

**Gordon Institute  
of Business Science**  
University of Pretoria

**Environmental, social, governance (ESG) and the performance of banks in South  
Africa**

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Philosophy in Corporate Strategy

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## Abstract

Banks will play a pivotal role in the transition to a green economy and the achievement of the Sustainable development Goals (SDGs). Banks have investors and shareholders and as such must produce returns in order for shareholders to retain or increase their investment. This study assesses the effect that corporate sustainability disclosures and performance have on bank performance. The study included the six largest banks for South Africa, for which data was collected from publicly available sources. The study finds that there is a statistically significant inverse relationship between ESG and bank operational performance. Secondly, a positive relationship is observed between ESG and bank financial performance. Similarly, a positive relationship is found between ESG and market performance.

## Keywords

ESG, Corporate Social Responsibility, Bank Financial Performance

## Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Philosophy in Corporate Strategy at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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## Chapter 1: Introduction

Sustainability is the foremost collective global ambition of the 21<sup>st</sup> century. People, governments and countries have understood that continued unsustainable living will mean that our planet will no longer support life the way it always has. Sustainability consciousness is at such a heightened level that commitments to seismic change have been attached to a two-to-three-decade timeline. Seeking to undo in a 1/3<sup>rd</sup> of the time those very actions that have happened for eons. Getting to the point where aggregate sustainable targets are achieved will require the concerted efforts of several actors across a variety of geographies and clear achievable outcomes. Managing businesses for sustainability has become a critical factor for all leaders around the world and a firm understanding of sustainability, its tenets and interactions will determine any success that is achieved in that regard (Hallinger, 2020).

The sustainable development goals set out a desired state, taking into account several factors to encompass goals that if achieved will result in aggregate sustainable living. More importantly, the attainment of the goals will largely guarantee that earth and its inhabitants will continue to co-exist in a harmonious manner that ensures neither is worse off. Changes in inputs and process of production coupled with wasteful consumption which represent the current status quo must change and no company nor industry will be left unaffected (Govindan et al., 2020). Sustainability consciousness of stakeholders in general means that certain premiums or cost savings are available to those companies that can adequately demonstrate and communicate their sustainability ambitions and achievements to stakeholders (Whelan & Fink, 2016). Therefore, competitive advantage is available for firms that are able to effectively convey positive sustainability activities to their stakeholders (Nyuur et al., 2019).

Signalling theory establishes the principle that firms engage in activities that signal their actual or potential activities in order to gain a positive perception from the audience that will result in a competitive advantage (Gupta & Gupta, 2020). The pursuit of competitive advantage gives rise to the possibility that some firms whose actual sustainability advances lag when compared to their competitors will likely publish achievements that overstate actual progress to gain positive perception with the hope that their falsehoods go unidentified. The potential for higher profits due to favourable evaluation by stakeholders on sustainability outcomes provides a lucrative incentive for corporate sustainability disclosures. Sustained competitive advantage is the firm's lifeblood and one of its most critical strategic objectives.

Banks will play an important role, alongside government in ensuring that the transition to sustainable outcomes as envisaged in the Sustainable Development Goals (SDGs) is achieved timeously. Banks are also corporations with shareholders and investors and therefore also have an embedded and inevitable motive to maximize returns (Akomea-Frimpong et al., 2022). Therefore, expectedly banks would be engaged in corporate sustainability disclosures for the same reasons that other firms would but given their importance to the overall sustainability objective, the credibility of their disclosures must be closely scrutinised.

From a business perspective it is fairly straightforward to understand the relevance of research on this topic. Firstly, the pollution problem in the world has become increasingly spotlighted due to a better understanding of the negative outcomes associated with ignorance of the problem. Additionally, pollution is a worldwide phenomenon with business and individuals alike being responsible for the heightened levels of pollution. This has resulted in a heightened environmental consciousness which has in turn driven awareness of the consequences of not addressing the issue. Globally, people, businesses and governments are paying more attention than ever to global environmental problems (Guo et al., 2018).

The increased sustainability consciousness around the world due to increased environmental concerns and public awareness has led to sustainability becoming an ever more pressing issue in public and global discourse. Over the past few years, stakeholders have applied significant pressure on companies to start not only producing environmentally acceptable products but also transparently and honestly disclosing sustainability performance information (Marquis et al., 2016). This pressure from consumers is impossible for business to ignore as customers can proverbially vote with their feet. Consumers are not deterred by having to pay higher prices for goods with a low environmental impact footprint and this is the factor that makes business pay attention. The seminal work of Porter and Kramer (2006) underscored the importance of corporate social disclosure on firms as a potential source for innovation and competitive advantage. Given the competitive advantage motive and the reasoning that consumers would want to pay more for perceivable green products one can see why the emergence of green marketing strategies is so important for companies to show and demonstrate their positive environmental and socially responsible practices (Zhang et al., 2018).

Due to an increase in green marketing strategies coupled with the heightened environmental awareness firms are competing in the green disclosure arena which would naturally give rise to situations where the disclosures that are not factually correct or

indeed include some material omissions of negative data. When a company greenwashes they are combining poor environmental performance with the communication of positive environmental performance (Falcão et al., 2020). Consumers do not take lightly to the presence of greenwashing in corporate disclosures as was shown in a recent study where greenwashing was shown to negatively affect green trust, green word of mouth and ultimately green purchases (Nguyen et al., 2021). This potential effect on revenues might give insights into why companies greenwash in the first place. If their sustainability performance lacks that of its peers, the laggards' competitive advantage will be eroded resulting in poorer financial performance and revenues. Despite a growing focus on triple bottom line, the profit motive remains inextricably linked to the purpose or intention of the firm. Financial constraints imposed by green regulation may also be a driver in a firm's decision to greenwash or not particularly if the firm is highly exposed to non-green industries, practices and suppliers (Zhang, 2022). However, if the consequences of greenwashing were dire, one is still puzzled to understand why companies take the risk of greenwashing in the first place. Li et al. (2022) find that greenwashing is positively linked to increased financial performance of firms in China and this positive link was curbed only in the presence of strong regulation and negative publicity for the firm. The importance of green regulation and its enforcement to the promotion of transparent and honest sustainability disclosures therefore cannot be ignored. In the absence however, of a standard ubiquitous method for reporting corporate sustainability performance, significant loopholes will remain for businesses to chase additional profit through positive disclosures or relevant omissions that go undetected.

The value of this study therefore to business is material and the contribution is expected to be useful to bank managers, stakeholders and the community at large. Banks understanding of the importance of corporate social responsibility must include responsible reporting in the form of honesty and transparency. Whilst the profit motive cannot be lost altogether there must be an understanding on the part of business that the cost of greenwashing in the long-term is costlier than any potential short-term benefit particularly if the dishonesty is discovered. The implications for managers are therefore significant. Managers need to balance the pressures from suppliers and shareholders which contributes to real sustainability performance and the pressures from customers and industrial associations which have been shown to lead to superficial sustainability performance disclosures (Testa et al., 2018).

## 1.2 Definition of research problem and research aims

The importance of sustainability reports cannot be underestimated as a tool of signalling, since the reports can be used not only to manage the firms' public perceptions but also convey actual sustainability performance (Papoutsis & Sodhi, 2020). Sustainability reports lack much in the way of homogeneity in content and presentation that sufficient latitude is available for companies to structure and tailor their reports in line with a desired outcome (López-Santamaría et al., 2021). In the absence of a standard criteria for the inclusion of information and presentation thereof firms are at liberty to decide on the extent of their disclosures and apply subjectivities to the disclosure reports that may fairly or unfairly enhance the reputation of the firm (Abernathy et al., 2017).

The importance of banks to helping South Africa, reach its goals of carbon neutrality by 2050 and reducing emission-intensive coal dependencies in energy generation cannot be understated. Banks, however, will need to balance the maximising of returns which often represent a shorter-term endeavour with the more longer-term endeavour of sustainability. Banks that can demonstrate tangible progress on the part of sustainability enjoy access to capital markets at more favourable rates and lower costs and therefore are able to lock in better returns than those banks that have an inferior sustainability stance (Nyuur et al., 2019).

Academically, this study has its footing in the area of corporate sustainability reporting performance and the effect that this would have on bank performance. The only way to assess a banks sustainability performance is through an examination of the disclosures the bank has made in its sustainability reports over time. Lack of authenticity in reporting would point to greenwashing. Literature has been concerned with what greenwashing is and why firms greenwash. In the preceding paragraphs answers were offered from the literature in the context of firm motivation and reward. Khan et al. (2020) in their study assert that the quality of sustainability reporting and its effects on performance has not been widely studied in a banking industry context and in fact theirs was one of the first studies to do so. Additionally, a study conducted by Buallay (2019b) highlighted the need for more studies that examine banks sustainability performance and how that impacts bank financial, operational and market performance.

Banks like other companies have similar characteristics in terms of shareholder, investors, customers and need to access capital markets like other businesses and must deliver services of value to customers in order to generate returns for investors and shareholders. Therefore, the expectation is that banks will be seized with trade-offs

similar to companies in other industries that have been studied in the past. This study accepts the notion that banks alongside governments will play a pivotal role in financing the transition to a globally green economy. Given their relative importance in the sustainability discourse as well as the fact they will need to raise capital to grow their assets in this regard, studying bank disclosures seems appropriate. The assumption is that banks compliance with green regulation and their motives will be no different to the way banks comply with the bevy of other regulations that govern their activities. However, as has been alluded to earlier, banks are still companies and the compliance with laws and regulation may not always be straightforward. Bowers et al. (2020) find that banks do greenwash to counteract negative publicity and that the motive is to appear to be green due to the benefits associated as opposed to being actually green perhaps due to the costs of doing so eroding thin margins. In Lebanon banks were found to engage in greenwashing with their disclosures dominated by community disclosures and the least disclosed category was the environmental category (Khalil & O'sullivan, 2017). In Europe a study that analysed European banks found that although these banks quality of sustainability reporting improved over time there were major gaps in their reporting and found there was a theme of insufficiency in reporting. The fact that there are studies showing that banks are in some instances complicit in greenwashing both in a developed market and developing markets context provides the academic backdrop for an inquiry into the status of South African banks and the effect of their sustainability performance on bank performance.

Investigating the quality of sustainability reporting in South African banking industry is fraught with challenges. This is due to the fact that the banking industry contains six main banks, and the industry as a whole is the subject of heavy regulation and oversight. Therefore, there is an expectation that the quality of reporting for the banks will meet global standards. The study therefore departs somewhat from the quality aspect to seek to understand the nature of the relationship between ESG performance and bank performance in South Africa.

Therefore, the research questions that this study aims to answer is:

**RQ1:** How does ESG performance, that is measured by assessing disclosures made by banks, affect the bank's operational performance?

**RQ2:** How does ESG performance. that is measured by assessing disclosures made by banks, affect the bank's financial performance?

**RQ3:** How does ESG performance. that is measured by assessing disclosures made by banks, affect the bank's market performance?

The rest of the paper is organised as follows, Chapter 2 discusses the literature review, Chapter 3, develops the hypothesis from the discussion in the preceding chapter. Chapter 4 details the research methodology before Chapter 5 presents the findings of the research. Chapter 6 discusses the findings before the paper is concluded in Chapter 7.

## Chapter 2: Literature Review

### 2.1 Bank sustainability disclosures and performance

Sustainability reporting and disclosure in the three pillars of environmental, social and governance risks is a vital component of market information pertaining to any company. The information may have been less relevant historically but as the world's sustainability consciousness has increased so has the need for companies to do more. Due to banks multidisciplinary exposures and interest, it's of critical importance for banks to demonstrate their contribution towards the attainment of globally set objectives that are collectively the Sustainable Development Goals (SDGs). Due to the innumerable stakeholders that banks have, the responsibility that they have to ensure that substantive and not symbolic corporate citizenship is the operational standard. Apart from the benefit that will accrue from external stakeholders positive perceptions, internal stakeholders and staff will be better motivated knowing that they are working for an organisation that is in the business of doing good (Jain & Rizvi, 2020).

Shakil et al. (2019) examined whether the ESG has any impact on the performance of banks and discovered that banks environmental and social performance were positively associated with financial performance but critically for governance there was a negative effect on financial performance. Therefore, the relationship between ESG and bank performance may not be straightforward particularly when looking at the individual components of ESG and their effect on performance. The finding is equally mixed in a European study where environmental disclosure had a positive relationship with operational and market performance, but the social disclosure pillar had an inverse relationship with all of operational, financial and market performance (Buallay, 2019a). There are also other motivations for banks sustainability report in that they may benefit from increased stakeholder support even in times of financial distress. This may be as a result of the stakeholder community not wanting to lose a good corporate citizen as readily as a bad one and as such are more willing to support the good corporate citizen by providing access to capital and payment moratoriums (Bătae et al., 2020). A further aspect of the ESG and performance relationship for banks surrounds cost efficiencies. The bank is a for profit company and is therefore focused on cost optimisation as a manner in which to unlock profits and manage the sustainability thereof. In Asia research found that banks were able to improve cost efficiencies by improving governance and operating in socially and environmentally responsible manner (Chang et al., 2021).

Corporate reputation and the associated benefits is another motivator behind why banks, aside from being regulated to do so, would engage in the disclosure of the environmental, social and governance activities. Banks with a good reputation enjoy cheaper access to capital are held in high regard by investors and stakeholders at large, are able to attract more customer and in so generate higher returns (Kumar et al., 2016). Therefore performance is indelibly enhanced by engaging in reputation enhancing activities but interestingly the same does not necessarily aid a bank in economic downturns. Forcadell and Aracil (2017) advise that whilst there are performance enhancing effects associated with corporate social responsibility engagement, the effects are non-existent in the case of an economic downturn. Interestingly, engaging in ESG responsible activities would be paramount during times of economic downturn as stakeholders and the bank begin to suffer, but perhaps threat of the company closing down puts all actors into survival mode at the expense of CSR engagement. The overarching promise of accounting profit in return for developing and sustaining a good corporate reputation seems to be fairly ubiquitous, however the same cannot be said for performance in the face of the drilled down constituents. For the social pillar financial performance and corporate reputation seem well aligned however the inverse has been found to be true for the environmental and governance constituents. As a result, it remains very difficult to conclude on the way in which corporate social responsibility activities of banks impact their performance when examining the constituents of ESG performance. The basis therefore for undertaking this study hinges on seeking to understand the nature of this relationship for South African banks specifically.

There has not been much research in South Africa on the relationship between ESG disclosure and banking performance as much of the research focuses on Western and Asian jurisdictions (Esteban-Sanchez et al., 2017). There is a need therefore to conduct analyses in the region and more specifically at a country level. Furthermore, banks in the Western and Asian regions have been practicing and following sustainability disclosure practices for several years. There is a contribution to be made by examining regions and countries who have been engaged in sustainability disclosures, particularly following the adoption of Global Reporting Initiative (GRI) standards. Additionally, Javed et al. (2020) find that the relationship between ESG disclosure and performance is unclear and the nature of the relationship would differ depending on the different contexts in which the study is conducted. Finally, reference is made to the important work of Porter and Kramer (2006) who argue, amongst other things, that in order to understand the sustainability posture of a company, the company's location must be known. Therefore, the importance

of carrying out this study in a South African context appears to be well supported by the literature.

## **2.2 Signalling**

Signalling plays an important role in the operations of any company as it would seek to address the information asymmetry often present between the company's workers and its external stakeholders. Signalling is a mechanism through which the company can indicate certain practices and initiatives to various stakeholder groups including customers, investors and communities at large (Cowan & Guzman, 2020). Assuming the information contained in the signal is positive, firms are able to enhance their corporate reputation by engaging in signalling activity. Cowan and Guzman (2020) observe that the beliefs consumers have about a particular company can affect its performance. Deductively, companies with a good story to tell will more likely and more frequently engage in signalling, by using up company resources to ensure high visibility and awareness of their activities (Connelly et al., 2011).

Banks are no different to corporations in that they have a profit motive and as such value exists in being able to credibly signal valuable information to shareholders. de la Fuente and Velasco (2022), find that attention must be paid to systematising a set of signals to ensure the greatest impact on firm value in the context of corporate sustainability, concluding that certain signals may be stronger for the environmental pillar and less so for the social or governance pillar. That is signalling plays an important role in legitimising the sustainability actions of banks and therefore establishes the plausibility of banks strategically disclosing sustainability information to enhance firm value. Furthermore, banks by their very nature participate in activities that encompass several sectors some of which may be viewed as questionable or less favourable from a sustainability perspective. Some of these sectors include the alcohol, tobacco, gambling and arms industries. Bonifácio Neto and Branco (2019) find that very little reporting is done on the investments or financing of firms and activities in these sectors nor is there much on reporting on decisions to exclude certain sectors or projects with regard to these industries. The lack of homogeneity and standards in reporting means that banks are able to tailor their disclosures to suit a particular outcome. In a South African context van Zijl et al. (2017) who analysed the financial services industry including banks also found that sustainability disclosures were secondary to economic disclosures. In another study conducted by Galletta et al. (2021), found that there is a negative relationship between banks environmental performance and bank deposits, additionally, that banks with better sustainability performance paid lower interest rates for customer deposits.

Corporate reports on sustainability achievements and practices is a form of signalling corporate social performance to stakeholders (Rosati & Faria, 2019). Clearly, there are benefits perceived or actual for the firm if the information signalled is both accurate and reliable. Firms that can extract superior corporate sustainability performance can achieve competitive advantage by signalling this information to stakeholders, where this information is trustworthy, a certain trust perception is established in the company. This trust can be referred to as social licence which encapsulates all the firms characteristics and activities that taken together cultivate a positive perception of the company which in turn creates a stakeholder-wide acceptance of the company's current and future activities (Gray et al., 2020). Thus, firms are necessarily concerned with their sustainability reputation and will take action to preserve, or in the case of failure, restore its reputation as quickly as possible.

Studies that have investigated the quality of sustainability reporting have been focused on the mining and resources industry (Talbot & Barbat, 2020). This study breaks away from that convention and focuses on the banking sector as a sector that has a very important role to play in financing the transition towards a green economy (National Treasury, 2020). Government has a significant role to play in financing the transition, however, the role of the private sector is equally important. The private sector thus must accelerate its engagement in the funding of green projects and investments and is incentivised to reform as well by ensuring that their funding activities do not contravene the overall objective of a just transition towards a green economy (National Treasury, 2020). Heightened sustainability consciousness means that financial services companies are affected from a cost of capital point of view, with green financing activities enjoying a savings discount on a like for like basis compared to non-green funding activities. The National Treasury considers banks, investment houses, retirement funds and insurance companies as part of the private financial sector constituents largely responsible for financing the transition alongside themselves.

The financial services sector including banks has historically been concerned with chasing financial profits as a priority, sometimes to the exclusion of other priorities. The constituents themselves will have little say in whether or how quickly they shift as the demand from capital providers, investors and shareholders for the change is growing exponentially. This creates the scenario whereby financial services providers that are pursuing competitive advantage would increase their ESG-related activities and concomitantly increase their reporting on these initiatives to signal improvements and achievements in corporate social performance (Manning et al., 2019).

## 2.2 Greenwashing

The potentially rapid transition to a greener world and society means that some firms will be able to achieve the necessary transformations faster and better than others. This may leave some firms with an eroding competitive advantage which may motivate these firms, albeit in the short-term, to greenwash in their disclosures to arrest the decline as they catch up (Yu et al., 2020). Greenwashing can be described as a deliberate disclosure aimed at misleading stakeholders, by stating untruths, overstating green activities, and obfuscating the true nature of the corporate environmental performance or lack thereof (Uyar et al., 2020). Greenwashing therefore would appear to reside wholly with the corporate or the so called discloser of the information. Seele and Gatti (2017), suggest that the definition must be expanded to include the receiver of the disclosed information, as an accusation must be made first, ostensibly by the receiver, before greenwashing is confirmed and the negative effects associated with the loss of legitimacy can materialise. This paper recognises the first definition because part of the examination is attempting to understand the link between corporate social performance and its effects on bank performance. However, the importance of the stakeholder is not lost entirely.

Stakeholders use the information published by the company, analysts, and other service providers to develop a view of a company's reputation. The flow of information and the degree of stakeholder sophistication has a role to play in the formulation of stakeholder perspective. If sophistication is low stakeholders may lack the necessary skill and ability to detect mistruths or inaccuracies in the reported data. Axjonow et al. (2018) concur in that they find that corporate reputation is not influenced by CSR reports where the recipients are non-professionals but that informal disclosures, such as those on websites, do indeed influence corporate reputation when consumed by non-professional stakeholders. Intuitively, one does expect that sophisticated stakeholders will be able to detect greenwashing attempts more effectively than their unsophisticated counterparts, which may explain why research shows that greenwashing only works in the short-term until the truth is discovered (Ferrón-Vílchez et al., 2021). Pressure from stakeholders for firms to conform to ESG reform and sustainability practices might also play a role in the way firms choose to disclose sustainability performance. Testa et al. (2018) find that when the pressure is applied by institutional stakeholders then the firm is more likely to inculcate and report honestly on well-entrenched sustainability practices, however, when customers and associations apply pressure there is a greater likelihood of greenwashing. Given the pressures in the South African financial sector context to finance the transition towards a green economy, the quality and quantity of corporate sustainability disclosures

is likely to increase (National Treasury, 2020). Coupled with this increase in reporting is a finding that greenwashing is characterised by high environmental disclosures in the face of poor sustainability performance. This leads to the conclusion that informs a-priori thinking in this paper, that greenwashing is a phenomenon, likely short-term, where both lacklustre sustainability performance and high environmental disclosures are present.

The concept of selective disclosure is a phenomenon that is discussed in the literature as a form of greenwashing in which companies create an overly positive perception of sustainability performance due to biased disclosures. Alternatively, that firms do not disclose all negative environmental performance and over-disclose positive performance (de Freitas Netto et al., 2020). Furthermore, inconsistent enforcement of sustainability reforms and associated punishment of transgressions is an impediment to global reform in this area. One would expect however that developed countries would be far ahead in the area of sustainability disclosures and associated enforcement. Developing countries have their own priorities, objectives and constraints that might render sustainability unimportant in their current context. Juxtaposed to this is the thought that investors are becoming more sophisticated in a more global more connected world and may feel closer to companies they invest in even though the entity invested in may be on the other side of the world. The lack of ubiquitous sustainability performance or greenwashing assessment would mean that there is higher likelihood that greenwashing may be prevalent more in developing countries than their developed counterparts.

### **2.3: Legitimacy Theory**

Building, achieving and retaining corporate legitimacy is an important strategic objective of firms globally. Corporate legitimacy has been defined as “a generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions” (Suchman, 1995, p. 574). Therefore, corporations have been concerned with the perceptions of stakeholders for a long period of time. Firms engage in actions that seek to improve their reputations by aligning with stakeholder values.

Central to this paper though is the idea that banks, given the increasing pressures applied by stakeholders, might seek this legitimacy by making symbolic claims of sustainable practices either to stay ahead of the competition’s achievements or indeed to create a competitive advantage that would result in incremental access to capital at more favourable rates than their competition. Clearly, this is a very important part of corporate behaviour, Nielsen and Thomsen (2018) corroborate this observation by acknowledging

that companies spend time considering the nature and content of various strategic corporate disclosures that would enhance their legitimacy.

Given that a firm has limited resources and time and would need to choose amongst an array of disclosure priorities, profit-maximization or indeed self-interest may be a central component in the disclosure decision process, Nielsen and Thomsen (2018) call this pragmatic legitimacy. Legitimacy that does not necessarily have moral and ethical considerations at its genesis nor nexus. However, other firms may establish board sub-committees to oversee their corporate social responsibility activities and resultant disclosures which could signal credibility and enhance those very disclosures (Berrone et al., 2017).

Banks are highly regulated in South Africa but face the same pressures from stakeholders as well as have the desire to build credibility and a positive reputation as they seek to attract customers away from the competition. Add to this an increasingly regulated banking operating environment which increases costs and puts pressure on margins the fight for new clients in the industry is fierce. However, the desire to gain new clients by misleading stakeholders on the extent of sustainability activities is counterbalanced by the risk that, if discovered could lead to a scandal that may severely damage the bank's reputation.

#### **2.4: Banks and Corporate Social Responsibility in South Africa**

Banks in South Africa, like their global counterparts, will experience the effects of heightened sustainability consciousness of people the world over. Banks importance to financing the transition to achieving the sustainable development goals is paramount, this is because the government is reeling from high debt levels and associated interest payments so they will enable the overall transitional environment through policy, but banks ultimately would need to partner with government to finance the transition (National Treasury, 2020).

