What is a bank without trust?

An empirical study on the relationship between the performance of banks and the trust of customers

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Abstract

This thesis provides evidence that there is a two-sided relationship between past performance of banks and the trust of their customers. On one side, the past financial performance of banks has a strong positive relationship with future trust. This means that there is relationship between banks with a high profitability and efficiency in the past and customers having higher trust in these banks in the future. On the other side, the non-financial performance of banks has a small negative relationship on the trust of customers in the future. The findings are derived from an OLS regression analysis on two key datasets. The first one consists of Bloomberg bank performance data from 2015, the second contains customer trust from a proprietary EY 2016 survey of more than 40,000 customers of 239 banks in 34 countries.

Keywords: financial performance, non-financial performance, customer trust, bank-level, ROE, Cost/Income, CET1 Capital ratio, ESG scores, DJSI score

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Section 1: Introduction

''ING sacrificed one of Chief Executive Officer Ralph Hamers's top deputies as the Dutch lender seeks to restore public trust in the wake of a money-laundering scandal.'' (Bloomberg, 2018)
''The banking industry must continue to work hard to gain public trust and confidence.'' (PwC, 2018)
''What we're in now is the second phase of the financial crisis, and certainly a crisis in trust. Trust is clearly on the decline again.'' (Financial Market's Authority, 2018)

These three citations show the essence of this thesis, where the relationship between the performance of banks and the trust in banks is at the centre of this empirical study. Although these citations are very recent, the trust of customers in banks has been a topic of discussion for more than the last ten years. At the start of these ten years, the financial crisis started and the global financial system collapsed (Huang, Zhou, & Zhu, 2012). The increasingly weak financial sector could not survive the deflation of the housing bubble (Kotz, 2009). Following multiple global bank failures and the resulting collapse of liquidity and interbank loans, stock market indices experienced substantial falls (Caporale, Hunter, & Ali, 2014).

After analysing what went wrong, supervisory authorities made decisions on what had to be changed in the banking sector to prevent the same crisis from happening in the future (Barth & Landsman, 2010) (Mishra & Reshef, 2017). The Basel Committee on Banking Supervision came with new Basel Accords in response to the shortcomings in financial regulation, which resulted in improvements in the capital strength of banks (Banerjee & Mio, 2017).
Next to the financial performance component, the non-financial performance of banks is under growing attention (Elisabetta & Iannuzzi, 2017). Non-financial performance aspects of banks such as the responsibility for the environment, the diversity of a workforce where good behaviour is important and a good governance with a positive culture (Cheese & Houghton, 2018). For example, the Dutch Authority of the Financial Markets (AFM) highlighted in research that good governance is essential for being a bank in order to focus on what is best for the customer (AFM, 2017).

Customer trust is an important factor for the stability of the financial sector (Dahlstrom, Nygaard, Kimasheva, & Ulynes, 2014). The explanation of the importance of trust in banks in this thesis is based on the principal-agent theory. In a perfect world, people (principal) start a customer relationship with a bank (agent) for saving and borrowing money. In a perfect market all the information is available for all participants of the market. Customers do not need to trust, they have all the information to make optimal decisions.

But not all information is available in the real financial market, due to asymmetric information between banks and customers and moral hazard. The contract between the bank and the

customer is incomplete because of uncertainty about the future, the customer does not know if the bank invest their savings responsible and if it will be possible to withdraw their savings in the future. Because of uncertainty the customers will only give their savings if they trust the bank (Dia, 2011). It could be that based on information on the reputation and the past performance of the bank, people can better decide to trust the bank.
If people lose trust in their bank, a bank run can occur, where a large number of people withdraw all their money from the bank (Bülbül, 2013).

For banks' customers, the economic crisis resulted in a strong decline in trust of their own bank (Cruijsen, Haan, & Jansen, 2016). In the last five years, the trust in banks is recovering slowly. Nevertheless, the worldwide trust in financial services is still the lowest of all the industry sectors, as shown in Figure 1. To what extent banks are trusted by customers is affected by a lot of factors; how much their bank is in the news positively or negatively, how many times failures occur with transferring money, the number of cyber-attacks on their own bank, the bonus culture of the bank, money-laundering and the trustworthiness of the local bank employees.

Figure 1: Trust in Industry Sectors, Five-Year Trends

Industry	2014	2015	2016	2017	2018	5 yr. Trend
Technology	75%	73%	74%	75%	74%	-1
Health Care	-	-	62%	66%	64%	-
Energy	57%	56%	58%	62%	63%	+6
Food And Beverage	64%	63%	64%	66%	63%	-1
Telecommunications	61%	59%	60%	63%	63%	+2
Automotive	69%	66%	60%	65%	62%	-7
Entertainment	64%	63%	64%	64%	62%	-2
Consumer Packaged Goods	61%	60%	61%	63%	60%	-1
Financial Services	48%	48%	51%	54%	54%	+6

Source: (Edelman Trust Barometer, 2018)

In this thesis, another factor that possibly has a relationship with customer trust in banks is researched: the bank performance. By analysing the banking sector, relevant unanswered questions arise. What characterize banks on the performing aspect when the trust of their customers is high? Does it mean that these banks are doing well financially? Or are the non-financial aspects of bank performance more important for the trust of customers? Is the past

performance of a bank a predictor of what the trust of customers will be in the future? In this thesis the following research question is used to answer all of these questions:

What is the relationship between the past performance of a bank and the trust customers have in their bank?

In this thesis, the past performance of banks is divided into financial and non-financial performance. To indicate the financial performance of banks, three estimators of banks are used: Return on Equity ratio, Cost/Income ratio and the CET1 Capital ratio (Ongore & Kusa, 2013). Banks could also have additional social and economic goals that are not expressed in monetary units, defined as non-financial performance indicators (Dikolli & Sedatole, 2007). The non-financial indicators used in this research are the scores on Environmental, Social and Governance (ESG) performance of banks, the total score on ESG and the score on the Dow Jones Sustainability Index. On the other hand, customer trust is the other variable of interest in the research question. Customer trust is defined as the customer's confidence in a company where the customer is comfortable with a level of satisfaction and resulting loyalty (Johnson & Auh, 1998), in other words, trust is the likelihood of future cooperation between customer and bank (Williamson, 1993).

To answer the research question two different datasets are used. First, the EY Global Consumer Banking Survey of the year 2016 where customers are asked about the overall impression of the bank, if they would recommend their own bank, the confidence in the stability of the financial sector and how much the customers trust their own bank. The second dataset from the Bloomberg Terminal contains financial and non-financial performance data of banks. Combining both datasets resulted in a sample size of 239 banks with a total of 42,675 customers that answered the survey, whom are spread over 34 countries around the world.

With the available data, an Ordinary Least Squares (OLS) regression analysis is performed to study the correlation between the explanatory variables and the dependent variable. In this thesis, it is not possible to estimate consistent parameters causally, due to a lack of available explaining variables. The correlation coefficient gives insights into the relationship between bank performance and customer trust.

After the analysis of the data from the EY Global Consumer Banking Survey of the year 2016, the EY Global Consumer Banking Survey of the year 2014 is used to do a robustness check on the results. There is a possibility that the trust of customers in their bank is strongly influenced by specific events that happened in 2016, such as a large money-laundering scandal or a cyber-attack that affects a lot of banks and indirectly the trust of customers in their banks. Checking for these events with the 2014 survey data shows how robust the 2016 results are with the associated conclusions. Section 3 provides a detailed description of the used datasets.

The two key findings of this thesis are interesting and give something to discuss further. On one side, the past financial performance of banks has a strong positive relationship with future trust. This means that there is relationship between banks with a high profitability and efficiency in the past and customers having higher trust in these banks in the future. The second finding on the other side is that the non-financial performance of banks has a small negative relationship on the trust of customers in the future.

To the author's knowledge, there is no paper that empirically studies the relationship between the past financial and non-financial performance of banks with customer trust, using the before mentioned data. For banks, it is relevant to know which financial and non-financial factors of past performance have a relation with the trust of the customers as it can impact the decision banks make. For the supervising authorities of the financial markets, such as the DNB and AFM in the Netherlands, more information on the relationship between bank performance and customer trust create new insights for advice and regulations for the financial sector.

The findings create a few policy implications for the banking regulators. The first finding, a high positive correlation between past financial performance and trust, should be a signal for the financial sector for at least two reasons. Firstly, the authorities have to supervise that banks disclose enough financial performance information for customers to decrease incomplete information, indirectly causing higher trust for customers. Secondly, adding to the stability of the financial sector, banks have to perform financially sustainable. Both aspects are important for supervisory authorities to control for and create a stable financial sector. The second finding, where a small negative correlation is found between non-financial performance and trust could have implications for future policy. In the last decade, the attention of financial supervisors in non-financial performance has been increasing. But it may have had adverse results for the trust as shown in this thesis. This seems contradicting to the purpose of these indicators and supervisors should research this. At the moment, it seems that customers do not value the non-financial performance of banks. Maybe a different approach from the regulators is needed. At last, after this research, banks' customers will know more about which factors are related to their trust in their own bank. These arguments confirm the economic and scientific relevance of this thesis.

The remainder of the paper is organized as follows. Section 2 reviews the related literature. Section 3 introduces the data. Section 4 is the empirical framework where section 5 the results of the analysis are presented. The last section concludes and gives suggestions for further research.

Section 2: Related literature

To place this thesis in a useful context, it is important to review the current research on the relationship between past bank performance and customer trust. In the first two paragraphs of this section, relevant studies on the financial and non-financial performance of banks are outlined. The literature offers arguments for the use of the three specific financial ratios and five scores on non-financial performance. After that, studies are stated on which factors influence the trust of customers in banks. Finally, studies that researched the relationship between the performance of firms and customer trust are reviewed.

2.1 Financial performance

In the last years, several studies on the financial performance of banks have been performed. For the selection of the financial performance ratios for this thesis, several studies were analysed in order to determine which ratios of financial performance are commonly used in the financial sector. First, these studies are stated with their most relevant findings. After that, the three ratios used in the research are described with related literature.

A panel data analysis shows that bank-specific factors have a positive relationship with the financial performance of banks (Ongore & Kusa, 2013) (Nazir, 2010). Aebi, Sabato and Schmid showed that no significant relationship is found between governance indicators and the financial performance of banks during the crisis. Their research was based on bank information from a North America bank database (Aebi, Sabato, & Schmid, 2012). Another quantitative study, based on a sample of Islamic banks, founds a positive significant relationship between the governance mechanisms of the bank and the profitability of the bank (Basuony, Ehab, & Al-Baidhani, 2014). With empirical data collected through a survey, it was proved that business process orientation has an indirect relationship on financial performance through the non-financial performance of the company (Škrinjar, Bosilj-Vukšić, & Indihar-Štemberger, 2008).

The studies mentioned before all had recurring ratios for defining the financial performance of banks: Return on Equity ratio, Cost/Income ratio and CET1 Capital ratio.
The Return on Equity (ROE) ratio shows to what extent organisations manage their own capital effectively and it is a measurement of the profitability of the organisation (Heikal, Khaddafi, & Ummah, 2014). This ratio is used in the accounting and finance sector to validate the value of the business and to analyse the profitability of the organisation (Easton & Monahan, 2016). These arguments support the decision to use the Return on Equity ratio of banks as a financial performance estimator.
The second financial performance ratio used in this thesis is the Cost/Income ratio. Since the costs of the bank are in the numerator and its income is in the denominator, a decreasing Cost/Income ratio means that a bank is operating more profitable. This means the Cost/Income ratio has an inverse relationship with bank profitability (Mathuva, 2009). For investors, the ratio gives relevant information on how efficient the organisation is being run. When the ratio rises in

a certain period, it means that costs are rising at a higher rate than income, which requires close attention from the management and as a result it could lead to cost-cutting (Hussain, 2014).
The third financial performance estimator used in this research is the CET1 Capital ratio. The Common Equity Tier 1 (CET1) Capital ratio measures the bank's capital strength (Cohen & Scatigna, 2016). Therefore, the CET1 Capital ratio is complementary to the Return on Equity ratio and the Cost/Income ratio to create a complete insight into the financial performance of banks. A panel data study on bank profitability in the 1998-2007 period finds a positive relationship between core capital ratios (such as the CET1 Capital ratio) and the profitability of a bank (Mathuva, 2009). After the financial crisis, supervisory authorities request banks to build a larger buffer of high-quality capital and reduce the riskiness of their portfolios (Baker, Cummings, & Jagtiani, 2017). More information on the financial performance ratios, such as the formulas and details is presented in section 4.

