DETECTING GREEN

The process and feasibility of recognising sustainable companies on basis of public content

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Preface

Hereby I present my master thesis with which I finish my Master of Business Administration, with the chosen track International Management. The subject of the thesis is initially conducted for Rabobank International, for who I have performed an extracurricular internship to increase my practical skills. It is necessary to mention that during the writing of the thesis, I have started my professional working career after which the Rabobank's influence on the subject has decreased.

It has been an enormous challenge for me on both personal and professional level to finish this document. It could be easy for me to say that combining working life with writing a thesis is not recommended, although I am very content with the choices I've made so far and I believe to have learned a lot by combining the two.

Firstly, I would like to thank my supervisors at Rabobank International, Hans Biemans for giving me this research opportunity and Thomas Ursem and his team for the internship that has been proven to be very helpful in the start of my career.

Furthermore I would like to thank my first and second supervisor at the University of Twente, respectively Petra Hoffmann and Harry van der Kaap, whose sparring sessions have always been very helpful and led me in the right direction with their insightful feedback.

I hope that you will enjoy reading this document and hopefully it could lead to insights on how to create Socially Responsble Investments for large institutions on a large scale, as it could be another small step in the right direction by giving awareness that being sustainable as an organisation pays off in the end.

Kees Posch

Enschede, January 18th 2016

Table of Contents

1 Executive Summary 4
2 Introduction 6
3 Problem Definition and Research Questions 7
4 Literature Review 11
4.1 Corporate Social Responsibility 11
4.1.1 Defining CSR 11
4.1.2 Stakeholder Interaction 13
4.1.3 CSR Reporting 14
4.1.4 Transparency 16
4.1.5 Benchmarking 17
4.2 Socially Responsible Investing 21
4.2.1 Introduction to Socially Responsible Investing 21
4.2.2 SRI Screening Principles 22
4.2.3 SRI Screening Strategies 23
4.3 Research Model 26
5 Methodology 28
5.1 Composing the methodology 28
5.1.1 Research Design 28
5.1.2 Pilot industries and units of analysis 31
5.1.3 Company Classification Method 33
5.1.3.1 CSR Definition and Goals 33
5.1.3.2 Choice of SRI Strategy 34
5.3.3.3 CSR Indicators 34
5.3.3.4 CSR Measurement and analysis 36
5.3.3.5 Validating and ranking 39
5.2 Application of Methods 40
5.2.1 Palm Oil Methodology 40
5.2.1.1 Process 40
5.2.1.2 Results 42
5.2.2 Sugarcane Methodology 48
5.2.2.1 Process 48

5.2.2.2 Results 49
5.3 Improving the Methodology 52
5.3.1 Learning points 52
5.3.2 Validation 54
5.3.3 Finalizing 55
6 Results 57
7 Conclusion, Limitations and Recommendations 60
8 References 62
Appendix A Dataset Palm Oil 65
Appendix B Dataset Sugarcane 67

1 Executive Summary

This study focusses on identifying the degree of sustainability of a sample of companies. The project is initially conducted for the Dutch bank Rabobank, who is interested in having a company classification tool, in order to rank-score organisations on being green. The goal of this tool is to classify the banks' current investment portfolio to be able to offer a diversified product that focusses on doing "good". The following research question should tackle this problem: "*In what way is it possible to create a tool that makes it possible to conduct a simple company screening, which leads to an adequate identification of the sustainable frontrunners within particular industries?"* The study is design oriented, focusing largely on the creation process of the tool.

In the literature review, the foundation of the tool is built by firstly analysing the topic of corporate social responsibility (CSR), to determine the variables that need to be taken in account when analysing the selected companies. A large focus is on the interaction with stakeholders, transparency and reporting. Furthermore, the theory of socially responsible investing is taken in account that concludes with the best-in-class investment selection to be the most appropriate screening technique available. The methodology chapter further elaborates on these findings, by putting the chosen company screening technique best-in-class investment selection in practice in both the sugarcane industry in Brazil and the palm oil industry in South-East Asia. The analysis of the specific companies is conducted through a questionnaire-based approach that incorporates – in line with the literature review – integral CSR indicators as well as specific industry variables that are based on best-practices in these respective industries. Stakeholders play an integral role in this process; both the CSR indicators as the validation of the results are conducted using findings of NGO's active in these industries, notably Bonsucro and the RSPO. It is theorised that these stakeholders possess extensive knowledge plus the choice for the methodology could be explained, making this a risk aversive approach.

The main research question elaborates on finding the sustainable frontrunners within the analysed business industries. We have found that with a simple sustainability screening, based on publicly available data, it is highly unlikely that these frontrunners could be found. Further research on these companies should be necessary. However, in both pilot industries, we have found the highest sustainable companies to be within the highest scoring 50 percent of our classification tool, hence leaving opportunities for using this tool as a first classification method for finding sustainable companies. Furthermore, we noticed that *general* CSR indicators, such as the amount of disclosure on the topic of CSR, having CSR certifications and/or GRI reports

in place or being transparent did not have great predictability power, while measuring disclosure on specific industry indicators gave more insight in whether a company is sustainable.

Since the study focuses largely on finding a simple screening method, and due the limited time and budget resources, the validity of the results should be taken with caution, as no actual company visits have been conducted. Since sustainability is a very broad topic, we advise to be more specific on what the topic incorporates. We recommend starting a dialogue with stakeholders such as institutional investors – the potential clients, NGO's, experts and the companies to achieve this, and be able to improve the tool by incorporating quality measures such as a weighing scale and/or additional CSR indicators.

2 Introduction

The Global Financial Market (GFM) division of Rabobank International is interested in dividing their client portfolio in sustainable companies and non-sustainable companies for it could diversify their current product offering and creates possibilities for acting as a “better” company. As sustainable is a broad subject, the bank has defined being a sustainable company by belonging to the top performing companies on a sustainability level in their respective business industry, being a so-called sustainable frontrunner. This study helps the bank to explore the possibilities of creating a company screening, by designing the company classification process and a subsequent analysis on multiple industries to measure the effectiveness of this tool. This study should determine whether there could be ground for using such a method and if it would be possible to create valid results in the first place.

This document is built as follows. In chapter 3 the problem definition of the Rabobank will be given and ends with the research questions that should help solving the issues at hand. In chapter 4 we will write down an extensive literature review which comprises all the topics necessary for answering the above described questions. The chapter is built up in two parts, the explanation of the Corporate Social Responsibility (CSR) and all the topics it comprises and the topic of Socially Responsible Investing (SRI) that focusses on explaining the current best practices regarding company classifications and the subsequent processes that should lead to the sought after end-products, the green investments. After the literature review, in chapter 5 we build the methodology of the tool. The methodology is built up in two parts. It starts with a theoretical approach in which the process of the company classification tool is explained, after which we take a practical approach were the tool will be put into practice in two pilot industries. Afterwards, chapter 6 will present the findings on the effectiveness of the company classification tool and chapter 7 concludes with answering the main research questions, and will discuss the limitations of the project and the recommendations for future research.