The corporate sustainability disclosures made by South African banks has increased over the years in line with other local corporates after the adoption of the South African Code of Corporate Governance known as KING III in 2009. Some of the provisions in the code related to principles of integrated reporting, which moved the focus away from just reporting on financial aspects but also on matters related to sustainability. Corporates adopted King III and therefore we would expect an uptick in reporting when compared to the King II period. Furthermore, the code was further strengthened by the publication of King IV.

The main purpose of this study is to determine whether banks in South Africa experience positive operational, financial and market performance outcomes from their engagement in ESG related activity and disclosure. Based on the premise that these disclosures result in the enticement of new investors, increased and cheaper access to capital and a positive reputation which collectively would yield better financial performance (Esteban-Sanchez et al., 2017). Reference is thus made to the research questions developed in Chapter 1.

Chapter 3 discusses the research hypotheses that will be tested in order to answer the research questions.

## **Chapter 3: Research Hypotheses**

The main purpose of this study is to determine whether banks in South Africa experience positive operational, financial and market performance outcomes from their engagement in ESG related activity and disclosure. The expectation based on prior literature is that a generally positive relationship exists between ESG disclosures and overall financial and market performance of banks.

The research question seeks to understand the relationship between ESG disclosure performance and bank performance. Accordingly, the following three hypotheses are developed.

### **3.1 Operational performance and ESG performance**

In the United States of America the relationship between operational and ESG performance has been found to be positive (Brogi & Lagasio, 2019). Similarly, in Europe Alareeni and Hamdan (2020) found a positive relationship between operational performance and ESG performance. In the emerging markets the relationship has also been found to be positive (Azmi et al., 2021). These findings are consistent with the expectation that disclosures about ESG performance should have a positive effect on operational performance. The study therefore proposes the following hypothesis:

**H1 (A): A positive relationship exists between ESG performance and operational performance**

### **3.2 Financial performance and ESG performance**

In terms of financial performance and ESG the relationship has similarly been found to be positive in studies that have focused on both developed and developing regions (Azmi et al., 2021; Buallay, 2019a). These findings are consistent with the expectation that disclosures about ESG performance should have a positive effect on financial performance. The study therefore proposes the following hypothesis:

**H1 (B): A positive relationship exists between ESG performance and financial performance**

### **3.3 Market Based performance and ESG Performance**

In terms of market performance and ESG the relationship has similarly been found to be positive in prior studies. In a research paper conducted in the Middle East North Africa Turkey (MENAT) region a positive relationship between ESG performance and market performance was observed. These findings are consistent with the expectation that disclosures about ESG performance should have a positive effect on market performance. The study therefore proposes the following hypothesis

**H1 (C): A positive relationship exists between ESG performance and market-based performance**

Chapter 4 that follows will discuss the research methodology that was used in the study to test the above hypotheses (A-C).

## **Chapter 4: Research Methodology**

This study will make use of a regression analysis that forms part of a quantitative research methodology. The primary objective of this paper is to identify and determine the nature of relationships between banks corporate social responsibility performance and bank performance. This will be analysed in the context of various explanatory variables to determine the direction and strengths of the ESG effects on bank performance. As the objective of this study is to observe measurable characteristics and more importantly the relationship between them in the last five years, the study satisfies the requirements for a quantitative study as described in (Bell & Waters, 2018). Additionally as the primary analysis will include the comparison and interpretation of numerical data, the quantitative research method is appropriate (Basias & Pollalis, 2018). Furthermore, as the study takes a deductive approach by incorporating variables with the objective of identifying any statistical relationships between them and producing generalisable findings, the study satisfies the requirements of quantitative research (Antwi & Hamza, 2015).

The rest of the Chapter is organised as follows: 4.1 outlines the population, 4.2 identifies the unit of analysis whilst in 4.3 sampling is discussed, thereafter 4.4 details the research instrument used in the analysis, 4.5 and 4.6 discuss the data gathering and data analysis components of the study, 4.7 deals with the research quality whilst 4.8 concludes the entire section by articulating the research limitations.

### **4.1 Population**

This study concentrates on the South Africa's banking industry. The population in this study would be the entire banking sector in South Africa. The South African Reserve Bank which serves as the prudential authority for the banking industry, classifies banks into five categories which are, locally controlled banks, foreign controlled banks, branches of foreign banks, representative office banks and mutual banks. This study seeks to study the South African banks and therefore will focus on the locally controlled banks, of which there are currently 13. Notably, the lion's share of the market is controlled by the big five banks in South Africa which control over 90% of the market both in terms of depositors and borrowers (Nedbank Group, 2021). The sector is robust and mature, with excellent regulatory and prudential controls in place, therefore one would expect a heightened level of disclosure and compliance with international best practice. The focus of this study is to understand the South-African-controlled banks ESG disclosures effect on performance and as such only local banks will be considered. This seems sensible as these local

banks represent a significantly large part of the banking industry, therefore, the a-priori expectation of the study is that inferences and findings made regarding this subset of the population should have some applicability to and should have some degree of generalisability notwithstanding errors related to study limitations and sampling (Bell et al., 2019).

Choosing to investigate the banks is a deliberate action for this study due to the idiosyncratic characteristics of the banking industry. Previously there have been several studies particularly on the mining sector due to very apparent link between mining activity and environmental impacts thereof (Garcia et al., 2017). Moreover, as South Africa is an industrials-based economy some of the heavy industries like, mining, steel and construction have been the central pillar of examination in past ESG related studies of the country. Unfortunately, the South African banking industry is not like some other developed countries where there are several banks. Furthermore, the decision to leave out foreign owned banks was driven primarily by the reason that their parent companies are domiciled in Europe, the United Kingdom, the United States of America and China, which confuses the South Africa focus somewhat. Furthermore, restrictions in resources meant that the scope of the study had to be narrowed to allow completion with the available resources.

## **4.2 Unit of analysis**

The unit of analysis in this study will be each of the banks selected in the sample, as we will observe and analyse certain variables regarding these entities to ultimately determine if banks in South Africa engage in credible signalling practices and whether this translates into bank performance. The interpretation and application of this unit of analysis is in line with the principles outlined by (Bell et al., 2019).

## **4.3 Sampling**

This study employs the use of sampling as it would not at all be possible to measure each variable of each entity in the population, coupled with other limitations, this is line with most academic research undertakings (Taherdoost, 2016). The objective of the study is to investigate the relationship between ESG performance and dimensions of financial performance in the South Africa banking industry. This research question served as the guide for undertaking each aspect of the research of which sampling is but one. The sampling process began with the list of locally controlled registered banks in South Africa as contained on the South African Reserve Bank's website. That list currently includes 13 banks which can be seen in Appendix 1 of which top six represented the final sample.

Thereafter a check was performed to ascertain whether the banks are listed on Johannesburg Stock Exchange to allow for access to information regarding ESG disclosures and financial information, therefore banks that are not listed on the JSE were left out completely as obtaining the required financial and ESG information was going to prove difficult for the privately-owned banks. Therefore, after beginning with 13, seven banks not listed on the JSE were removed from the study due to lack of access to information. Following the removal of the privately owned banks there were eight banks left in the sample. The next requirement would be that the relevant sustainability scores, the composite ESG Score, the Environmental criteria score, Social Criteria score and Governance criteria. These scores were going to be accessed using Refinitiv Workspace that includes a built in ESG platform that provides the above-mentioned scores for all companies included in its database. Therefore, the second criterion for sampling in the study was that the banks included in the sample needed to be covered by Refinitiv Workspace and therefore their data had to be accessible on the platform. A third sampling criterion was that all data financial and ESG related had to be available for each of the years of the study period which originally was 2015 – 2022. However, upon accessing Refinitiv Workspace two companies namely Sasfin Bank Ltd and Discovery Bank Ltd were not covered by the platform thus there were no scores available for these two companies and they were subsequently eliminated from the study. Discovery Bank did not have scores, but the parent company Discovery did have ESG scores, however for reasons of not wanting to conflate the scores of what is primarily an insurance company with bank metrics in a study about banks. Therefore, there were some eliminations from this sample due to some of them not meeting the criteria to be included in the study. The reasoning behind the selection of this sample is that the sample is representative of the greater banking sector in South Africa and therefore should deliver results that are generalisable to the population (Bell et al., 2019). Additionally, the decision to look at JSE-listed banks is due to the availability of information, non-listed banks do not make information available as readily as public companies do. Therefore, in as far as possible this covers the largest listed South African representation of banks, which would infer that the sample is representative of the banking industry in South Africa and should allow for the results to be extended to the population, which is a key characteristic of quantitative studies (Bell & Waters, 2018).

#### 4.4 Research instrument

In attempting to expose the relationships, if any, between ESG performance and the performance of banks the study considered the best research instrument that would achieve the objective. The extant literature provided a basis for how similar studies were conducted and the research instrument that was used in each. From the analysis of those works the overwhelming research instrument used was a multivariate regression containing the dependant variable, independent variables and some control variables. The study therefore used the guidance of prior authors to settle on a multivariate regression as the appropriate research instrument.

Using the analyses of both Uyar et al. (2020) and Khan et al. (2020) as a guideline it was possible to estimate an a regression equation which was built with the explanatory variables related to sustainability performance and financial performance. In addition to the aforementioned studies, Yu et al. (2020) also uses a regression model with data obtained from publicly available sources to analyse the relationship between a company's propensity to publish spurious ESG data and certain explanatory variables. The research instrument that is used in this study is in line with recent studies of a similar nature in the academic field where performance was set as the dependant variable and ESG performance or factors were set at as the independent variable. Buallay (2019a) investigated the relationship between ESG governance factors and bank performance by estimating a multivariate regression where the dependent variables where Return on Assets (ROA), Return on Equity (ROE) and Tobin's Q, as a proxy for market performance, in a study conducted on European banks. In a similar study conducted on Middle East, North Africa and Turkish banks also used ROA, ROE and Tobin's Q as bank performance proxies and set these as the dependant variable and set the ESG, composite and collapsed, metrics as explanatory variables (El Khoury et al., 2021).

The equations below therefore consider the governance scores which will be obtained from Refinitiv Workspace database and governance variables such as board diversity, board size, CEO duality and other performance measures like leverage and total assets serving as control variables.

$$Y_{pt} = \beta_0 + \beta_1 M_{1pt} + \beta_2 M_{2pt} + \beta_3 M_{3pt} + \dots + \beta_k MK_{pt} + \epsilon_{pt}$$

Where:

- ***Y<sub>pt</sub>*** represents bank performance and would be set to ROA in regression A, ROE in regression B Share Price Performance in regression C and Price to Book ratio

in regression D.

- $M1_{pt}$  is explanatory variable 1 for bank p at time t
- $MK_{pt}$  is explanatory variable k for bank p at time t
- $\varepsilon_{pt}$  is the error term

The variables that will be included in the model are detailed below:

**Table 1 – Model Variable List**

Variable	Description	Source
<b>ROA<sub>pt</sub> (Model A)</b>	Return on Assets for Bank p at time t	Refinitiv Workspace
<b>ROE<sub>pt</sub> (Model B)</b>	Return on Equity for Bank p at time t	Refinitiv Workspace
<b>SPrice<sub>pt</sub> (Model C)</b>	Share price for Bank p at time t	Refinitiv Workspace
<b>PB Ratio</b>	Price to book ratio for bank p at time t	Refinitiv Workspace
<b>M1<sub>pt</sub> (ESG)</b>	A given company's overall ESG performance across three pillars and 10 different ESG topics, in year t	Refinitiv Workspace
<b>M2<sub>pt</sub> (ENV)</b>	Environmental pillar performance score based on resource use, emissions and innovation in year t	Refinitiv Workspace
<b>M3<sub>pt</sub> (SOC)</b>	Social pillar performance score based on workplace, human rights, community, and product responsibility dimensions in year t	Refinitiv Workspace
<b>M4<sub>pt</sub> (GOV)</b>	Governance pillar performance score based on management, shareholders and CSR strategy in year t	Refinitiv Workspace
<b>M5<sub>pt</sub> (NegNews)</b>	The number of negative news articles for bank p at time t	Refinitiv Workspace
<b>M6<sub>pt</sub> (BSIZE)</b>	The number of board members for Bank p at time t	Bank Integrated Reports
<b>M7<sub>pt</sub> (BGender)</b>	The proportion of females on the board of Bank p at time t	Bank Integrated Reports
<b>M8<sub>pt</sub> (Tassets In)</b>	The natural log of total assets for Bank p at time t	Author Calculation
<b>M9<sub>pt</sub> (LEV)</b>	Total liabilities divided by total assets for Bank p at time t	Author Calculation

Adapted from: (Uyar et al., 2020)

**Y<sub>pt</sub>**, represents bank performance on the dimensions of ROA, ROE, Share Price to Book ratio, with each serving as a proxy for operational, financial and market performance respectively. The definitions and calculations of which remains consistent with the representation of the same performance measures in (Buallay, 2019a).

**Mpt**, variables represent all the explanatory and control variables used in the equation, each of the variables will be briefly introduced and explained in the next section.

The regression results will be presented in Chapter 5 and discussed in detail in Chapter 6.

#### **4.5 Data gathering process**

Data required to perform the analysis was collected from the bank's integrated reports as well as Refinitiv Workspace which was also accessed to obtain the banks ESG related scores. Refinitiv Workspace's ESG database is a globally recognised database that synthesises and processes the ESG disclosures of companies to arrive at various comparable ESG performance data. Refinitiv Workspace was also be used as a source of company information related to sustainability and financial performance as well as some of the control variables. The data gathering process is consistent with the approach used by Yu et al. (2020). The collected data was be gleaned from the sources described above, for each of the years under consideration in this study and was input initially into an excel workbook before any data analysis and associated transformations are carried out. A brief explanation of the variables is given below.

The Return on Assets (ROA) is a generally accepted financial accounting measure that is used to determine the operational performance of an entity. The ratio shows how profitable a given company is in relation to its total assets. Net income and average total assets were retrieved for each bank in each year of study from Refinitiv Workspace. Then ROA was computed using the following equation:

$$\text{ROA} = \text{Net Income} / \text{Average Total Assets}$$

The Return on Equity (ROE) is a generally accepted financial accounting measure that is used to determine the financial performance of an entity. The ratio shows how efficient management is at generating income from the shareholders' investment in the firm. Net income and shareholders equity were retrieved for each bank in each year of study from Refinitiv Workspace. Then ROE was computed using the following equation:

$$\text{ROE} = \text{Net Income} / \text{Shareholders Equity}$$

The Share Price represents the per share value of the firm according to investors. As the banks shares are traded on the Johannesburg Stock exchange price quotes are available on Refinitiv Workspace. This study used the 5-year rolling average of the period ending price for each bank in each year of consideration.

The Price to Book value variable represents the value of the share price to the company's book value and really determines whether the company is trading in line with its actual book value. This ratio helps investors identify whether a company is under or overvalued relative to book value.

The composite ESG score was obtained from Refinitiv Workspace and represents the company's ESG performance across the three pillars of environmental, social and governance and also includes an ESG controversies assessment to arrive at the final composite ESG score.

The Environmental Score or EnvScore is derived from an analysis of publicly reported data across three main categories which are emissions, innovations, and resource use. The score is then weighted according to an established method before being published annually on the Refinitiv Workspace platform.

The Social Score or SocScore is derived from an analysis of publicly reported data across four main categories which are community, human rights, product responsibility and workforce. The score is then weighted according to an established method before being published annually on the Refinitiv Workspace platform.

The Governance Score or GovScore is derived from an analysis of publicly reported data across three main categories which are CSR strategy, management and shareholders. The score is then weighted according to an established method before being published annually on the Refinitiv Workspace platform

The Negative News or NegNews variable tallied up all the new articles that were classified as negative or controversial in a given year and expressed that as a number. The number of articles were organised by year and for each of the banks on the Refinitiv Workspace platform.

The Board Size or BSize depicted the number of members on the board in a given year. The data for this variable was obtained by reading the annual reports for each of the banks in each of the years under consideration and tallying the number of active directors at each year end.

The Board Gender or BGender shows the proportion of female members on the board relative to the total number of board members. Similarly, the board size variable the information was gleaned off the annual reports of the banks and input into the raw data file from which all the analysis would take place.

The natural log of total assets (Tassets ln) was calculated by first obtaining the total assets number for each bank in each year of the study period and taking the natural log of that number. The natural log is taken to make the very large numbers easier to deal with and eliminates major variances in the number.

The Leverage (Lev) variable was computed using data obtained from Refinitiv Eikon for each of the banks in each year of the study period. Leverage is calculated by taking the total liabilities and dividing by total assets.

$$\text{Leverage} = \text{Total Liabilities} / \text{Total Assets}$$

#### **4.6 Data analysis approach**

The study draws on the work and experience of Uyar et al. (2020) , Khan et al. (2020) and Yu et al. (2020) to ensure that appropriate data collection methods are used that are in concert with prior similar studies.

Due to the study employing a regression approach, certain statistical methods need to be followed to heighten the quality of the analysis and limit critical errors. To limit these errors once the data is collected and the capturing phase is complete, the data will be analysed by determining the descriptive statistics were produced using Microsoft Excel. The descriptive analysis function within excel produces a high-level first representation of the data which will aid in understanding the mean, range and shape of the data at a minimum (Bell et al., 2019). The mean, range and shape of the data enabled the first identification of outliers that were either the cause of incorrect input or typos or some phenomenon that happened during the period of that observation. The descriptive analysis did not immediately identify many errors and the ones that were found were corrected as they were mainly due to scaling, thousands versus millions.

Once the data set had been descriptively analysed and corrections made to obvious errors the next step was to develop scatter plots for each variable to determine any outliers that warrant correction in the event of an error or deletion altogether. The scatter plots as included in did not identify any outliers and such the study was able to progress to the next phase. The data was then subsequently transferred to the Minitab statistical analysis tool from which all the regression related testing was done.

The first task was to produce a correlation matrix to identify the degree of correlation between the variables in an effort to expose and ultimately control for any existing autocorrelation. The results of the correlation matrix will be presented and briefly discussed in Chapter 5.

Once the correlation process was completed, the data set was then subjected to tests that determine the linearity, normality, multicollinearity and homoscedasticity of the data. These tests are run as vital a checklist for a regression as these assumptions must hold in order to ensure the quality and reliability of the regression output. The linearity test that was run is presented and discussed in 5.5.1, the overall result of which was that the assumption of linearity in the data was not rejected. The second test that was run was the test for normality using the Kolmogorov-Smirnov test, the results of which are presented in 5.5.2. The third test that was run was the test for multicollinearity which used a two-stage test process by first examining the correlation matrix and in the second stage confirming the observations made in the correlation matrix with the respective Variance Inflation Indicators (VIFs), the results are presented in 5.5.3. The fourth and final test that was run on the data in respect of the regression assumptions was the test for homoscedasticity which was tested for using the Breusch-Pagan test the results of which are presented in Section 5.5.4. The methods used for testing the regression assumptions are in line with similar prior studies and reflect reliable research methods guidance (Bell et al., 2018).

Once all the assumptions had been examined and satisfied, the four regressions were setup within Minitab. Four separate regressions were executed using the statistical software and the results of all four regressions were recorded. The ROE and ROA regressions were proxies for the effect ESG had on financial and operational performance respectively. The regressions produced a high r-squared and statistically significant F-statistic. Similarly, for the market performance regressions which used share price and price to book value as the dependent variable, similarly significant regressions with high R-squared were produced.

Finally, to understand the relationships present within the dataset, the study interpreted the significance, signs and magnitudes of the slopes. Additionally, proportions of values were considered instead of observed values in order to determine any effect on the study. Furthermore, the data was also compiled in manner that would allow for the identification of leading and lagging indicators, although due to the shortened time period of the study no meaningful observations were found.

The analysis was carried out using Minitab statistical software which is a widely used software package for statistical data analysis and contains the relevant statistical models necessary to execute an analysis of this kind. This data analysis approach is consistent with suggested approaches for quantitative studies where multivariate regressions are present.

## **4.7 Research Quality**

### **4.7.1 Reliability**

The concept of reliability in research refers to the extent to which the results of a study can produce stable results consistently and how repeatable are the results of the study (Bell et al., 2019). This study employs quantitative measures incorporating a research instrument that has been widely used by authors seeking to explain similar relationships within a sustainability reporting context. Quantitative studies generally aim to produce results that are generalisable by measuring variables, identifying and establishing the nature of relationships between those variables in a manner that is both reliable and replicable. Wide use of the research instrument should ensure that reliability requirements are met, as consistent use of the instrument as well as alternate applications over time has been achieved by prior authors, which is a key requirement for validity (Bell & Waters, 2018). This will allow the achievement of the stability and equivalence attributes of validity which refer to consistency both in the research instrument through repeated testing and the use of alternate forms of the instrument (Heale & Twycross, 2015). Being guided by prior authors who have investigated similar relationships albeit in different contexts brings with an inherent level of validity as there has been no departure from accepted statistical design and methods. The parallel with prior studies is the basis for positioning the reliability of this study.

According to Bell et al. (2019) Cronbach's alpha is a suitable test for checking reliability and this test was conducted in this study. Cronbach's alpha has been used extensively over the years and remains a rigorous and dependable measure for reliability. The reliability scores are reported in Chapter 5.

### **4.7.2 Validity**

According to Bell et al. (2019), validity deals with the degree of certainty that the study has found a causal relationship between the dependant and independent variables. That is the degree of certainty that can be attributed to a statement that a variation in the dependant variable is caused partially or wholly by the variation in the independent variable. This definitive statement will be difficult to arrive at even in the presence of statistically significant causal relationships due to the fact the model used would have underlying assumptions and limitations of period, industry as well the possible unintentional omission of meaningful explanatory variables. Additionally, the model is unlikely to include all explanatory variables that may influence the dependant variable.

Furthermore, the presence of correlation issues, irrespective of how material, between the explanatory variables would present an impediment to definitive certainty that a conclusive causal relationship has been established (Creswell, 2014).

#### **4.7.3 Internal Validity**

Internal validity refers to the correctness or credibility of the research and is based on whether the instrument and method used have successfully and accurately measured all the variables (Bell et al., 2019). The quantitative methods followed accompanied by the restrictive assumptions made should assist in meeting validity criteria, however this is not absolute. The correctness or internal validity of the study is affected by endogeneity and the autocorrelation problems. Additionally, not all explanatory variables have been included in the study and therefore some explanatory power is lost. Furthermore, the study has been limited in scope to South African controlled banks and in time period to 2017 – 2021 which also has negative implications for internal validity. By following established methods and replicating or adapting the methods used in prior studies works to offset the internal validity concerns. The study could nevertheless, have been aided by employing an accompanying research method such as content analysis or interviews to build up a triangulation factor that would have secured internal validity (Bell et al., 2019) .

#### **4.7.4 External Validity**

External validity refers to the degree to which the study is transferable to other settings (Bell et al., 2019). The study's transferability is expected to be robust due to the fact that the study relied on the external validity of prior studies to develop the constructs and to build out the required methodology. Therefore, the study is expected to have a certain level of inherent external validity. This would mean that the findings should apply to similar studies, conducted in a similar manner in similar settings.

#### **4.8 Research Limitations**

This research study has several limitations since there are time and therefore scope constraints on the depth and breadth of the study that was carried out. Firstly, as there is limited time to conduct the study and a requirement on producing data relevant to the last few years the study has been restricted to the period 2015 to 2021 inclusive. That means that any all insights that could have been exposed through longer term study are omitted, furthermore certain phenomena that was discovered may only have existed during the period under review. Secondly, the decision to isolate locally controlled banks for the benefit of conducting an analysis that will produce results in a South African context

means that potentially valuable contributions from extending the analysis to foreign controlled banks or indeed the entire domestic financial services sector have been excluded.

#### **4.9 Ethical Considerations**

The study undertaken like any study is the subject of ethical considerations in research. Ethics in research exist largely to ensure that the participants or respondents in a study are adequately protected and do not have their rights, dignity and privacy infringed upon in light of the research (Bell et al., 2018).

This study has been subject to an assessment by the Ethics Committee of the university and received an unconditional approval to proceed. The type of data used in the study is public non-human data and was sourced from Refinitiv Workspace which a well-renowned and respected financial database. The data was extracted solely for the purpose of conducting this study. Collection of the data did not involve any human subjects or data that would be considered to be an organisation's private data. Finally, as per the requirements of the university the data used in this study will be kept safely for a minimum of 10 years. Therefore, the study does not create any ethical concerns that would require mitigation and pursuant to the approval of the university's ethics committee the study may proceed.

## Chapter 5: Results/Findings

### 5.1 Introduction

In this chapter the results of the tests performed will be presented along with a discussion on regression diagnostics. The chapter is organized as follows, 5.2 presents the descriptive statistics, 5.3 presents the validity and reliability findings, 5.4 presents the detailed variable analysis. Thereafter, in 5.5 the regression diagnostic testing results are presented before 5.6 concludes the chapter with the regression results.

