Bachelor Thesis Accountancy

THE MODERATING EFFECT OF FIRM SIZE ON THE RELATIONSHIP BETWEEN ESG PERFORMANCE AND EARNINGS QUALITY.

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I. INTRODUCTION

The field of ESG (Environment, Social and Governance) has garnered public interest in recent years, primarily driven by global concerns regarding climate change and environmental challenges. As a result of this development stakeholders want transparency into what businesses are doing to increase their sustainability contributions (Lamba 2022). ESG performance scores provide the demanded transparency, since it shows a company's performance regarding Environmental, Social and Governance criteria (Bhatia 2024). The growing interest fuels research on possible related factors, amongst others earnings quality. Earnings quality is a measure of how reliable company's earnings are for assessing current and future performance (Earnings Quality – Financial Edge 2024).

Prior literature on the ESG-earnings quality relationship suggest that when a company demonstrates a better ESG sustainability performance, there is the expectation that its earnings quality will also improve in a way that the company tends to reduce its opportunistic and unethical behaviour such as earnings management (Nurrahman, Mito, and Siswantoro 2019). Kim, Park, and Wier (2012) underpinned this expectation with two arguments. Firstly, a good ESG performance is a form of reputation-building or maintenance, the desire to protect that reputation inhibits opportunistic and unethical behavior. Secondly, Kim et al. (2012) argued that firms with a good ESG rating generally have more surplus resources on average which lowers financial pressure and need to manipulate earnings. Nevertheless, there is also another side to a strong ESG performance, as a strong ESG performance can also be used to mislead stakeholders and cover up manipulative practices, like earnings management (Almubarak, Chebbi, and Ammer 2023). The contradictions of ESG engagement underscore the importance of this study, which aims to examine the relationship between ESG performance and earnings quality.

Additionally, this study will investigate how firm size moderates the ESG-earnings quality relationship with the aim to clarify contradictions. Firm size could be a relevant and interesting factor of influence for several reasons. First of all, bigger companies likely have greater incentives to build and maintain a good reputation. Ghuslan, Jaffar, Mohd Saleh, and Yaacob (2021) support this by finding company size and corporate reputation to be positive related. Secondly, bigger companies typically have more internal resources (Hashmi, Gulzar, Ghafoor, and Naz 2020) which potentially drives ESG investments and fair financial reporting. Lastly, using a good ESG performance to cover up manipulative practices is more likely for smaller

firms since they are more likely to engage in earnings management compared with large-scale firms (Nurdiniah and Pradika 2017). These arguments indicate a contrast in the ESG-earnings quality relationship among different sized firms, which could potentially explain the contradictions in prior literature. Ultimately, incorporating firms size leads to the study hypothesis that the positive relationship between ESG performance and earnings quality strengthens for bigger firms.

The sample of this study is based on companies in North America, since North America is a leading economy with good data availability. The data on firm size and earnings quality are gathered through the Compustat North America database. To collect data on ESG scores LSEG is used. Finally, IBES and Financial Ratio's Suite both on WRDS provided the needed data for the control variables. The study's initial sample contained 9813 firms, but after controlling for data availability the final sample decreased to 554 firms.

The primary results of this study reveal that ESG performance does not significantly influence earnings quality. Additionally, the influence of firm size on this relationship is also found to be insignificant.

Many research has been done to identify the relationship between ESG performance and earnings quality. Prior research stopped by showing mixed results. While Velte (2019) found the relationship between ESG performance and earnings management to be negative, Almubarak et al. (2023) found significant evidence for it to be positive. However, looking at organizational characteristics like firm size as a possible explanation for the variating results has never been done before. Therefore, this research question is academically relevant in a way that it builds on and tries to declare the contradictions in prior research.