3 Problem Definition and Research Questions

Over the past decades, socially responsible investing (SRI) has grown rapidly around the world. SRI is an investment process in which social, environmental and ethical considerations are integrated into investment decision making. In these investments a set of screens are applied to select or exclude assets based on ecological, social, corporate governance or ethical criteria (Renneboog, Ter Horst, & Zhang, 2008). Financial institutions are noticing an increasing demand in so-called green investments. An example is the Dutch pension fund PGGM – an institutional investor at Rabobank – that is increasingly preferring sustainable investments above conventional ones. However, over 2011, just above 4% of their 115 billion euro invested budget is considered green[1].

For the Rabobank Group, the growing demand in SRI could be considered a commercial opportunity. As of 2012, 1.7% of their total private industry lending can be classified sustainable[2]. This percentage suggests that Rabobank could better meet the needs of investors such as PGGM.

As a big player in the food and agricultural financing, Rabobank acknowledges the global issue of feeding the rapidly growing world population[3]. In order to reach food security, it seems that sustainable methods in agriculture, forestry and fishing are a necessity to keep feeding future generations. Through the offering of sustainable funds, Rabobank can combine a commercial opportunity with a social and environmental need.

At this moment, Rabobank does have methods in place to exclude certain industries and companies that are active in activities that the company cannot relate to, such as the arms trade[4]. Although there is some qualifications done, the bank does not have a methodology for identifying – and thus classifying – companies on sustainable grounds. Being able to classify the most sustainable companies per industry could be a huge opportunity to meet the investor demands regarding SRI. Although such a method does not exist, within Rabobank a high amount of company and industry knowledge exists. The bank has a department (FAR) of 50 FTE that fully focuses on food and agricultural research. Additionally, several CSR specialists

[1]http://www.jaarverslagenpggm.nl/FbContent.ashx/downloads/Jaarverslag_PGGM_Coöperatie.pdf

[2]https://www.rabobank.com/en/images/CSR_KPIs_2012_rabobank_group.pdf

[3]http://www.rabobank.nl/particulieren/servicemenu/over_rabobank/global_food_security/

[4] https://www.rabobank.com/nl/press/search/2013/20130213_Rabobank-zet-nieuwe-stappen-in-wapenbeleid.html

have a great knowledge of the CSR issues and best-practices within agricultural industries. This information could be used in the creation of such a methodology.

The given assignment evolves around the classification of companies on a sustainability level. There is demand for a tool that helps identifying companies within particular industries to see which have the highest social and environmental operations in place. An important note on this assignment was the relative short amount of time available. Therefore there will be no actual company visits, thus the assignment should be purely done with desk-research. There is as far as we know not such a tool available and there is very limited knowledge on which variables have to be used for a scoring, although there is a lot known regarding sustainability issues and best practices in several agricultural industries.

Although the subject of CSR is complex, the tool should become very simple in its use. After the tool is designed and put into practice, the effectiveness of such a quick assessment could be determined. Furthermore, after the results are known it can be decided to what extent and where in the investment process the tool should preferably be used.

The above described problem is the main focus of my thesis. The research questions I propose should guide me in the right direction to propose a solution creating a methodology to identify companies that can be regarded as "good citizens". The main research question is stated as follows:

In what way is it possible to create a tool that makes it possible to conduct a simple company screening, which leads to an adequate identification of the sustainable frontrunners within particular industries?

This main research question takes several subjects in account. To make sure that the research will be feasible to conduct, a couple of sub questions are needed to guide the research in the needed direction.

As the research topic evolves largely around socially responsible investing, it is important to understand the current methods of company screenings. Company screenings are a big step in the process of the creation of socially responsible investments (SRI), it identifies the contents of a 'green' bond. This is in alignment with the problem definition in which we state that we seek to screen companies on their level of sustainability in order to classify the current investment portfolio. This leads to the first sub question:

What are the current types of company screenings and which type is the most suitable for a successful execution of this project for Rabobank?

Once the screening process is known, we can dig deeper and focus on the indicators that we will rate the companies on, in order to perform a thorough screening. It is important of knowing what exactly the good practices of these companies are and how they should be measured. We will define the research scope beforehand to not determine the best-practices ourselves, based on two reasons: (i) this is not an agricultural study and (ii) as Rabobank faces high attention from NGOs, it is wise to rely on an external source that many can relate to. Therefore we will focus on indicators that are mentioned in the literature and disclosed by third-parties, some of which fixate on the selected pilot industries. On basis of this we provide the second sub question:

Which indicators should be, according to stakeholders and the literature, selected to thoroughly screen companies on their CSR operations, in general and within the selected pilot industries?

After these indicators are selected, they will need to be transformed into the tool. The literature and best-practices so far should determine the most appropriate design of the tool, making this the third sub question:

How should the tool be designed to perform simple company screenings on basis of sustainability?

The problem definition mentions the simplicity of the tool, which has largely to do with time, knowledge and money issues. This given, the data on which the tool will should be based is solely generated on basis of desk-research. Thus the data mining process will focus on both corporate communications and publicly available information from third parties. The earlier mentioned attention from NGOs show the importance of creating valid results. It is therefore of uttermost importance that the found results will be trustworthy, before using the results in practice. This leads to the fourth sub question:

To what extent can corporate sustainable reporting and public information be regarded trustworthy and how should the results be validated before it can be used in a tool?

Once these questions are answered, we will have an idea in the extent in which companies can be classified solely on desk research. In case there is evidence for the effectiveness of such a tool in the pilot industries, we would like to see to what extent it could be possible to use this tool on a larger scale.

To what extent can the results of the pilot industries be generalised towards other industries?

Once these questions are answered, we will likely have insight in the probability whether the methodology based on positive industry practices could be a useful tool in the company screening in regards to the creation of socially responsible investment funds and on what scale it could be used.

The next chapter serves as the first step towards this goal. In the literature review we will create more insight towards the topics mentioned above.

4 Literature Review

The literature review will extensively analyse the subjects that are necessary to understand before the main research question can be answered. Firstly, the topic of corporate social responsibility will be discussed, after which the topic of sustainable investments is investigated to shed light on the commercial opportunities that arise. Finally a research model is given to present the reader a simplified view of the connections between the topics discussed and to discuss the way to go forward.

4.1 Corporate Social Responsibility

This paragraph starts with the analysis of sustainability within corporate organisations. This subject must be understood and clearly defined to create a reliable screening methodology. Then we will dive deeper in the subjects of stakeholder interaction, benchmarking, transparency and corporate disclosure. Furthermore, the topic of sustainable investments is investigated to shed light on the commercial opportunities that arise. As the assignment is design oriented, gathering knowledge of the demand side of these screenings is likely to increase the adoption rate of these efforts.