2.2 Non-financial performance

Managers who only focus on financial performance measurement get an incomplete perspective of their company's performance. Kaplan and Norton (1992) suggest that the performance needs to be analysed with financial and non-financial performance measures because the two measurements are complementary (Kaplan & Norton, 1992). Nowadays, more and more banks recognise that the non-financial behavioural aspect is essential in the measurement and management of the bank culture and rebuilding the trust of the customers (Financial Conduct Authority, 2018).

Major non-financial performance measures used by banks are the governance of the bank, the diversity and behaviour of the employees, the responsibility of the bank on the environment and society (Popa & Zhelyuk, 2009). Organisations in the financial sector have a quite open error management culture, but employees are less positive about the leadership, also called *the tone at the top* (AFM, 2017). A recent study by Casu et al., using panel data over the period 2007-2015, found that more diversity in management boards has, especially in the time of the Eurozone crisis, a positive relationship with the performance of the bank (Casu, Arnaboldi, Kalotychou, & Sarkisyan, 2018). Governance of a bank focused on managing risk and controlling for ethical behaviour is essential to restore the trust of customers (Power, 2009).

All these before mentioned aspects of non-financial performance from several studies are taken together in the Bloomberg ESG score. The score functions as a proxy of non-financial performance. A study on the relationship between corporate social performance and corporate financial performance used the ESG score as a proxy for corporate social performance (in this thesis the non-financial performance) (Nollet, Filis, & Mitrokostas, 2016). The Dow Jones Sustainability Index (DJSI) is a major objective indicator for corporate sustainability and reputation of firms (Robinson, Kleffner, & Bertels, 2011). Better reputation and competitive advantage for the company are related to increased customer satisfaction after engaging in corporate social responsibility (Saeidi, Sofian, Saeidi, Saeidi, & Saaeidi, 2015).

A quantitative study based on questionnaires on employees and customers and financial performance data stated that non-financial performance measures appear to have a crucial role in the firm's performance by gaining customer loyalty (Sadek, Youssef, Tantawy, & Ghoneim, 2011). More information on the non-financial performance estimators of banks is presented in section 4.

2.3 Customer trust

After analysing the literature on the performance of banks, in this paragraph it is about the other variable in the research question: customer trust. First, studies are stated that researched various relationships on the trust of customers in the banking sector. After that, related literature about the relationship between performance and customer trust is discussed.

Customer trust in banks is dependent on the ability of banks to behave according to the rules, a study concluded this based on surveys gathered from 41.308 consumers in 29 EU countries (Järvinen, 2014). Another study finds that individual factors of customers, such as self-reported well-being and financial status, have a positive significant relationship with the trust customers have in their own bank (Shim, Serido, & Tang, 2013). The trust is negatively affected by misconduct on the level of banks but also due to a lack of sense of responsibility on the general financial services level, including regulators (Gillespie & Hurley, 2013).
Various studies showed that relationship marketing with ingredients such as identity, image and reputation has a significant positive relationship with customer trust (Nguyen, Leclerc, & LeBlanc, 2013) (Rizan, Warokka, & Listyawati, 2014). Furthermore, the trust of customers is crucial for the stability of the banking industry. Customer trust has an effect on the decisions involving a bank relationship, switching bank and starting internet banking (Dahlstrom et al., 2014).

The above studies show that a wide variety of factors have a relationship with the trust that customers have in their banks, although there is no existing study focused on the specific research question in the banking sector. Despite the absence of these studies, there are at least some studies that research the relationship in other industries.
In an experiment with a sample of 210 respondents, researchers found a positive relationship between the benefits of the brand fan page and the trust and commitment of the visitors of the Facebook brand fan page (Akrout & Nagy, 2018). Other quantitative and partly qualitative studies using questionnaires in the e-commerce business, found that improved trust is positively related to sales performance (Chang & Wong, 2010) (Noor, 2012). In a study, by comparing two different industries (regional home-building markets and automobile dealerships), the researchers found that organizational culture, that effects the firm performance positively has a positive significant impact on customer trust (Gillespie, Denison, Haaland, Smerek, & Neale, 2008). Research obtained in Spain, using interviews and surveys, stated that ethical behaviour of a firm had a positive effect on customer satisfaction, customer trust and the loyalty of customers to the firm (Román, 2003).

In the past years, various studies have researched which factors have a relationship with the trust in various organisations, such as banks. Nienaber, Hofeditz and Searle tabled 20 studies in their paper which analysed various factors, for example communication, reputation, service quality and product performance, in the relationship with the trust in the organisation (Nienaber, Hofeditz, & Searle, 2014). This thesis aims to fill the gap in the literature by investigating the relationship between past bank performance and the trust of customers in their bank with unique datasets. The next section described the details of the unique datasets the empirical research of this thesis is based on.

Section 3: Data

In this section, the datasets are explained which are used to research if there is a relationship between the past performance of banks and the trust of customers in their own bank. Next to the information about the datasets, also the data selection process is clarified. Lastly, possible biases because of omitted variables and the consistency of the estimators are discussed.

3.1 EY 2016 Global Consumer Banking Survey

The first dataset used is the EY 2016 Global Consumer Banking Survey (EY, 2016). More than 55,000 customers in 34 countries filled in the survey, to understand the relevance of banks in the consumers live. Questions revolved around four topics: trust, segmentation, customer experience and innovation. This survey is conducted every two years in order to develop a deep understanding of customer preferences and behaviours, as well as tracking opinions on developments in the financial sector and their attitude towards traditional and non-traditional banks. The dataset of the EY 2014 Global Consumer Banking survey is used to do a robustness check.

Table 1: Descriptive statistics bank customers in 2016

Variables Averages on bank level	Mean	Standard deviation	Minimum	Maximum
Customer trust in own bank*	2.320	0.241	1.586	2.929
Gender (% female)	0.489	0.105	0.100	0.774
Age	42.227	6.230	28.607	58.438
Educational level**	4.643	0.570	2.750	6.455
Town/city size***	2.260	0.665	1.000	4.056
Financial Assets ($)	155,816	102,509	7,664	1,038,120
Customer confidence in stability financial sector****	1.636	0.362	0.581	2.636
Customer recommendation*****	3.109	0.319	2.250	3.783
Number of observations = 239				

Information retrieved from EY 2016 Global Consumer Banking survey
* **Scale 0-3:** *0* No trust at all, *1* Minimal trust, *2* Moderate Trust, *3* Complete trust
****scale 1-7:** *1* is did not attend high school/secondary school, *2* is did not graduate high school/secondary school, *3* graduated high school/secondary school, *4* attended college or university, *5* graduated college or university, *6* attended graduate school/postgraduate or higher, *7* obtained graduated school degree/postgraduate or higher
*****scale 1-5:** *1* is a large city of 5 million people, *2* city between 1 million to less than 5 million people, *3* city between 250,000 to less than 1 million people, *4* a regional town with less than 250,000 people and *5* is a rural area
******Scale 0-3:** *0* Not at all confident, *1* Somewhat confident, *2* Confident, *3* Extremely confident
******* **Scale 0-4:** *0* very unlikely, *1* unlikely, *2* neither likely nor unlikely, *3* likely, *4* very likely

The information of Table 1 shows information of in total 42,675 retail banking customers over 239 banks in 34 countries around the world. It is important to notice that all the values are on the bank level. For example, the mean value of 2.3 of customer trust implies that the 239 banks in the sample have on average customers, that filled in the survey, who are between moderate trust (category 2) and complete trust (category 3) in their own bank. The sample consists of 48.9% female customers and the average age is 42.3 years. The customers of all banks have on average an educational level of 4.6, which means the average is between attended college or university (category 4) and graduated college or university (category 5). Even though the educational level increase and the number of people without education go down in the world (Wittgenstein Centre of Demography and Global Human Capital, 2015), the education level in the sample is above the average education level in the world.

3.2 Bloomberg Terminal Data

The second dataset used in this thesis is the financial and non-financial banking data from Bloomberg Terminal, which is a computer software system providing this financial and non-financial data. The Bloomberg data terminal is assumed to be independent of all the banks in this research, this arguments the trustworthy and the objectiveness of all the results provided and used in this thesis. The banks' financial performance data from Bloomberg are the three leading ratios in the banking sector that indicate the profitability and solvency of the banks: The Return on Equity ratio Cost/Income ratio and the Common Equity Tier 1 (CET1) Capital ratio.

The Bloomberg Terminal also provides the non-financial performance data of banks. In this thesis, ESG-scores and the Dow Jones Sustainability Index score are the estimators for the non-financial performance of banks. The ESG-scores used are the total score on ESG, and the individual Environmental, Social and Governance scores. The ESG score ranges from 0.1 for companies that with worse non-financial performance to 100 for those companies that perform well on non-financial aspects of performance. Each data point is weighted in terms of importance. In the remainder of this thesis the total score on ESG is called 'ESG score'. The ESG score is divided into three scores: environmental, social and governance scores (Bloomberg, 2016). The Environmental score depends on various environmental aspects related with the company, for example the total CO2 emissions, the CO2 intensity per energy, total energy consumption, total water use, total waste and paper consumption. The Social score hinges on multiple social aspects of the bank, for example: number of employees, the employee turnover, the percentage of employees unionized, the percentage of women in workforce and percentage of women in senior management positions at the company. Lastly, the Governance score. This score depends on bank governance aspects, for example size of the board, number of independent directors on the company's board, the percentage of independent directors, board duration in years, number of board meetings and the board management attendance. Next to these described ESG scores, this thesis also uses the Dow Jones Sustainability Index, supplied by S&P Dow Jones Indices and RobecoSAM. This total sustainability index, converted from the total sustainability score, is based on the RobecoSAM Corporate Sustainability Assessment. Each

year over 4500 companies that are eligible for inclusion of the index are invited for participating in the Corporate Sustainability Assessment.

Table 2: Descriptive statistics performance of banks

Variables	Mean	Standard deviation	Minimum	Maximum	Number of observations
Financial performance estimators:					
Return on Equity ratio	0.083	0.122	-0.863	0.488	234
Cost/Income ratio	0.608	0.296	-0.100	3.752	235
CET1 Capital ratio	0.137	0.055	0.066	0.296	209
Non-Financial performance estimators:					
ESG score	34.140	15.838	2.190	78.070	169
Environmental score	28.115	17.691	1.790	78.570	142
Social score	39.503	16.033	3.330	81.670	153
Governance score	53.661	12.346	8.930	85.710	168
DJSI score*	62.350	28.249	2	100	80

Information retrieved from Bloomberg Terminal

* Only data of the year 2016 is available for the Dow Jones Sustainability Index scores

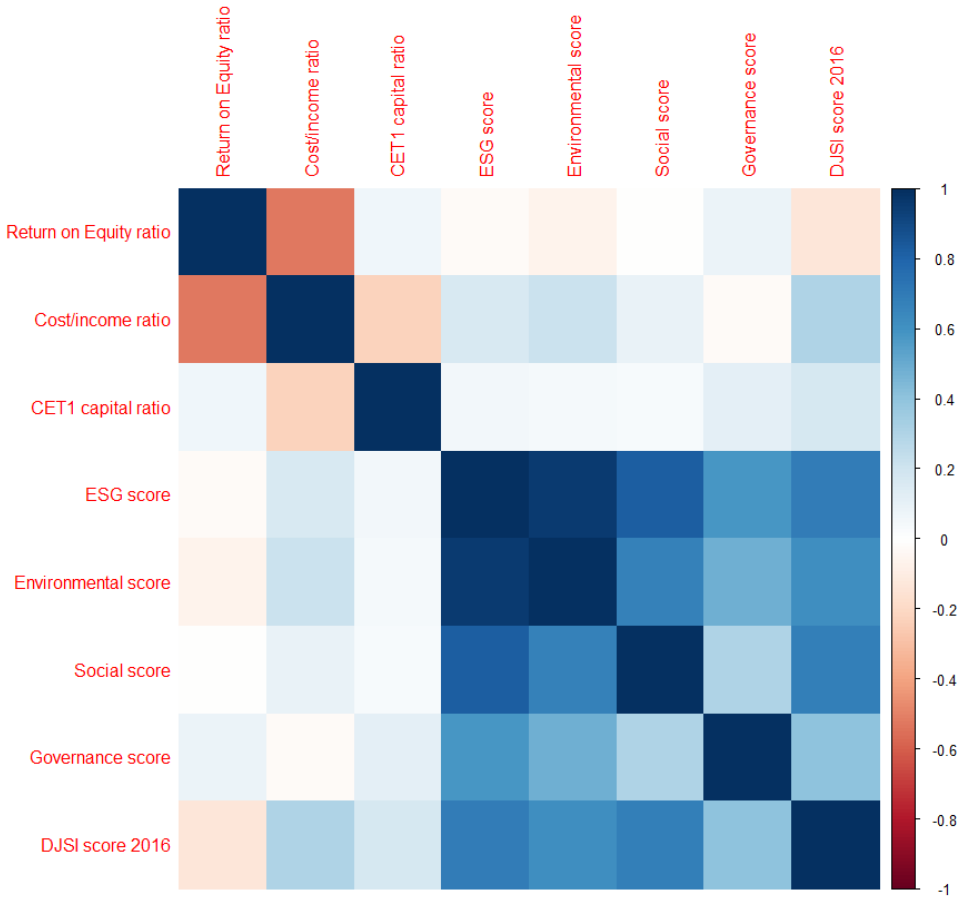
In Table 2 the descriptive statistics of the performance variables are published. As this thesis measures the relation between past performance and customer trust, the financial performance and non-financial performance ratios from the year 2015 are taken. However, for the Dow Jones Sustainability Index, only data from the Bloomberg Terminal is available of the year 2016 and not 2015. The analysis by RobecoSAM is comprehensive on non-financial performance and the index methodology of S&P with the Corporate Sustainability Assessment is robust. The yearly index results are published in the summer of the specific year. The assumption is made that the DJSI scores of 2016 are a good proxy on the past non-financial performance of banks in 2015, because the scores overlap a small period of time and the comprehensive analysis give a precise estimation of the non-financial performance a year before. That is also the reason between two years no large differences of companies' scores are observed, non-financial performance has a long-term focus (Robinson et al., 2011). The financial performance estimators are ratios, the non-financial scores are between 0 and 100. The ROE ratio in 2015 on average over the 239 banks is 8.3%, where the Cost/Income ratio is 60.8% and lastly the CET1 Capital ratio is 13.7%. On the non-financial performance aspects, the results in Table 2 shows an average ESG score of 34.14. When subdividing these scores, banks score on average the lowest of the three ESG scores on the environment with 28.1 and the highest on governance with 53.66. In the last column, a large difference between the number of observations is shown between the financial and non-financial performance estimators. This differences will be taken into account when the results are interpreted with the associated conclusions.