### 5.2 Results from the overall sample

**Table 2**

*Sample Descriptive Statistics*

	Mean	Standard Error	Median	Standard Deviation	Sample Variance	Kurtosis	Skewness	Range	Minimum	Maximum	Sum
<i>ROE</i>	14.89	1.22	14.20	6.71	44.99	-0.64	0.18	22.80	3.70	26.50	446.80
<i>ROA</i>	1.78	0.29	1.20	1.59	2.54	2.03	1.79	5.40	0.30	5.70	53.40
<i>Share Price</i>	232.88	47.26	161.34	258.87	67014.08	4.75	2.27	1049.75	43.00	1092.75	6986.28
<i>Price to Book</i>	2.26	0.26	1.73	1.44	2.06	1.26	1.45	5.17	0.68	5.85	67.80
<i>ESGScore</i>	57.05	3.01	60.67	16.47	271.27	-0.80	-0.40	56.00	27.00	83.00	1711.43
<i>EnvScore</i>	64.84	5.27	63.00	28.84	831.83	-0.37	-0.77	88.00	9.00	97.00	1945.34
<i>SocScore</i>	73.48	3.48	81.30	19.09	364.27	-0.69	-0.78	61.00	36.00	97.00	2204.29
<i>GovScore</i>	43.00	2.76	42.00	15.14	229.15	-0.92	0.05	55.43	15.00	70.43	1289.91
<i>NegNews</i>	1.00	0.29	0.00	1.58	2.48	2.77	1.81	6.00	0.00	6.00	30.00
<i>BSize</i>	15.33	0.41	16.00	2.25	5.06	-0.43	-0.06	9.00	11.00	20.00	460.00
<i>BGender</i>	0.26	0.01	0.25	0.08	0.01	2.62	0.71	0.42	0.08	0.50	7.72
<i>Total Assets (ln)</i>	13.61	0.19	14.01	1.02	1.03	0.75	-1.39	3.42	11.20	14.62	408.44
<i>Leverage</i>	0.89	0.01	0.91	0.05	0.00	1.88	-1.87	0.14	0.78	0.92	26.72

Descriptive statistics provide a simplistic overview of the variables included in the study and attempt to describe the data. In Table 2 above the 13 variables included in the study are described according to their respective means and associated dispersion of the data from the mean through standard deviation and variance measures. In addition to measuring dispersion the data also provides insights as to whether the data being analysed for each variable is distributed normally or indeed has aspects of non-normality. The non-normality concept is represented by the Kurtosis and Skewness metrics. Generally acceptable levels of skewness range between -3 and 3 and therefore our

variables exhibit low and acceptable levels of skewness as for each variables the reported number is close to zero. For the kurtosis level the observed scores range between 2.77 (NegNews) and -0.92 (GovScore) which also confirm acceptable levels of Kurtosis within the samples as the reported values are close to zero.

**Table 3**  
*Yearly Descriptive Statistics*

	2021		2020		2019		2018		2017	
	STD DEV	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	MEAN	STD DEV	MEAN
<i>ROE</i>	3.43	11.98	4.35	11.99	4.35	13.37	6.13	15.91	6.71	14.89
<i>ROA</i>	0.33	1.03	0.40	1.03	0.39	1.13	1.54	1.84	1.59	1.78
<i>Share Price</i>	0.00	288.61	0.00	264.85	0.00	238.10	0.00	200.16	0.00	172.67
<i>Price to Book</i>	0.00	2.21	0.00	2.30	0.00	2.38	0.00	2.26	0.00	2.15
<i>EsgScore</i>	8.47	62.17	9.63	60.33	11.86	63.11	16.71	56.21	16.47	57.05
<i>EnvScore</i>	12.77	67.50	15.66	73.08	16.18	72.83	26.93	61.17	28.84	64.84
<i>SocScore</i>	4.85	86.50	5.13	87.50	11.88	83.83	20.66	74.04	19.09	73.48
<i>GovScore</i>	10.39	41.67	8.08	40.50	12.67	46.00	14.49	41.21	15.14	43.00
<i>NegNews</i>	2.35	1.50	2.12	1.83	1.90	1.28	1.72	1.08	1.58	1.00
<i>Bsize</i>	2.23	14.16	2.27	15.33	2.03	15.39	2.13	15.75	2.25	15.33
<i>Bgender</i>	2.23	0.32	0.08	0.29	0.07	0.28	0.07	0.27	0.08	0.26
<i>TAssets (ln)</i>	0.23	14.23	0.21	14.25	0.24	14.21	1.00	13.78	1.02	13.61
<i>Leverage</i>	0.00	0.91	0.01	0.91	0.01	0.91	0.04	0.89	0.05	0.89

Table 3 above reflects the descriptive statistics of mean and standard deviation for the sample broken down over an annual period. In terms of ROA the observation is that the variable is decreasing over the study period as banks experience less operational efficiency, possibly owing to the effects of Covid-19. In terms of ROE the average ROE amongst the banks is also declining, reflecting lower equity returns over the period. The share price, however, has experienced an increasing trend on average, whilst the price to book ratio has remained relatively flat. There is an improvement in the social score component of the ESG score over the period, similarly there is a marginal increase in the average environmental score over the period of analysis. Additionally, negative news items were observed to be increasing on average over the period whilst average board size declined over the period. The banks analysed enjoyed an average increase in assets over the period with leverage remaining relatively flat. Female representation on the boards of directors also increased over the period. For returns, Return on Equity (ROE) was clearly hampered by the onset of Covid-19 and has not as yet returned to pre pandemic levels. Similarly, for Return on Assets (ROA) the metric declined significantly in 2019 and further in 2020 and 2021 and has yet to revert to the levels seen in 2017 and 2018.

### 5.3 Validity and Reliability Tests

**Table 4**

*Cronbach Alpha*

<b>Cronbach's Alpha</b>					
<u>Alpha</u>					
0.7567					
<b>Omitted Item Statistics</b>					
<b>Omitted Variable</b>	<b>Adj. Total Mean</b>	<b>Adj. Total StDev</b>	<b>Item-Adj. Total Corr</b>	<b>Squared Multiple Corr</b>	<b>Cronbach's Alpha</b>
ESGSCORE	212.41	57.55	0.8577	0.9677	0.6480
EnvScore	204.62	45.90	0.8573	0.8981	0.6692
SocScore	195.99	55.58	0.8271	0.9240	0.6469
GovScore	226.46	60.99	0.6820	0.8662	0.6894
NegNews	268.46	72.07	0.0564	0.8493	0.7682
Bsize	254.13	72.32	-0.0807	0.3621	0.7714
Bgender	269.20	72.15	0.2326	0.4348	0.7686
Total Assets (ln)	255.85	71.45	0.7058	0.9404	0.7614
Leverage	268.57	72.13	0.8495	0.9602	0.7683

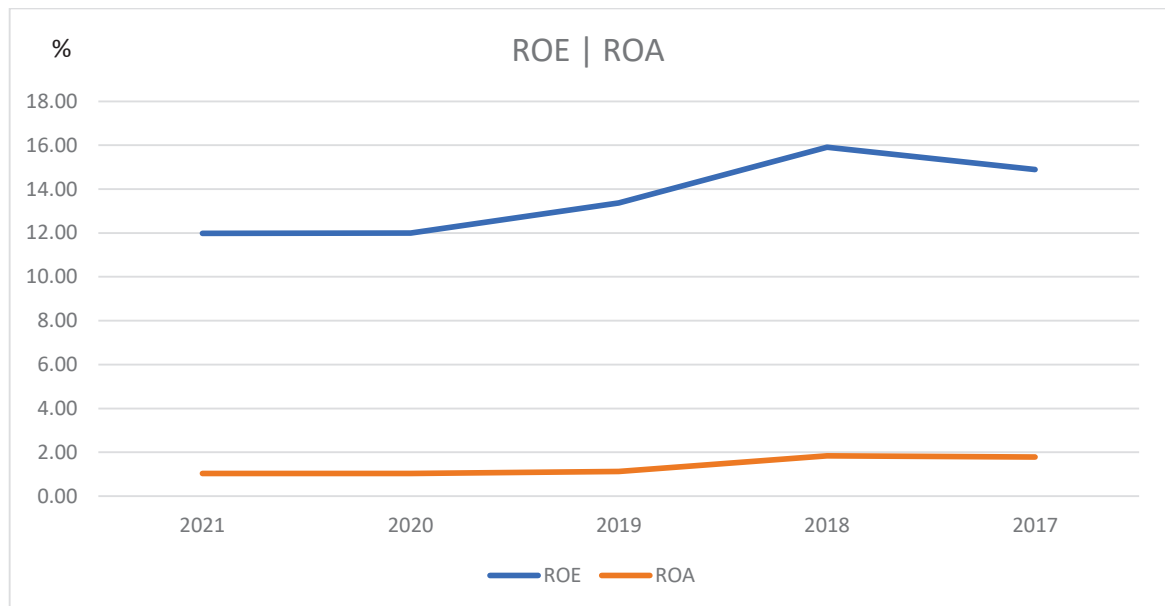
From Table 4, above the Cronbach Alpha of all the independent and control variable is presented. The overall Cronbach alpha is 0.7567 and on an itemised basis the lowest Cronbach Alpha is 0.6480 for ESGScore. Given that the Cronbach Alpha is between the range of 0.6 and 0.8, the test indicates moderate and acceptable reliability.

## 5.4 Detailed Variable Analysis

### 5.4.1 ROE, ROA, Share Price and Price to Book Ratio

Figure 1

*ROE and ROA Over Time*



#### ROE

The ROE variable, as shown in Figure 1 declined over the period as evidenced in the bar chart shown above. Equity returns therefore were under pressure over the period under investigation. The period was characterised by uncertainty and resultant payment and interest moratoriums brought about by COVID-19 that would have undoubtedly harmed bank earnings over the period.

#### ROA

The ROA variable as shown in Figure 1 did not change markedly over the period as evidenced in the bar chart shown above. The increase in returns did not keep up with the increase in assets over the period resulting in the moderate downward trend in the metric.

**Figure 2**

*Share Price and Price to Book Ratio*

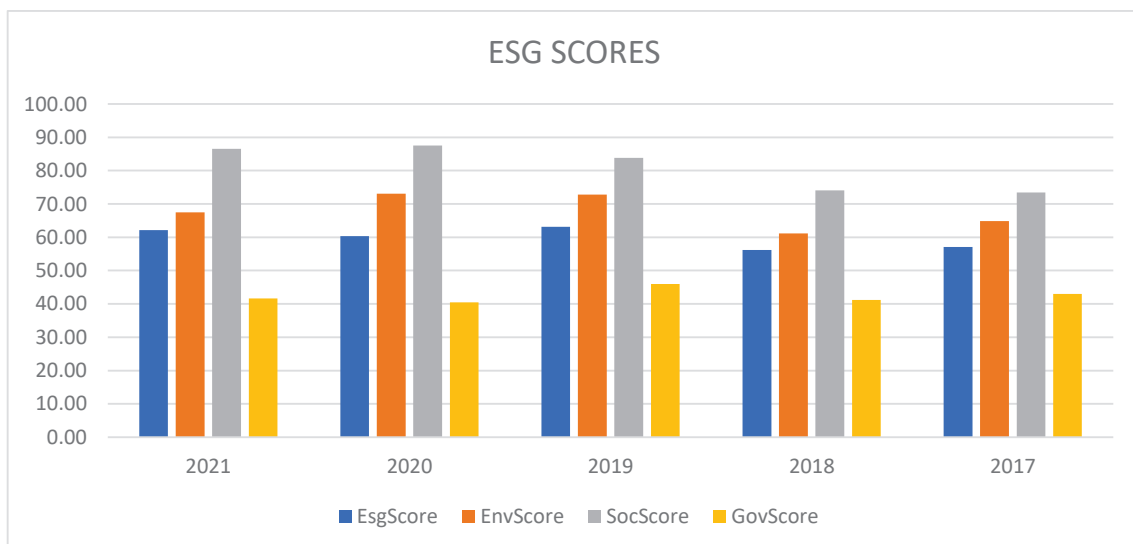


The five-year rolling average of the share price, as shown in Figure 2 for banks was increasing during the period of the study, underscoring the attractiveness of the industry to equity investors. Figure 2 also illustrates that the price to book ratio remained well above 1 for the banks in the study which indicates that banks are marginally overvalued relative to their book values.

### 5.4.2 ESG Variables

**Figure 2**

*ESG Variables*



ESGScore, represents the overall sustainability score taking into account the component scores of ESG for each of the categories thereof. Figure 3 above shows that the overall ESG Scores for the banks in the study have increased in the period under analysis. This increase though from the 50's into the 60's is still not where the banks want to be overall. The average may exhibit some downward bias due to the inclusion of Capitec Bank whose ESG scores on average were quite lower than the other banks in the study.

ENV Score, represents the environmental dimension within the ESG model. Generally, the score was increasing on average compared to the beginning of the study peaking in 2019 and 2020 before tapering off slightly for 2021's number. Banks focus on environmental sustainability is confirmed by the reported environmental performance figures.

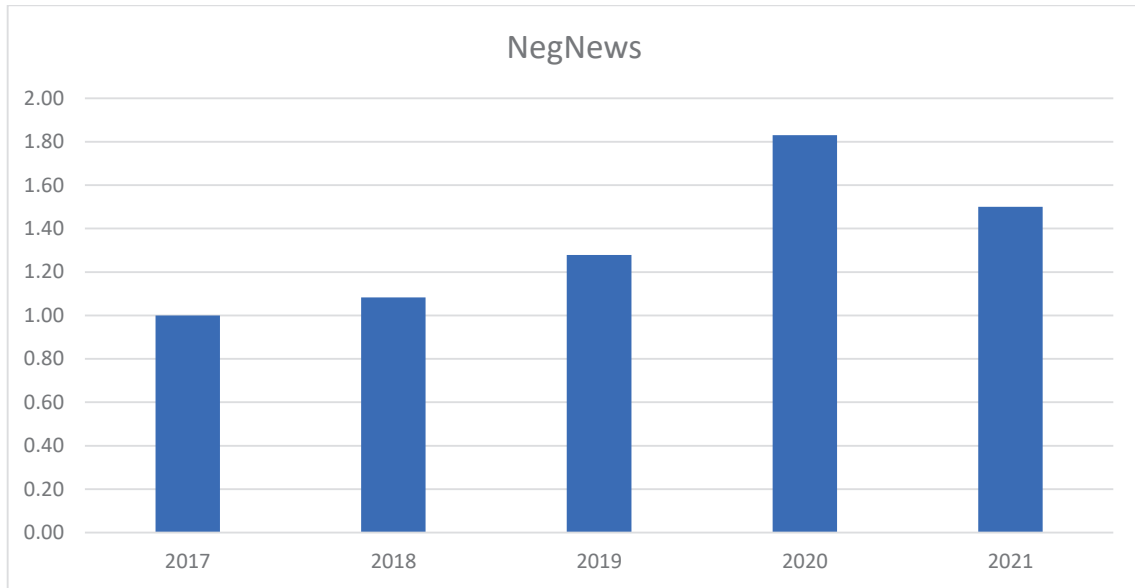
Soc Score represents the social risks as they relate to banks. This was the best performing sustainability metric in the study with all banks scoring well on the social dimension. Scores exceeded 70 on average for all years in the study. Furthermore, the social aspect trended higher on average with an observed score of 86.5 in 2021 versus a score of 73.4 in 2017. A clear and marked improvement that may depict the work done by banks in response to the Covid-19 pandemic.

Gov Score, this dimension showed the worst performance of all the sustainability metrics. The banks considered in the study on average were unable to obtain a pass mark of greater than 50 for this dimension. Comparing the scores in 2017 the average score was 43 which declined to 41 by 2021. Clearly this is an area where the performance of banks from a sustainability perspective is clearly lacking.

### 5.3.3 Other Model Variables

**Figure 3**

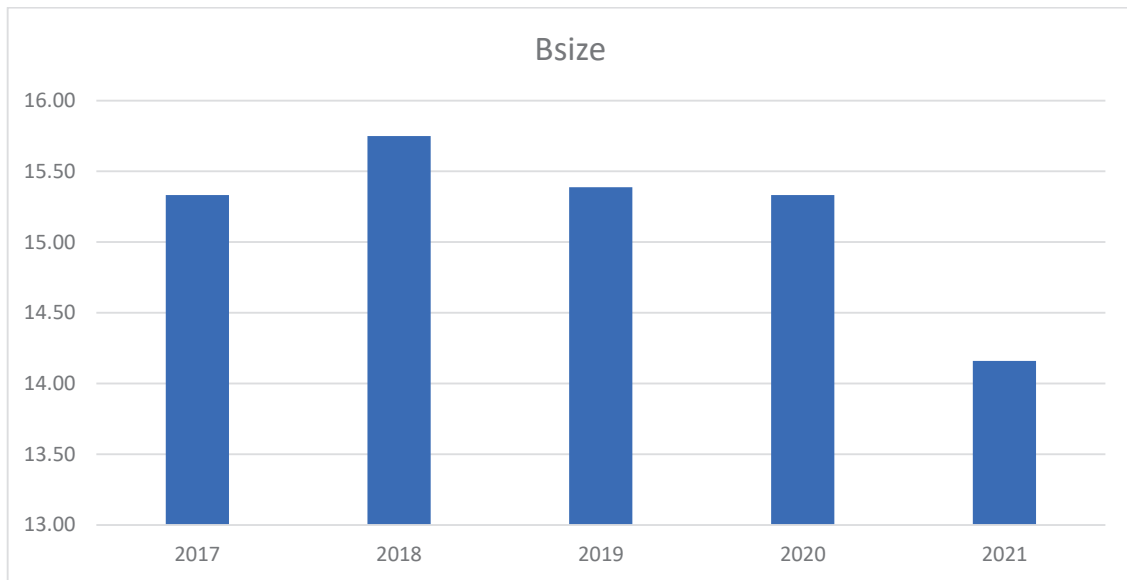
Negative News



In Figure 4 above, Negative News; the variable negative news captures the number of negative news articles published whether the news was attributed to sustainability or some other negative circumstance. The article count for the banks remained respectably low due in the most part to the regulations that banks need to adhere to. While there was a slight uptick in negative news over the period the overall average number of articles averaged below two for the banks for the study.

**Figure 4**

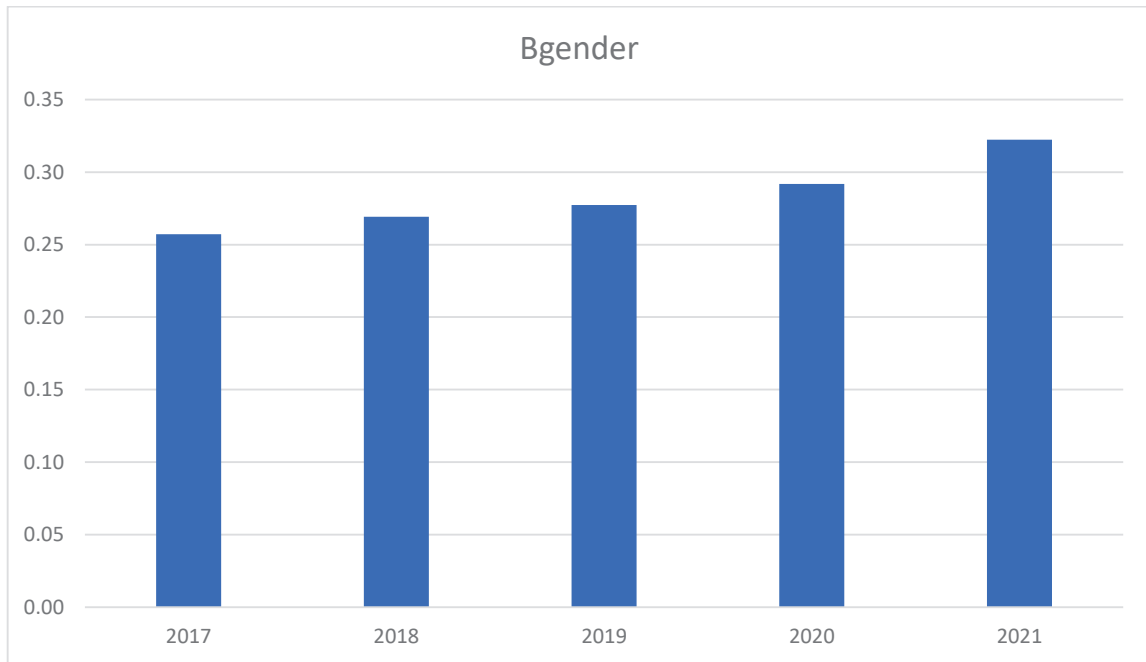
*Board Size*



The size of boards declined over the period of analysis as shown in Figure 5 above. On a rounded basis the average board size in 2018 was at a peak level of 16, up by one from 2017. The average board size then declined every year after that and reached a level of 14 by the year 2021. Clearly, a concerted effort on the part of the industry to optimise the size of their boards.

**Figure 5**

*Board Gender*



The average number of females on the board as a proportion of board size also increased over the period as banks sought to diversify their boards as evidenced in Figure 6. Boards though were still male dominated over the analysis period despite an increasing representation of women. Acknowledgement is given to the fact that board sizes decreased slightly over the period thus all else equal would increase this number but the actual number of females on the board did increase over the period as well. If there were board resignations during the period, usually of a male, in almost all cases the individual was replaced by a female.

**Figure 6**

*Natural Log of Total Assets*



Figure 7 above depicts total assets over the period of the study and observe a marked increase in average total assets over the period. The natural logarithm of total assets was taken to make the number more manageable and comparable as the notional values are inordinately large in local South African currency. Furthermore, due to the fact that ratios tend to be normally distributed taking the natural logarithm of total assets is expected to improve regression results.

**Figure 7**

*Leverage*

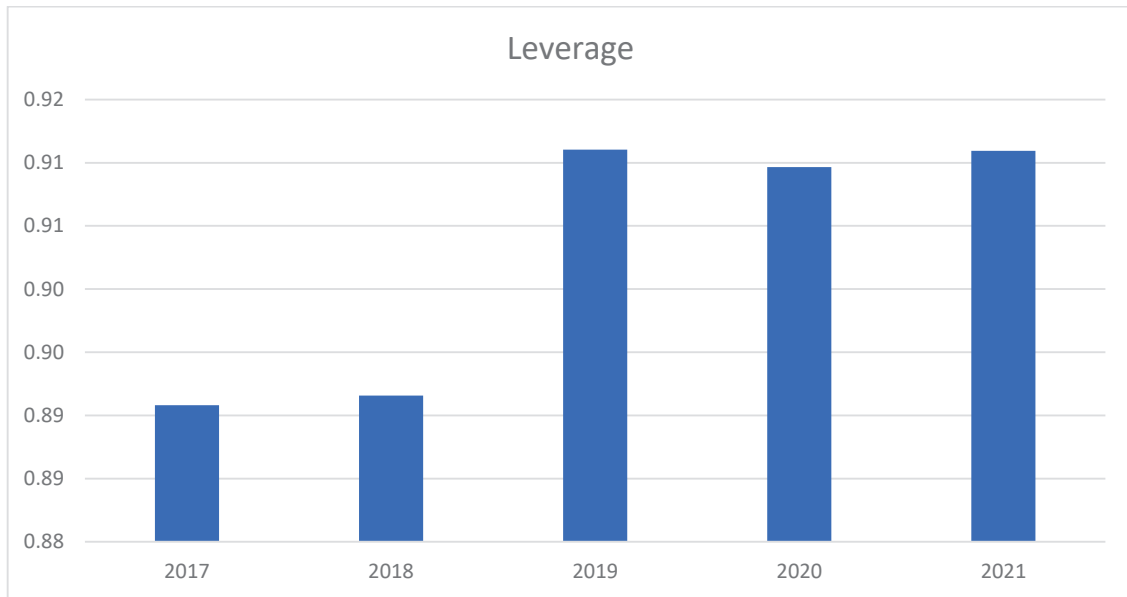


Figure 8 above graphically illustrates the average leverage of banks as a function of total assets over the period. Whilst the graph depicts an increase, the increase is marginal over the period. Banks are typically funded by customer deposits. This is no different to the banks in the study and banks are typically required to observe a central bank defined minimum leverage ratio. Therefore, the leverage ratio has stayed relatively flat over the period

## **5.5 Regression Diagnostic Testing**

Of the methods used to identify and examine relationships between response variables and explanatory variables, regression testing is an acceptable method. The regression is comprised of an equation which includes independent and control variables on the side of the equation and the dependant or response variable on the other. A regression can not only assist to determine if there are any relationships but can also inform the tester about the direction of the relationships; whether the relationship is inverse or parallel and the degree of influence the explanatory variable has on the response variable. Importantly, the regression can also help to identify those variables that do not have a relationship with each other. A regression model is scientific in nature and therefore requires appropriate setup and adherence with any assumptions in order for the results to be reliable.