4.1.1 Defining CSR

Although the concept of CSR has been discussed since the 1950's, there is still no consensus on the definition. Scholars have opted reasons why the progress towards a clear definition has been hampered. This might be due conceptual vagueness, the normative character of current literature and the continuous introduction of new constructs (De Bakker, Groenewegen, & Den Hond, 2005). Carroll (1979) has developed an afterwards often quoted CSR definition that includes a time-factor, showing that the topic shall always be subject to change. According to the author, "*the social responsibility of business encompasses the economic, legal, ethical, and discretionary expectations that society has of organisations at a given point in time*" (Carroll, 1979, p. 500) In this regard, the company's stakeholders are the ones determining what actions a company is obliged to do, in order to be classified "good". This could mean that companies get a green mark when complying to the demands of society, even if it means that eventual bigger issues are not improved. The time-factor in the definition shows the dynamic nature of the concept (Matten & Moon, 2008). Companies should adapt to

changes in the society and these changes might be a reason for the introduction of new theories of CSR in current literature.

Within this research, it is important that the concept of CSR is not limited by a definition that does not comprise all aspects. For this reason, the concept needs to be defined in the broadest sense possible. (Dahlsrud, 2008) has analysed 40 CSR definitions that have been used over time, and found that more than half of this number were using the following five dimensions: the stakeholder dimension, the social dimension, the economic dimension, the voluntariness dimension and the environmental dimension. In the definition opted by Carroll (1979), the voluntariness dimension is left out, thus meaning that Carroll's definition is inadequate for this research. When identifying companies with the highest CSR performance, it is likely that companies are conducting sustainable strategies on a voluntary basis.

A broadly defined interpretation of CSR is that the concept comprises corporate "*actions that appear to further some social good, beyond the interests of the firm and that which is required by law*" (McWilliams & Siegel, 2001). According to this definition, voluntariness is included since corporations are putting more effort in their operations than is necessary for company survival. However, this definition is difficult to conceptualise, since it will be very hard to distinguish which corporate actions are within, and which ones are beyond the interests of the firm. A widely used definition that will be more suitable for practical use has been given by the Commission of the European Communities (2001). In contrast to the one by McWilliams and Siegel (2001), this definition leaves out the firm's own interest, meaning this definition can be interpreted as all the social and environmental actions that exceeds the law. The actual definition regards CSR as: "*A concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis.*" (European Commission, 2001). In this definition, all five dimensions are incorporated (Dahlsrud, 2008). The definition contains two aspects. The first aspect contains the voluntary actions to improve the environment and society, without losing sight of the economic performance. The second is the interaction of these actions with stakeholders. Stakeholder interaction is necessary to convince the society of good corporate behaviour. It seems an effective tool, since a large share of socially responsible customers trust corporate CSR communications (Coombs & Holladay, 2013). As being the only reason for CSR disclosure, stakeholders will constitute a large part of this research. Therefore, the next paragraph will dive deeper in the subject of stakeholder interaction.

4.1.2 Stakeholder Interaction

Companies and stakeholders are inseparable linked. Stakeholders interact with the company and thus make its operations possible (Näsi, 1995). The stakeholder theory, in the field of CSR, helps practitioners and scholars in identifying for whom corporations are responsible: those who are affected by a corporations' business, directly or indirectly (Öberseder, Schlegelmilch, & Murphy, 2013). In non-monopolistic markets, one could expect that stakeholders dictate at least a part of the behaviour of corporations, for an unsatisfied customer will likely choose for a different product or service. Customers and employees are considered to be the primary stakeholders, since companies cannot operate without them (Laczniak & Murphy, 2006). Other stakeholders in the field of CSR include the community, suppliers (Panapanaan, Linnanen, Karvonen, & Phan, 2003), shareholders and even the environment (Spiller, 2000).

Stakeholders play an essential part in the drafting of CSR strategies. If CSR is conducted properly, it has impact on consumers' attitudes, purchase intentions, consumer-company identification, loyalty and satisfaction (Öberseder et al., 2013). Since most of these aspects are positively related with marketing, we assume that companies who are more reliant on their brand will feel the urge to achieve higher CSR performances than their less reliant counterparts. Mitchell, Agle, and Wood (1997) argue that successful pro-active CSR strategies are generally considered best developed when consulted by salient stakeholders, although it may not always be clear who those stakeholders are.

Companies and stakeholders interact through multiple channels. Some of these are (social) media, the company's website, commercials, PR and CSR reports. Internet has certainly had impact on the interaction of both parties. There is an increase in transparency found because corporate actions can be made public with less effort, even if a corporation seeks to conceal such information (Goleman, 2009). This means that corporations should be more cautious to conduct unethical practices, since reputational damage is always on the lure.

Our CSR definition mentions stakeholder interaction besides their voluntary “good” practices. From a company survival perspective, one can argue the importance of doing good while nobody notices, since there will be few benefits for the company (Costa & Menichini, 2012). However, this does not seem to be the case. More and more scholars and practitioners are recognising the need to restructure marketing as an adequate response to environmental concerns. Kotler (2011) predicts that there will be a larger number of consumers who prefer purchasing from “caring” companies. This trend might extend to companies located earlier in

supply chains, who are not directly targeted by consumers (Kumar & Christodoulopoulou, 2013). If this is the case, a good corporate CSR score will be needed more-and-more for corporate survival and thus might lead to attract other stakeholders, as investors, who are often regarded as primarily interested in financial performance (Cheah, Jamali, Johnson, & Sung, 2011).

The next paragraph will dive deeper in the subject of CSR reporting, for this matter takes up a large part of the research to be conducted.

4.1.3 CSR Reporting

Over the last decades, an increasing number of companies are issuing costly CSR reports. An extensive survey, including 4,100 companies, conducted by the accounting firm KPMG (2013)[5] shows that this number is still growing. For each continent, the adoption rate of CSR reports is higher than 70%. It seems that companies that are reporting on their social and environmental impact are becoming the norm. This paragraph looks into the subject of CSR reporting, by discussing the patterns and motivations a company can have.

There are different patterns in which companies report on their CSR practices. Kolk (2010) has found five different patterns, which are consistent reporters, late adopters, laggards, inconsistent reporters and consistent non-reporters. The study, which used a panel of the Fortune Global 250 list in account, looked up whether those companies disclosed CSR information at three periods of time; 1999, 2002 and 2005. (Kolk, 2010) has found out that 32 percent of companies are consistent reporters. A respective 16 and 19 percent of companies started either in 2002 or 2005 with disclosing CSR reports, while 24 percent of companies did not supplied any CSR report during the timespan. We can conclude that although there is a high rise in the number of companies that disclose CSR reports, the consistency of doing so is by far not equal to financial reports. The table below shows the reasons why companies do or do not supply the public with CSR reports of their operations.