3.3 Check for multicollinearity biases

It is important for the multiple regression analysis to look at relationships between the independent variables. If an independent variable is an exact linear combination of the other independent variables, then the model suffers from perfect collinearity, and it cannot be estimated by OLS (Miles & Shevlin, 2001). High, but not perfect, the correlation between two or more independent variables is called multicollinearity. Collecting more data or dropping the variable that leads to bias are possibilities to solve the problems with multicollinearity (Wooldridge, 2015).

In Figure 2 a correlation matrix of all the bank performance variables, retrieved from the Bloomberg Terminal dataset, is published. The colour of the squares shows the correlation between the variables, where darken blue or red squares means high correlations. When the value of the correlation is exactly +1, then there is a perfect positive linear relationship and the opposite with the correlation value of -1, then there is a perfect negative linear relationship. If the correlation value is 0, there is no linear relationship. Most importantly, when the correlation values are, in absolute terms, more than 0.60: then multicollinearity becomes an issue.

Figure 2: Correlation Matrix bank variables



By observing the figure, conclusions can be made that none of the financial performance estimators correlates with the non-financial performance variables, and neither the other way around. When focussing on the financial performance variables, Figure 2 shows a correlation between Return on Equity ratio with Cost/Income ratio and a smaller correlation between Cost/Income ratio and CET1 Capital ratio. Even though these financial performance variables correlate with each other, it is still below -0.5, there is not too much collinearity and therefore not a problematic bias of multicollinearity.

Finally, by observing the non-financial performance variables in Figure 2, most of the times the same story holds with correlations between variables but no multicollinearity bias. Only one exception is shown in the middle of the figure, where the ESG score and the Environmental score 2015 variables are highly correlated with each other. This is the reason that in the multiple regression analyses in section 5, when analysing the non-financial performance, only the three subdivided scores and the DJSI index score are taken into account and the ESG score 2015 is left out.

3.4 Data selection process

The first step in the data selection process is matching the information from the 55,891 customers that filled the EY 2016 Global Consumer Banking survey with the names of the banks which are the primary service provider for the customers, which gives a total of 394 banks. Then for these 394 banks, financial and non-financial information from the Bloomberg Terminal is collected, which resulted in 296 banks with information on the performance. This means that for 98 banks no performance information of the year 2016 in the Bloomberg Terminal is found. This is a limitation of the research, because of the lack of performance data mostly the customers' surveys information on the small retail banks falls away. The last step before the analysis is only using banks where ten or more customers have filled in the EY 2016 Global Consumer Banking survey. This decision is made as these small subsamples, without excluding them, had too much weight on the results and created biases in the regression analysis. By excluding the small subsamples, 57 observations are removed. Finally, this data selection process resulted in 239 banks with bank performance information which in total 42,675 customers fill in the survey.

3.5 Omitted variable bias

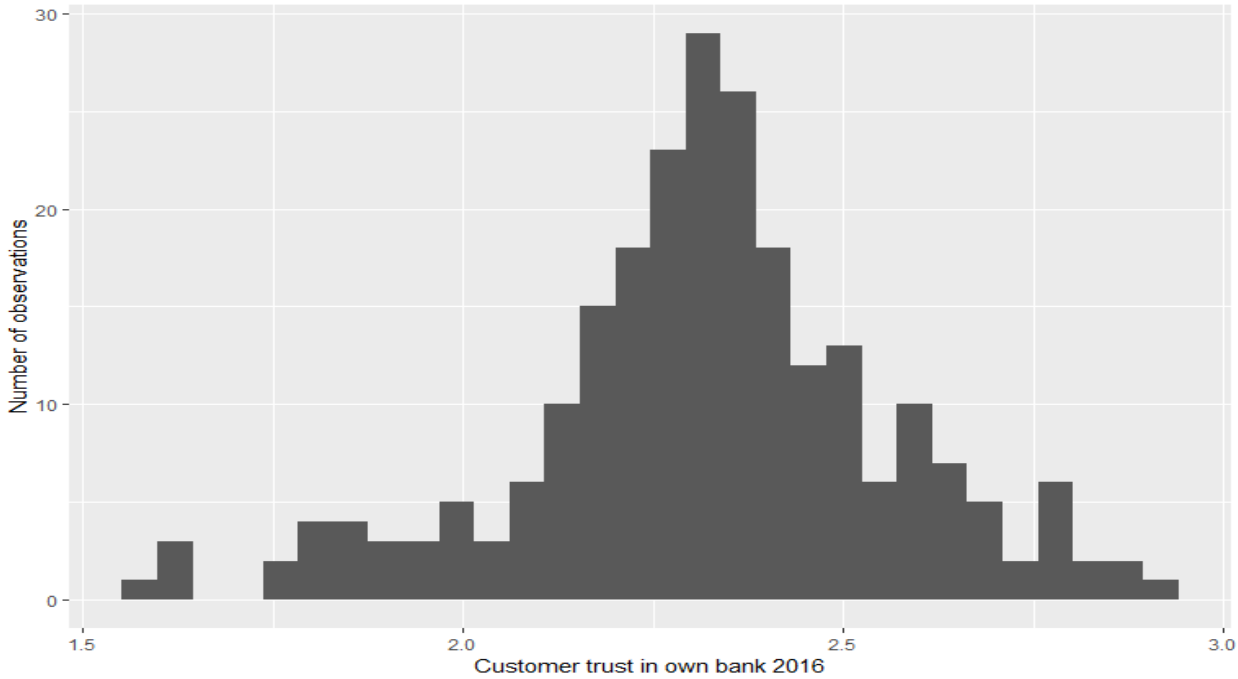
In this thesis, because of the richness of the datasets, various variables are used to test the hypotheses and to answer the research question. Despite the diverse variables in the analysis, some additional explanatory variables could be missing. Variables that actually belong in the population model. For example, the state of the economy, differences in deposit insurance schemes between countries, the specific regulations from authorities of the financial markets or the culture and behaviour of banks. These previous examples are mainly related to the past financial and non-financial performance estimators of banks. On the other side there could be omitted variables related to customer trust in the bank, for example: the number of times banks

are positively or negatively in the news, the trustworthiness of the local bank branches. It is a limitation in this research, not having the before mentioned variables included in the analysis. Biases of excluding relevant explanatory variables could cause overestimating or underestimating the effects of one or more explanatory variables in the model. With multiple regression analysis, more than one explanatory variable is included, the omitted variable bias is less likely to be a problem than in simple regression analysis (Wooldridge, 2015). See paragraph 4.5 for the OLS assumptions that are made about the error term.

3.6 Consistency of the estimators

The distribution of the variables is relevant to test the consistency of the estimators. When the variable is normally distributed and is almost symmetrically distributed about its mean, then the conclusion is made that the estimator is consistent (Little & Rubin, 2014). The most relevant variable from the survey to answer the research question is the trust customers have in their own bank.

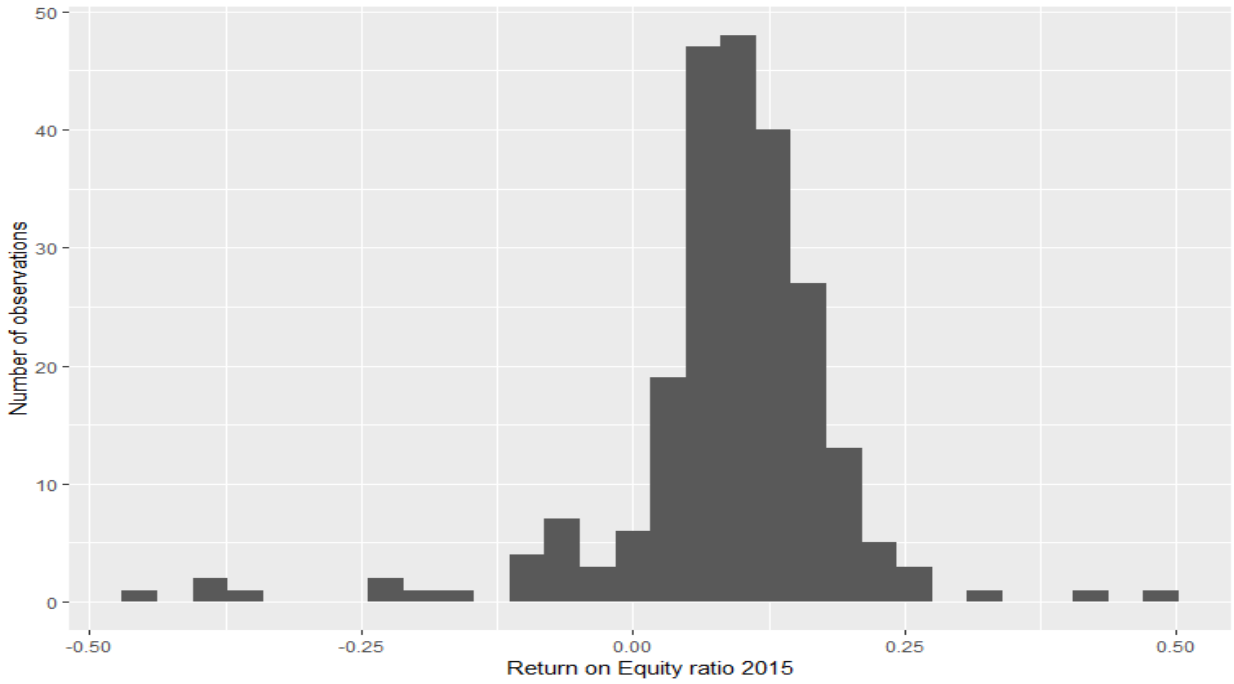
Figure 3: Distribution Customer trust 2016 over all observations



Scale on x-axis: *0* No trust at all, *1* Minimal trust, *2* Moderate trust, *3* Complete trust
Number of observations: 239

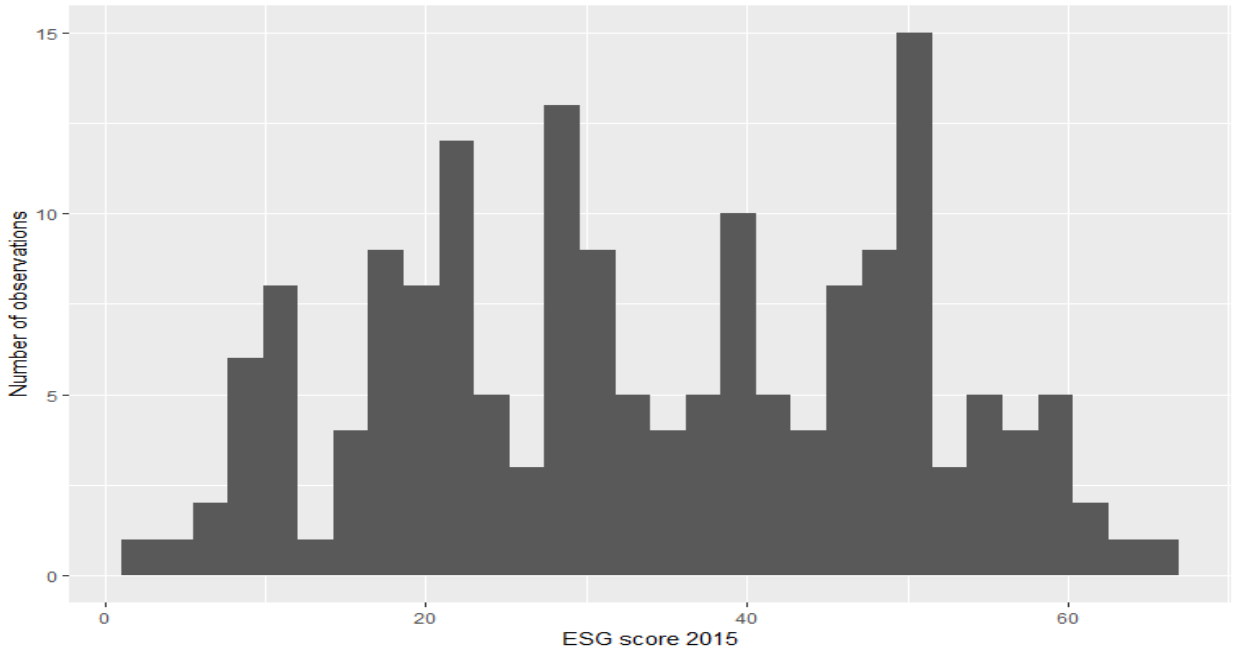
In Figure 3 the distribution of the 239 observations over customer trust is shown. Next, the distributions of Return on Equity in 2015 and the ESG score in 2015 over the observations are shown in Figures 4 and 5. Important to mention is that in both distributions one outlier is deleted.