The first assumption is that there is a linear or curvilinear relationship between the dependant and independent variables and is referred to as the linearity assumption. The second assumption is normality which assumes that the residuals are normally distributed. The third assumption is multicollinearity which assumes that the independent variables are not highly correlated with one another. Finally, the fourth assumption dictates that the variance of the error terms is similar across all variables, this assumption is referred to as homoscedasticity. Therefore, a well-designed and properly specified regression will exhibit all the above characteristics, taken as assumed, and should not be in violation of the same without proper controls. The process in terms of validating these assumptions was carried out for all regressions specified in the study.

The obvious challenge to accurate specification and design of regressions is the omission of variables that may have contributed to the explanation in the variation of the dependent variable thereby increasing the power and effectiveness of the regression. Therefore, this study does not purport to have included all explanatory variables in the study. The study has used prior studies of a similar nature to determine which variables would be most suitable for inclusion and accept that there may be some omitted variables of value to the study.

### **5.5.1 Linearity**

Linearity is one of the assumptions for running an appropriate regression model is linearity. An accepted way in which one can examine linearity is through a visual inspection of scatter plots. A scatter plot matrix plots the dependant variables on the y-

axis and the independent variables on the x-axis. Scatter plots were constructed using Minitab statistical software.

Whilst conducting the visual inspection of the scatter plots one might be concerned with the observed trend or shape in the plot. As stated previously, ideally the scatter plot should produce a shape that is linear, curvilinear or random in nature in order to satisfy the linearity assumption. Should the shape tend to be parabolic or exponential in nature then the linearity assumption is not satisfied. Appendix 2 shows scatter plot matrices that exhibit each independent variable. From the scatter plots no discernible exponential or curvilinear shapes seem to apply to any of the plots, instead the shapes can be best described as linear or random at best. Using the scatter plot visual verification, there is no reason to believe that a regression would be unsuitable to the data, on the basis of the linearity assumption and the analysis can proceed.

### **5.5.2 Normality**

Normality as described above is another requirement that would need to be upheld in executing any regression. Normality refers to how the residuals in a regression are distributed. Residuals are represented by how far the observed value in a series deviates from the mean. Critically, residuals testing in normality tests are affected by the size of the sample with accuracy increasing along with the size of the sample. Arithmetic means can be problematic in that they have a susceptibility to upward bias or downward bias in the presence of outliers that deviate significantly from the mean.

The normality test, however, remains a pivotal test for regressions and as such the study tested for normality by using the Kolmogorov-Smirnov test. The results of the test are included in Appendix 3. The results show that at the 5% significance level, ESGScore, Gov Score, BSize and BGender, fail to produce a p-value that would result in the rejection of the null hypothesis that the variable residuals are normally distributed. Therefore, these variables have satisfied the normality assumption according to Kolmogorov-Smirnov test. Conversely for EnvScore, SocScore, NegNews, Total Assets (Ln) and Leverage the p-values produced result in a rejection of the null hypothesis of normality suggesting then that these variables have a non-normal distribution of residuals. The option considered in this situation would be to consider non-parametric tests, however these tests have their own assumptions like that the samples must come from populations with equal variances as is required in the Kruskal-Wallis test or a symmetrical distribution which is for the Wilcoxon test. In addition, non-parametric tests tend to have less explanatory power than their parametric counterparts. In the event that the size of the sample is sufficiently large, that is greater than 20, then parametric testing may proceed.

### 5.5.3 Multicollinearity

**Table 5**

*Correlation Matrix*

	<i>ESGSCORE</i>	<i>EnvScore</i>	<i>SocScore</i>	<i>GovScore</i>	<i>NegNews</i>	<i>Bsize</i>	<i>Bgender</i>	<i>Total Assets (ln)</i>
<i>ESGSCORE</i>	1							
<i>EnvScore</i>	0.779	1						
<i>SocScore</i>	0.803	0.821	1					
<i>GovScore</i>	0.762	0.652	0.536	1				
<i>NegNews</i>	-0.280	0.167	0.199	0.002	1			
<i>Bsize</i>	-0.097	-0.004	-0.062	-0.205	-0.049	1		
<i>Bgender</i>	0.316	0.189	0.285	0.043	-0.198	-0.067	1	
<i>Total Assets (ln)</i>	0.618	0.657	0.718	0.446	0.152	0.238	0.463	1

Another assumption associated with regression concerns collinearity which is the degree to which the independent variables are correlated with each other. One of the ways to investigate and determine the degree of correlation between the independent is by way of a correlation matrix which provides a sense of the correlation between the variables. In order to investigate the correlations a correlation matrix was constructed to get a feel for which variables correlate highly with each other. From Table 5 there are three variable pairs with a correlation statistic in excess of 0.8. These are (ESGScore/SocScore), (ENV/SocScore) and Total Assets/Leverage. Subsequently, multicollinearity cannot be ruled out completely and a concession is made that there may be a marginal multicollinearity problem in the data.

There was then a need to confirm these findings which was done by calculating the Variance Inflation Factor (VIF) for each of the variables. The test is a specific test that is performed to assess the presence of multicollinearity at variable level. The results of the VIF test are included in Appendix 3. The VIF tests largely confirmed the absence of multicollinearity although there were four variables with VIF scores in excess of 10. The variables are ESGScore, SocScore, Total Assets (ln) and Leverage. Interestingly none of the other variables produced high VIF scores. Despite, the four higher than favoured VIF scores, the VIF scores are low and while the study acknowledges the presence of some multicollinearity in the study on an overall basis the study has low levels of multicollinearity and therefore a decision to continue is made.

#### 5.5.4 Homoscedasticity

Homoscedasticity is the next assumption that was checked in the study this is to determine if the study produces biased or skew results. The key aspect being tested is whether the variances in the residuals or error terms are constant. To carry out this test the study utilised the Breusch-Pagan heteroscedasticity test. Each of the P-values of F for the Breusch-Pagan tests were 0.311, 0.7865, and 0.1000 for the ROA, ROE and Price to Book regressions respectively. Critically, the p-values of F are greater than the 5% level indicating that the null hypothesis that the error terms are heteroscedastic cannot be rejected and as such have not violated this assumption and the regressions can proceed. For the share price regression, the p-value of F was less than 0.05 and as such the null hypothesis is rejected for this regression, causing a violation in this assumption, however as the price to book variable presents an alternative assumption compliant measure, the study proceeds. Additionally, the residual plots contained in the appendices provide further information on homoscedasticity.

#### 5.4.5 Hypothesis Test Results

**H1A Result:** ESGScore coefficient is negative (-0.06) and statistically significant therefore hypothesis 1A is rejected.

**H1B Result:** ESGScore coefficient is negative (-0.03) and statistically insignificant therefore this study fails to reject hypothesis 1 B

**H1C RESULT:** ESGScore coefficients are positive and statistically insignificant for both the share price and price to book regressions therefore the study fails to reject the hypothesis 1 C.

## 5.5 Regression Results

### 5.5.1 Regression Panel A

Dependant Variable: ROA

**Table 6**

*Performance and Sustainability*

<b>Regression Statistics</b>					
Multiple R	0.965375223				
R Square	<b>0.931949322</b>				
Adjusted R Square	0.901326517				
Standard Error	0.50045351				
Observations	30				

<b>ANOVA</b>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	9	68.59893	7.622103	30.43393	<b>9.31931E-10**</b>
Residual	20	5.009074	0.250454		
Total	29	73.608			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	<b>23.93693338</b>	4.648414	5.149484	<b>4.879E-05**</b>
ESGSCORE	<b>-0.062468958</b>	0.031371	-1.99128	<b>0.0602865*</b>
EnvScore	-0.007267484	0.010093	-0.72007	0.479815673
SocScore	0.022237451	0.017668	1.258664	0.222646468
GovScore	0.022608169	0.016782	1.347187	0.192986605
NegNews	<b>-0.356736483</b>	0.151924	-2.34812	<b>0.02926547*</b>
Bsize	0.011576169	0.051739	0.223743	0.825226648
Bgender	0.269077368	1.584833	0.169783	0.866886598
Total Assets (ln)	0.065662701	0.375048	0.175078	0.862778707
Leverage	<b>-24.14880725</b>	10.19109	-2.3696	<b>0.02797956*</b>

\*Significant at the 5% level

\*\*Significant at the 1% level

Table 6 above shows the outcomes of the regression tests that were conducted in the study. The analysis contained four separate regression models. The four dependent variables that were chosen are ROA, ROE, Share Price and Price to Book ratio. Where

ROA is set as the dependent variable the observation from Table 6 is that the regression as a whole has a high R-Squared and an F-Statistic that is statistically significant at the 5% level of significance. On The ROA regression contains independent variables that explain 93% of the variation in ROA which reveals the model's explanatory power. The high r-squared is indicative of a well specified model. Given that a high r-squared is coupled with a significant regression there is a good basis from which to make observations, inferences and deductions, the bulk of which will be discussed in Chapter 6. The multivariate regression results observed in Table 6 where ROA was set as the dependant variable produced an intercept coefficient that is statistically significant at the 1%, 5% and 10% level. In a multivariate regression the intercept can be interpreted as the value taken by the dependent variable in the instance where all independent variables are set to zero. The regression also shows a statistically significant relationship between a bank's Environmental sustainability performance and bank performance. However, the coefficient sign shows that there is an inverse relationship between environmental and bank performance in this study.

The next statistically significant relationship is that of Negative News to bank performance. This relationship is significant and inverse as well which is line with the a priori expectation of this study. Finally, the variable leverage also produced a statistically significant coefficient. The coefficient is negative and therefore confirms an inverse relationship between bank leverage and bank performance which again is consistent with this study's a-priori expectation in terms of that variable. There were, however, no further significant relationships in this regression other than the four that were found to explain a significant amount of the variation in bank performance according to this regression equation.

## 5.5.2 Regression Panel B

Dependant Variable: ROE

**Table 7**

*Sustainability and Performance*

<b>Regression Statistics</b>	
Multiple R	0.844329
R Square	<b>0.712891</b>
Adjusted R <sup>2</sup>	0.583692
Standard Error	4.327565
Observations	30

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	9	930.0223	103.3358	5.517771	<b>0.00072**</b>
Residual	20	374.5563	18.72782		
Total	29	1304.579			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	70.36831	40.19617	1.750622	<b>0.09533*</b>
ESGSCORE	-0.32652	0.271276	-1.20365	0.24278
EnvScore	-0.07698	0.087275	-0.88203	0.388237
SocScore	0.062033	0.152776	0.406042	0.689023
GovScore	0.259764	0.145117	1.790034	<b>0.08860*</b>
NegNews	-2.09756	1.313732	-1.59664	0.126026
Bsize	0.40453	0.447399	0.904183	0.376661
Bgender	0.673745	13.70451	0.049162	0.961278
Total Assets (ln)	4.872516	3.243151	1.502402	0.148619
Leverage	-132.688	88.12527	-1.50568	0.147781

\*Significant at the 10% level

\*\*Significant at the 1% level

The ROE regression contains independent variables that explain 71% of the variation in ROE which reveals the model's explanatory power. The high r-squared is indicative of a well specified model. Given that a high r-squared is coupled with a significant regression there is a good basis from which to make observations, inferences and deductions, the bulk of which will be discussed in Chapter 6.

The multivariate regression results observed in Table 7 where ROE is set as the dependant variable produced an intercept coefficient that is statistically significant at the 1%, 5% and 10% level. In a multivariate regression the intercept can be interpreted as the value taken by the dependent variable in the instance where all independent variables are set to zero. The regression also shows a statistically significant relationship between a bank's Governance sustainability performance and bank performance when measured by ROE. Furthermore, the coefficient sign shows that there is a direct relationship between governance performance and bank performance in this study. This result is consistent with the initial expectation of this study

There were, however, no further significant relationships in the regression other than the four that were found to explain a significant amount of the variation in bank performance according to this regression equation.

### 5.5.3 Regression Panel C

Dependant Variable: Share Price: Rolling Average

**Table 8**

*Sustainability and Market Performance*

<i>Regression Statistics</i>					
Multiple R	0.885611088				
<b>R Square</b>	<b>0.784306999</b>				
Adjusted R Square	0.687245148				
Standard Error	144.7721634				
Observations	30				

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	9	1524229	169358.8	8.080487	<b>0.0000**</b>
Residual	20	419179.6	20958.98		
Total	29	1943408			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	4346.184351	1344.702	3.232079	<b>0.0041**</b>
ESGSCORE	7.173715754	9.075146	0.790479	0.438521
EnvScore	1.510770897	2.919665	-0.51745	0.61052
SocScore	-2.3472545	5.110891	-0.45927	0.650996
GovScore	0.023700984	4.854661	-0.00488	0.996153
NegNews	68.1948687	43.94892	1.551685	0.136419
Bsize	29.92245565	14.96704	1.999223	<b>0.05935*</b>
Bgender	1287.713884	458.4636	2.808759	<b>0.01084*</b>
Total Assets (ln)	112.3615765	108.4947	-1.03564	0.31273
Leverage	4018.394658	2948.098	-1.36305	0.188018

\*Significant at the 10% level

\*\*Significant at the 1% level

The Share price regression contains independent variables that explain 78% of the variation in bank performance which reveals the model's explanatory power. The relatively high r-squared is indicative of a model that has relatively good explanatory power. Given that a high r-squared is coupled with a significant regression there is a solid

basis from which to make observations, inferences, and deductions, nevertheless these results will be discussed in detail in Chapter 6.

The multivariate regression results observed in Table 8 where Share price is set as the dependant variable produced three statistically significant outcomes. The intercept was found to be significant and represents the value of the share price if all other variables in the regression are set to zero. Additionally, the regression did find a positive statistically significant relationship between a bank's Board size and market performance when measured by Share price. Board gender was found to have a positive statistically significant relationship with share price as well. There were, however, no further significant relationships in the regression that explained the variation in bank market performance. These results will be discussed in greater detail in Chapter 6.

### 5.5.4 Regression Panel D

Dependant Variable Price to Book Ratio

**Table 9**

*Sustainability and Market Performance*

<i>Regression Statistics</i>					
Multiple R	0.956815393				
<b>R Square</b>	<b>0.915495696</b>				
Adjusted R Square	0.87746876				
Standard Error	0.502949861				
Observations	30				

<i>ANOVA</i>					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	9	54.80963	6.089959	24.07493	<b>0.000**</b>
Residual	20	5.059171	0.252959		
Total	29	59.8688			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	21.71745953	4.671601	4.648826	<b>0.0001**</b>
ESGSCORE	0.021305838	0.031528	-0.67578	0.50692
EnvScore	0.002602396	0.010143	-0.25657	0.800134
SocScore	0.027205945	0.017756	-1.53224	0.141129
GovScore	0.021363388	0.016865	1.266694	0.219819
NegNews	0.036682711	0.152682	-0.24026	0.812578
Bsize	0.091038313	0.051997	1.750848	<b>0.09529*</b>
Bgender	2.578881502	1.592739	1.619149	0.121077
Total Assets (ln)	0.719233602	0.376919	1.90819	<b>0.07082*</b>
Leverage	32.33884935	10.24192	-3.1575	<b>0.00495*</b>

\*Significant at the 10% level

\*\*Significant at the 1% level

The Price to Book ratio regression contains independent variables that explain 91% of the variation in bank performance which reveals the model's explanatory power. The relatively high r-squared is indicative of a model that has good explanatory power. Given that a high r-squared is coupled with a significant regression there is an opportunity from

which to make observations, inferences, and deductions, nevertheless these results will be discussed in Chapter 6.

The multivariate regression results observed in Table 9 where the Price to Book ratio is set as the dependant variable produced three statistically significant outcomes. The intercept was found to be significant and represents the value of the price to book ratio if all other variables in the regression are set to zero. Additionally, the regression did find a positive statistically significant relationship between board size and market performance when measured by the price to book ratio. The natural log of total assets was found to have a positive statistically significant relationship with share price as well. Finally, leverage was also found to have a positive statistically significant relationship with the price to book ratio. There were, however, no further significant relationships in the regression that explained the variation in bank market performance. These results will be discussed in greater detail in Chapter 6.

## Chapter 6: Discussion

This section discusses the results presented in Chapter 5 pertaining to the hypothesis that were developed in the earlier sections of the paper.

### **6.1 Hypothesis 1(A): A statistically significant positive relationship exists between ESG performance and bank operational performance (ROA)**

The first regression run to test this hypothesis was the regression where ROA was set as the dependant variable, the results of this regression are included in Table 5 above. The regression results as presented in Table 6 illustrate a statistically significant regression where the F-Statistic for the overall regression was significant at the 10, 5% and 1 & level. Furthermore, the explanatory variables exhibit a high degree of explanatory power due to the high R-squared of 93%.

The relationship between ESG and performance has received a great deal of attention of late and not just in the general corporate sector but also in the banking sector. This is presumed to be line with the growing international discourse around sustainability and the importance thereof. Questions have been asked to whether firms with a profit motive irrespective of sector benefit through incremental financial performance for making disclosures about their performance. The research has been conducted in a developed and developing market context. Studies have examined continental Europe, North America, Asia and Africa. The results of all these studies have been largely mixed both for the overall ESG performance impact on firm performance but also for the constituent environmental, social and governance impacts on firm performance (Bătae et al., 2020).

A study conducted by Velte (2017) found that there was a positive relationship between the composite ESG score and ROA in the study that focused on entities in Germany. However, in Italy a study conducted found that the relationship between ROA and composite ESG performance was actually negative (Menuccucci & Paolucci, 2022). Germany and Italy are certainly different countries, but one would not expect the differences in the countries to produce such a confounding result in terms of ESG performance and ROA. Perhaps the Germans are more developed in terms of recognising the importance of ESG to the extent that the same produces enhanced performance. The well-publicized greenwashing scandal that German marquee automaker Volkswagen admitted to may be what's driving the underlying positive result in Germany. This as companies inculcate good sustainability practices and activities to avoid the fallout that beset Volkswagen in the aftermath of that revelation. Italy, however, have no such large catalyst. On a regional basis there does seem to be an alignment on

the notion that the relationship between ROA and ESG performance is positive. Buallay (2019a) conducted a study on the European banking market and found a positive relationship between ESG and ROA, the result was significant and strongly positive. Similarly, in a study that was conducted in North America the relationship between ESG and ROA was also positive and strong (Alareeni & Hamdan, 2020). The mixed results could be leading the inference that factors that cause a difference in firms on a geographical basis do actually matter despite the fact that the sustainability consciousness and commitment is a global one. Firm specific factors may also play a strong role in influencing the direction of the relationship with ROA at a composite ESG level. However, the same can be said for results that are aligned even across geographical boundaries. In this study a significant statistical relationship was found between ROA and composite ESG performance but the direction of the result was inverse due to a negative coefficient. That means that an increase in ESG composite performance amongst banks in South Africa causes a decrease in operational performance. There could be various factors explaining this result, chief among them is the thought that engaging in ESG related activities, tracking and reporting on them generates costs for the bank that they are perhaps not able to recover in the short term. This is intuitive since a bank that decides to stop financing mining activities in South Africa would experience an immediate loss but the recoupment of that lost income through sustainability benefits and savings is likely to take a lot longer. Therefore, the result should not necessarily be all that surprising since there is international precedent and the reasoning behind it seems to be plausible enough.

Although this study found a negative relationship between the overall ESG score and ROA the picture was a little different when the components of ESG were examined relative to ROE. Although none of the coefficients for the Environmental, Social and Governance pillars were statistically significant the relationship was negative for environment and positive for both social and governance. Interestingly, this study was not the only one to find that the results on a ESG component basis differed from that on the composite basis. Alareeni and Hamdan (2020) found that the environmental aspect had a negative relationship with operational performance despite the positive relationship for the for the composite ESG variable. The negative relationship suggests that ESG disclosures and performance, related to the environment reduce operational performance this may also allude to the mistiming effects mentioned earlier. The environmental benefits of pro-environment decisions made by banks now will take several years to manifest but the costs incurred are immediate, therefore operational performance can plausibly suffer in the short to medium term.

Clearly, banks in South Africa engage in ESG disclosures not only because of the need to comply with laws and statutes but also use the disclosure practices as vehicle through which to signal to stakeholders the progress towards the sustainable development goals. Aligned with this is the need to cultivate, demonstrate and retain corporate legitimacy and as a result the theories of both signalling and legitimacy theory are upheld. Additionally, it's important to note that the governance scores for all the banks were below 50/100 for most years in the study with the exception of Investec. Furthermore, Capitec has the lowest ESG scores of all the banks in the study. Taking into the account all of the above and the rejection of Hypothesis 1, the section is concluded on the basis that the findings contribute to the existing literature by providing a South African banking lens.

Bank leverage was found to have a statistically significant negative relationship with ROA. The relationship outcome is intuitive and in line with expectation since additional riskiness through debt accumulation would ultimately threaten business survival (Dell'Atti et al., 2017)

None of the other variables in the regression were significant but note that the coefficient for negative news is negative suggesting an inverse relationship between negative news and operational performance. This is expected since one would not intuitively expect the prevalence of negative news to enhance performance. The finding in this study on the effect of negative news on operational performance is line with prior studies (Yuen et al., 2022). The coefficient for both board variables gender and size both returned insignificant but positive coefficients. These coefficients confirm a positive relationship between board characteristics and operational performance which is in line with findings from other studies (Pucheta-Martínez & Gallego-Álvarez, 2020).

The composite ESG score has a negative coefficient with a statistically significant p-value of 0.06 at the 10% level. The coefficient of **-0.062468958** confirms the that the direction of the relationship is inverse. There is an inverse relationship between ESG performance scores and operational performance proxied by ROA. Therefore, the study rejects the hypothesis that there is a statistically significant positive relationship between ESG and bank operational performance (ROA).

## **6.2 Hypothesis 1(B): A statistically significant positive relationship exists between ESG performance and bank financial performance (ROE)**

The second regression run was to test this hypothesis and was the regression where ROE was set as the dependant variable, the results of this regression are included in Table 7 above. The regression results as presented in Table 7 illustrate a statistically significant regression where the F-Statistic for the overall regression was significant at the 10, 5% and 1 & level. Furthermore, the explanatory variables exhibit a high degree of explanatory power due to the high R-squared of 71%. ROE is the proxy for financial performance in the study. As banks are like other for-profit companies their activities and decisions are usually centred around a profit motive and therefore consideration of cost saving or revenue maximization are characteristics of decision making.

The relationship between ESG and ROE is statistically insignificant for the composite score as well the component scores. Nevertheless, valuable interpretation remains regarding the strength and direction of the relationship between ESG and financial performance. From Table 7 the regression produced an ESG composite statistic equal to -0.32652 which immediately suggest that the negative effect of ESG on bank performance is stronger for financial performance (ROE) than for operational performance. On the ROE and ESG dimensions, prior studies have produced mixed results. Several studies have examined the phenomenon in varying contexts and geographies. These studies have been done at the industry level in a country on a continent or globally. Some studies have compared the relationship between two industries in similar geographies like banking and manufacturing (Buallay, 2019b).

Fatemi et al. (2018), conducted a study in the American banking industry and found that there is a significant negative relationship between ESG performance and financial performance proxied by ROE. Similarly in a global analysis performed by Yuen et al. (2022) on the global banking industry found that the relationship between composite ESG and ROE was negative. Therefore, there is precedent in the literature for the finding of this study as illustrated in Table 6 and this finding may be attributed to several causes. One of these reasons may be that the financial benefits of increased returns for banks is yet to filter through to their financial metrics, as intimated earlier the benefits of switching to ESG are likely to filter through over time. Additionally, this study has a short time horizon which would not allow the full effect of the relationship to be observed over a long period of time which may or not reverse the finding. Furthermore, the advent of COVID-19 meant that firms certainly accrued more expenditure with regard to ESG as the focus shifted very much to social and governance components of ESG during the period. Covid-

19 therefore may be another reason why the relationship is negative. There were, however, studies that managed to find a statistically significant positive relationship between ESG and financial performance, particularly in emerging economies (El Khoury et al., 2021).

Table 7 provides some additional insights into the effects of the environmental, social and governance pillars on financial performance proxied by ROE. The environmental coefficient is negative and confirms an inverse relationship between this pillar and ROE despite the statistically insignificant coefficient. These results have been found in other studies and in particular one that was done in the USA found a negative relationship between the environmental constituent of ESG and ROE (Fatemi et al., 2018) The social and governance aspects were however positively related to ROE and statistically significant for the case of governance. Maama (2021) concurs by finding that the social and governance pillars positively affect financial performance in Ghana. A study which focused on emerging market economies also found a positive governance and social link to financial performance (Velte, 2017). The positive link between the social and governance aspects and financial performance is in line with the initial expectation of the study notwithstanding that the environmental pillar and ESG composite score have a negative and insignificant relationship with financial performance.