[5] http://www.kpmg.com/AU/en/IssuesAndInsights/ArticlesPublications/Documents/corporate-responsibility-reporting-survey-2013.pdf

Reasons for reporting
Enhanced ability to track progress against specific targets
Facilitating the implementation of the environmental strategy
Greater awareness of broad environmental issues throughout the organisation
Ability to clearly convey the corporate message internally and externally
Improved all-round credibility from greater transparency
Ability to communicate efforts and standards
License to operate and campaign
Reputational benefits, cost savings identification, increased efficiency, enhanced business development opportunities and enhanced staff morale
Reasons for not reporting
Doubts about the advantages it would bring to the organisation
Competitors are neither publishing reports
Customers (and the general public) are not interested in it, it will not increase sales
There are many other ways of communicating about environmental issues
It is too expensive
It is difficult to gather consistent data from all operations and to select correct indicators
It could damage the reputation of the company, have legal implications or wake up 'sleeping dogs' (such as environmental organisations)

Table 1: Companies' motivations for reporting or non-reporting (Kolk, 2010)

Our CSR definition focuses for a large part on voluntariness. In high institutionalised countries, such as Denmark, Sweden and France, CSR is not solely voluntary, as companies in these countries require some form of CSR reporting (Coombs & Holladay, 2013). When CSR reports are voluntarily supplied, the motivations behind these standalone reports are not always clear to the public. Mahoney et al. (2012) propose two different explanations: signalling and greenwashing. By signalling, the companies are convincing stakeholders of their good practices. Greenwashing on the other hand proposes that companies use these reports to pose as good citizens to their stakeholders and reap the benefits of being good citizens, even while they do not have stronger social and environmental records than others. To prevent greenwashing, there need to be an external third party in place for monitoring corporate behaviour. In their research, Mahoney et al. (2012) found that firms that voluntarily issue standalone CSR reports are likely to have higher CSR performance scores. Their research however could be biased by the validation process. As the results have been compared with an external rank-ordered list of sustainable companies, that list could have been influenced by the same information as in the research. In this research, we therefore do not assume that more disclosure automatically means that the company has a higher CSR performance.

The next paragraph will discuss the transparency aspects regarding CSR reports.

4.1.4 Transparency

There is a clear link between corporate disclosure and transparency. According to Healy and Palepu (2001), corporate disclosure is the main tool through which companies can become transparent. Transparency is subsequently critical for the functioning of an efficient capital market. Taking this in mind, when investing "green", it should not come as a surprise that transparency is essential in doing this effectively.

Nowadays, transparency is an omnipresent term in corporate communications. The term can be simply defined as the opposite of secrecy (Coombs & Holladay, 2013). Since the rise of the Internet, transparency of corporations seems to have increased. Activists can expose corporate actions to stakeholders, even when those corporations seek to conceal them. Through this a thorough distinction between a good or bad corporation can be made by conducting an internet search. However, Coombs and Holladay (2013) question the openness of corporate disclosure. The authors argue that, because of the existing believe that wrong information on the Internet eventually will be exposed, the general public is easier to convince of the trueness of corporate communications.

A survey amongst more than 28.000 online respondents, conducted by (Nielsen, 2012), shows that corporate disclosure is indeed seen as a trusted source. In this survey, the global marketing research firm has made a distinction between socially-conscious consumers and the global online average. Socially responsible consumers are very accepting of CSR messages. 65% of consumers that are identified as socially responsible trust CSR information on corporate websites, and 54% of this target group trust CSR advertisements. The group that does not identify themselves as social conscious show a lower trust in these messages; a respective 45% and 31%. The fact that socially responsible consumers are less sceptic of those messages than the global average supports the argument of Coombs and Holladay (2013), who argue that CSR has taken on a quasi-religious status in the corporate world. Thus it seems that the message of being sustainable in that sense tends to be more important than the actual environmental, social and economic impact that it makes.

(Coombs & Holladay, 2013) presented three communication myths to show that transparency is more than just disclosing information. The first myth is that sending information is the same as communicating. Information is not always meaningful and understood by its receivers when disclosed. The second myth is that more information is always better. Receivers can get an information overload. Information overload can be used as a corporate strategy, as stakeholders do not always want to read through massive amounts of information, thus are not

able to objectively assess the information. The third myth is that all information is objective. Corporations have a lot to gain from having a positive corporate attitude, as it can have impact on consumers' attitudes, purchase intentions, consumer-company identification, loyalty and satisfaction (Öberseder et al., 2013).

Stakeholders should be careful in interpreting the information they receive, as the underlying thought of companies is not always clear. Stakeholders do have the possibility to successfully assess a companies' transparency, this requires the ability to evaluate the disclosed information on completeness and legitimacy. If the available information does not meet the requirements, the stakeholders must be willing to press the corporation for additional disclosure. Stakeholders should be persistent in forcing a company to be transparent. Once the requirements are met, true transparency is achieved (Coombs & Holladay, 2013).

When a good overview of CSR activities of multiple corporations is generated, they can be compared. Through benchmarking, companies can be given a mark for their actions and achievements and a score can be constructed (Graafland & Eijffinger, 2004). The following paragraph will further elaborate on this subject.

4.1.5 Benchmarking

Investors with green goals will face the need of comparing and assessing the sustainability funds based on non-financial criteria. Unfortunately, unlike contemporary well defined and standardised financial performance indicators there appears to be little convergence on social and environmental indicators (Delmas, Etzion, & Nairn-Birch, 2013). Often SRI issuers lack the resources for extensive company screenings and are dependent on publicly available information (Delmas & Blass, 2010). There is always a risk that the choice of indicators is based on the data available (Chatterji & Levine, 2005). Taking the limited data in account, it is highly unlikely that all companies will provide similar company information useful for benchmarking.

For solving the benchmarking problem, stakeholders are increasingly searching for standardised metrics that identify the social performance of businesses. Certifications and reporting guidelines are widely used methods to make benchmarking possible. CSR benchmarking is sometimes criticised because it tends to disregard the context of the company (Graafland & Eijffinger, 2004). Therefore, when companies are grouped on similarities, e.g. geography and being active in similar industries, there should be an increased chance that the results are valid.

Certifications can be used as a tool by stakeholders to rate corporations on their social performance. Certifications are a proof of compliance to specific pre-determined characteristics. This proof is often, but not always, provided by an external party, by the means of e.g. an assessment, an external review or an audit. When organisations adopt a social or environmental certification, it is able to respond to expectations of stakeholders – of which most relevant investors, customers and pressure groups. Certifications may become a regulatory system as they provide the market with certain indicators on the social performance of the included companies (El Abboubi & Cornet, 2012). Stakeholders should however be cautious with interpreting certifications, especially when lacking the knowledge to differentiate between these standards. This increases the risk of making these metrics unreliable, invalid and non-comparable (Chatterji & Levine, 2005).