Moreover, the findings of this research could have practical implications. They could provide valuable information to especially investors and policymakers, which could help them in making decisions. Firstly, for investors it is crucial to know the earnings quality (Tohang, Hutagaol-Martowidjojo, and Pirzada 2024), investors could benefit from this research as it enhances their ability to assess the reliability of the earnings based on ESG rating and firm size. Secondly, policymakers can gain a better understanding in firms' business practices and reporting behaviours in the light of ESG, thereby facilitating improvements in regulations and oversight. Ultimately, this research empowers stakeholders to make more informed decisions.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In this study, the focus is on the impact of ESG performance on earnings quality. ESG performance shows a company's performance regarding Environmental, Social and Governance criteria (Bhatia 2024). There is a relation between ESG and ethics in a way that ethical issues arises within each of the ESG categories, prompting leaders and individuals to make ethical decisions to address the concerns (Armstrong 2020). This study suggest it is related to the quality of earnings, which is crucial for investors and other stakeholders. However, high quality earnings is not self-evident, since managers have incentives to manage earnings which lowers earnings quality (Lo 2008). The first reason for managers to manage earnings are related to the performance of a firm with respect to some benchmark (Mohanram, 2003). These benchmarks could for example be previous period performance or analyst expectation. Missing such a benchmark could cause a drop in the stock price, which can be very costly. Therefore, the incentive to manage the earnings just above the target is exceedingly strong when firms are close to a target (Mohanram 2003). A second reason for managers to manipulate earnings can be found in manager compensation. For example, Bergstresser and Philippon (2006) found evidence for earnings management incentives increasing when overall compensation of the company's CEO is more sensitive to share prices.

When a company demonstrates a better ESG sustainability performance, it is expected that its earnings quality will also improve in a way that the company tends to reduce its opportunistic and unethical behaviour such as earnings management (Nurrahman et al. 2019). This expectation is supported by Velte (2019), who examined the influence of the three individual pillars of ESG on earnings management. Velte (2019) found a negative relationship between ESG pillars and earnings management. Similar findings were reported by Yamina and Ghazi (2022), who observed a negative relationship between ethical behavior and real earnings management. Since these papers focus on earnings management, it's essential to note that earnings management and earnings quality are closely related, as highly managed earnings typically have lower quality (Lo 2008). Conversely, Lo (2008) argued that the absence of earnings management is not sufficient to guarantee high-quality earnings. Additionally, Kim et al. (2012) conducted research on earnings quality and found it to be positively related to corporate social responsibility. Their study provides two important arguments that could potentially explain the positive relationship. Firstly, demonstrating ESG practices can be viewed as a form of reputation-building or maintenance. If a firm values its reputation, it may avoid socially irresponsible actions. Thus, managers use sustainable practices to enhance the

firm's reputation and constrain earnings management to protect it. Secondly, the availability and especially surplus of resources play an important role. Firms with economic slack are more inclined to spend those on "doing good by doing well" practices, enhancing good ESG ratings. This means that firms with more economic slack have less financial pressure and therefore less need to engage in earnings management (Kim et al. 2012).

However, the literature on the influence of ESG performance on earnings quality presents mixed results. While previous studies like Nurrahman et al. (2019) expect ESG practices to have a negative effect on opportunistic behavior and thus earnings management, Almubarak et al. (2023) argue that engagement in ESG is sometimes viewed as a type of managerial misconduct and a means to cover up manipulative practices. This contradicts the aforementioned studies, implying a negative relationship between ESG performance and earnings quality.

Almubarak et al. (2023) found statistically significant evidence supporting their claim that ESG disclosure has a positive effect on earnings management. These results are in line with Mutthakin, Khan, and Azim (2015), who also observed a positive relation between CSR disclosures and earnings management, measured by discretionary accruals. In addition, the study documented that firms who provide more CSR disclosures overstate their earnings through income-increasing discretionary accruals. Furthermore, Tohang et al. (2024) investigated the direct link between ESG performance and multiple determinants of earnings quality, they revealed ESG performance to be positively correlated with discretionary accruals. This means that a higher ESG performance leads to higher discretionary accruals and, therefore lower earnings quality. Ultimately, prior research is not unanimous about the relationship between ESG performance and earnings quality. Nevertheless, prominent prior literature predominantly supports the notion of sustainable practices driving fair financial reporting. In addition, the arguments for a positive relationship between ESG performance and earnings quality seem stronger and outweigh the arguments of a negative relationship. Therefore, this study comes to the following hypothesis:

Hypothesis 1: The relationship between ESG performance and earnings quality is positive.