Figure 4: Distribution Return on Equity ratio 2015 over observations



Number of observations: 233
Without one outlier: the Return on Equity ratio of -86.28

Figure 5: Distribution ESG score 2015 over observations



Number of observations: 168
Without one outlier: the ESG score of 78.07

The observations in Figure 3 are the trust levels of customers on average by the bank. The variable Customer trust 2016 is widely spreading over the possible outcomes and therefore it could give interesting and relevant information by the analysis on the relationship with past performance of banks.

In Figure 4 the distribution of the Return on Equity ratio 2015 is published without one outlier (ROE ratio of -86.28). The observations of the Return on Equity in the year 2015 are normally distributed around the mean of 0.083.

In Figure 5 the distribution of the ESG score of 2015 is published without one outlier (ESG score of 78.07). The normality of the distribution is less obvious for the ESG score in 2015 than on the distribution of the Return on Equity ratio in 2015, where a clear normality distribution is shown in Figure 4. The mean of the ESG score 2015 is 34.140, where Figure 5 shows five peaks in observations on various ESG scores. It makes sense because the banks differ a lot on the non-financial performance compared with each other, such as on the ESG score.

The outliers are excluded because then the figures give a better representation of the underlying data. Concluding on this paragraph about the consistency of the estimators, the most relevant variable, customer trust, is normally distributed around the mean and the scattered data points can give interesting insights when the research question is studied. The empirical way to answer the research question is stated in the next section.

Section 4: Empirical Framework

In this section, it is explained how the before described datasets are used to do empirical research and to answer the research question stated in the introduction. Firstly, the tested hypotheses are clarified. Secondly, the financial and non-financial performance estimators of the banks are explained with the corresponding formulas. Thirdly, the customer trust variable is described in detail.
In the fifth paragraph of this section, the regression equation is stated. Finally, after providing information on the robustness check, an overview with a figure of the studied relationships between the variables is given.

4.1 Hypotheses

To answer the research question in this thesis two hypotheses are tested. The hypotheses are created by dividing the research question into the two performance aspects, financial and non-financial performance, which create a clear structure for analysing the results.

The first hypothesis is to test if the three financial estimators of past bank performance have a positive, negative or no relationship with customer trust. Does it matter for customers if their bank deals efficiently with costs, the bank has enough capital to satisfy the Basel standards and if the bank is profitable? When banks perform well on these three financial aspects, makes this a difference in the trust of their customers? Are better financial performing banks receiving higher trust from the customers? These questions brought together in the first hypothesis:

Hypothesis 1:
H_0: Past financial performance of the bank has a negative or no relationship at all with the trust of customers in the bank
H_1: Past financial performance of the bank has a positive relationship with the trust of customers in the bank

In the last years, mainly studies are published about the negative relationship between low financial performance and customer trust. The best real-life example of the relationship is the economic crisis of 2008, as a reverse argument for hypothesis 1. In that time, banks struggle with their profitability, efficiency and capital strength as estimators of financial performance. In relationship with these problems, people lost their trust in the banks (Jansen, Mosch, & van der Cruijsen, 2015) (Cruijsen et al., 2016). This could be stated as the antithesis: 'lower past financial performance of banks is negatively related with the trust of customers'. In this thesis, data is used of financial bank performance in years where the peak of the financial crisis was passed and the financial performance of banks gets better. Based on the literature, there is a positive relationship expected between the financial performance in the past of banks and the trust of customers in the bank.

The second hypothesis is to test if the five non-financial performance estimators of past bank performance have a relationship with the level of trust that customers have in their bank. Do banks with higher ESG scores receive more trust from their customers? Does sustainable banking have a positive relationship with customer trust? These questions are collected by testing the second hypothesis:

Hypothesis 2:
H_0: Past non-financial performance of the bank has a negative or no relationship at all with the trust of customers in the bank
H_1: Past non-financial performance of the bank has a positive relationship with the trust of customers in the bank

Despite the fact that customers find it important that companies pay attention to non-financial performance such as sustainability, they distrust the intention of the companies to be sustainable (Haastrecht, 2017). Another study finds that good governance of a bank is relevant for rebuilding the trust of customers (Power, 2009). Even though there are contradictions in the literature about the relationship between non-financial performance and trust, this thesis expected a positive relationship between past non-financial performance of banks and the trust of customers in the future.

4.2 Financial performance estimators

To measure the past financial performance of banks, three leading ratios, based on related literature, are used. The first is the Return on Equity ratio, which is the measurement of a corporation's profitability. The measure of profitability reflects the optimal use of bank resources (Ali, Akhtar, & Ahmed, 2011), which is influenced by internal bank-specific factors and external macroeconomic variables.
The ROE ratio reveals how much profit a company generates with the capital shareholders have invested, in percentage (Bloomberg, 2016) :

$$Return\ on\ Equity\ ratio = \frac{Net\ income\ available\ for\ shareholders}{average\ total\ equity} \times 100$$

The second is the Cost/Income ratio. This efficiency measure is commonly used in the financial sector. The Cost/Income ratio measures the costs compared to the revenues. The formula is as follows:

$$Cost/Income\ ratio = \frac{operating\ expenses}{revenues} \times 100$$

The operating expenses, shown in the numerator of the formula, include rent, equipment, inventory costs, marketing, payroll, insurance, and funds allocated for research and development. These are expenditures that a bank incurs to engage in any activities not directly associated with the production of goods or services.

The revenues, shown in the denominator of the formula, exist of net interest income, commissions & fees earned, other operating income, trading account profits, gain or loss on investments and loans and other income minus the commissions & fees paid (Bloomberg, 2016). The last financial performance ratio is the Common Equity Tier 1 (CET 1) Capital as a percentage of risk-weighted assets (RWA), assuming implementation of the Basel III standards. The minimum level of the CET1 Capital ratio required by Basel III is 4.5% Common Equity Tier 1 Capital, up from 2% in Basel II.

$$CET1\ Capital\ ratio = \frac{Common\ Equity\ Tier\ 1\ Capital}{Risk\ Weighted\ Assets\ (RWA)} \times 100$$

Common Equity Tier 1 (CET1) Capital exists of common shares issued by the bank, stock surplus resulting from the issue of instruments including CET1, retained earnings, accumulated other comprehensive income and other disclosed reserves, common shares issued by consolidated subsidiaries of the bank and held by third parties and regulatory adjustments applied in the calculation of CET1 (BIS, 2018). Total risk-weighted assets are determined by multiplying the capital requirements for market risk and operational risk by 12.5 (the reciprocal of the minimum Capital ratio of 8%) and adding the resulting figures to the sum of risk-weighted assets for credit risk.

4.3 Non-financial performance estimators

The non-financial performance estimators consist of the ESG score, the scores on Environmental, Social and Governance performance and the Dow Jones Sustainability Index score (DJSI). The scores range from 0.1 to 100. More detailed information on the ESG-scores is provided in section 3.2. A company's DJSI score is the sum of all question scores and range from 0-100. The DJSI score is based on individual questions that roll up into criteria, which in turn roll up into three dimensions: economic, environmental and social. The types and weights of individual questions and criteria are adjusted for each industry-specific questionnaire to reflect the materiality of specific sustainability themes within each industry. The Dow Jones Sustainability Index score can be defined as follows:

$$DJSI\ Score = number\ of\ question\ points\ received \times question\ weight \times criterion\ weight$$

4.4 Customer trust

The variable customer trust is measured with a categorical variable derived from the four possible answers customers gave in the survey: *No trust at all (0), Minimal trust (1), Moderate trust (2), Complete trust (3),* on the question: "*Now, thinking about your overall impression of [insert primary financial services provider], how much do you trust them?* (EY, 2016) "In all the surveys used in this research, the primary financial services provider is a bank. The variable *customer trust* in the survey is the general trust in the bank which is subdivided in several trust areas in banks, such as: keeping my money safe, providing me with truly unbiased advice suited to my needs, protecting me against and/or helping me in the case of fraudulent activity on my account, complete transparency about fees and charges, protecting my personal and financial information, using my personal information only for purposes I have explicitly authorised, telling me if there is a better product for my needs/situation even if it means less money for the bank. The customer trust is the average trust of all the customers that filled in the survey at the bank level.

4.5 The regression equation

In paragraph 4.1 explained, this thesis try to find with hypothesis 1 a positive relationship between financial bank performance and customer trust, where lower financial performance negatively related with customer trust is proved by the financial crisis.
Researchers found a positive relationship between the non-financial performance of firms and customer satisfaction (Saeidi et al., 2015). With hypothesis 2, the relationship of non-financial performance with customer trust, instead of customer satisfaction, is investigated.
The past financial- and non-financial bank performance in relationship with customer trust, is measured with the following regression equation:

$$Customer\ Trust\ = \beta_0\ +\ \beta_1 \times ROE\ +\ \beta_2 \times \left(\frac{Cost}{income}\right) +\ \beta_3 \times CET1 + \beta_4 \times Envir$$
$$+\ \beta_5 \times Social + \beta_6 \times Govern + \beta_7 \times DJSI +\ \varepsilon$$

Where β_0 is the constant in the specification. The dependent variable is *Customer trust*, which is the average trust of customers in 2016 at the bank level. The independent variables are the financial and non-financial performance variables of banks.
Firstly the financial performance variables, which are the three ratios measuring the past financial performance of banks in 2015. The Return on Equity ratio (β_1), the Cost/Income ratio (β_2) and the CET1 Capital ratio (β_3). Secondly, the non-financial performance variables. The Environmental score (β_4), the Social score (β_5) and the Governance score (β_6) range from 0.1 for companies that score low on the non-financial aspects to 100 for the banks that have a high performance on the ESG estimators. The total ESG score is excluded in the stated regression equation, because this variable is not added in the multiple regression analysis because of multicollinearity issues (explained in paragraph 3.3). However, the ESG score is regressed on

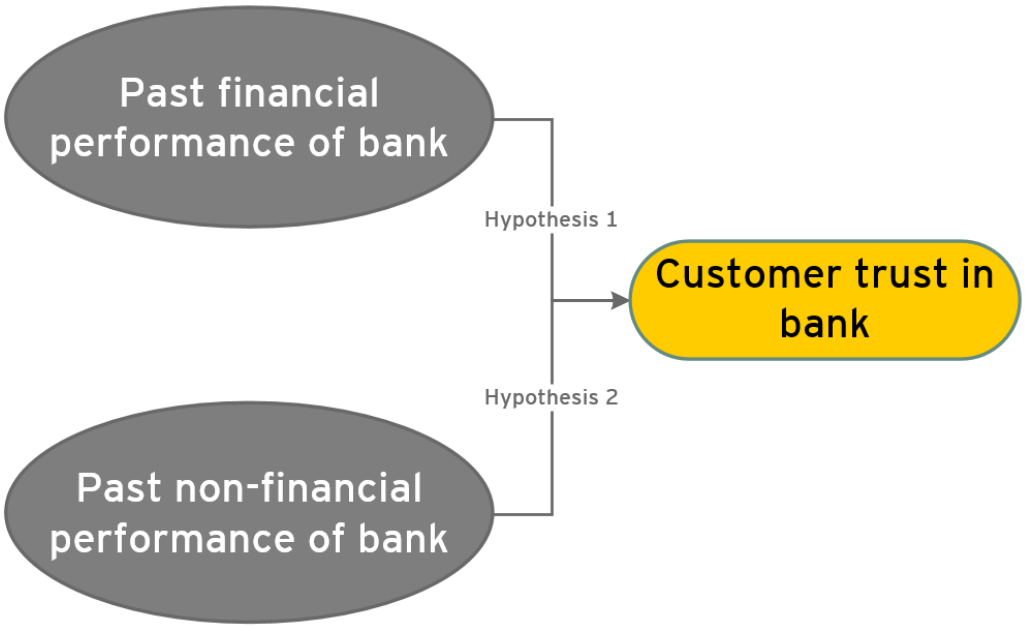
customer trust in the simple regression analysis. All the ESG-scores are measured in 2015. The Dow Jones Sustainability Index score (β_7) is measured in 2016.