A lot of companies nowadays have incorporated sustainability reporting practices to improve the awareness of their social performance. Corporations have considerable freedom to engage in selective CSR reporting, as not everywhere are mandatory reporting requirements in place. It is argued that CSR reporting lacks transparency because not all aspects of CSR are visible to stakeholders (Coombs & Holladay, 2013). To overcome these issues, there are NGOs who have drawn up guidelines for CSR reporting. The most common used CSR guidelines are provided by the Global Reporting Initiative (GRI). The main goal of this non-profit organisation is to develop a coherent framework for non-financial reporting. To achieve this, their metrics are updated through an on-going basis, which is a process that includes the participation of several stakeholders, namely business, organised civil society, labour, consultancies, academics and representatives of governmental as well as intergovernmental organisations (Dingwerth & Eichinger, 2010). Currently, the GRI is commonly seen as the world's leading voluntary schemes for corporate non-financial reporting, of which currently more than 6000 corporations are making use of.[6] A corporation can choose to prepare its sustainability report in accordance with the guidelines on two different levels. These two options are called the Core option and the Comprehensive option which are explained in the table below. The level of reporting chosen can be self-declared, verified by an external third party or checked by the GRI itself (Sherman, 2011).

[6] http://database.globalreporting.org/

"In Accordance" options overview	**Requirements**
Comprehensive	A corporation reports on all the all the *58* core indicators of the G4 framework and on the relevant Sector Supplement, as well it includes a statement on its management approach to each relevant material Aspect (areas of significant economic, environmental or social impact), and *all* indicators of the material Aspects.
Core	A corporation reports on a minimum of *34* core indicators of the G4 framework and on the relevant Sector Supplement, as well it includes a statement on its management approach to each relevant material Aspect (areas of significant economic, environmental and social impact), and *one* indicators of the material Aspects.

Table 2: Application levels of the GRI Guidelines

The difference between these two options is that the Core option contains the essential elements of a sustainability report. Through this an organisation provides the background against which it communicates the impacts of its economic, environmental and social performance. The Comprehensive option requires to disclose more information regarding the organisation's strategy and analysis, governance and ethics and integrity. Both options require a similar amount of disclosure on the topics organisational profile, identified material aspects and boundaries (areas of significant economic, environmental and social aspects) and stakeholder engagement. However instead of just one for the Core option, the Comprehensive approach requires a statement on all the material aspects of the organisation.

Although the GRI framework is widely seen as one of the most leading schemes regarding CSR reporting, it is also contested by some critics. An example is shown by Sherman et al. (2011), who tested the conformity in CSR reports that applied the GRI guidelines. The authors tried to test benchmarking capabilities through a content analysis between CSR reports of Nike and Adidas. The results however showed that the GRI guidelines did not achieve the intended results, thus the reports were not sufficiently comparable. The authors argue that although the guidelines were in place, the reports lacked consistent, comparable, hard data.

During the data-mining later in this research, we will find out how many organisations in the industries we are analysing are complying with the GRI Guidelines. In case many organisations provide the public with sustainability reports, these can be used in benchmarking and the accompanied rating and scoring methods.

Now that we are familiar with the concept of Corporate Social Responsibility and its underlying factors regarding the reporting of a company's social and environmental aspects, we can focus on the investment aspect of the subject. The next chapter will discuss Socially

Responsible Investing, a concept in which investors are interested in funding companies that are scoring high on their CSR practices.

4.2 Socially Responsible Investing

This paragraph discusses the more practical side of this research, the screening and investment part. As we are trying to create insight into the rating of organisations on their sustainability level for creating green bonds for investors, it is valuable to get insight in the investment part and especially how the bonds are created. The paragraph consists of three parts. First, it gives a brief introduction in the topic of Socially Responsible Investing (SRI). After this we will go look at the principles of sustainability screening methods. We can learn from current SRI screening practices, as there have been different methodologies used for the creation of current green bonds. Finally the paragraph discusses the available SRI strategies and will take a deeper look in their methodologies.

4.2.1 Introduction to Socially Responsible Investing

Following the growing attention for CSR, institutional and private investors increasingly feel the urge to trace their investments, preventing to cause negative social and environmental impact. A growing number of socially responsible investing (SRI) options that focus on creating a positive impact have risen over the last decade (Eurosif, 2013). Where financial considerations used to be the only criteria for investors, nowadays even a lower return on investment is acceptable when investing 'green'.

The growing attention towards sustainable investments can be seen in the over 60 percent growth of the total European SRI market between 2009 and 2011, to over €11 trillion (Eurosif, 2013). Sustainability themed investments encompass several investment types, but all possess commonalities. SRI integrates social, environmental and ethical consideration into the investment selection. Within this process, a set of investment screens is applied to select or exclude assets based on environmental, social or ethical criteria. Often, investors engage in shareholder activism to get influence in the company's CSR strategy (Renneboog et al., 2008).

Initially, SRI strategies were based on negative screenings (Renneboog et al., 2008). Negative screenings, or 'exclusionary screenings', relates to the exclusion of companies that underperform on pre-determined indicators or are active within industries that are perceived to have a large impact on the environment (Delmas & Blass, 2010). Negative SRI screenings exclude companies that are active in e.g. the tobacco-, alcohol- or defence industry. Another example is an ideological or religious selection process, by excluding investments e.g. in firms

producing pork products, in financial institutions paying interest on savings and in insurance companies insuring non-married people (Renneboog et al., 2008).

Nowadays, SRI portfolios are also based on positive screens which seek to find investment opportunities in the best performing companies on some indicators (Delmas & Blass, 2010). The most common indicators focus on corporate governance, labour relations, the environment, sustainability of investments and the stimulation of cultural diversity. Positive screenings are highly related to a 'best in class' approach. This approach incorporates several CSR criteria per industry or market sector. Only the firms that pass a minimum threshold or belong to an upper percentage will be selected (Renneboog et al., 2008). The chapter will further analyse the available screening strategies and will discuss the most suitable for the analysis of the companies on their sustainability level.

4.2.2 SRI Screening Principles

This paragraph takes in account the principles of building up CSR bonds. As the information on this topic is abundant, creating a simplified overview of reality seems necessary for analysing a set of organisations.

Being overloaded with a myriad of information, sustainable investors could use company CSR indicators as a useful tool for creating a summarised overview. As sustainability is regarded as a dynamic phenomenon, the methodology behind these indicators should be taken in consideration. Most methodologies require reduction of available company information into various one-dimensional indicators, each incorporating a CSR related aspect. These indicators then will be constructed into company specific composite CSR indices (Van den Bossche, Rogge, Devooght, & Van Puyenbroeck, 2010). To create a company ranking or a best-in-class subset, the CSR indices can be benchmarked within a particular industry. As Van den Bossche et al. (2010) clearly demonstrate with an example, company assessments with fixed indicators could however produce different outcomes when different methods are used for constructing a composite index. Therefore there will always be speculation regarding the effectiveness of such a methodology. Moreover, as CSR being a continuous process, rating methods should be subject to a continuous evolution process with respect to sustainability goals (Koellner, Weber, Fenchel, & Scholz, 2005).