This study aims to explain the discrepancy among literature by adding firm size as moderator. Firm size potentially influences the given arguments for both a positive and negative relationship between ESG performance and earnings quality. First of all, ESG performance is suggested to be positively related to earnings quality because reputation-building or maintenance keeps a firm away from socially unacceptable activities. This argument is stronger for bigger firms because they generally care more about their reputation. Ghuslan et al. (2021) support this by finding company size and corporate reputation are significant positive related. Secondly, ESG performance is suggested to be positively related to earnings quality since a surplus of resources drives ESG investments and fair financial reporting because firms with more economic slack have less need to engage in aggressive earnings management (Kim et al. 2012). This argument is also stronger for bigger firms since they generally have more economic slack. Hashmi et al. (2020) support this by finding that bigger firms tend to have more internal resources. On the other hand prior literature also formulated an argument for a negative relationship between ESG performance and earnings management. They argued a good ESG performance is sometimes used to cover up manipulative practices such as earnings management. This argument weakens for bigger firms since 'large-sized firms are more likely to design and maintain more sophisticated and effective internal control systems in comparison to small-sized firms, reducing the likelihood of manipulating earnings by management' (Kim, Liu, and Rhee 2003). All of these arguments suggest earnings quality to be better for large firms compared to smaller firms. Therefore, this study comes to the following hypothesis:

Hypothesis 2: The positive relationship between ESG performance and earnings quality is strengthened for bigger firms.

III. METHOD

The following regression model will be used to test the hypothesis of this study:

*EARNINGSQUALITY = a + β1 * ESGRTNG + β2 * LNSIZE + β3 * ESGRTNG*LNSIZE + β4 * ANALYST + β5 * ROA + β6 * BTM + β7 * CYCLE + β8 * CURRENT + β9 * LEVERAGE*

To test the hypothesis of this study, *β1* and *β3* will be analyzed. The sign of *β1* and *β3* needs to be significantly positive to reject H0 and support the hypothesis.

Since, earnings quality is not directly observable, this study uses a proxy to measure earnings quality. The model of DeFond and Park (2001) is used to estimate abnormal accruals, because the regression model of DeFond and Park (2001) is readily available and has demonstrated its ability to yield reasonable precise estimates of abnormal accruals in various context. Moreover the data to run the regression is easily accessible. The proxy for abnormal accruals essentially captures the difference between realized working capital and the market's expectation of the normal level of working capital required to support current sales levels (DeFond and Park, 2001). The corresponding regression equation is as follows:

AWCAt = WCt – [(WCt-1 / St-1) * St]

Where:
AWCAt = Abnormal working capital in current year t;
WCt = Working capital in current year t;
St = Sales in current year t;
St-1 = Sales in previous year t-1.

The difference between realized working capital and the market's expectations of required working capital is the portion of working capital accruals that is expected to reverse against future earnings, which lowers the quality of earnings (DeFond and Park 2001). Given that both negative and positive differences indicate earnings manipulation, this study uses absolute values. This means the greater the deviation of ACWA from ‘0’, the higher earnings management. After computing, the absolute AWCA value is scaled by total assets and used as dependent variable (*EARNINGSQUALITY*) in the regression model.