Finally, all the factors that are unobserved in the model are in the error term ε. This thesis makes OLS assumptions such as the unobserved error term is uncorrelated with the explanatory variables and is normally distributed. Therefore, with a large sample size, it can be assumed that the estimations are unbiased and consistent and it is a random sample (Wooldridge, 2015).

4.6 Overview and summary empirical analysis

In Figure 6 the two before described hypotheses in paragraph 4.1 are published with the corresponding variables of interest. The figure gives a clear summary of the researched relationships in this thesis. On the one hand, the focus is on the three financial performance ratios (Return on Equity, Cost/Income, CET1 Capital) of banks in 2015 in the relationship with the trust of customers in 2016 in their bank. On the other hand, it is about five scores of the non-financial performance of banks of which four in 2015 (ESG, Environmental, Social, Governance) and one non-financial performance score in 2016 (DJSI) in the relationship with the trust of customers in banks measured in 2016.

Figure 6: Overview hypotheses



After the explanation of the empirical framework including the hypotheses and corresponding equation in section 4 in the next section the results of the research are presented, explained and discussed.

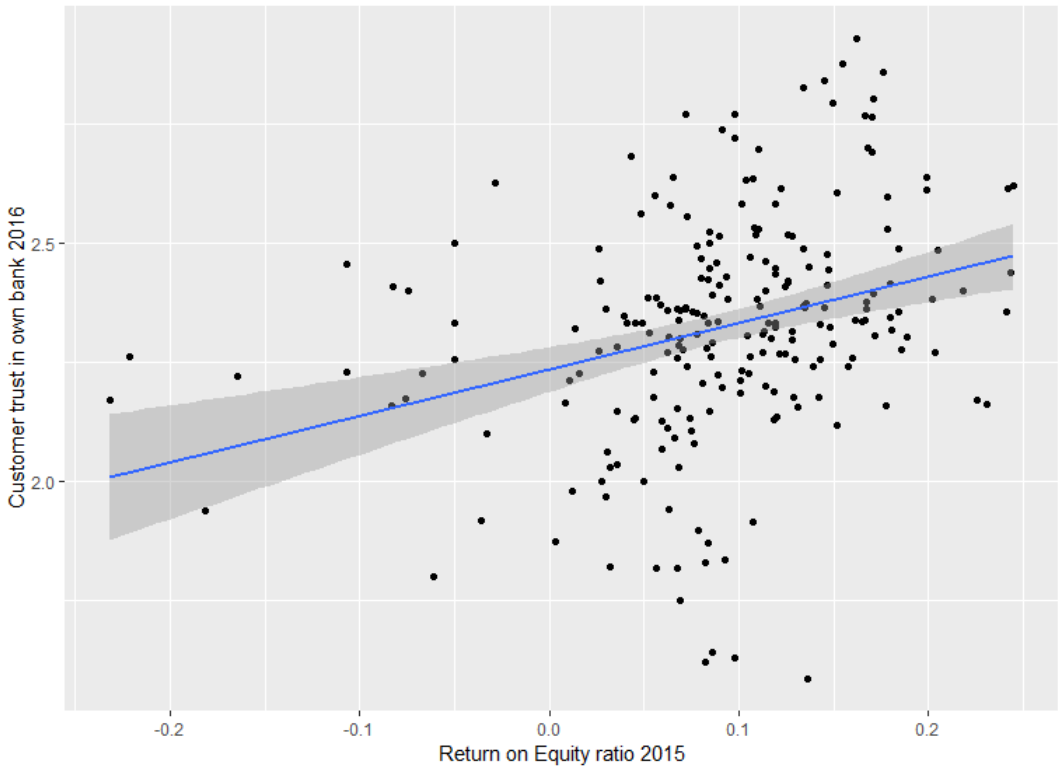
Section 5: Results

In this section, the results of the regression analyses on the relationship between the bank performance and the trust of the customers are published. It is important, when interpreting the results, to pay attention to the magnitude of the coefficient estimates in addition to the size of the t-statistics. The statistical significance of the variables is determined by the size of the t-statistic of the estimator, whereas the practical/economic significance of a variable is related to the size and sign of the estimation. Too much focus on statistical significance can lead to the false conclusion that a variable is important for explaining the dependent variable even though its estimated effect is modest (Wooldridge, 2015).

5.1 Results on the relationship

The first focus, also stated in hypothesis 1 (paragraph 4.1), is the analysis of the relationship between past financial performance of banks and the trust of customers. The first financial variable used is the Return on Equity ratio of banks in 2015 in relation with the customer trust in 2016. Figure 7 shows the linear regression line between customer trust in 2016 (dependent variable) and ROE of 2015 (independent variable).

Figure 7: Regression plot Return on Equity ratio 2015 on Customer trust 2016

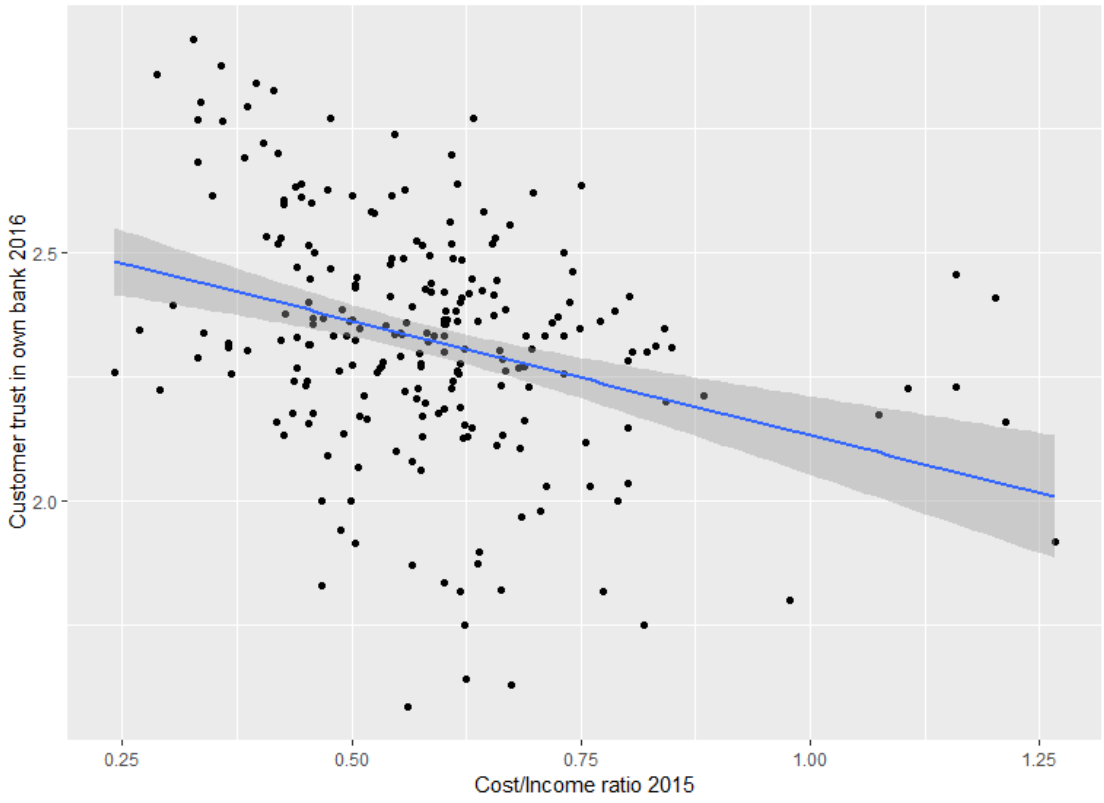


Number of observations: 226

The OLS regression line is fitted on a sample of 226 banks. Of the 239 initial observations, eight outliers are excluded and for five banks there is no information available on ROE 2015. The blue line is the linear regression line and the grey area surrounding the regression line is the 95% confidence interval for predictions from a linear model. When the observations are closer to the linear regression line the confidence interval is smaller and the significance of the results is higher. The customer trust is between 1.5 (category 1 *Minimal trust*, category 2 *Moderate trust)* and 3 and the ROE is between -24% and 26%. The upward trend in the linear regression implies that there is a positive relationship between customer trust in the bank in 2016 and ROE of the bank in 2015.

The Cost/Income ratio is the second estimator used to determine the past financial performance of banks. Figure 8 illustrates the relationship between Customer trust in the bank in 2016 and Cost/Income ratio in 2015 of the bank. The observations represent 231 banks (four outliers deleted and four banks without information on Cost/Income ratio). The largest Cost/Income ratio is 126.68% and the lowest ratio is 24.21%. A higher Cost/Income Ratio corresponds to lower financial performance. Based on the downward sloping regression line in Figure 8, it can be stated that banks with higher Cost/Income ratios in 2015 have less customer trust in 2016.

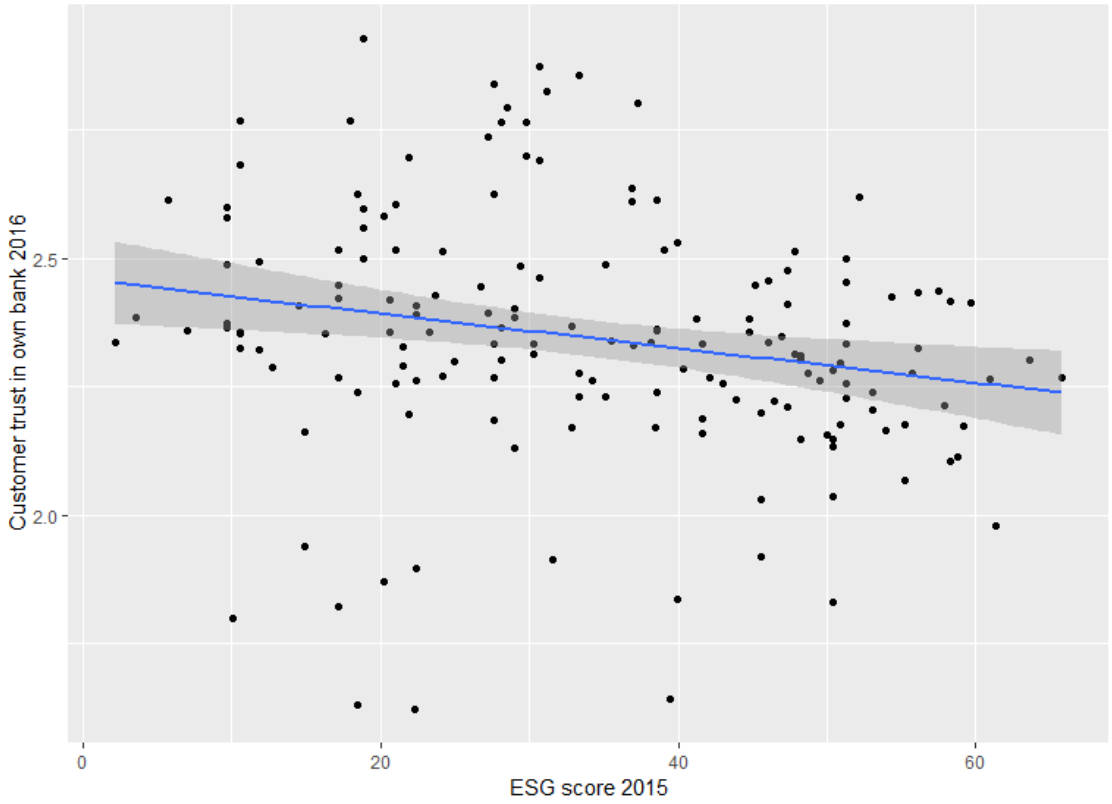
Figure 8: Regression plot Cost/Income ratio 2015 on Customer trust 2016



Number of observations: 231

Figures 9 and 10 publish the relationship between non-financial performance estimators of banks and the trust of customers in the next year, also stated in hypothesis 2 (paragraph 4.1). Firstly, in Figure 9 on the x-axis is the ESG score 2015 and on the y-axis the Customer trust in own bank 2016. In total 168 observations are published, excluding the 70 missing values and one outlier that are not in the figure. The ESG score can range between 0 and 100, however the highest score in the figure is almost 66 and the lowest observed score is slightly more than 2. By interpreting the linear regression line, it can be concluded that there is a small negative relationship between the ESG scores of the bank and customer trust in the bank.