The set-up of SRI bonds is generally managed through a two-stage nature. CSR specialists, either in-house research teams or independent rating agencies, first screen a list of companies on multiple CSR variables. Asset managers subsequently select companies

(partially) based on their developed CSR rating and create SRI bonds (Van den Bossche et al., 2010). Due to the complexity of the CSR concept, one methodological challenge is to rate the company's actual environmental and social impact. It is argued that clearly defined criteria that are applied in sustainability screenings could increase impact measurement (Steurer, Margula, & Martinuzzi, 2008).

Koellner et al. (2005) argue that relevant stakeholders and actors should be included in the process of setting up methods for the sustainability rating. In case the role of CSR is translated into creating positive contribution to society, then society itself should determine what that contribution is. Stakeholder orientation therefore is an aspect that could turn out to be useful in the development of green bonds, as it offers guidelines to CSR behaviour (Costa & Menichini, 2012). Schäfer (2005) adds that the issuer of the SRI bond should act as communicating intermediary between the screened company and its stakeholder.

In case an institutional entity is involved with SRI, especially when involved with positive company screenings, it should possess the resources to determine sustainable behaviour. In order for sustainable investments to pass the status of buzzword, accountability is a crucial factor within the investment-banking industry (Koellner et al., 2005). The entity should be able to identify and communicate best practices with the screened companies. It should also be engaged in the influence towards companies participating in the capital markets in favour of increasing their CSR (Schäfer, 2005). Koellner et al. (2005) add that per company listed in the SRI bonds a detailed description of the characteristics should be given. Transparency in this regard is highly important and the institutional entity should be compliant to their actions.

4.2.3 SRI Screening Strategies

There are several SRI screening strategies available. All these strategies have different methodologies of how they are built up. As mentioned in paragraph 4.2.1 we can distinguish SRI bonds in two broad categories: positive and negative. Governmental entity the European Sustainable Investment Forum (Eurosif) has identified a total of seven categories, of which three have a negative and four a positive screening in place. To get a full overview, those seven strategies are elaborated in the table below:

Sustainability Themed Investment	
Definition	Investment in themes or assets linked to the development of sustainability. Thematic funds focus on specific or multiple issues related to CSR.
Comment	Sustainability themed investments inherently contribute to addressing social and/or environmental challenges such as climate change, eco-efficiency and health. Since 2008, funds are required to have a CSR analysis or screen of investments in order to be counted in this approach.
Best-in-Class Investment Selection	
Definition	Approach where leading or best-performing investments within a universe, category, or class are selected or weighted based on CSR criteria.
Comment	This approach involves the selection or weighting of the best performing or most improved companies or assets as identified by CSR analysis, within a defined investment universe. This approach includes Best-in-Class, best-in-universe, and best-effort.
Norms-based Screening	
Definition	Screening of investments according to their compliance with international standards and norms.
Comment	This approach involves the screening of investments based on international norms or combinations of norms covering CSR factors. International norms on CSR are those defined by international bodies such as the United Nations (UN).
Exclusion of Holdings from Investment Universe	
Definition	An approach that excludes specific investments or classes of investment from the investible universe such as companies, indutries, or countries.
Comment	This approach systematically excludes companies, industries, or countries from the permissible investment universe if involved in certain activities based on specific criteria. Common criteria include weapons, pornography, tobacco and animal testing. Exclusions can be applied at individual fund or mandate level, but increasingly also at asset manager or asset owner level, across the entire product range of assets. This approach is also referred to as ethical- or values based exclusions, as exclusion criteria are typically based on the choices made by asset managers or asset owners.
Integration of CSR Factors in Financial Analysis	
Definition	The explicit inclusion by asset managers of CSR risks and opportunities into traditional financial analysis and investment decisions based on a systematic process and appropriate research sources.
Comment	This type covers explicit consideration of CSR factors alongside financial factors in the mainstream analysis of investments. The integration process focuses on the potential impact of ESG issues on company financials (positive and negative), which in turn may affect the investment decision.
Engagement and Voting on Sustainability Matters	
Definition	Engagement activities and active ownership through voting of shares and engagement with companies on CSR matters. This is a long-term process, seeking to influence behaviour or increase disclosure.
Comment	Engagement and voting on corporate governance only is necessary, but not sufficient to be counted in this strategy.
Impact Investment	
Definition	Impact investments are investments made into companies, organisations and funds with the intention to generate social and environmental impact alongside a financial return. Impact investments can be made in both emerging and developed markets, and target a range of returns from below market-to-market rate, depending upon the circumstances.
Comment	Investments are often project-specific, and distinct from philanthropy, as the investor retains ownership of the asset and expects a positive financial return. Impact investment includes microfinance, community investing, social business/entrepreneurship funds and French fonds solidaires.

Table 3: Overview of SRI screening strategies (Eurosif, 2013)

As mentioned in the problem definition, we are looking into to classifying the best performing companies per industry on a sustainability level. This means we have to actively select the companies that are performing the best, thus having to look at least partially towards a positive screening method. This leaves out certain investment strategies, notably "*norm-based screenings*" and "*exclusion of holdings from investment universe*" strategies, which are negative by nature and focus on excluding companies from the portfolio instead of actively seeking for the best performing on a sustainability level.

Furthermore, we are looking for an integral methodology that can be used in multiple industries, and looks at the whole operations of a company, which causes "*sustainability themed investments*" and "*impact investments*" to drop, as these strategies are looking at company industries that are sustainable by nature or solely selective parts of organisational processes.

With three strategies left and taking the problem definition in our minds, the "*best-in-class investment selection*" seems the most qualified for our project. This approach looks at selecting the best performing organisations within a selected group, which means that it could also be applied to industries, to overcome a possible bias in the measurement (Kempf & Osthoff, 2007). The organisations then have to be selected or weighed based on selected sustainability criteria. We are looking into creating a feasible methodology to classify organisation on their 'green' behaviour, delimited to desk-research and therefore "*engagement and voting on sustainability matters*" is not the strategy that we are looking for. "*Integration of ESG factors in financial analysis*" is also outside of the framework of this project, although it could be highly interesting to take in account the financial benefits adoption of a better sustainability principles could deliver.

A trade-off arises when solely using the best-in-class measurement on positive screening methods. When having selected positive CSR-indices for the screening, organisations will not be penalised on poor performance and the outcome might not be aligned with the view of stakeholders (Delmas & Blass, 2010). CSR specialists who are creating the screening methodology should determine the influence negative aspects should have on the score. In the case of Rabobank, exclusionary strategies are in place, i.e. in regards to the arms trade[7]. There will be no reason to incorporate exclusionary strategies within the best-in-class investment selection as companies that fall outside the scope of the investment portfolio do not need to be assessed on their positive sustainability strategy.

[7] https://www.rabobank.nl/images/beleid_wapenindustrie_rabobank_groep_29533301.pdf

Next we will summarise the findings of the literature review and put these findings in the research model in the next paragraph.

4.3 Research Model

The purpose of the research model is to create a simplified model of reality. In this paragraph we look back at the results of the literature review, note the implications for the institution this report is written for and draw the lines for the subsequent, methodology chapter.