As for the independent variable and moderating variable this study is about respectively ESG performance and firm size. The ESG scores are used to test for ESG performance. The used ESG scores measure the company's ESG performance based on verifiable reported data in the public domain (LSEG 2023). These ESG scores can differ between 0 and 100, where 0 represents the lowest possible ESG performance and 100 the highest. The expected sign of this variable is positive for the mentioned reasons in the literature review. The moderating variable firm size can be classified based on various ways, including the size of revenue, total assets, and total equity (Pratiwi and Pratila 2021). To measure firm size this study will use total assets on a logarithmic scale because firm size is generally not normally distributed. In addition, the log transformed total assets are used since the dependent variable is scaled by total assets. As such the coherence of the study is safeguarded. The expected sign of this variable is to have a positive effect on the main relationship for the reasons mentioned in the literature review.

The control variables used in this study are: *Analyst, ROA, BTM, CYCLE, CURRENT and LEVERAGE.* The chosen control variables and explanation for including them are both in accordance with Rezaee and Tuo (2019). First of all, the flexibility of a firm's accounting system influences the accrual level. Firms cash conversion cycle (*CYCLE*) is used to control for this, because firms with a longer cash conversion cycle will have more flexibility in accruals management and thus have higher likelihood of lower earnings quality. Secondly, the number of financial analyst (*ANALYST*) aims to measure a part of the information environment faced by the management, to control for the influence of the information environment on managerial strategy of dealing with accrual earnings. Lastly, to control for firm financial attributes the following factors are included in this study: Book-to-market ratio at the beginning of the year (*BTM*) to control for differences in growth opportunities and risk, return on assets (*ROA*) to control for firm performance (Kim et al. 2012) which could lead to pressure and incentives to measure earnings, current assets to total assets ratio (*CURRENT*) to control for firms liquidity, and the leverage ratio (*LEVERAGE*) to control for the likelihood that a company goes bankrupt. This is important because the likelihood of bankruptcy creates incentives to manage earnings.

Variable:	Measurement:
EARNINGS_QUALITY	*Value of non-discretionary accual*
ESGRTNG	*ESG score of LSEG*
LNSIZE	*Natural logarithm of total assets*
ANALYST	*The number of financial analyst*
ROA	*Return on assets*
BTM	*Book-to-market ratio at the beginning of the year*
CYCLE	*The firms cash conversion cycle*
CURRENT	*Current assets to total assets ratio*
LEVERAGE	*Leverage ratio*

The sample for this study consists of companies in North America, as it is a leading economy with reliable data availability. The sample contains firms observations form 2015-2018 so extern influences like the COVID-19 do not influence the results. The initial sample of 9813 firms is based on the Compustat North America fundamental annuals database. Data to run the regressions for computing the non-discretional accruals are collected via Compustat. 4121 firms got excluded for missing data. Subsequently as mentioned data on ESG scores is collected via LSEG. And data on total assets to measure firm size is collected via Compustat, reducing the sample with 3971 firms. Lastly, the data for control variables is collected via the IBES and financial ratios on WRDS. Another 1167 firms got excluded for missing data which lead to a final sample of 554 firms.

Structure	Number of firms
Initial sample	9813 firms
Deleted: Firms without data availability on dependent variable	4121 firms
Deleted: Firms without data availability on independent variables	3971 firms
Deleted: Firms without data availability on control variables	1167 firms
Final Sample	554 firms

IV RESULTS

In this chapter, the results of descriptive statistics, univariate analyses, correlation matrix and multivariate analyses will be discussed to answer the hypothesises.

Table 3: Descriptive statistics

Variable	Mean	Median	Minimum	Maximum	Std. Deviation
Earning_Quality	-0,009	-0,005	-0,766	0,458	0,083
ESGRTNG	47,345	45,455	1,300	93,030	19,406
LNSIZE	8,503	8,361	5,040	12,760	1,402
ANALYST	13,330	12,000	1,000	46,000	7,892
ROA	0,148	0,139	-0,721	1,011	0,100
BTM	0,428	0,341	0,003	4,247	0,333
CYCLE	78,714	63,873	0,262	978,771	74,343
CURRENT	0,395	0,389	0,035	0,982	0,202
LEVERAGE	2,007	1,831	-145,984	107,998	6,150