Apart from the intercept coefficient which shows the value of ROE if all the other independent variables are set to zero, none of the other variables showed a statistically significant relationship result. The negative news variable showed an inverse relationship with ROE and similarly with Leverage a negative statistically insignificant relationship was found. In terms of the board variables for size and gender these were positively related to ROE although statistically insignificant. Similarly, the natural log of total assets was also positively related to ROE although statistically insignificant. These variables collectively performed in line with the initial expectations of the study which were built on the existing literature (El Khoury et al., 2021)

For this regression the coefficient of ESG was negative and statistically insignificant, the study therefore fails to reject the hypothesis that a statistically positive relationship exists between ESG and bank financial performance when the financial performance is proxied by the ROE.

### **6.3 Hypothesis 1(C): A statistically significant positive relationship exists between ESG performance and bank market performance (Share Price and Price to Book)**

The next regression in Table 8 pitted the explanatory variables against the share price performance of banks in the South African banking industry. The results illustrate a statistically significant regression where the F-Statistic for the overall regression was significant at the 10, 5% and 1 & level. Furthermore, the explanatory variables exhibit a high degree of explanatory power due to the high R-squared of 78%. Share price is the proxy for market performance in the study. As banks are like other publicly listed for-profit companies, seek to signal to the market their activities and achievements to the market. This is done with the aim of influencing investors to either hold onto or buy their share and in that way support an upward movement in the share price. Market performance is important for listed companies as the market's view of the firm will determine important characteristics like access to capital, cost of capital and movements in the share price. As the heightened sustainability consciousness becomes more prevalent investors and shareholders want to support companies that are practicing corporate sustainability. The behaviour may even be the subject of incentivisation or reward by the investors or shareholders for companies exhibiting good or improving ESG performance (Chen & Xie, 2022).

This regression presented a statistically significant positive intercept that showed that the share price would be R43.46 in the event that the other variables were set to zero. In terms of ESG and the environmental, social and governance constituents no statistically significant relationships were found although much can be interpreted from the sign of the coefficients. The study reflects a positive relationship between ESG and the market performance proxy of share price. This is line in with expectation based on previous studies. In America, a study done by Alareeni and Hamdan (2020) found a positive relationship between ESG and market performance. A similar study was conducted in Europe and also found a positive relationship between ESG and market performance for banks based there (Buallay, 2019a). However, when the attention turned to the Middle East North Africa region the observed effect was a negative relationship between ESG and market performance (Buallay et al., 2020). Therefore, as with the previous regressions the regressions in Table 5 and Table 6 respectively the resultant relationship between ESG and performance remain inconclusive and largely mixed with sufficient evidence found to support a relationship in either direction.

The picture did not get any clearer when observing the relationships between the constituent ESG factors and share price performance as the relationship was positive for the environmental and governance perspectives but negative for the social pillar. The negative social pillar may be associated with costs related to Covid-19 which was present for two years in the study which is almost half the study period. Banks in South Africa were required to implement interest and sometimes capital moratoriums to help clients buffer the negative impacts associated with Covid-19. The banks thus played an enormous social support role during Covid-19 and took some charges alongside the fact that bank share price performance was under pressure due to the uncertainty around Covid-19.

In terms of the of the other explanatory variables negative news was positively linked with share price performance which is an unexpected result. The result however is not unprecedented as studies have shown that a limited amount of negative news events can be of value to a firm (Dong et al., 2021). In terms of the board variables both size and gender they were found to be both positively and significantly related to share price performance. This finding would be in line with the initial expectations in this study. Governance characteristics, particularly board size and board diversity are regularly shown in the literature to have a positive influence on share price performance (Singh et al., 2018). The other variables which included the natural log of total assets and leverage both of which had a positive but statistically insignificant relationship with share price performance which was in line with expectations for the former and somewhat surprising for the latter. Explaining the leverage phenomenon is perhaps the trade-off between risk and return, that is, the higher the inherent risk the higher the expected return. Excessively high leverage for an acquisition or capital expenditure or to fund growth may be perceived as risky but some investors may tolerate the risk because it is accompanied with a higher expected return all else equal. Furthermore, debt carries significant benefits as well in terms of the tax shield and lower costs of issuing debt as compared to equity (Abdullah & Tursoy, 2021).

For this regression the coefficient of ESG was positive and statistically insignificant, the study therefore fails to reject the hypothesis that a statistically positive relationship exists between ESG and bank market performance when the bank market performance is proxied by the price to book ratio.

For this regression the coefficient of ESG was positive and statistically insignificant, the study therefore fails to reject the hypothesis that a statistically positive relationship exists

between ESG and bank market performance when the bank market performance is proxied by the share price performance.

The final regression represented in Table 9 pitted the explanatory variables against the price to book ratio of banks in the South African banking industry. The results illustrate a statistically significant regression where the F-Statistic for the overall regression was significant at the 10, 5% and 1 & level. Furthermore, the explanatory variables exhibit a high degree of explanatory power due to the high R-squared of 91%. The price to book ratio is an additional proxy for market performance in the study. The ratio is commonly used by investors to determine whether a stock under or overvalued. Banks signal with the aim of influencing investors to either hold onto or buy their share and in that way support an upward movement in the share price. Market performance is important for listed companies as the market's view of the firm will determine important characteristics like access to capital, cost of capital and movements in the share price.

This regression presented a statistically significant positive intercept that showed that the price to book ratio would be 21.7 in the event that the other variables were set to zero. In terms of ESG and the environmental, social and governance constituents no statistically significant relationships were found although much can be interpreted from the sign of the coefficients. The price to book ratio model is the only model in the study that produced positive relationships for all the independent variables. Therefore, the price to book model confirms unequivocally a positive relationship between ESG and company market performance in terms of the composite ESG variables as well the constituent environmental, social and governance pillars. This result is in line with that of Alareeni and Hamdan (2020) who in their study found a positive relationship between the composite ESG variable and its individual constituent variables and market performance. Although this result is in line with expectation for reasons stated previously the literature is undecided on the true nature and direction of the relationship between market performance and ESG. Therefore, as with the previous regressions the regressions in Table 5, Table 6 and Table 7 respectively, the resultant relationship between ESG and performance remain inconclusive and largely mixed with sufficient evidence found to support a relationship in either direction. When analysing the constituent ESG factors and their relation to the price to book ratio the relationship was positive for all three which confirms the overall positive relationship. As stated previously this is the only model to unequivocally support the theory that ESG has a definitive positive impact on bank market performance.

In terms of the of the other explanatory variables negative news was positively linked with the price to book ratio but was insignificant. The result however is not unprecedented as studies have shown that a limited amount of negative news events can be of value to a firm (Dong et al., 2021). In terms of the board variables both size and gender they were found to be both positively related to price to book ratio but only board size was significant. This finding would be in line with the initial expectations in this study. Governance characteristics, particularly board size and board diversity are regularly shown in the literature to have a positive influence on market performance (Singh et al., 2018). The other variables which included the natural log of total assets and leverage both of which had a positive and statistically significant relationship with share price performance which again was in line with expectations for the former and somewhat surprising for the latter. Explaining the leverage phenomenon is perhaps the trade-off between risk and return, that is, the higher the inherent risk the higher the expected return. Excessively high leverage for an acquisition or capital expenditure or to fund growth may be perceived as risky but some investors may tolerate the risk because it is accompanied with a higher expected return all else equal. Furthermore, debt carries significant benefits as well in terms of the tax shield and lower costs of issuing debt as compared to equity (Abdullah & Tursoy, 2021).

For this regression the coefficient of ESG was positive and statistically insignificant, the study therefore fails to reject the hypothesis that a statistically positive relationship exists between ESG and bank market performance when the bank market performance is proxied by the price to book ratio.

Chapter 5 has considered the hypotheses presented in Chapter 3 and has discussed the outcomes of the statistical tests performed to test those hypotheses. Whilst there is a statistically negative relationship between ESG and ROA, the performance was positive for the other three dependant variables which are ROE, Share Price Performance and the Price to Book ratio. Therefore, although much depends on the performance metric chosen, there does seem to be a general underlying positive relationship between ESG and performance. However, when the individual components of ESG are then compared to the performance proxies the nature and direction of the relationship becomes far less clear. These nuances may make it difficult for researchers to clearly define the direction of the relationship between ESG and performance as the performance constructs and the individual environmental, social and governance construct introduce significant complexity.

In Chapter 7 below the chapter will discuss the principal theoretical conclusions of the study before explaining the research contribution, thereafter recommendations for management and stakeholders will be presented. The paper then describes the limitations of the study before concluding with suggestions for future research.

## Chapter 7: Conclusion

### 7.1 Principal Theoretical Conclusions

This study has considered the impact that ESG has on performance for the large Johannesburg Stock Exchange listed banks in South Africa. The study examined the nature of the relationship between ESG and performance by using ROA and ROE as proxies for operational and financial performance. For market performance two measures Share Price and the Price to Book ratio were used to measure and indicate market performance. Collectively these performance measures were the dependent variables in four separate equations. The data for the variables ESG Score, EnvScore, SocScore, GovScore, NegNews were collected primarily from the Refinitiv Workspace database. Similarly, the inputs to the calculations for the natural log of total assets and leverage were also obtained from Refinitiv Workspace. The input information for BSize and BGender came from the bank's annual integrated reports. The data was collected for the period five-year period, 2017 – 2021. This study examined six banks for 5 years and produced 390 observations.

The descriptive statistics show that for each year, the social score exhibited the highest average followed by the Environmental score. The Governance score was the lowest every year. The difference between the average social score and average Governance score was increasing every year, put differently the Social score was increasing at a faster rate than the Governance score causing the gap between the two to widen. ROA and ROE declined marginally over the period. BSize declined marginally over the period and BGender increased slightly.

The empirical results show that the relationship between ESG and bank performance in South Africa is negative when bank performance is proxied by operational (ROA) and positive when financial (ROE) performance becomes the proxy. The picture does change somewhat when the bank performance measure is set to Share Price or Price to book which are forms of market performance measures. This study found that the relationship between ESG performance and market performance is negative although statistically insignificant. The confounding relationships between ESG and both ROA and ROE and ESG and market performance shows the importance of selecting an appropriate bank performance measure. Furthermore, when the individual characteristics of ESG are compared to performance the matter becomes more complex as some measures are positive when compared to certain dependant variables and then change to an inverse

relationship when regressed against others. Therefore, authors would need to exercise caution when selecting performance measures to compare ESG performance to. This due to the fact that ESG has relatively high level of sensitivity to the chosen performance measure. Board size and board gender were found to have positive relationships with bank performance as was the natural log of total assets. Negative news and leverage were found to have negative relationships with bank performance which is line with study's initial expectation. A further conclusion of the study is that the context of the study is of critical importance as several studies have found differing results conducting the same analysis in different jurisdictions. A further conclusion is that the effects of Covid-19 on the study could not be completely eliminated therefore all else equal in the absence of Covid-19 the analysis may have produced different results which is consistent with the view of recent studies evaluating Covid-19 impact on the same ESG/firm performance continuum (Yuen et al., 2022).

## **7.2 Research Contribution**

The contribution of this research is to respond to the academic literature's request for an inquiry into the relationship between ESG and bank performance in different contexts. This study has used the South African banking industry as its sample with its nuances and domination by 6 main banks. The study has provided unique and current insight based on the study period into the relationship investigated. Furthermore, the study has highlighted the importance of an appropriate research design and selection of appropriate firm performance metrics to set as dependant variables. The study has also shown that although the composite ESG score is quite high for the South African banks both individually and on average throughout the study, the governance constituent is substantially lacking. The research has therefore contributed to the understanding of ESG in the context of banks in South Africa.

## **7.3 Recommendations for management and/or other stakeholders**

The recommendation of this paper is for South African banks to focus more on the governance aspect of sustainability reporting to assure that they are able to convey governance performance information in a more transparent manner that would translate into improved governance performance assessments. The regulatory authorities in the banking sector alongside the King IV code of corporate governance provide for the disclosure of sustainability information but more should be done to ensure that governance reports are similar from a content perspective and are thus easier to compare. Furthermore, the laws around sustainability implementation could be clearer

and could be enforced appropriately to ensure transparency in the progress of banks towards the achievement of sustainability goals. Furthermore, stakeholders should familiarise themselves with the content of the bank sustainability reports and understand the nuances between each of the constituents of ESG in order to make better investment decisions.

#### **7.4 Limitations of the research**

There are several limitations of the study as a whole. Firstly, the study has only considered the 6 main South African banks despite there being many more banks in the South African banking industry. However, it is noted that ESG information is not readily available on banks outside the top six, however the larger financial services industry is also not considered in this study. A second limitation of the study is the study period of 2017 – 2021 which despite being current may exclude some earlier years that would have been of value to the analysis. An additional limitation is the restriction of the study to only South Africa and not perhaps considering regional banks. Additionally, the absence of interviews to corroborate or triangulate the findings is another limitation.

#### **7.5 Suggestions for future research**

An avenue for future research would be to explore the relationship between ESG and performance on a regional basis on the African continent in the banking industry. This would be to ascertain how African banks are faring on the continent in terms of ESG performance and disclosure and what that means for bank performance.

A further avenue for future research would be to understand whether banks on the continent engage in greenwashing or substantive disclosure in their ESG reporting. This would be a topical investigation given the prevailing heightened global interest in sustainability.

An additional avenue for future research would be to conduct a study that isolates and determines the effects of Covid-19 on the relationship between ESG performance disclosures and bank performance. This would provide valuable insight into what banks do in the event of a crisis similar to Covid-19 and whether this has any material effect on their disclosures or performance.

Finally, this study could be extended over a longer period to expose the evolution of the ESG disclosure by South African banks over time and determine the effects on performance over time.

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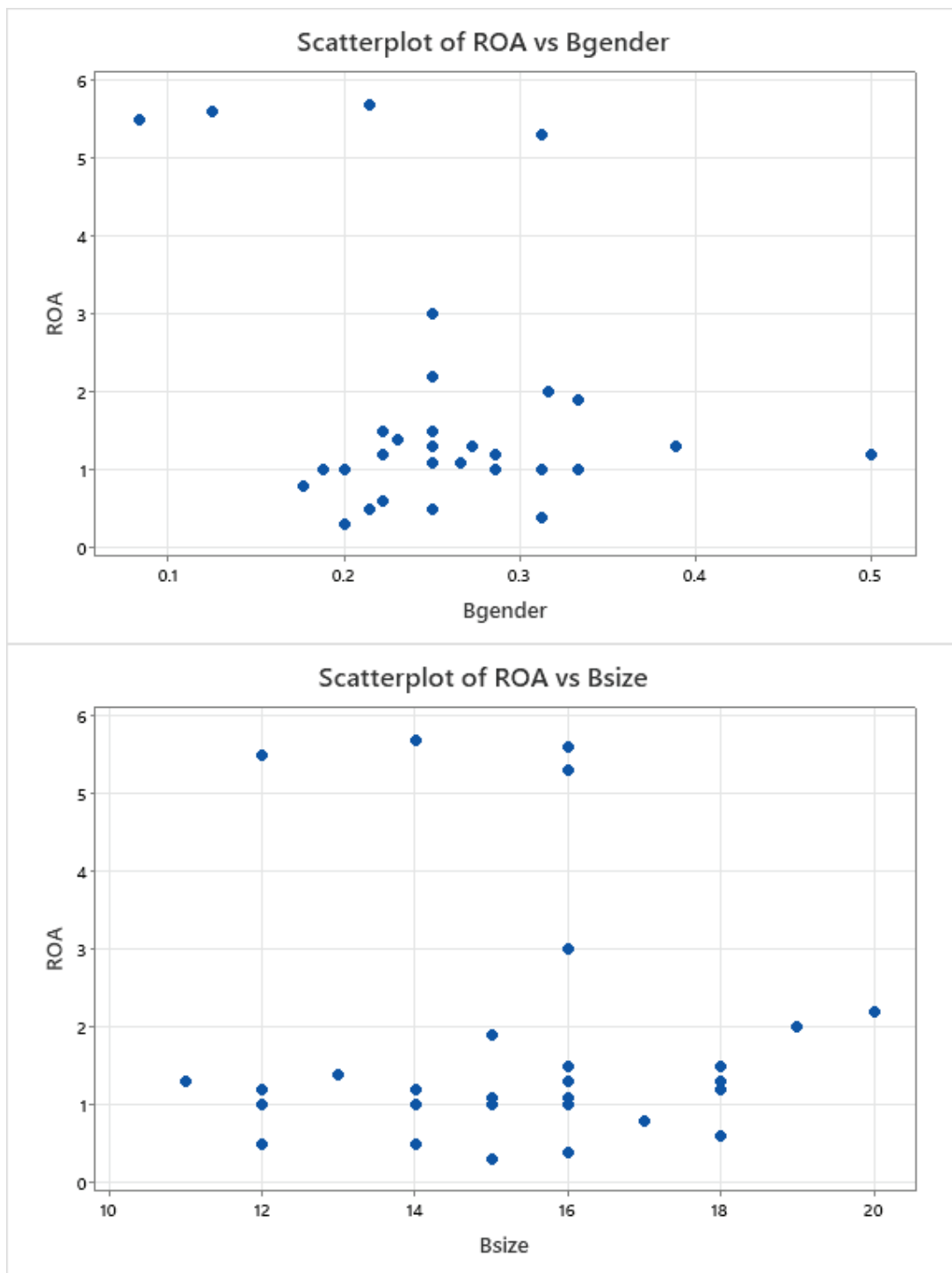
## Appendix 1

### List of Banks

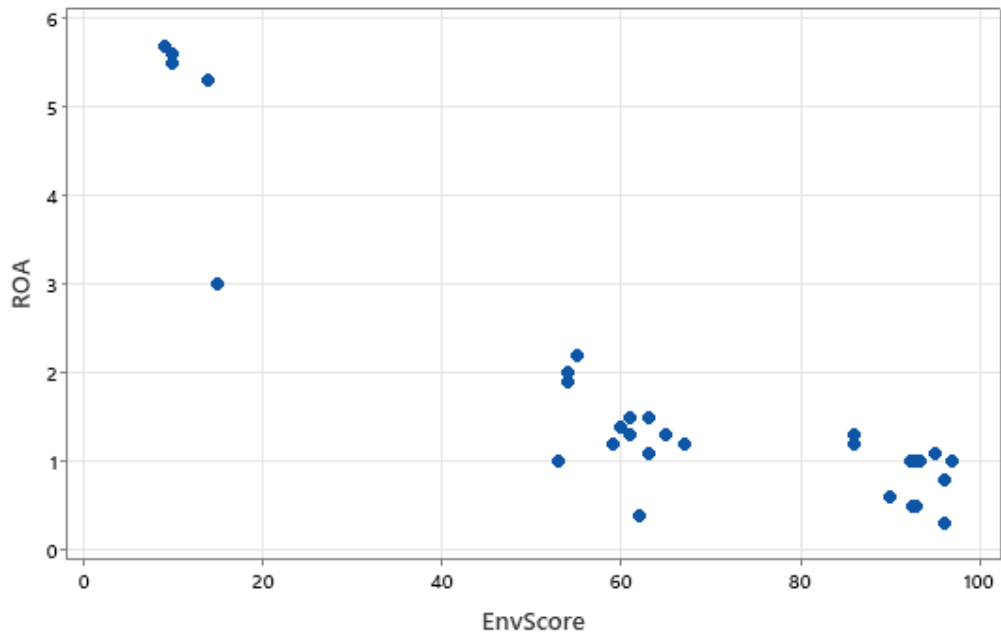
1. **ABSA BANK GROUP LIMITED**
2. **STANDARD BANK GROUP LIMITED**
3. **NEDBANK GROUP LIMITED**
4. **FIRSTRAND GROUP LIMITED**
5. **INVESTEC BANK LIMITED**
6. **CAPITEC GROUP LIMITED**
7. DISCOVERY BANK PTY LTD
8. SASFIN BANK LTD

## Appendix 2

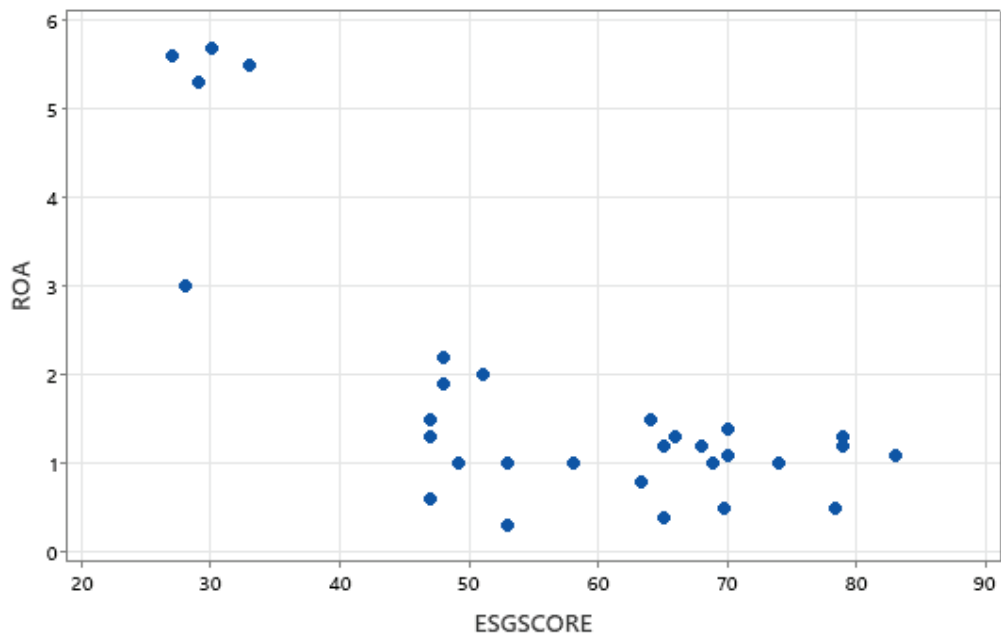
### ROA

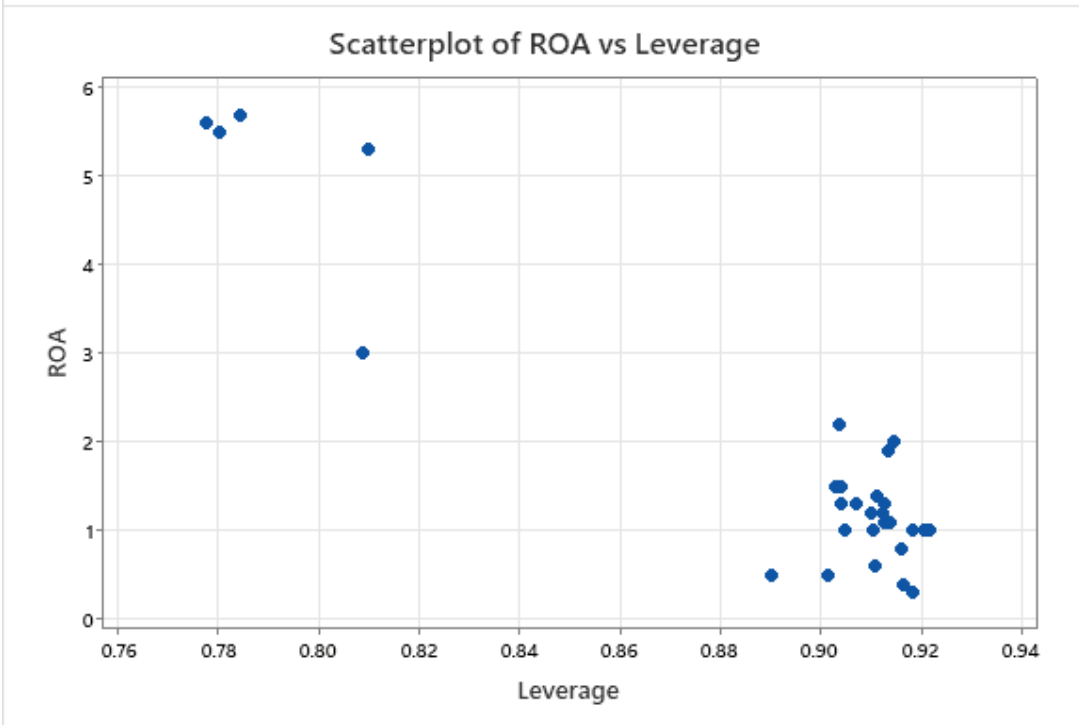
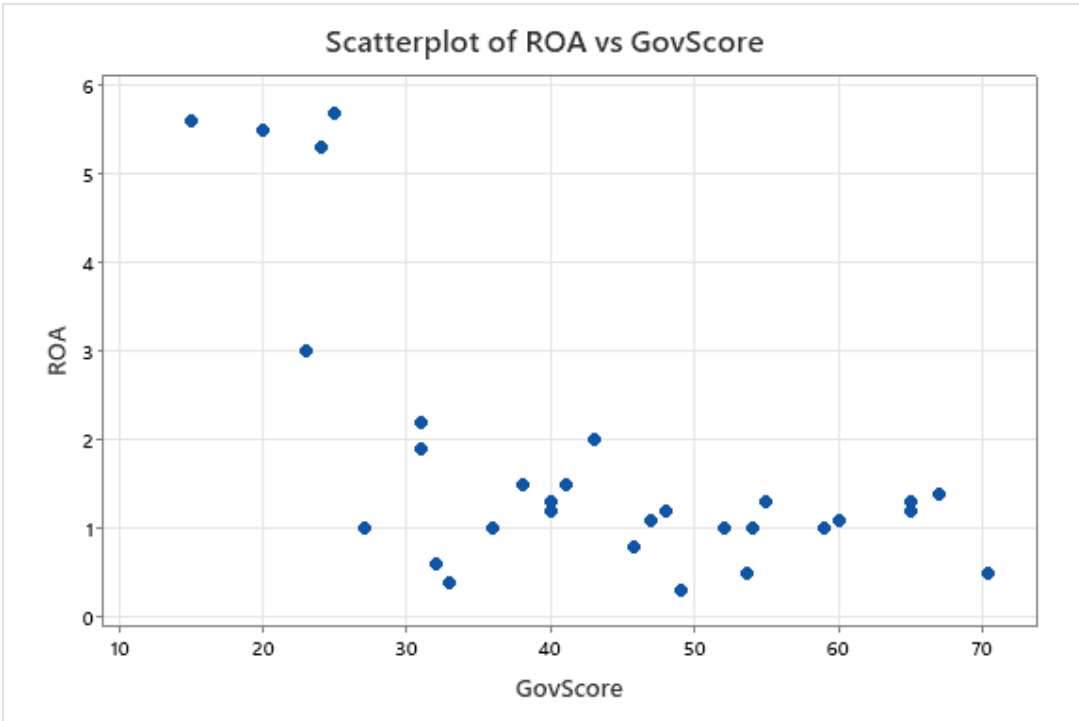