When initiating the set-up of SRI bonds, having a clear vision on the subject of CSR is necessary, as are the goals of these sustainable bonds on the institution and its stakeholders: the actual investors, the community, the suppliers, the shareholders and even the environment. Although it is not always clear who the stakeholders are, Mitchell, Agle, and Wood (1997) argue that CSR strategies are generally best developed when consulting salient stakeholders. In the case of SRI strategies, investors will be the clients and thus will determine the rise or fall of these investment opportunities. Transparency towards stakeholders in this regard is highly important and the institutional entity should be compliant towards the SRI bonds.

Once the SRI strategies are set, the methodology for the creation of these bonds can be initiated. In this project, the bonds will not be developed, a classification system on basis of the best-in-class investment selection method will be tested. The development of such a classification system will, on basis of the outcomes of the literature review, follow a standard procedure. Overall, it should be noted that stakeholders should be included in each part of the decision process. As there is no clear roadmap to doing 'good', being transparent in the SRI creation procedure will prevent potential bias in what stakeholders want and what Rabobank offers.

In the beginning, it should be clear what the CSR definition and goals of the financial institution are. As the literature review showed, CSR should be incorporated integral in the organisation. Second, the SRI strategy can be determined. From paragraph 4.2.3 we know that for this project, we follow the best-in-class investment procedure. This procedure follows the selection of the best performers out of a pool of companies (in our regard industries) and selects these as being sustainable, conforming the problem definition. The third part will be the trickiest, which is the composition of the methodology that will actually find which companies are the most sustainable. The composition of the methodology is sliced in three parts. CSR indicators should be selected or developed. As the best-in-class investment methodology will be applied on the selected industries, these indicators should be selected per industry, hence it

gives the opportunity to benchmark the grouped organisations. Once these indicators are set, a list of organisations can be screened on these indicators and analysis can be conducted. Finally the indicators should be translated into CSR ratings and the screened organisations can be benchmarked into a ranking. This process will be elaborated specifically on the selected industries in the methodology chapter and is graphically shown in the figure below:

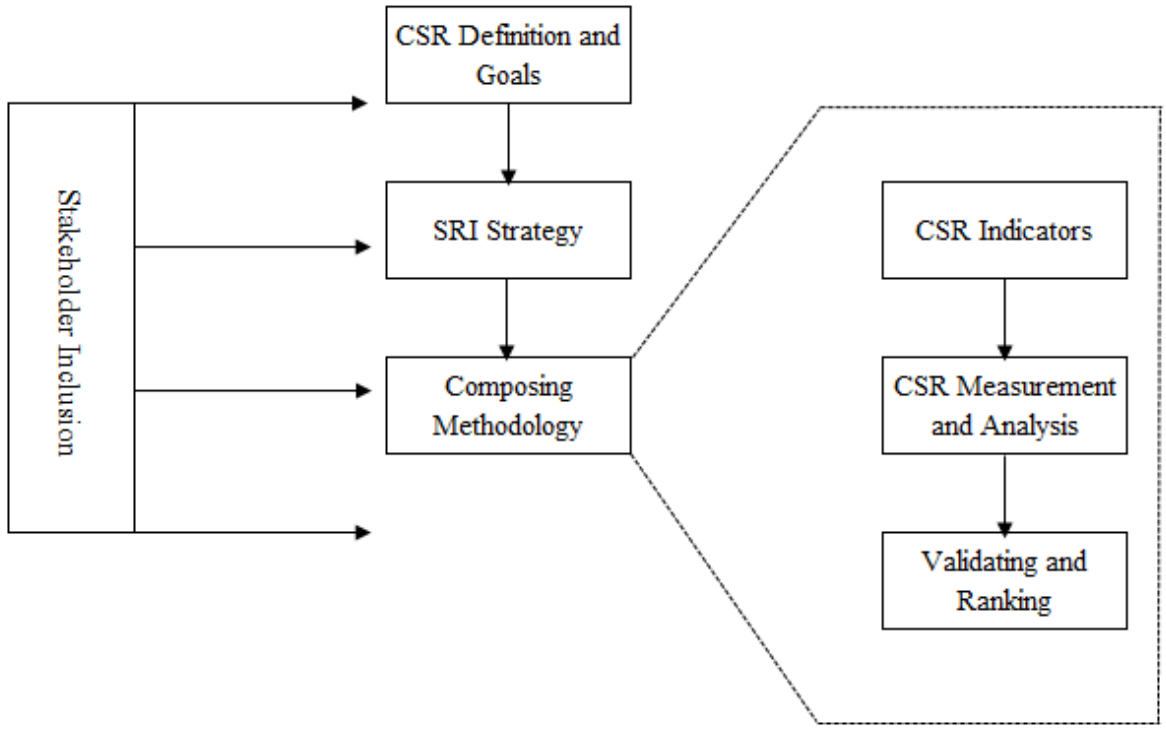

Figure 1: Research model

The next chapter will follow this structure and will try to create the preferred outcomes, which is a screening methodology for the yet to be selected industries.

5 Methodology

In the methodology chapter we will try to compose a practical tool to classify companies on their sustainability level. To reach this goal, the previous mentioned research model is integral in the creation of the tool. The chapter begins with the research design and theoretical approach on how to create the tool. Subsequently the tool is conducted into practice by analysing two pilot industries, after which we will analyse our findings and build towards a useful tool in practice.

5.1 Composing the methodology

The first paragraph will determine the research design of the study, after which the pilot industries will be determined. The final paragraph will create a theoretical approach on building the classifying screening method on basis of the research model, adapted from the literature review.

5.1.1 Research Design

In this paragraph the research design will be discussed. A step-by-step procedure will determine the best suitable research design for this study. This study is conducted in order to solve – or at least create insight in – a risen problem and therefore can be qualified as a design-oriented study. To freshen up, below the main research question has been given again:

In what way is it possible to create a tool that makes it possible to conduct a simple company screening, which leads to an adequate identification of the sustainable frontrunners within particular industries?

In the literature review, we have analysed the topics mentioned in the main research question. The conclusion based on the literature, as shown in the research model, is that in order to start designing a profound methodology on which the expected tool is based, the CSR definition and goals, as well as the SRI strategy should be clearly determined beforehand. The research design should subsequently focus on generating CSR indicators, evaluate the companies on these indicators and turn the results in a ranking/score. Once the tool is implemented in practice, it is highly likely that there will be enquiries from external parties,

which is why stakeholders' opinions should be taken in account in every step of the making of such a tool.

As the main research mentions, we are looking to design a tool that is simple is its usage. A limitation however is the limited amount of time, money and knowledge on the matter. Looking at the theory of pure design approach, the solution for such a business problem is designed in one go and subsequently realised in one go (Van Aken, Berends, & Van der Bij, 2012). We doubt that with this research, we stumble upon the perfect classification in one go. Although we hope to find the best results in a single try, realistically seen we expect to need a certain amount of time for evaluation before we come up with a valid and reliable methodology. This will incorporate a developmental approach, in which the solution is designed and realised in a step-by-step learning approach, where each following step is being designed and realised on the basis of what has been learnt in the previous one (Van Aken et al., 2012). The methodology will therefore be a mixture of 'learning-before-doing' (pure design) as 'learning-by-doing' (pure developmental).