Table 3 contains the descriptive statistics. The dependent variable (*Earningsquality)* has a mean of -0,009 and a median of -0,005. A comparison of the absolute value of abnormal accruals (*Earningsquality)* with the study by Kim et al. (2012) reveals the mean and median of this study are much lower compared to the mean of 0,200 and median of 0,103 reported by Kim et al. (2012). These differences can be explained by difference in sample selection. In addition, the difference may partially be attributed to the different time line respectively 1991-2009 compared to 2015-2018 as well. When it comes to ESGRTNG the mean of 47,345 is almost similar to the mean observed by Tohang et al. (2024) of 44,7. This indicates ESG performances decreased comparing 2015-2018 with 2024, although this comparison is not that reliable due to sample differnces.

Table 4: Univariate analyses

Variable	**LnSize ≥ 8,361**	**LnSize < 8,361**	**Mean difference**	**T-Statistic**	**P-Value**
Earning_Quality	-0,009	-0,010	0,001	0,341	0,733
ESGRTNG	57,452	37,239	20,213	28,714	<0,001
ANALYST	16,800	9,860	6,940	23,046	<0,001
ROA	0,143	0,154	-0,011	-2,524	0,012
BTM	0,471	0,385	0,086	6,160	<0,001
CYCLE	72,636	84,792	-12,156	-3,861	<0,001
CURRENT	0,327	0,463	-0,136	-16,934	<0,001
LEVERAGE	2,600	1,413	1,187	4,563	<0,001

Table 4 contains the independent sample T-test results. For this regression a median split on *LNSIZE* is used to divide the dataset into two groups, respectively ≥ 8,361 and < 8,361. The most interesting difference for hypothesis 2, is the difference in *Earning_Quality* between firms with *LNSIZE* ≥ 8,361 and < 8,361 being a mean difference of 0,001. This difference is in line with the expectation of bigger firms having better earnings quality, but the difference is small and insignificant with a p-value of 0,733. The average ESG rating of *LNSIZE* ≥ 8,361 is 57,452 while for *LNSIZE* < 8,361 its 37,239. The 20,213 difference between these averages is significant with a p-value of <0,001. This supports the study of Drempetic, Klein, and Zwergel, (2019) who found that firms size has a significant positive effect on ESG score. Additionally, all six control variables show a significant difference between the two groups, at $\alpha = 0,05$. To further conclude about the results of the independent sample t-test, results from the multivariate analyses in Table 6 are needed.

Table 5: Pearsons correlation matrix

Variable	*EarningQuality*	*ESGRTNG*	*LnSize*	*Analyst*	*ROA*	*BTM*	*Cycle*	*Current*	*Leverage*
Earning_Quality	1	-0,034	0,0002	-0,025	0,091**	0,035	-0,013	-0,070**	-0,038
ESGRTNG		1	0,644**	0,459**	0,036	-0,037	-0,013	-0,137**	0,015
LnSize			1	0,537**	-0,066**	0,161**	-0,073**	-0,385**	0,100**
Analyst				1	0,101**	-0,182**	-0,045*	0,015	-0,043*
ROA					1	-0,369**	-0,009	-0,051*	-0,044*
BTM						1	-0,106**	-0,287**	0,093**
Cycle							1	0,243**	-0,016
Current								1	-0,157**
Leverage									1

**Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Table 5 contains Pearson correlation and significance of the variables. The insignificant Pearson correlation coefficient between *ESGRTNG* and *Earning_Quality* is -0,034. This tends to indicate a negative relationship between ESG performance and earnings quality which is inconsistent with hypothesis 1 and the results of Kim et al. (2012), even though there can't be made reliable conclusion based on the fact the correlation coefficient is insignificant. *Earning_Quality* is significant correlated with *ROA* and *CURRENT*. The positive correlation coefficient of *ROA* indicates *Earning_Quality* moves towards the same direction as *ROA*. The negative correlation coefficient of *CURRENT* indicates *Earning_Quality* moves towards the opposite direction as the current assets to total assets ratio moves to. Moreover, multi-collinearity is not assumed to be a problem, after looking at VIF values.