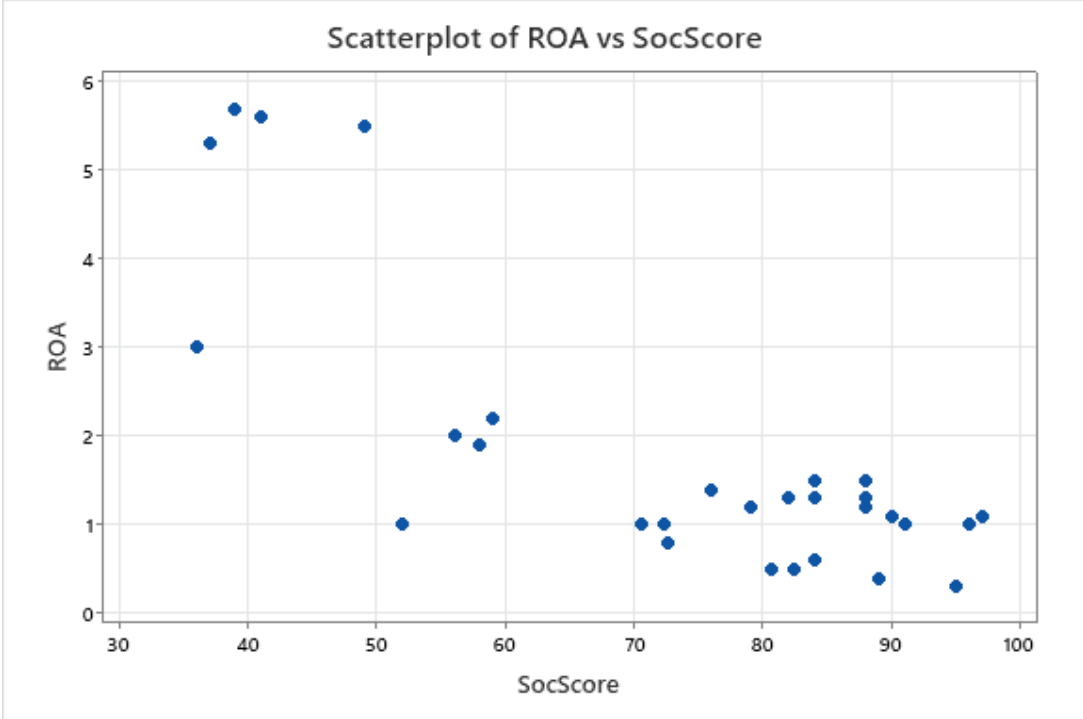
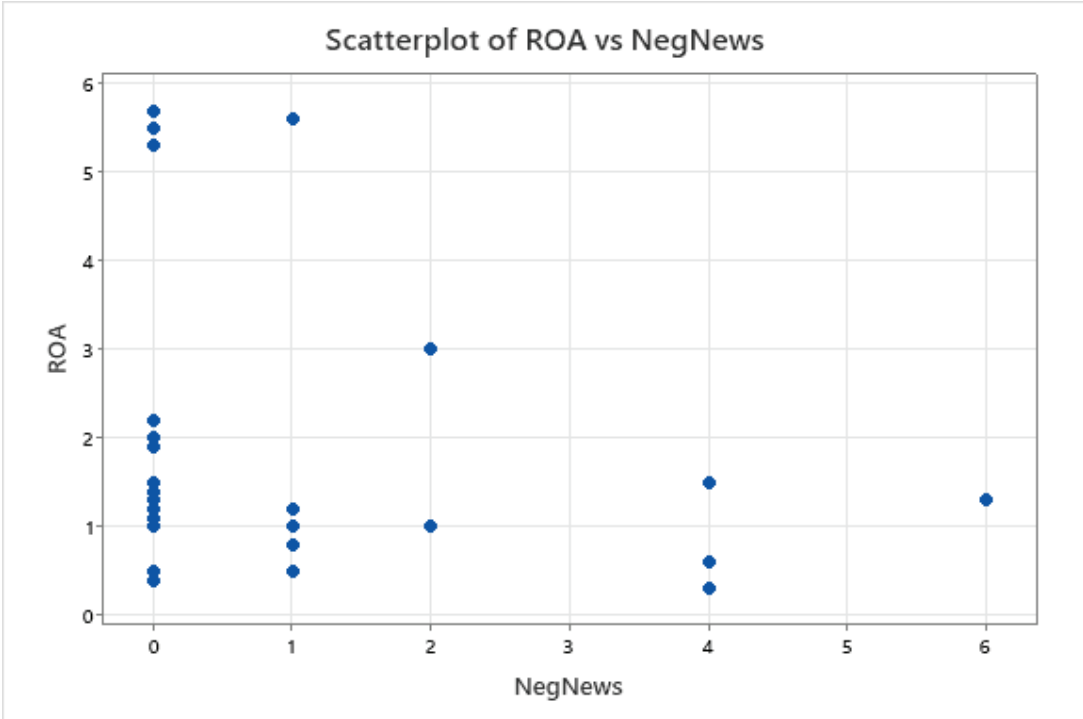
Scatterplot of ROA vs EnvScore

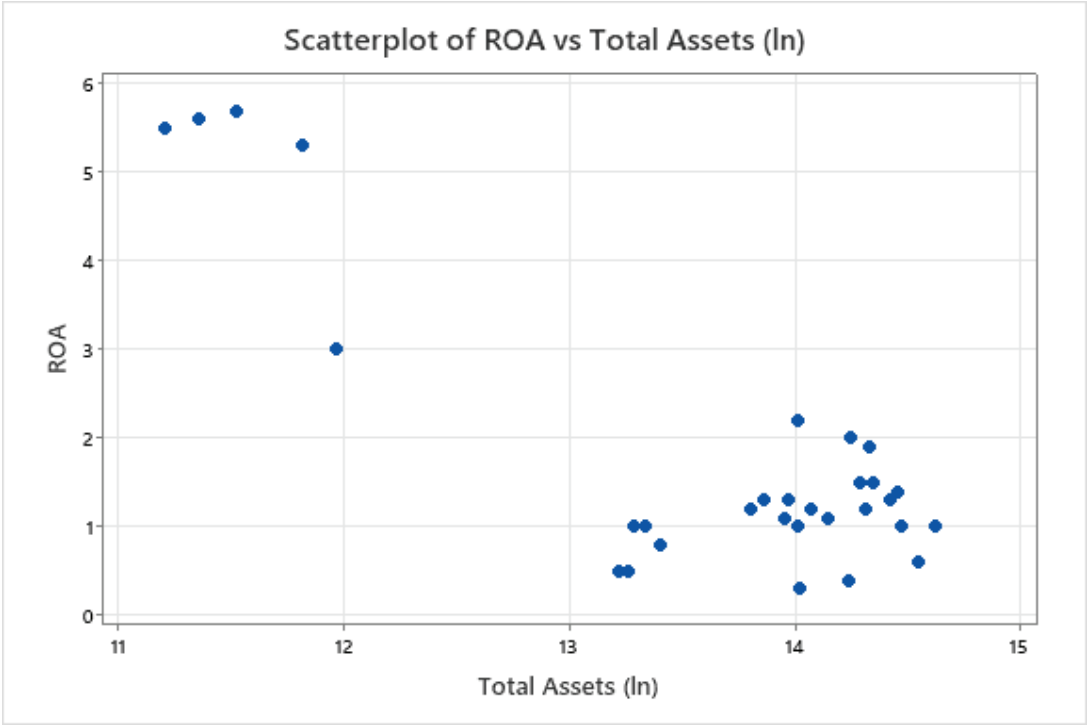


Scatterplot of ROA vs ESGSCORE

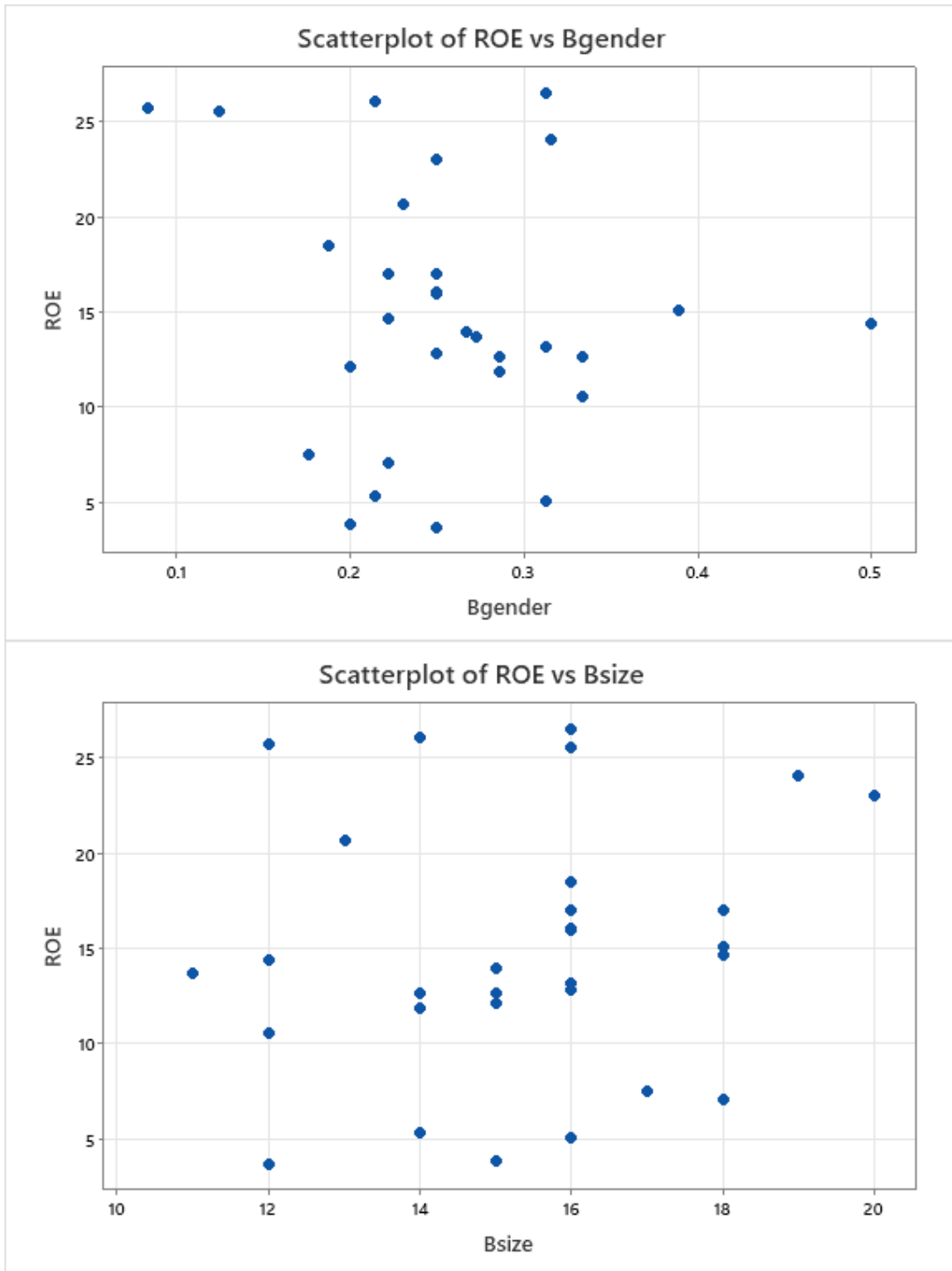




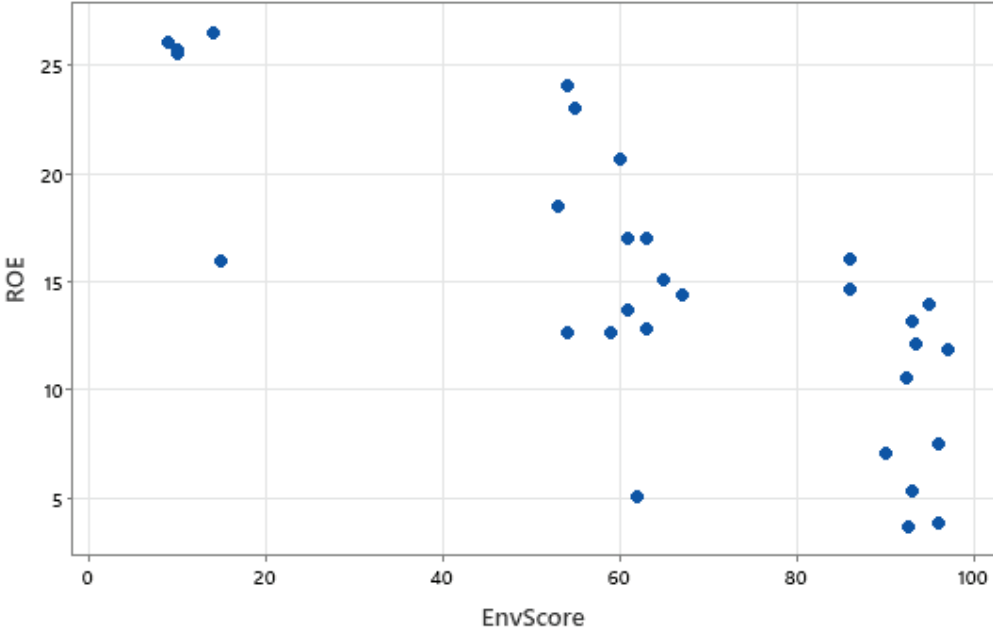




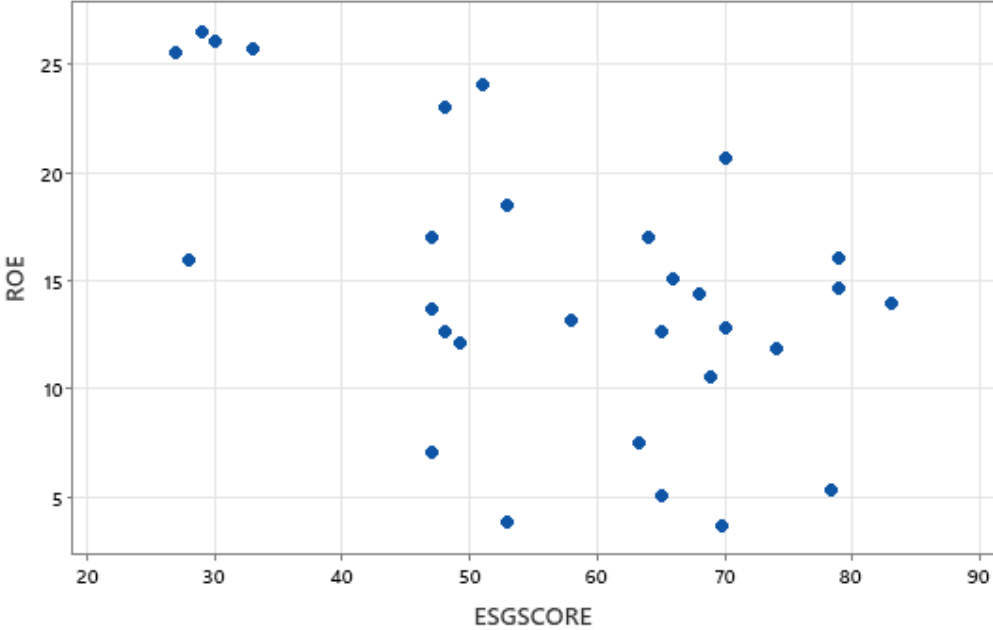
# ROE

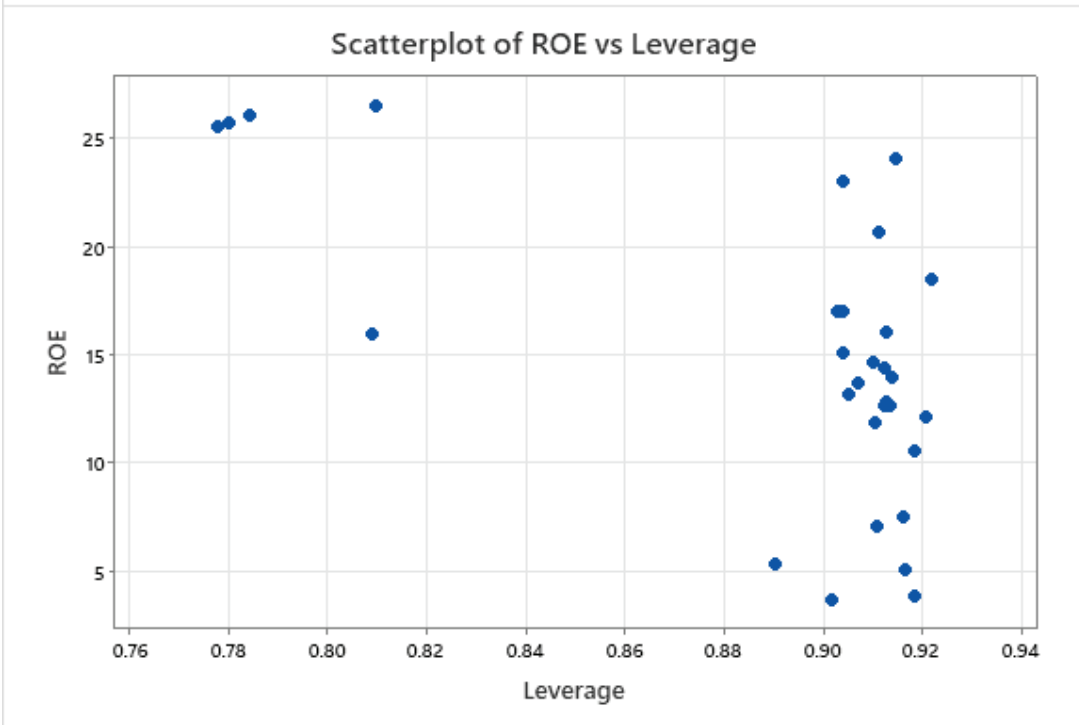
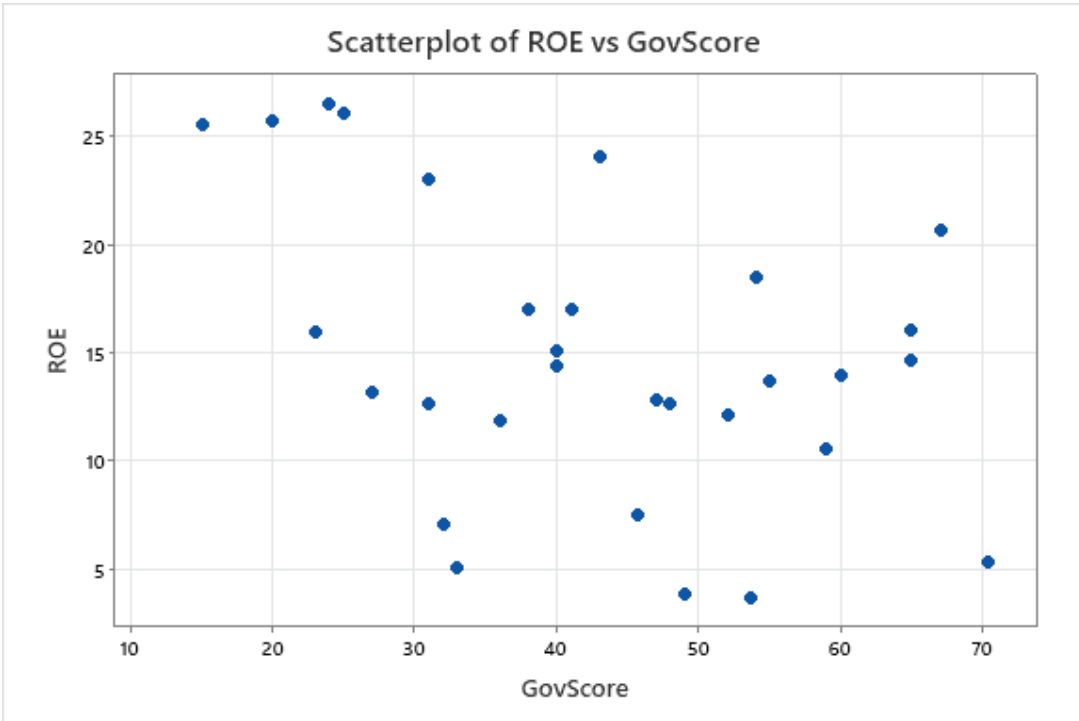


