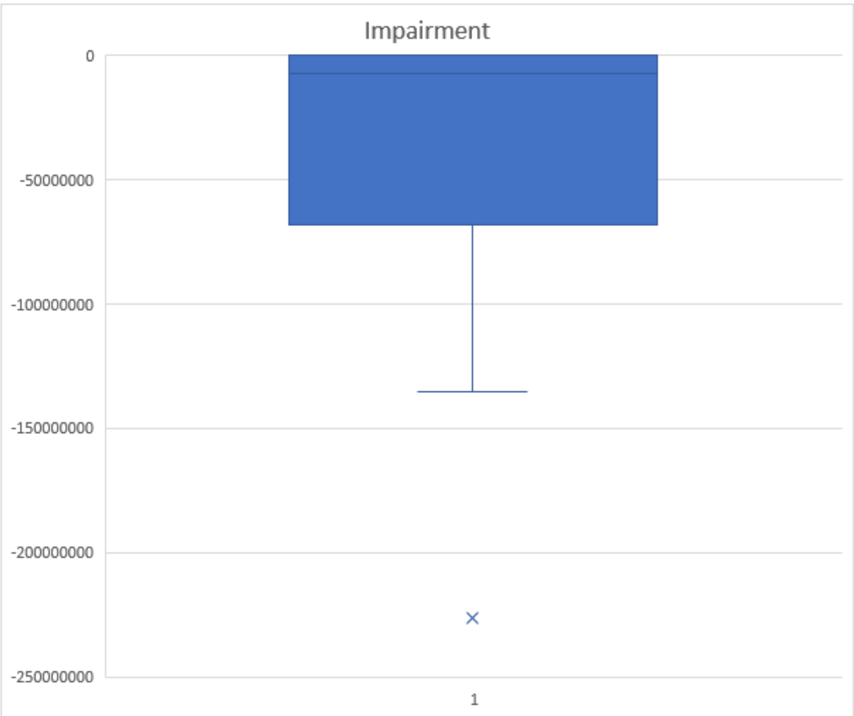


Figure 9

Boxplot of the bookvalue of the sample with outliers removed