Table 6: Multivariate analyses

	Coefficient	**P-Value**
(Constant)	-0,094	0,005
ESGRTNG	-0,0003	0,588
LNSIZE	0,007	0,074
MOD	-0,000001	0,983
ANALYST	-0,001	0,029
ROA	0,111	<0,001
BTM	0,023	<0,001
CYCLE	0,000005	0,853
CURRENT	-0,050	<0,001
LEVERAGE	-0,001	0,101
F-Statistic	7,404	<0,001
Adjusted R square	0,025	

Table 6 contains the multivariate results. The adjusted r square represents a value of 0,025 which means 2,5% of the variance of *EarningQuality* is explained by the model used in this study. The F-statistic of this study is 7,404 and is statistically relevant with a p-value of <0,001, indicating at least one independent variable has a significant influence on *EarningQuality*. The coefficient of *ESGRTNG* is negative with a value of -0,0003, this value is in contrast with hypothesis 1 and the results of Kim et al. (2012). However, with a p-value of 0,588 this coefficient is insignificant . Also the coefficient of *MOD* -0,000001 with a corresponding p-value of 0,983 is insignificant. *MOD* is the interaction term between *ESGRTNG* and *LNSIZE* and is used to test hypothesis 2. Besides that *MOD* is insignificant the negative sign is also inconsistent with hypothesis 2. Also, *LNSIZE* has an insignificant influence with coefficient of 0,0073 and a p-value of 0,074. As for the control variables four of the six have a significant effect on *EarningQuality*. In line with the study of Kim et al. (2012) *ROA* has a significant positive relationship with *EarningQuality*. The coefficient is 0,111 meaning ESG performance increases with 0,111 when *ROA* increases by one, the corresponding p-value is <0,001. The other significant control variables in this study are *ANALYST, BTM* and *CURRENT*. All 3 of them have a negative sign, meaning *EarningQuality* decreases when *ANALYST, BTM* or *CURRENT* increases by one.

V. CONCLUSION

This study investigates the moderating role of firm size on the relationship between ESG performance and earnings quality. Using a sample of Nort American companies form 2015-2018, the data is analysed through descriptive statistics, univariate analyses, Pearsons correlation matrix and multivariate analyses.

The first hypothesis of this study aimed to support a positive relationship between ESG performance and earnings quality. The results of the multivariate analyses revealed that the coefficient of *ESGRTNG* is negative and insignificant, and therefore inconsistent with hypothesis 1. Additionally, the second hypothesis of this study aimed to show that the positive relationship between ESG performance and earnings quality strengthens for bigger firms. Similarly to the first hypothesis the results revealed the coefficient *MOD* to be negative and insignificant. Ultimately, based on the results, this study can't provide a significant explanation for the discrepancy of prior literature on the main relationship by adding firm size as a moderator.

Nevertheless, this study does have implications for practice and research. Although there is the expectation that better ESG performance can enhance corporate reputation and reduce unethical practices, the negative sign of *ESGRTNG* warns stakeholders of firms should to be cautions in assuming ESG initiatives will lead to higher earnings quality. For research, this study contributes to the ongoing discussion on the implications of ESG performance on earnings quality by finding firm size is insignificant in explaining the division of prior researchers, at least for this sample.

Lastly, this study has limitations that should be acknowledged. The sample of this study is restricted to firms in North America in a relatively short time span, this potentially limits the generalizability of the results. Secondly, the used proxy for capturing abnormal accruals might not capture all the dimensions of earnings management. Lastly, this study didn't look at specific industries effects which could provide deeper insights. Future researchers are invited to address this limitations to further examine the relationship between ESG performance and earnings quality. In addition, Further research could focus in using other organizational characteristics as a moderator to attempt to explain the contradiction in prior literature.

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