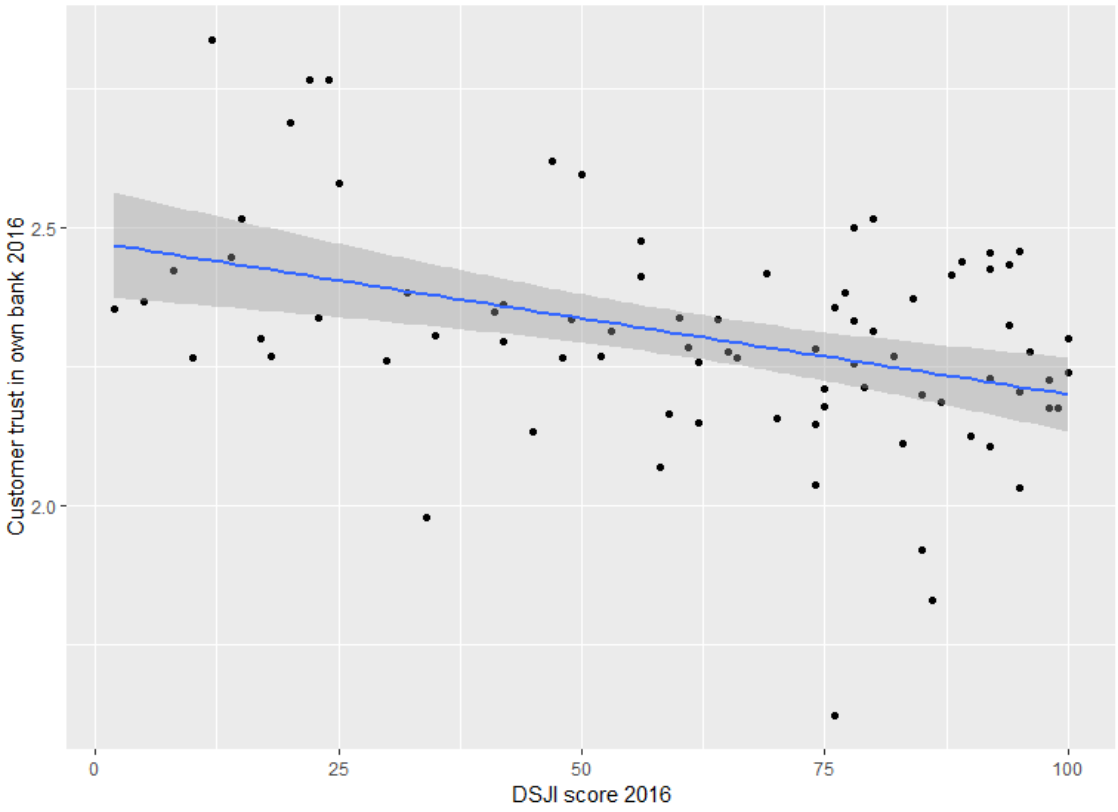
Figure 9: Regression plot ESG score 2015 on Customer trust 2016



Number of observations: 168

Figure 10 displays the relationship between non-financial performance and customer trust in banks. There is for only 80 banks data on the Dow Jones Sustainability score 2016, which means 159 missing values. No outliers are deleted. The lowest DSJI score 2016 is 2 and the highest score is equal to the maximum score, which is 100. In Figure 10, the linear regression line, based on the observations, show also a small negative relationship between the scores of banks on the Dow Jones Sustainability Index and the trust that customers have in that specific 80 banks.

Figure 10: Regression plot DJSI score 2015 on Customer trust 2016



Number of observations: 80

With the presentation of the four figures (Figure 7-10) on the relationship between the bank performance and trust, it is impossible to draw conclusions based on exact numbers, standard errors and significance levels to interpret the researched relationship. Therefore the regression results are published in Table 3 to analyse all the results in a precise way.

Before the discussion of the results in Table 3, it is important to mention the interpretation of the performance variables. The Return on Equity ratio, CET1 Capital ratio, ESG scores and the Dow Jones Sustainability Index score are all interpreted in the same way: higher ratios/scores means higher performance of the bank. Contrary to all other performance variables, a higher Cost/Income ratio implies worse financial performance as costs will then be relatively higher to income of the bank. This is important to mention before the interpretation of the results.

Table 3 shows the results of the regression analysis. These results are used to test the hypotheses. The table is divided in part 3A on financial performance and trust and part 3B on non-financial and trust.

In part 3A, columns (A), (B) and (C) publish the results of the simple regression analyses that are performed of the three financial performance indicators 2015 separately on the customer trust in 2016. In column (D) all three financial performance ratios are regressed on customer trust with a multiple regression analysis.
In part 3B, columns (F), (G), (H), (I) and (J) show the results of the simple regression analyses of the non-financial estimators and customer trust. Column (K) is the multiple regression without the DJSI score 2016 and column (L) including the DJSI score 2016. Column (E) in Table 3, with the darker grey colour, the results are shown of the multiple regression of financial and non-financial variables on the customer trust.

The number of observations differs in any regression analysis and is less than the total of 239 observations, because of missing values. By analysing the banks that have missing values, it is assumed that the lack of values do not create biases and do not have crucial effects on the results of the regression analysis. The assumption is based on the following arguments: the banks with missing values on a performance estimator are not the banks with very low or very high customer trust only but scattered around on the distribution, the banks are from all different countries and it is not the case that only banks with bad financial and non-financial performance miss some values.

Table 3 shows the estimated results of the estimators, the standard errors of the estimations between brackets, the significance of the estimations and the number of observations of every regression analysis. The constant in all the regressions of Table 3 is between 2 and 3, which means that customer trust lies between moderate trust (category 2) and complete trust (category 3). Important to mention is that the trust of customers in a bank represents the average trust of the customers that filled in the survey.

Table 3: Regression results of past bank performance 2015 on customer trust 2016

Dependent variable: Customer trust (2016)								Customer trust (2016)
Table 3A: Financial performance estimators on customer trust								
	(A)		(B)		(C)	(D)		(E)
Return on Equity ratio (2015)	0.532 (0.125)***					0.649 (0.192)***		0.446 (0.219)**
Cost/Income ratio (2015)			-0.103 (0.052)**			0.023 (0.067)		-0.073 (0.133)
CET1 Capital ratio (2015)					-0.416 (0.303)	-0.442 (0.438)		-0.317 (0.652)
Constant	2.277 (0.018)***		2.385 (0.035)***		2.380 (0.045)***	2.314 (0.075)***		
Observations	234		235		209	208		
Table 3B: Non-financial performance estimators on customer trust								
	(F)	(G)	(H)	(I)	(J)	(K)	(L)	
ESG score (2015)	-0.003 (0.001) ***							
Environmental score (2015)		-0.004 (0.001)***				-0.004 (0.002)**	-0.003 (0.002)	-0.004 (0.002)**
Social score (2015)			-0.002 (0.001)			0.001 (0.002)	-0.000 (0.002)	-0.002 (0.002)
Governance score (2015)				-0.002 (0.001)*		0.001 (0.002)	0.006 (0.003)**	0.003 (0.003)
DSJI score (2016)					-0.003 (0.001)***		-0.003 (0.001)**	-0.001 (0.001)
Constant	2.462 (0.042)***	2.443 (0.037)***	2.399 (0.052)***	2.478 (0.082)***	2.474 (0.049)***	2.389 (0.119)***	2.220 (0.166)***	2.461 (0.207)***
Observations	169	142	153	168	80	141	76	73

*** denotes 1% significance, ** 5% significance and * 10% significance

In part 3A of Table 3, column (A) shows a positive relationship (0.532) between Return on Equity ratio 2015 and customer trust 2016 on a 1% significance level. In other words, banks with a higher profitability in 2015 have customers that trust them more in 2016, compared to the banks with lower profitability. In column (B), a negative relationship between higher Cost/Income ratios of banks and customer trust is shown (-.103) on a 5% significance level. This result implies when banks are performing less efficient in the past, the future trust is lower than for banks that have a higher efficiency. In the multiple regression analysis results of column (D), only the positive relationship between ROE ratio 2015 and customer trust 2016 is highly significant. In all the regressions, the CET1 capital ratio shows negative results without any significance.
Conclusions from part 3A of the regression results table are that two financial performance indicators (ROE & Cost/Income ratios) show significant results in relation with customer trust and both confirm the positive relationship between higher past financial bank performance and the trust of the customers in their bank.

When moving on to the analysis of the results in part 3B of Table 3, it can be observed in column (F) a very small negative relationship between the ESG score and customer trust is shown (-0.003) with a high significance level of 1%. In column (G), the environmental score has a similar pattern, a small significant negative relationship with future customer trust (-0.002). This pattern of a negative relationship between non-financial performance scores and the trust of customers in their bank is shown at all the simple regression analyses. Only the social performance score of banks in 2015 has an insignificant negative relationship on customer trust. In the multiple regression analyses, the ESG score is excluded as an estimator because of multicollinearity issues. In the multiple regression analysis results published in column (K), the environmental score show again a significant negative relationship with customer trust, compared with column (G). In column (L), the regression included DJSI score 2016 as an estimator. A contrary result is seen at the governance score in this multiple regression analysis, where the relationship is turned into positive with customer trust on a significance level of 5%.

The results in part 3B are a little unexpected and therefore interesting to discuss. Based on the literature, described in section 2, a positive relationship between the past non-financial performance of banks and the trust in the future of customers should be expected. Nowadays where the focus is more and more on non-financial performance, the observed negative relationship between the non-financial performance of banks and the one-year ahead customer trust can be regarded as a contrary result.
Column (E) of Table 3, with the darker grey colour, is the multiple regression analysis with all the financial and non-financial bank performance variables of 2015 on the customer trust a year later. Two interesting results are relevant to discuss. First the confirmation of the positive relationship between past financial performance and customer trust, with the result of 0.446 of ROE 2015 on customer trust 2016, which is significant on the 5% significance level. Secondly, the confirmation of the very small negative relationship between the past non-financial

performance estimators of banks and the trust of customers, with the result of -0.004 between Environmental score and customer trust, also on a 5% significance level.

Taking all the information on the regression results together, two conclusions can be made. Firstly, it can be concluded that the past financial performance of the banks in the sample have a positive significant relationship with the trust that customers have in their bank. This is in line with the related literature, earlier stated in paragraph 4 (Jansen et al. 2015) & (Cruijsen et al., 2016). Secondly, it can be concluded that the past non-financial performance of the banks in the sample have a small significantly negative relationship with the trust that customers have in their bank. This is not in line with the literature that is discussed by stating hypothesis 2 in paragraph 4.2.
In the next paragraph, the results of the analysis on the 2016 data are compared with the analysis of the analysis on the 2014 data, to check the results on robustness and discuss the findings.