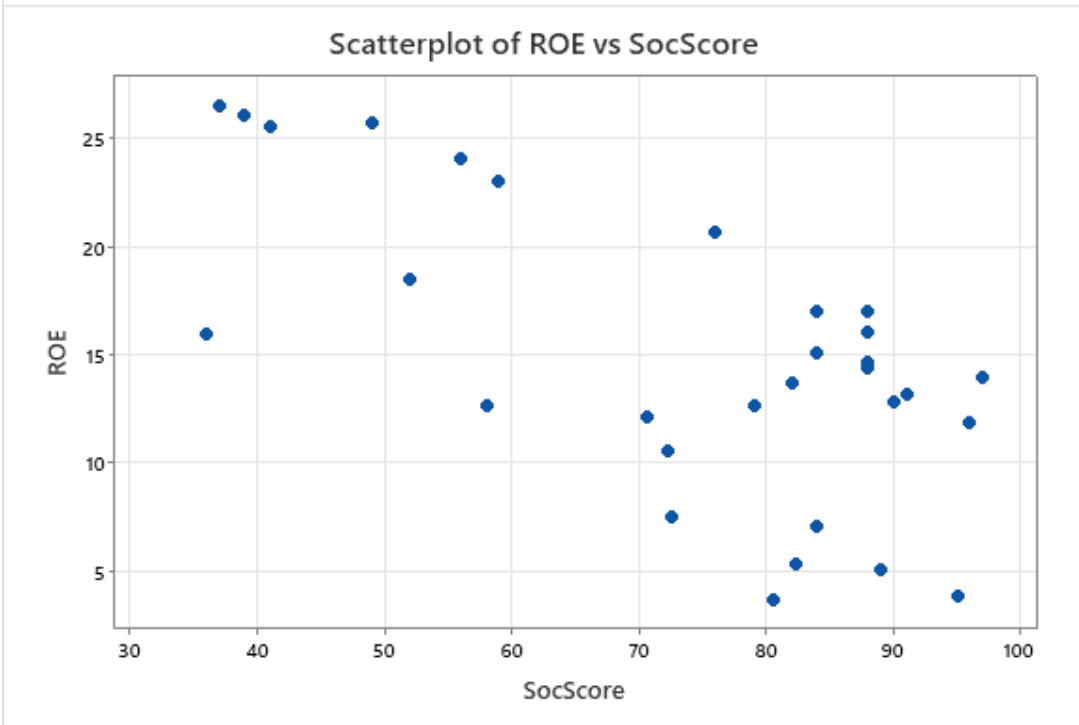
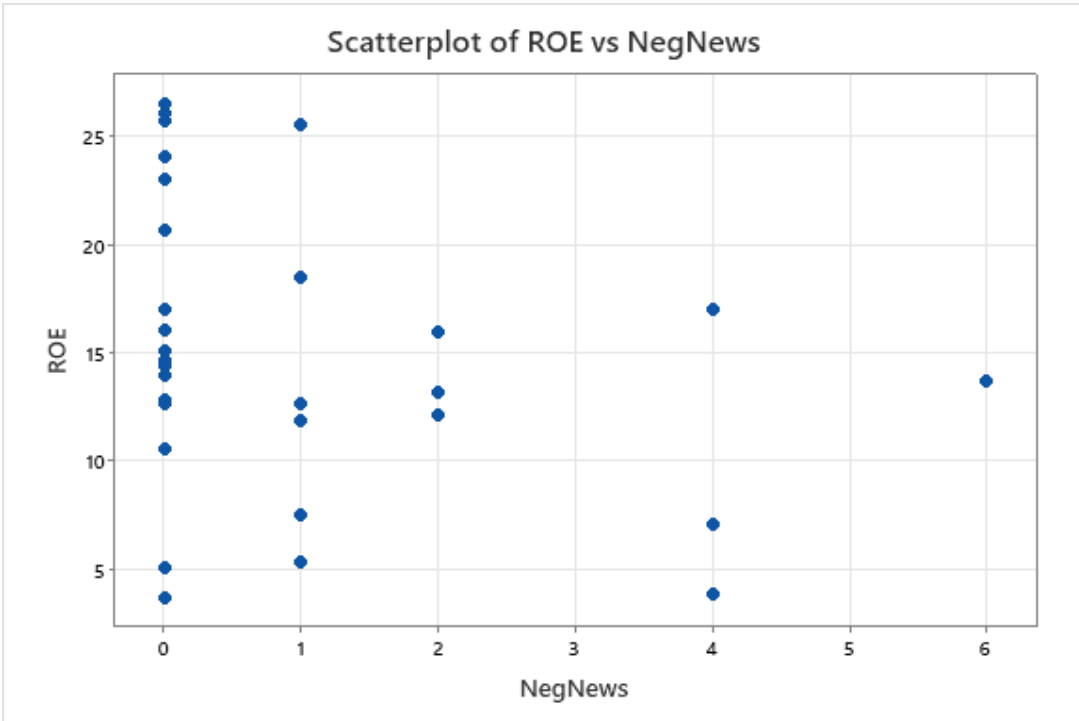
Scatterplot of ROE vs EnvScore

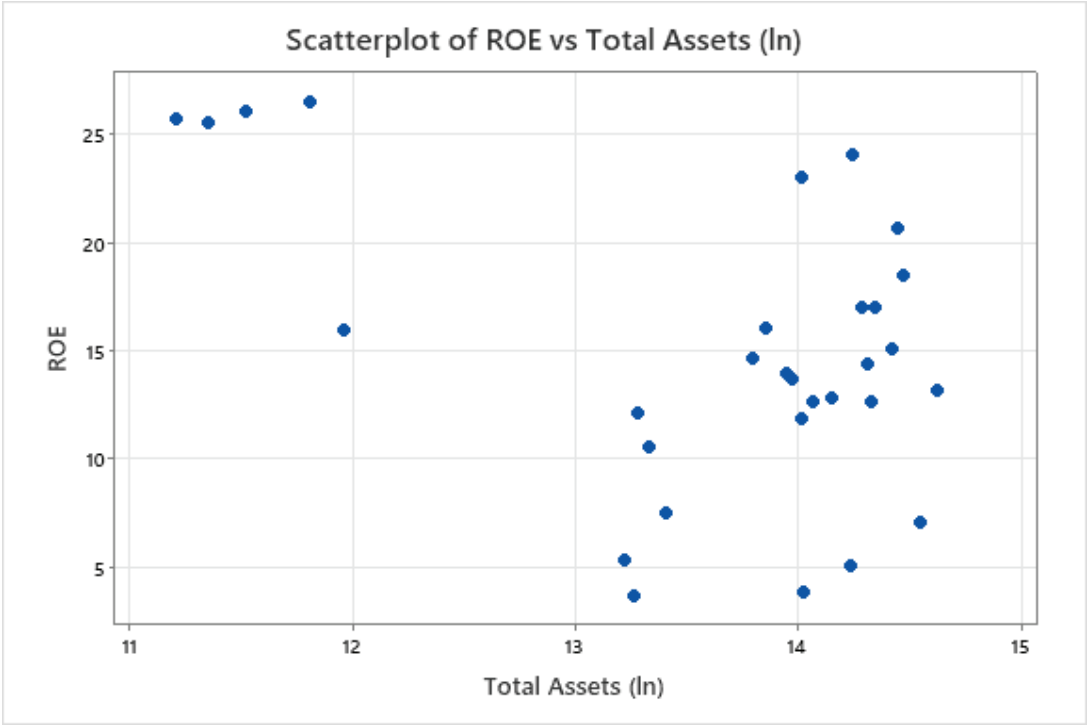


Scatterplot of ROE vs ESGSCORE

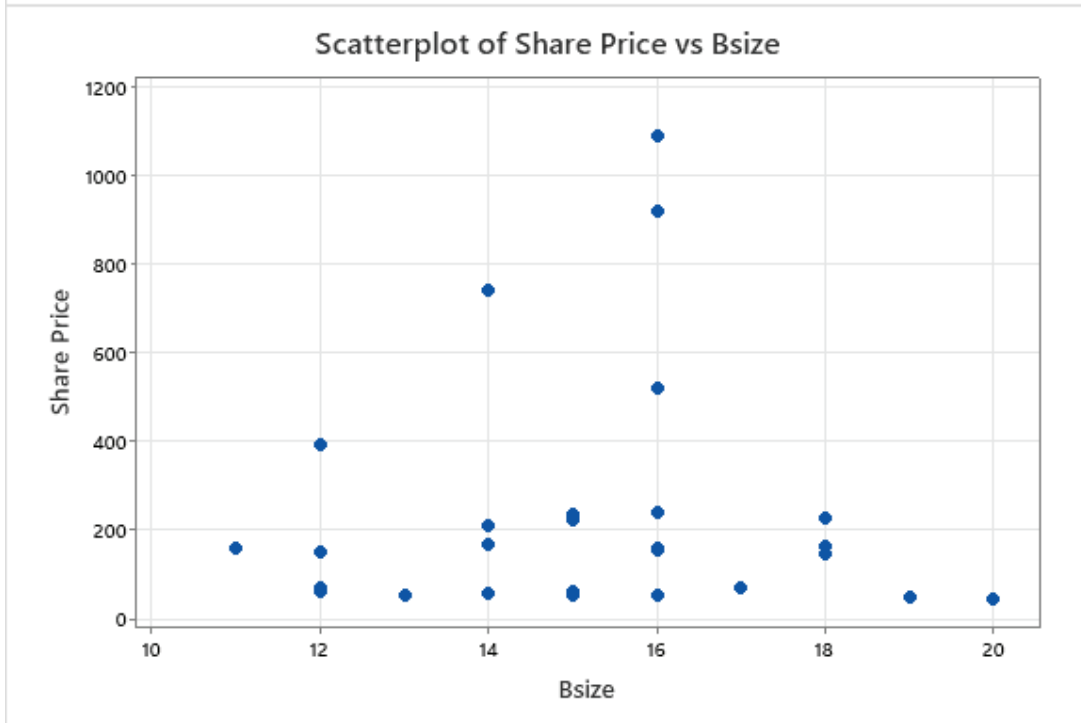
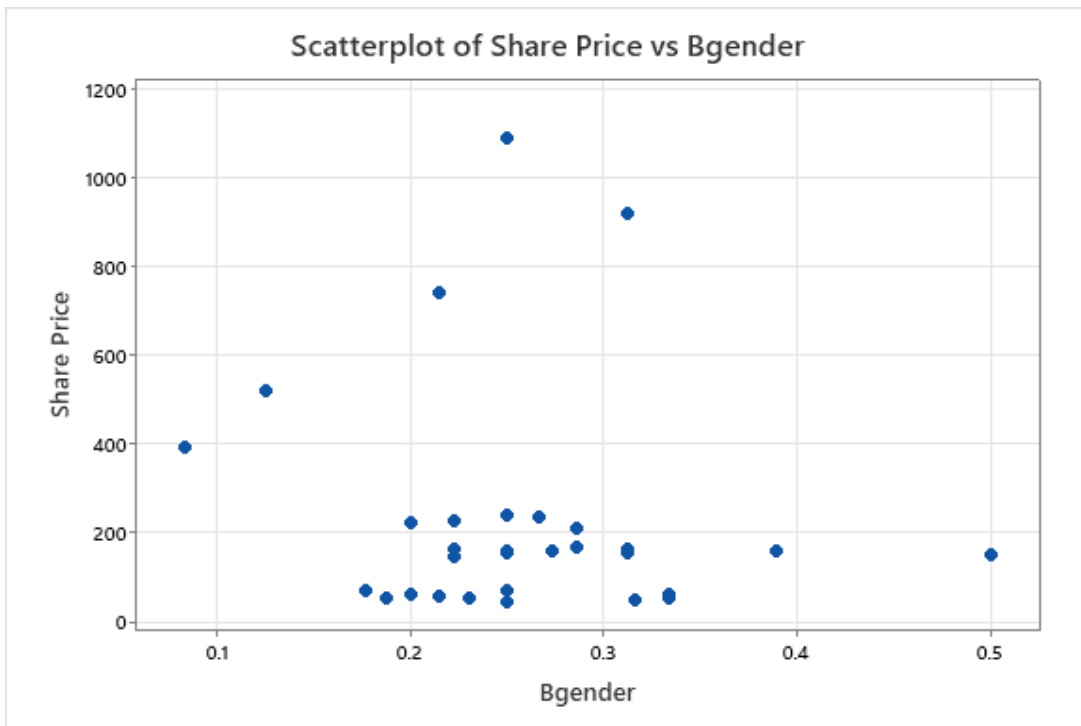


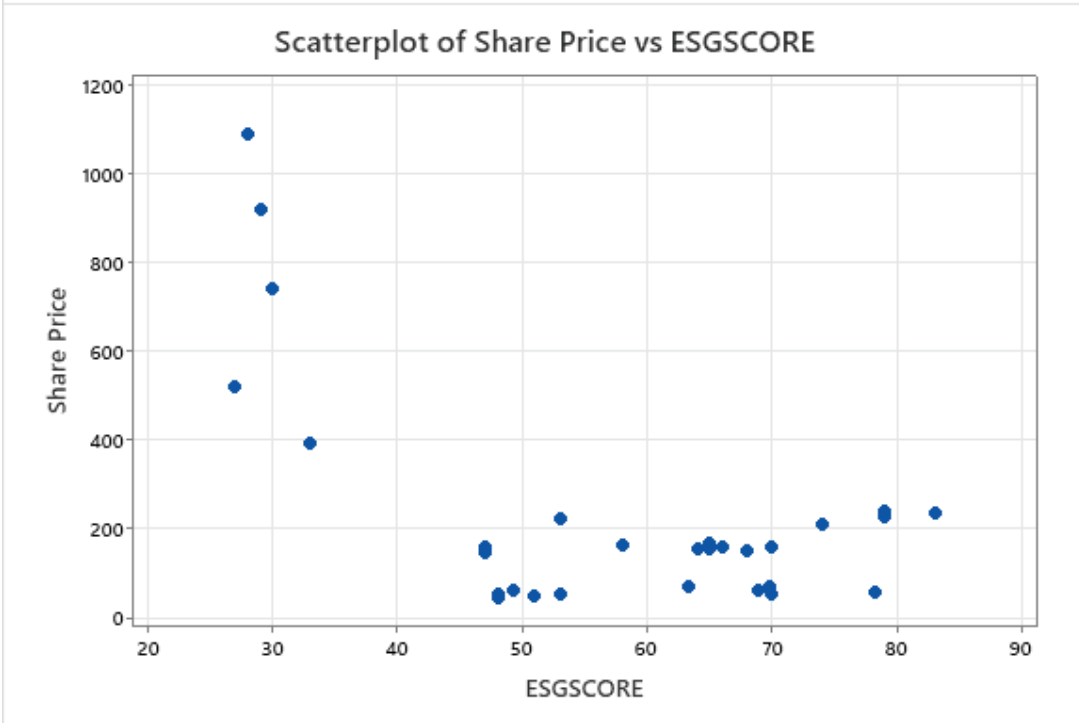
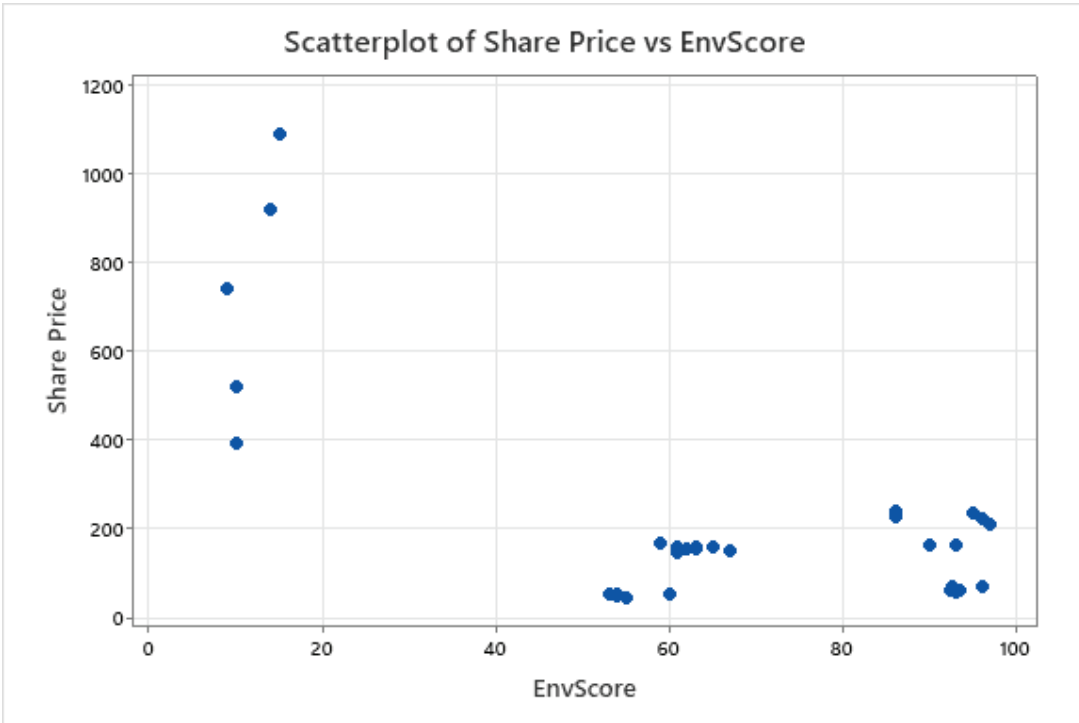


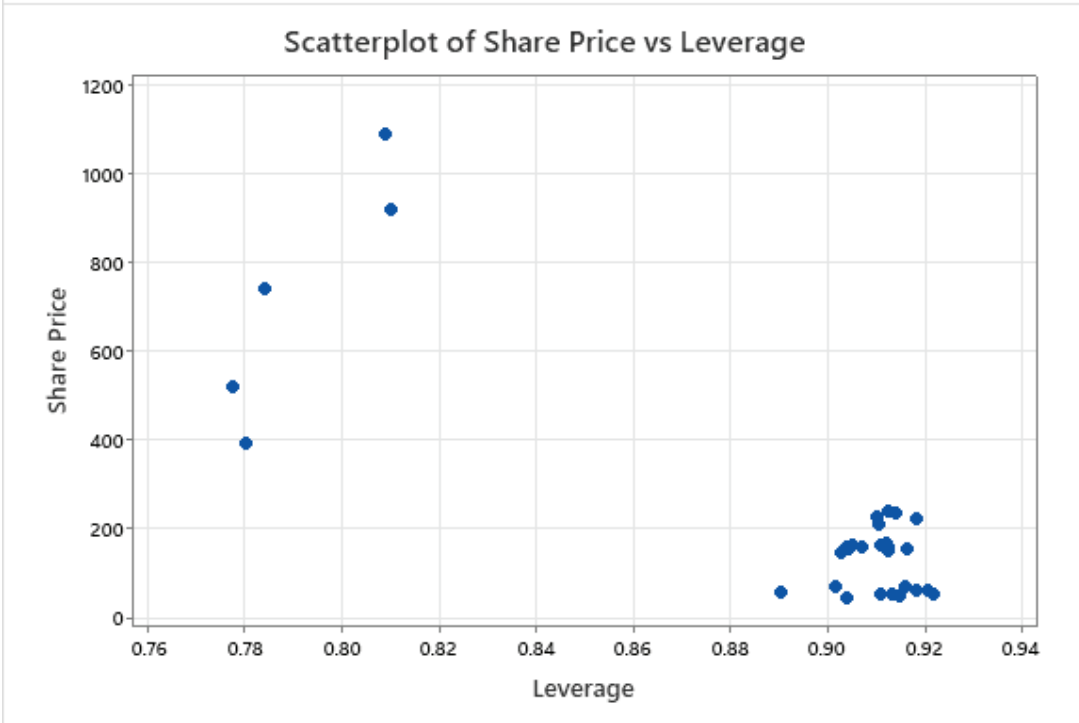
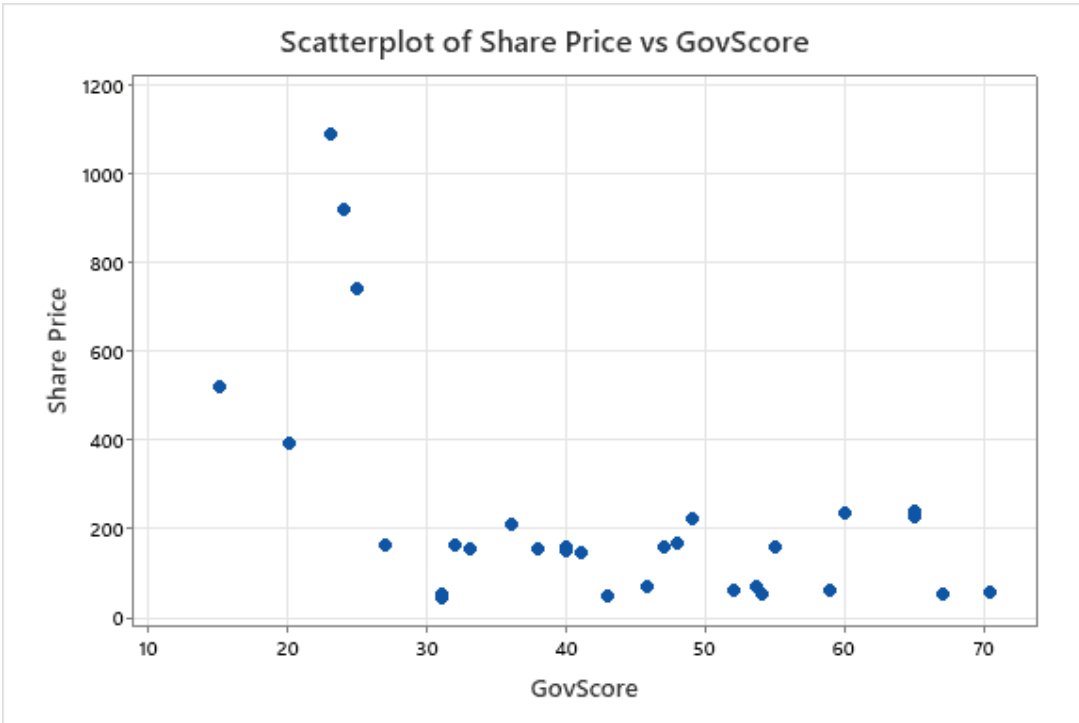


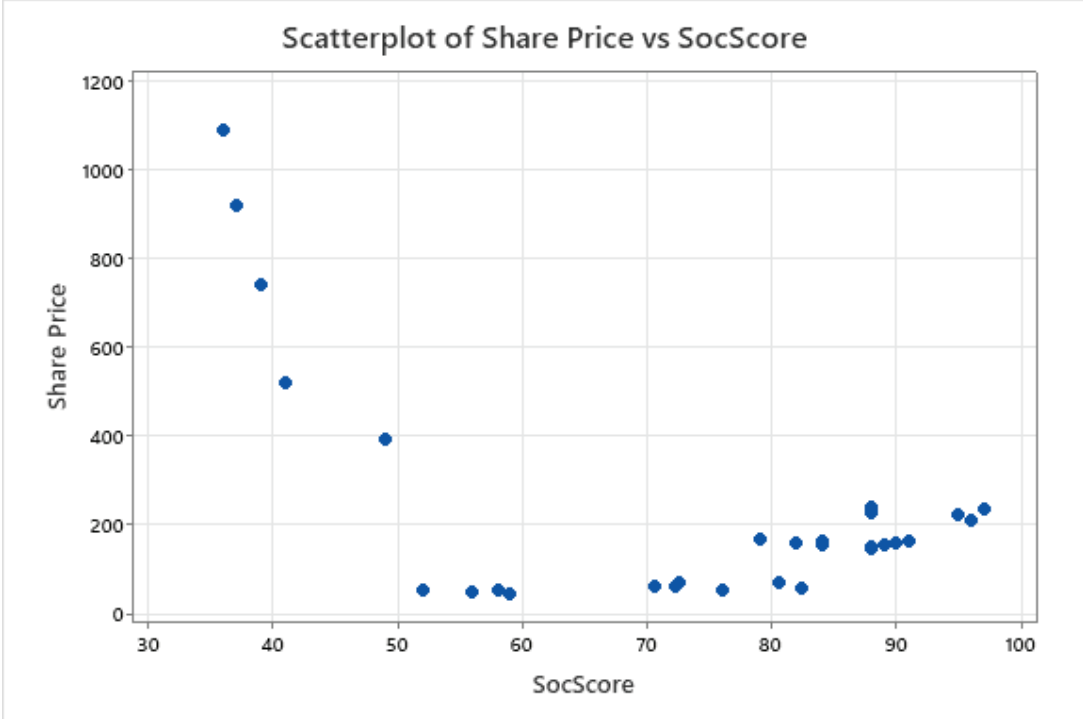
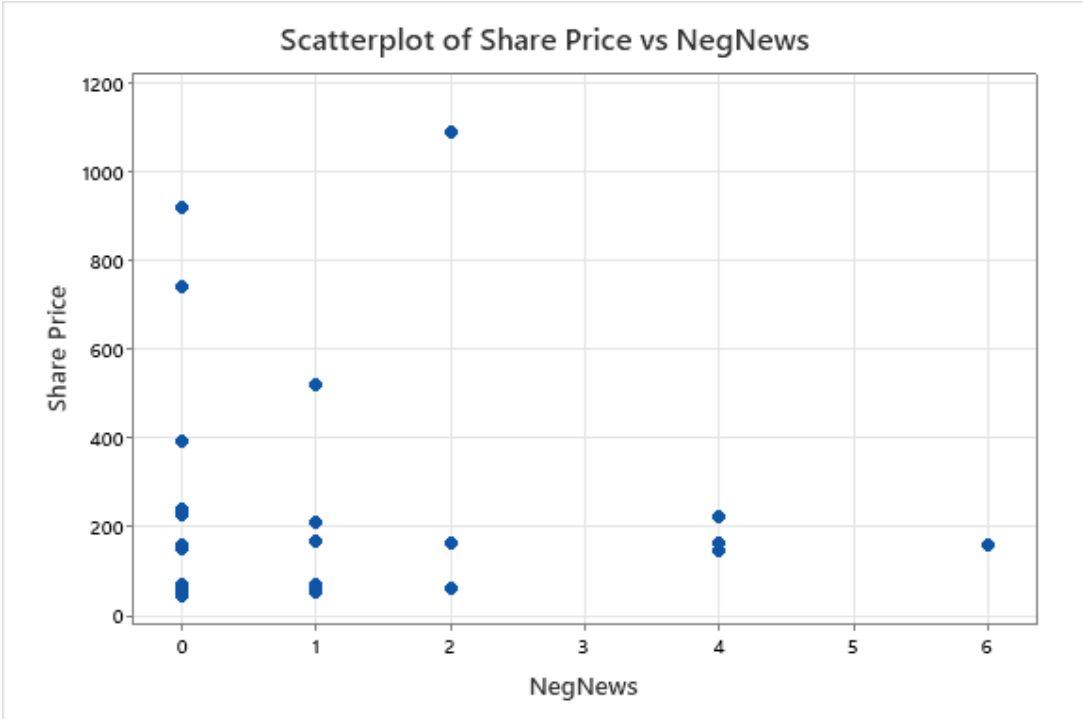