5.2 Results on the robustness check

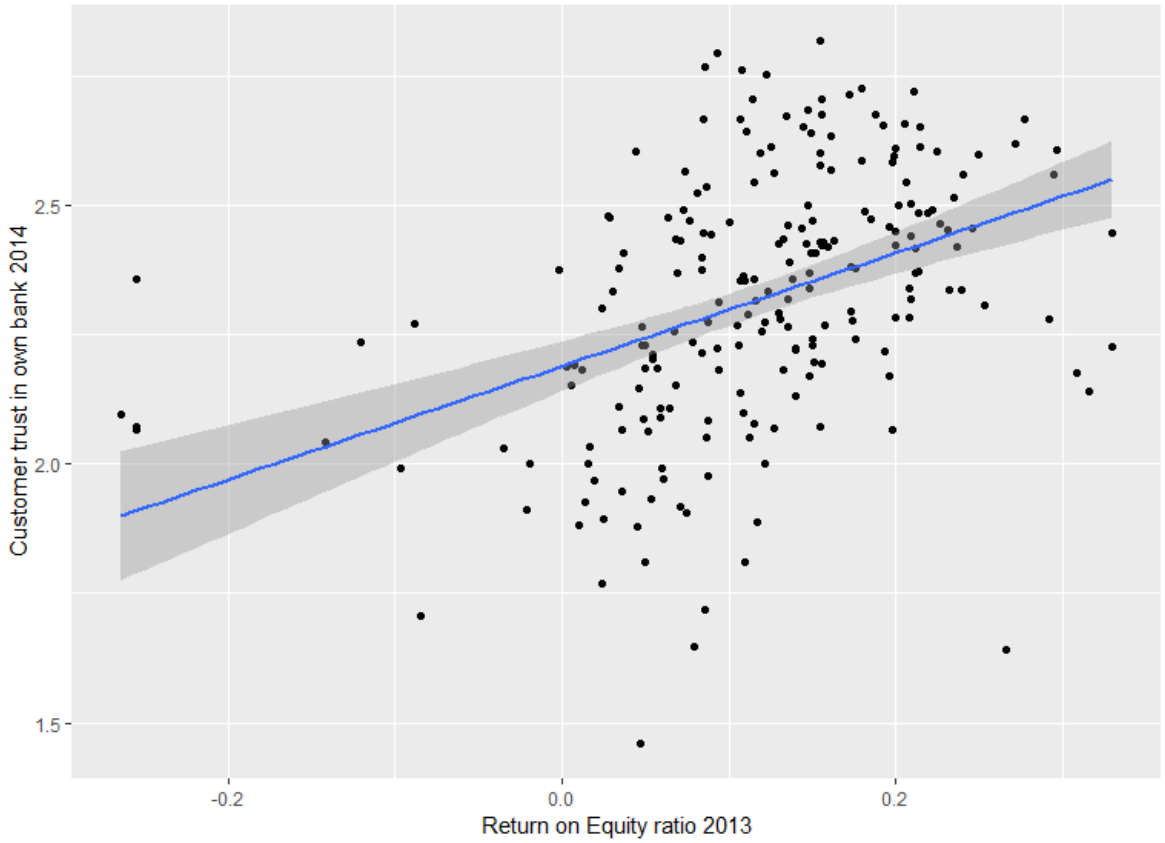
After all the information provided on the empirical research to answer the research question, this study provides also a robustness check. This is possible because of the large and unique dataset available in this study. There is a probability that 2016 is a year that does not represent a normal average year, because of some specific characteristics and events that happen which influence the dependent and independent variables. That is the reason this thesis researched the robustness of the results for the year 2016, by comparing with the year 2014.

The structure of paragraph 5.2 is the same as paragraph 5.1. First, the most relevant and interesting figures are published to give an insight into the researched relationship. After that, the regression results are presented in a table to give detailed information on the estimates and their significance.

The EY Global Consumer Banking Survey 2014 is the dataset used to check for the robustness of the 2016 results. Next to the survey, information on the financial and non-financial performance of banks in the year 2013 is collected from the Bloomberg Terminal as past bank performance. Information on the performance estimators CET1 Capital ratio and the Dow Jones Sustainability Index score from the year 2013 is not available in the Bloomberg Terminal. This is the reason the focus of financial performance is on the Return on Equity ratio and the Cost/Income ratio and on the non-financial performance part the focus is on ESG scores from 2013. With this robustness check, it can be observed if the relationships found in paragraph 5.1 are significant for another year with another sample of customers filled in the survey, lastly another representation of the banks.

Paragraph 5.1 start with Figure 7, where the relationship between the Return on Equity ratio of 2015 and Customer trust 2016 is presented. In Figure 11, the regression plot of Return on Equity ratio 2013 on Customer trust in 2014 is shown. In total there are 225 banks in the sample. In Figure 11, four outliers are deleted and there is one missing value. The increasing line means that banks with a better ROE ratio in 2013 have customers in 2014 that trust them more.

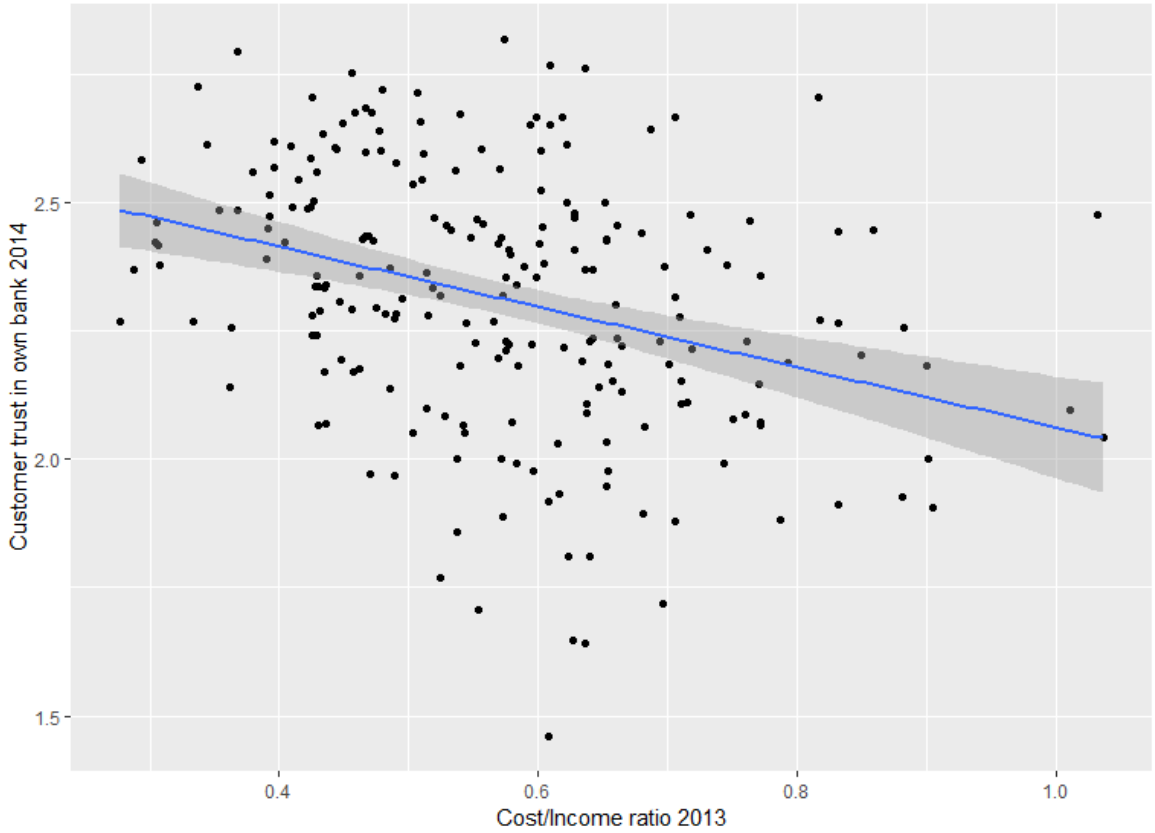
Figure 11: Regression plot Return on Equity ratio 2013 on Customer trust 2014



Number of observations: 220

The second estimator of past performance, the Cost/Income ratio, in the relationship with customer trust is showed in Figure 12. The black dots are 221 data points because two outliers are deleted and two values are missing. Instead of an increasing line, in the figure, a decreasing line is presented. This comes down to the higher financial performance of banks in the past is related positively with customers that trust the bank more in the future.

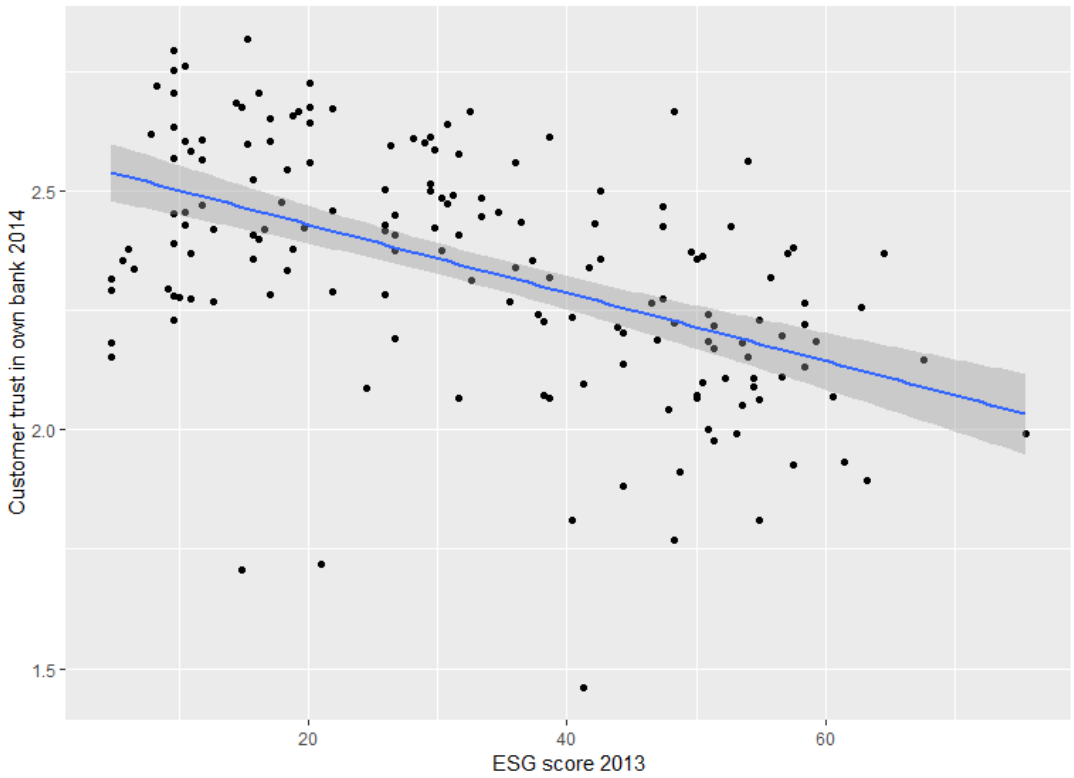
Figure 12: Regression plot Cost/Income ratio 2013 on Customer trust 2014



Number of observations: 221

After Figures 11 and 12, where the focus is on the financial performance of banks in relation with the trust of customers, Figure 13 presents the relationship between past non-financial performance of banks in 2013 and the customer trust in 2014. In Figure 13 the non-financial performance estimator is the ESG score of banks in 2013.

Figure 13: Regression plot ESG score 2013 on Customer trust 2014



Number of observations: 166

The missing values of banks are 59, on a total of 225 banks in the sample. In this robustness check on the ESG score results, Figure 13 shows that the trust of customers in 2014 has a stronger decline in the relationship with higher ESG scores, then the relationship between them in the 2016 dataset (seen in Figure 9).

After presenting the three figures of past bank performance in relationship with customer trust, next the regression results table is published to give more details and information. Comparing the figures 11, 12 and 13 with the figures 7, 8 and 9 of the 2016 dataset in paragraph 5.1, some small differences are observed. To find out if the founded results of the 2016 dataset are robust and therefore it is possible to draw valid conclusions, it is essential to compare the two regression tables with each other.

Table 4 has the same structure as Table 3 in paragraph 5.1. Firstly, the table shows the estimated results of the estimators. Secondly, the standard errors of the estimations between brackets. Thirdly, the significance of the estimations and the number of observations of every regression analysis. The total number of observations, number of banks, is 239. Table 4 is divided by 3A 'financial performance estimators on customer trust' and 3B 'financial performance estimators on customer trust'.

Table 4: Regression results of past bank performance 2013 on Customer trust 2014

Dependent variable: Customer trust (2014)						Customer trust (2014)
Table 4A: Financial performance estimators on customer trust						
	(A)		(B)	(C)		(D)
Return on Equity ratio (2013)	0.795 (0.127)***			0.708 (0.158)***		0.971 (0.239)***
Cost/Income ratio (2013)			-0.365 (0.086)***	-0.094 (0.102)		0.127 (0.182)
Constant	2.225 (0.021)***		2.526 (0.052)***	2.290 (0.072)***		
Observations	224		223	223		
Table 4B: Non-financial performance estimators on customer trust						
	(E)	(F)	(G)	(H)	(I)	
ESG score (2013)	-0.007 (0.001)***					
Environmental score (2013)		-0.007 (0.001)***			-0.007 (0.002)***	-0.006 (0.002)***
Social score (2013)			-0.006 (0.001)***		-0.001 (0.002)	-0.000 (0.002)
Governance score (2013)				-0.006 (0.001)***	-0.000 (0.002)	-0.001 (0.002)
Constant	2.574 (0.034)***	2.525 (0.036)***	2.550 (0.048)***	2.651 (0.071)***	2.546 (0.096)***	2.329 (0.152)***
Observations	165	127	137	168	126	125

*** denotes 1% significance, ** 5% significance and * 10% significance

For a robustness check is it essential to compare the results of the two regression tables with each other and discuss the estimations and their significance. In the analysis of the past financial performance estimators, the same pattern is observed in the relationship with the customer trust of 2014. Firstly, a positive and significant result is presented in the table of the Return on Equity ratio 2013 on customer trust (0.795), seen in column (A). This result is even stronger than in Table 3A (0.532), which implies that the banks with high profitability (better than the other banks) have customers that trust the bank in 2014 much more. Secondly in column (B), the Cost/Income ratio 2013 with a negative relationship (-0.365) on customer trust, confirmed the result of the 2016 result strongly (-0.103). In the multiple regression analysis in column (C), the same pattern is observed but with lower estimates and less significance. In short, the model of 2016 on financial performance estimators is robust and therefore the significant findings are valid and relevant to discuss further.

Before the discussion of the results in depth, the results on the non-financial performance estimators are presented and described. Comparing the simple regression models, all the estimates results in Table 4 are highly significant on a 1% level. The negative relationship between higher non-financial performance on ESG and the trust of customers in the future is even stronger, shown in column (E). Comparing the 2014 and 2016 multiple regressions on non-financial performance, published in column (I) in Table 4 and column (L) in Table 3, the same pattern is showed. Very small differences between the results and the only result with significance if the Environmental score of the past year. The ESG scores are not taken into account in the multiple regression, because of multicollinearity biases which are before discussed.

By analysing both regression models, based on the results can be concluded that the models in Table 3 and 4 are valid and robust. In paragraph 4.5 OLS assumptions are made and no heteroscedastic errors or problematic outliers are observed that biased the interpretation of the results in the models.

In the next section, the results on the two hypotheses are used to answer the research question, discuss the results further and make conclusions.

Section 6: Conclusions

This thesis shows that there is a two-sided relationship between past performance of banks and the trust of the customers. These findings are derived from an OLS regression analysis on two datasets. The first dataset consists of bank performance data from 2015 and the second dataset consists of trust data from a 2016 survey on more than 40,000 customers spread over 34 countries around the world, which is measured on a bank level of in total 239 banks.

Based on the literature that shows a negative relationship between low performance and customer trust, which is mainly based on the outcome of the crisis, this thesis focusses on the reverse relationship where a positive relationship is expected between the financial performance in the past of banks and the trust of customers in the bank.
The first finding is that the past financial performance of banks has a strong positive relationship with future trust. This means that there is relationship between banks with a high profitability (ROE) and efficiency (Cost/Income) in the past and customers having higher trust in these banks in the future. These findings are in line with the literature on this topic, where several studies found that customers have less trust in banks in periods of bad financial performance. The best real-life example of this is the economic crisis of 2008, where banks struggle with their profitability, efficiency and capital strength, leading some of them to collapse or requiring large bailouts from their governments. This period of bad financial performance of banks has likely contributed considerable to the loss of customers' trust in their own bank, a so-called *crisis of trust*.
Secondly, the non-financial performance of banks in the past (the ESG scores and the DJSI score) has a small negative relationship with the trust of customers in the future. This finding is not in line with the expectations set out at the beginning of writing this thesis and therefore raise the questions as to how to interpret this. Is a possible reason that customer distrust the intention of the sustainable companies, as stated by Haastrecht (Haastrecht, 2017)? Or does this result imply that the focus on the environmental, social and governance aspects of the bank do not matter to customers and do not affect their level of trust in a bank? Or do customers not have enough information on the non-financial performance of banks and therefore do not depend their trust on it? These thoughts prove the relevance for further discussion and research on these findings.

As with all research, there are some limitations. The main limitation of this piece of research is the lack of information and data on the variables that affect the trust of customers. For example, the number of times the bank is in the news positively or negatively, money-laundering, cyber-attacks and others that could also be of influence for customer trust.
Therefore the results of the research between the variables of interest are never interpreted causally in this thesis. This limitation provides an interesting opportunity for further research on the topic of bank performance and customer trust in banks.

This thesis is the next step of research on the relationship between bank performance and customer trust. When banks financially perform well compared to others, customers trust this bank on average more. But when banks perform better than other banks in a non-financial way, these banks do not have customers with higher than average trust levels. Ten years after the start of the 2008 Financial Crisis, the findings from this research contribute vitally to the debate and the current crisis of trust. Because, what is a bank without trust?

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Appendix

Figure 14: Correlation Matrix bank variables 2013 - Robustness Check

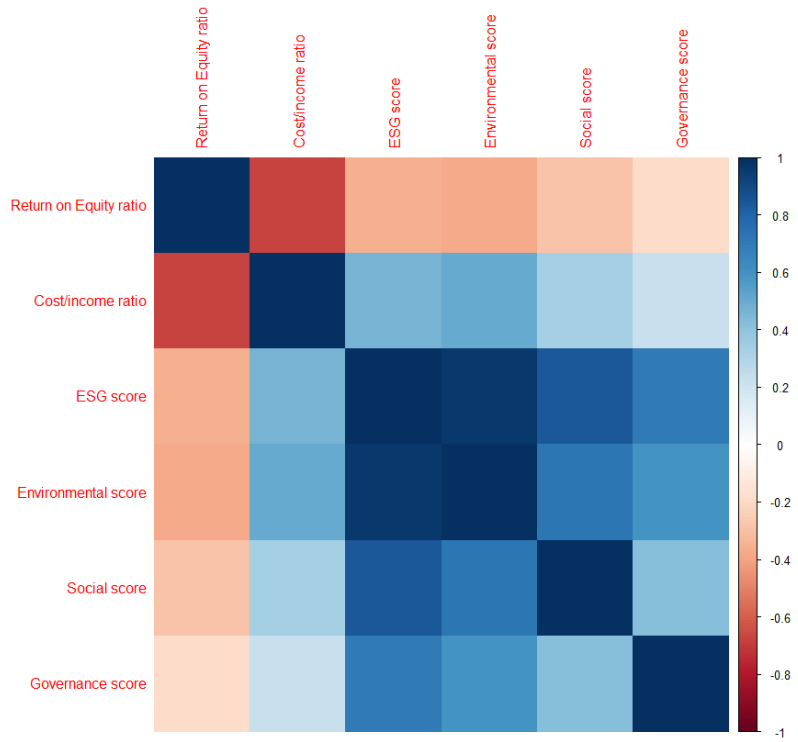
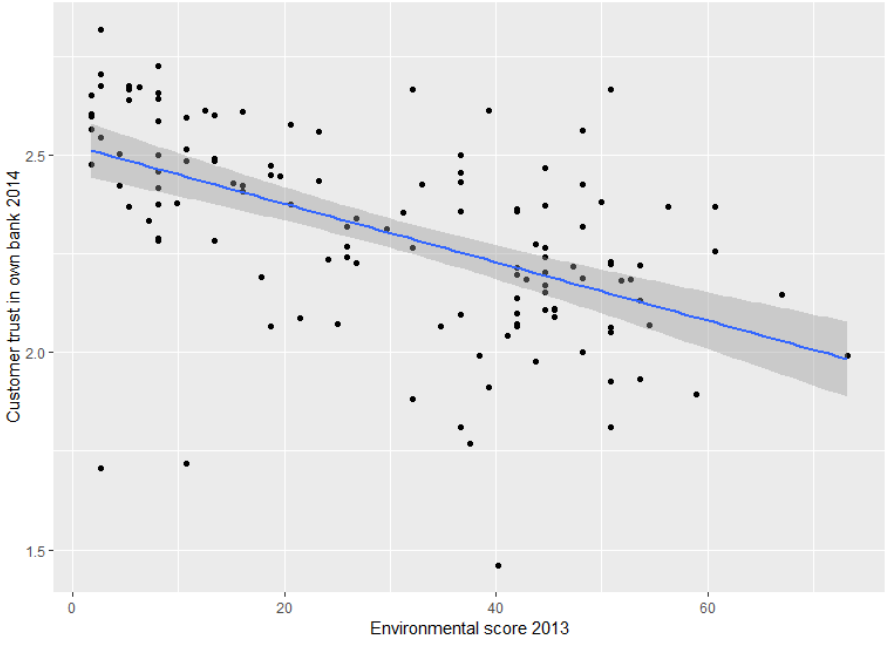
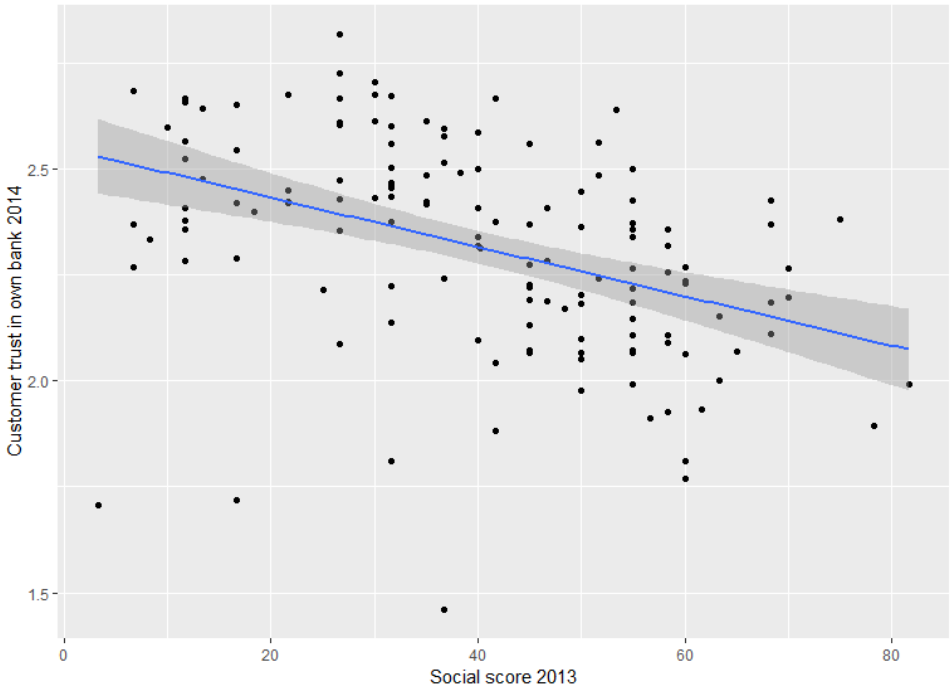


Figure 15: Regression plot Environmental score 2013 on Customer trust 2014



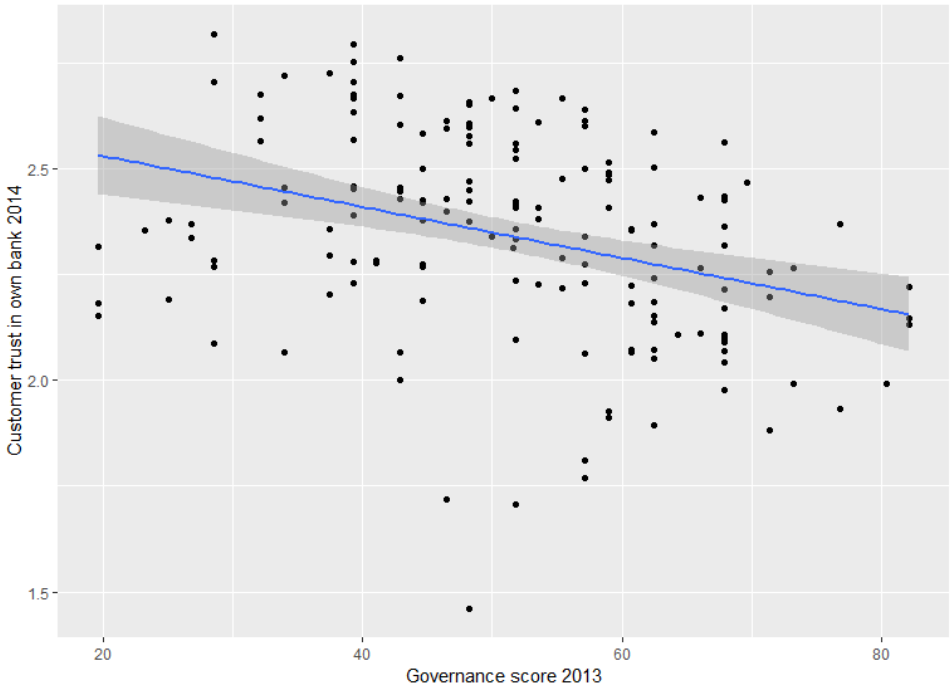
Number of observations: 127

Figure 16: Regression plot Social score 2013 on Customer trust 2014



Number of observations: 137

Figure 17: Regression plot Governance score 2013 on Customer trust 2014



Number of observations: 168