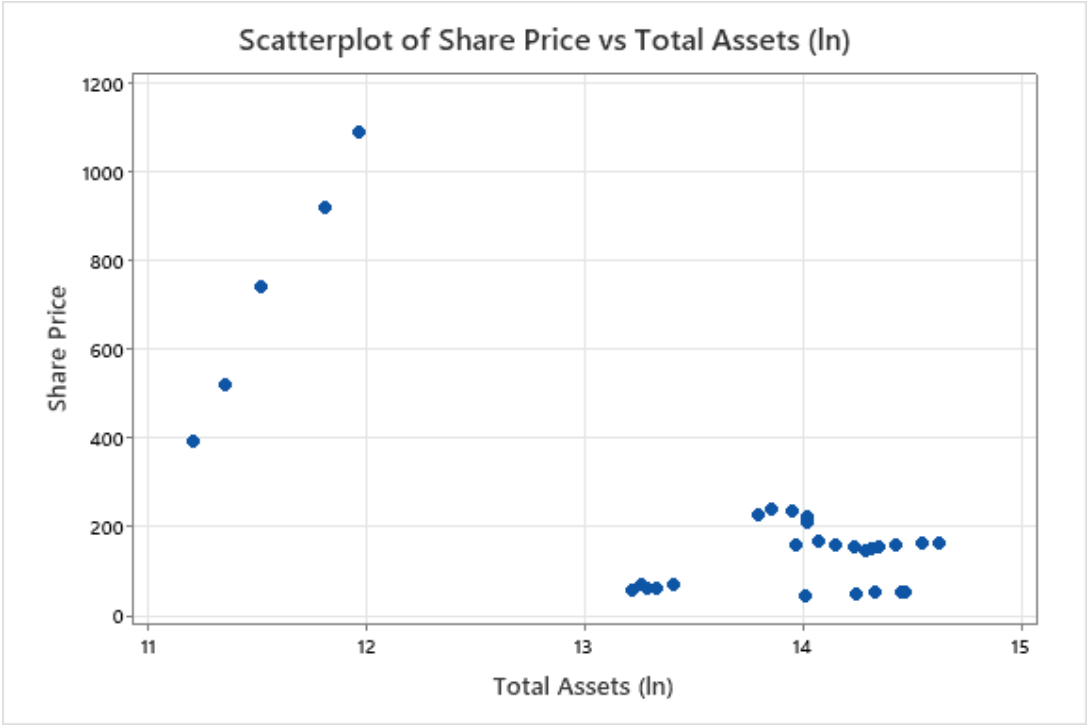
## Share Price



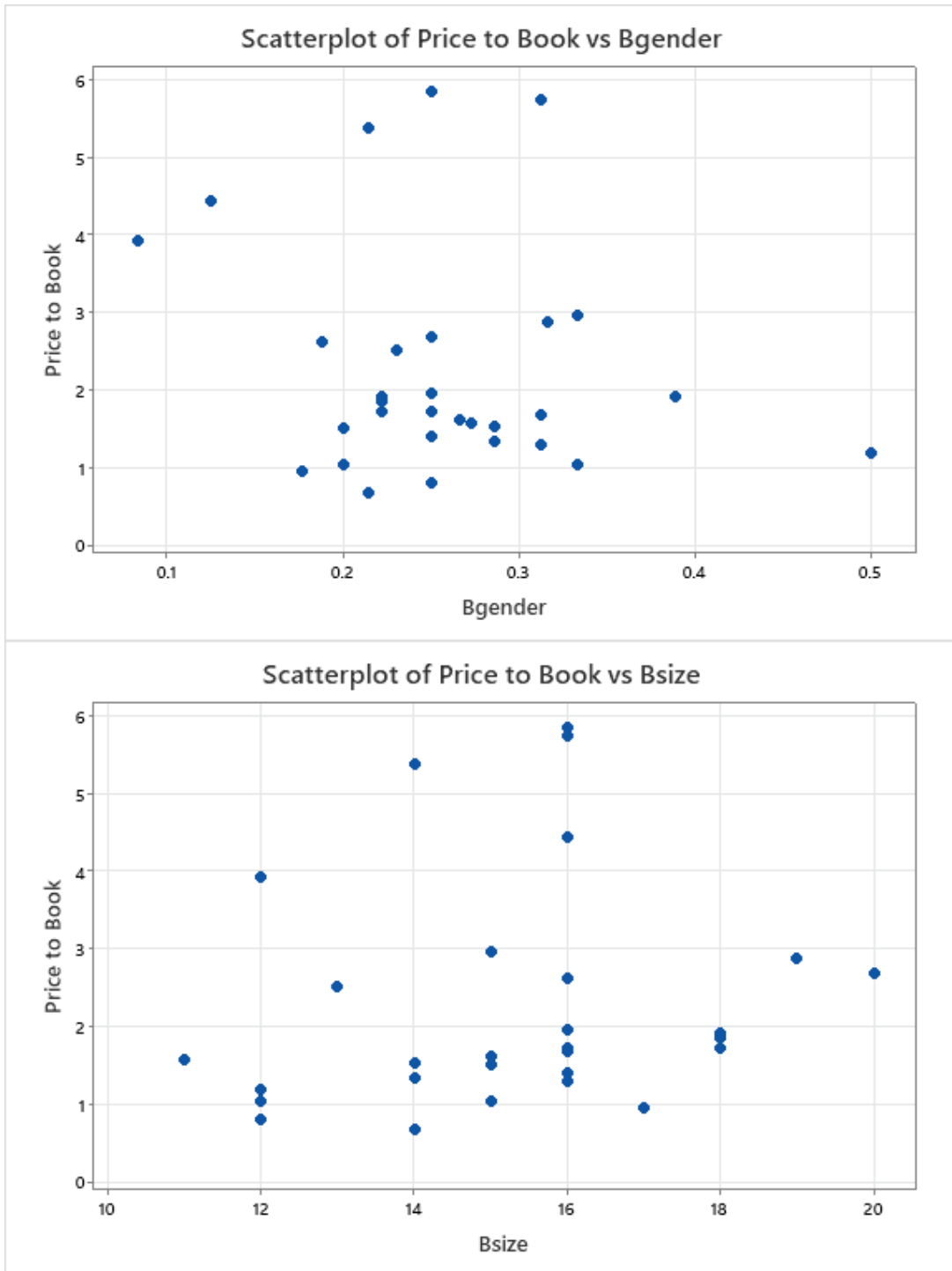


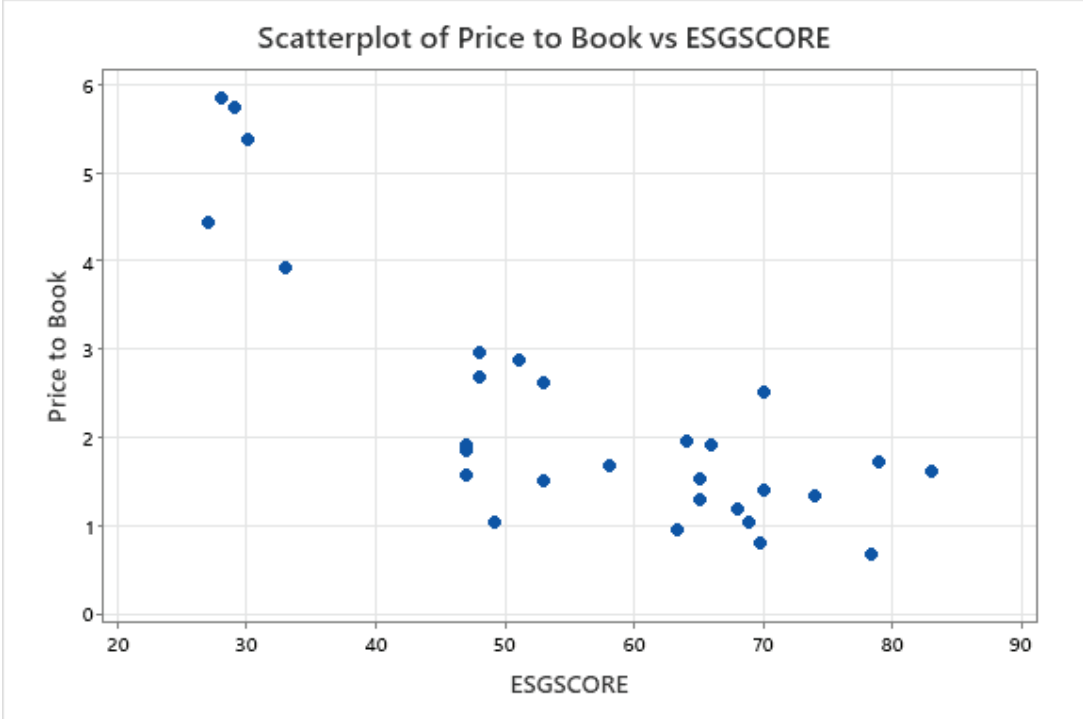
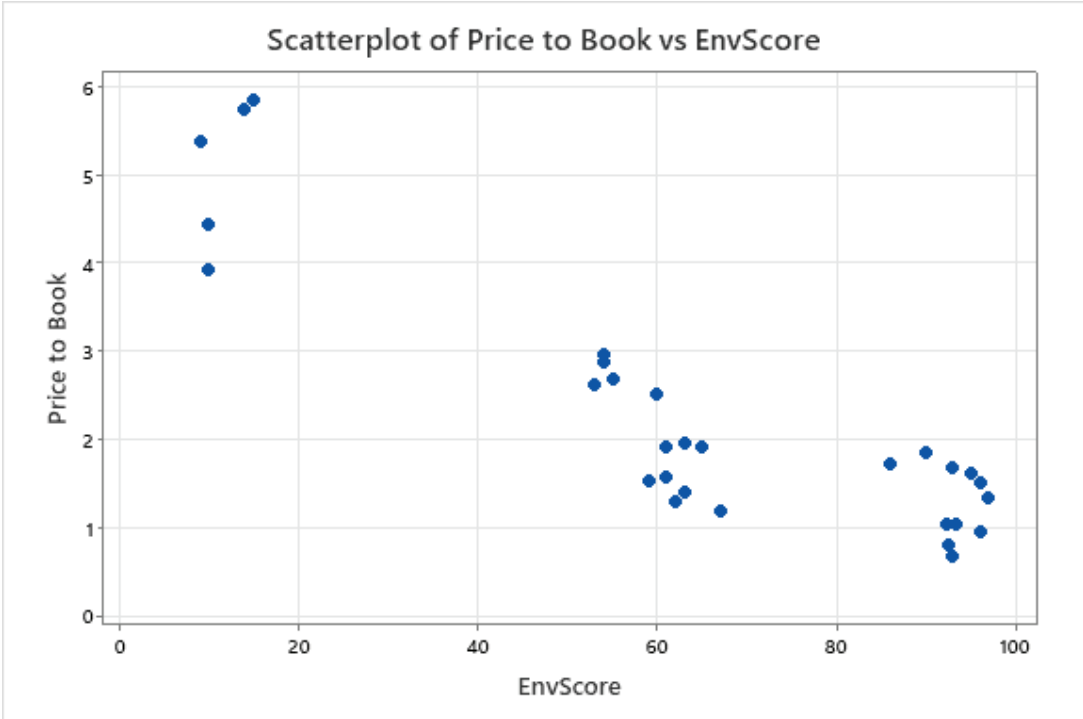


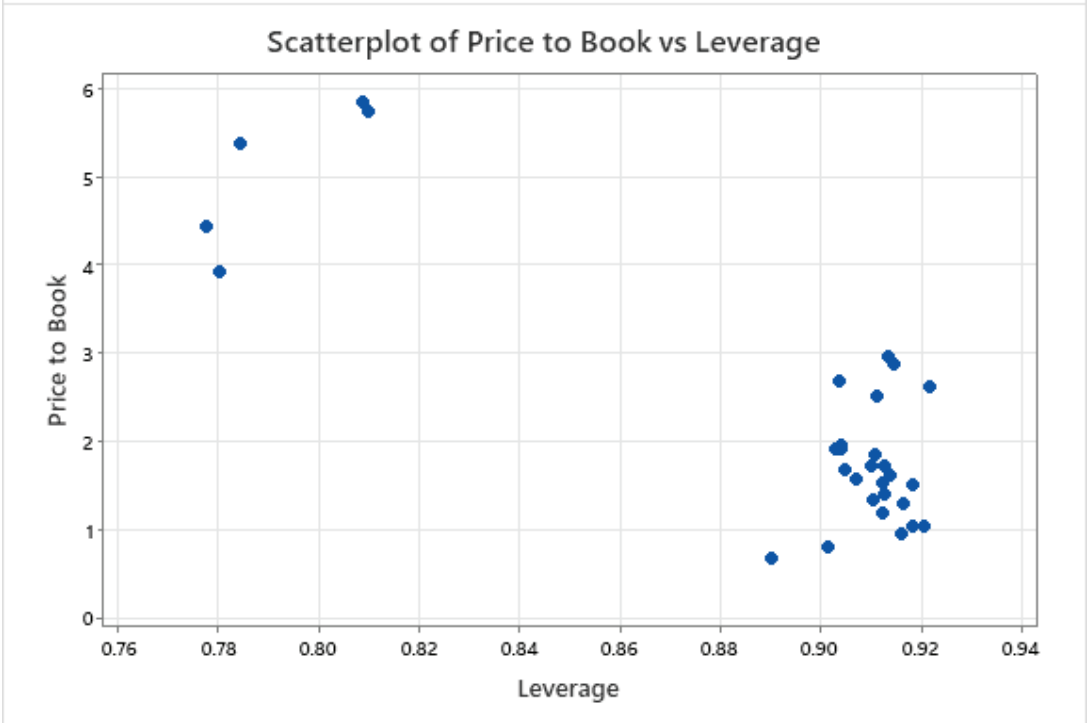
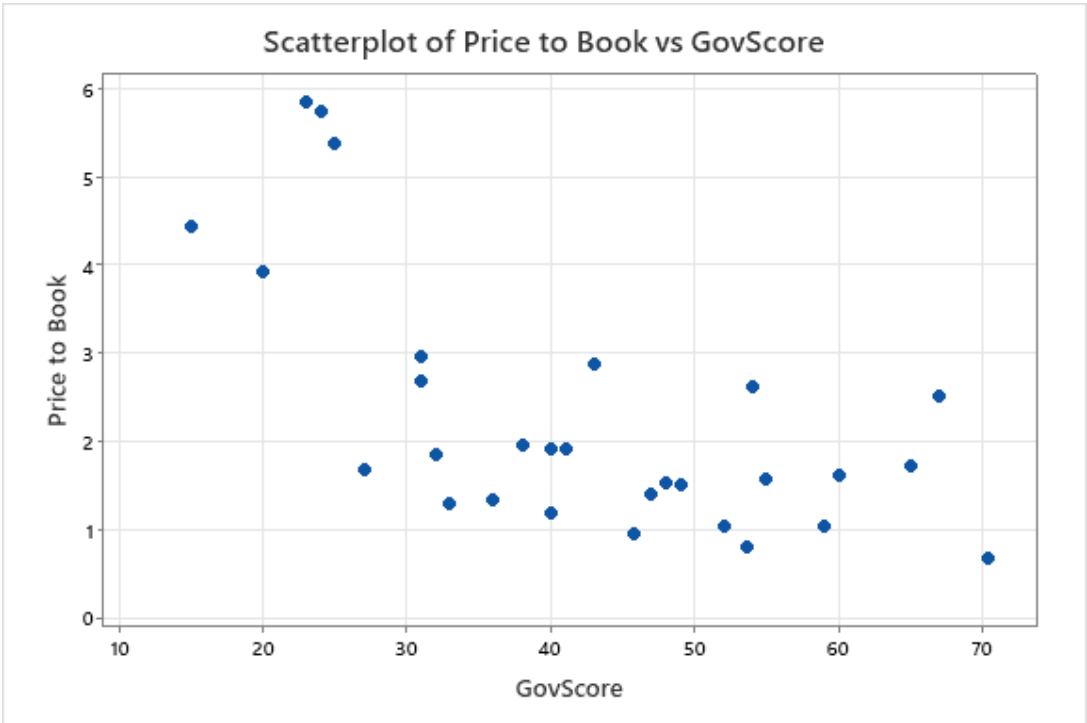


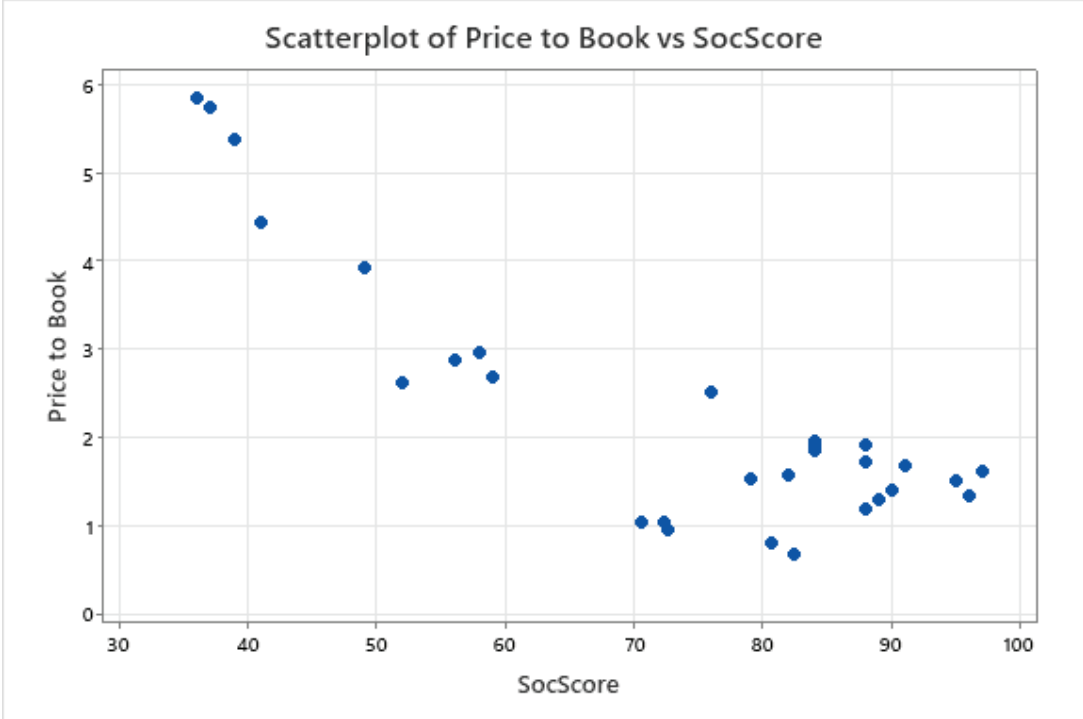
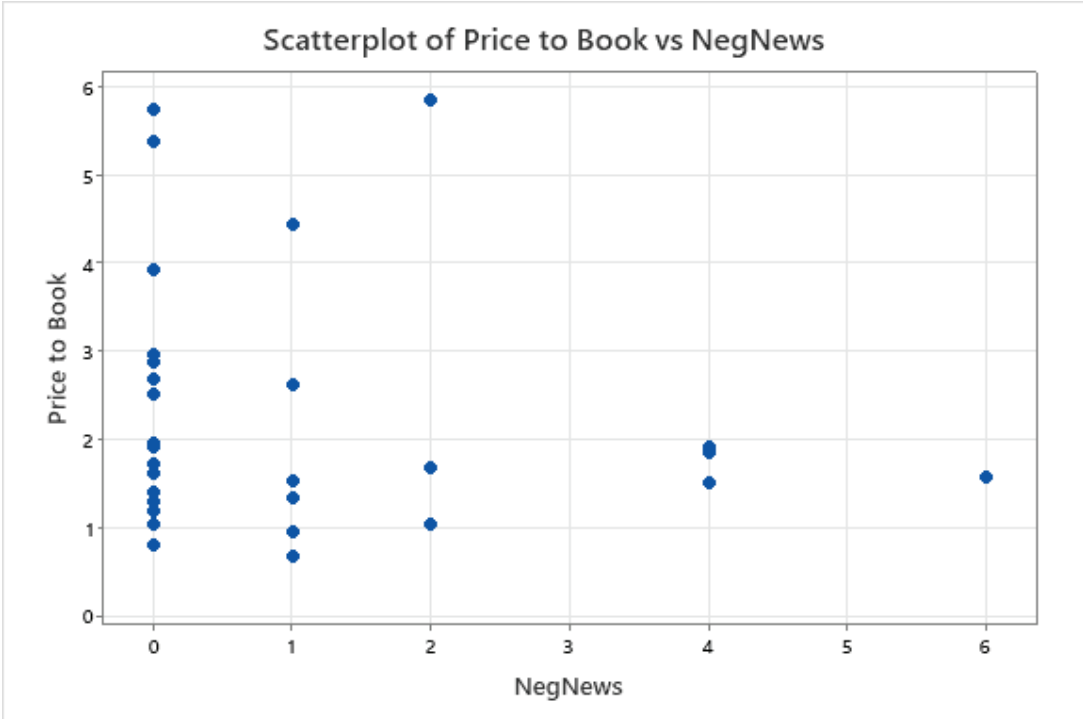


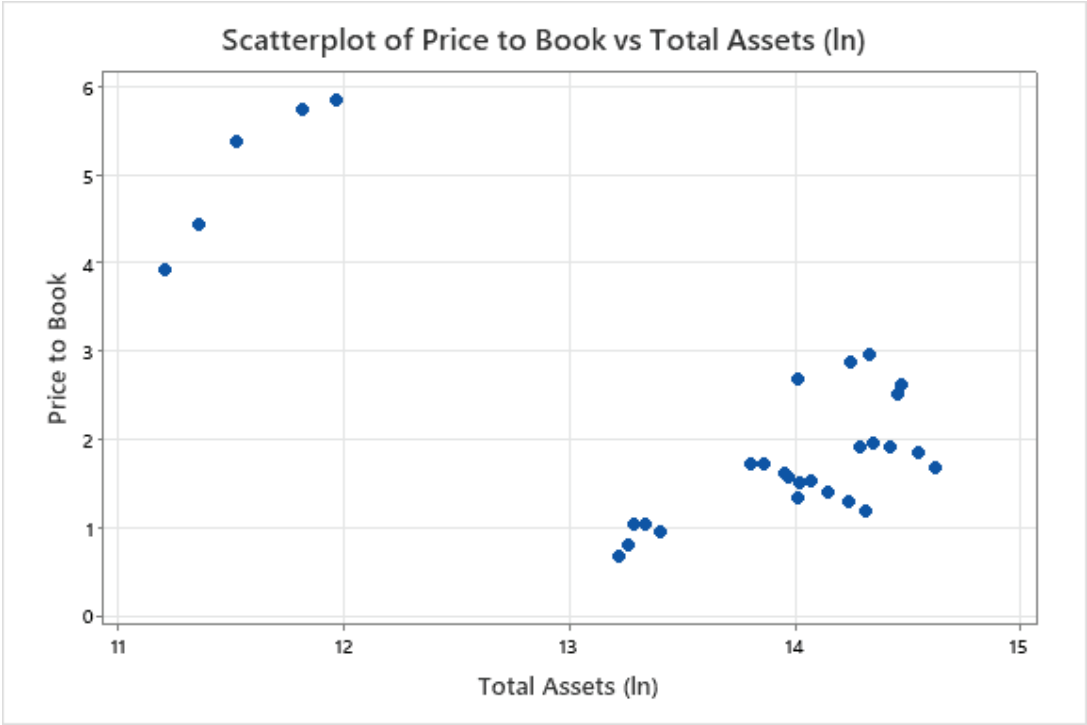
## Price To Book











## Appendix 3

### Kolmogorov-Smirnov and VIF

	Kolmogorov-Smirnov	VIF
ESG Score	p-value = 0.089	30.91
ENV Score	p-value = 0.029	9.81
SOC Score	p-value = 0.017	13.17
Gov Score	p-value > 0.150	7.47
Neg News	p-value < 0.010	6.64
BSize	p-value = 0.084	1.57
BGender	p-value > 0.150	1.77
Total Assets (Ln)	p-value < 0.010	16.79
Leverage	p-value < 0.010	25.12

### Breusch - Pagan Results

**ROA:** F-stat significance = 0.311953

**ROE:** F-stat significance = 0.78651

**Share Price:** F-stat significance < 0.01

**Price to Book:** F-stat significance = 0.100835