Looking at the purpose of research, there are three common purposes: exploration, description and explanation. Explorative research is often conducted when a researcher tries to familiarise himself with a topic, and a purpose could be – but is not limited to – to get a better understanding of particular phenomena. A major purpose of descriptive research is to describe situations and events on basis of observations. Unlike the explorative and descriptive studies, explanatory research tries to answer why a particular occurrence happens (Babbie, 2010). The purpose of this research, coming up with a methodology that can distinguish sustainable companies from a sample, is design-oriented. In order to get create such a methodology however, we have to explore whether the public information available for companies leads to a valid measurement of their sustainability level. Hence, this study will be classified as explorative.

Causality will take an important place in the research process. Before the classification methodology can be composed, the relationships of several causes and their potential effects need to be analysed. We are i.e. interested in the effect of having a sustainability report in place, and what the effect of conducting business-to-consumer marketing has on the sustainability level. Such relationships must be mapped in order to perform a valid and reliable sustainability rating. This will be a challenge, as we perceive CSR as a blurry topic, with many variables that could influence the actual performance. With this given, we will test potential relationships of these variables at a later stage, in order to determine the causality. There are three main criteria for causal relationships: (i) the variables must be correlated, (ii) the cause takes place before

the effect and (iii) the variables are nonspurious (Babbie, 2010). If there is no effect found between two variables, it is unlikely that these are related. It seems a logical assumption that information is reported after the event occurred, i.e. the sustainability report is based on facts and not on planned facts. The time order could however be influenced by exogeneity, the dependent variable (i.e. having a GRI report in place) could potentially influence the independent variable (managers are getting compliant to the non-official rules set up in the GRI report) (Gerring, 2011). With the probable number of variables that could influence a company's CSR score, spuriousness could be on the doorstep. Spuriousness, a coincidental statistical correlation between two variables, caused by a third variable (Babbie, 2010), will give us erroneous information on the causality, thus create flaws in the methodology that we need to compose.

In a study it is important that exactly is known what or whom is being studied, a concept that is known as the unit of analysis (Babbie, 2010). In this study, certain companies of particular business industries will be assessed on their sustainability level, hence for a specific industry the population comprises of all the companies in that industry. The individual unit of analysis in this sense is a single company, based on the public data that is available. In regards of the unit of analysis, we have to be careful with the reductionism aspect: a strict limitation of the kinds of concepts to be considered relevant to the phenomenon under study (Babbie, 2010). Solely analysing the public data of a company is not a guarantee that all the company's operations and sustainability risks are incorporated. More on the unit of analysis will be discussed in the following paragraph in which the pilot industries will be determined.

Looking back at the problem definition, the desired outcome is an easy to use tool – a checklist – that can be used to gather selected data which will lead to creating valid information on CSR activities of companies. Since we are testing the effectiveness of such a tool, the research strategy should therefore align with the outcome; the input of quantitative data that is then open for analysis. This checklist idea has large similarities with a questionnaire type of research strategy, as cross-sectional and longitudinal studies. A cross-sectional study involves observations of a sample of a population or phenomenon that are made at one point in time, where a longitudinal study design involves the collection of data at different points in time (Babbie, 2010). Due time reasons, we will not be able to conduct a longitudinal study and therefore, according to this procedure, the most adequate research design is a cross sectional study. This approach, which is commonly used in surveys, lends itself for an individual to select large amounts of information to be statistically analysed.

5.1.2 Pilot industries and units of analysis

In this paragraph the choice is made on which companies will be analysed on their sustainability level; the determination of the unit of analysis. In order to get here, we have to get back to define what we are searching for exactly. Looking at the problem definition, Rabobank is aiming to know the so-called frontrunners on a green level in certain industries in which they operate. In order to make this feasible, we want to create a tool or methodology that identifies these companies and would like to know whether the methodology can be used on a broader scale, thus being generalisable. This given, the unit of analysis should be companies of multiple business industries in which Rabobank operates, and ideally having a share of this market to increase the projects' relevance.

Rabobank has its main focus on the food and agricultural industries. The company has given four of such industries which are suitable for the research project, notably wild catch (fishing), forestry, palm-oil and sugarcane. For this project, it was not necessary to conduct research on all four of these industries. As mentioned in the literature review (§4.1.4), benchmarking will be more effective when there is an overlap between the corporations that need to be compared. The data analysis will focus largely on finding causal relationships between the communicated and actual CSR level of a company. As CSR is a broad subject with a large number of variables we take into account the notion of non-spuriousness, by excluding potential interfering third variables, which could create flaws in the screening methodology that we are hoping to find (Babbie, 2010). For this reason, we have looked into grouping corporations in Rabobank's portfolio that have similarities. As social and environmental conditions are assumable worse in areas of the world where people depend largely on agriculture, it is likely that the impact of the sustainability improvements in these areas will be larger. It is therefore that we have chosen to classify the companies that are located upstream in the supply chain, i.e. companies that work with raw agricultural outputs. Furthermore we assume that geographical clustered companies will have more similarities and are therefore easier to compare. By taking this approach, there are some limitations taken in consideration. However, as a first draft of the classification methodology, we are taking a risk-aversive approach to deal with the spuriousness of variables. More on the validating will be discussed after the data analysis of each industry and in §5.3.2.

For creating relevance for Rabobank, we have chosen to analyse their investment portfolio to determine which of the four business industries – wild catch, forestry, palm oil and

sugarcane – are well represented and geographically clustered. The companies have been selected through the following procedure:

i) Take all companies from the internal sustainability database "GAIA"
ii) Compare the list with another internal company database (CIRIS) and connect subsidiaries with their parent company
iii) From that same database, look up the NAICS industry codes for the companies concerned
iv) Remove all non-upstream records from the four selected industries
v) Run a duplicate check

The result of this selection procedure is shown in the following table, sorted by the average companies per country. Due confidentiality reasons these companies have not been given:

Business industry	# of Companies in Portfolio Rabobank	Located in # of Countries	Average # of Companies per Country
Sugarcane	21	1	21
Palm Oil	12	2	6
Forestry	9	3	3
Wild Catch	17	8	2.1

Table 4: Industry distribution Rabobank portfolio

As the table shows, the sugarcane industry is well represented and very geographically clustered; all companies that are in the portfolio are located in Brazil, where Rabobank has a large presence. The second choice was more complicated, as the wild catch industry was very well represented, although not clustered. The palm oil industry, mainly located in South-East Asia, on the other hand is better geographically clustered. An industry analysis has determined that wild catch is less suitable for the first screening, due the large variety of (shell) fish and related techniques that differ (WWF, 2012). Taking this industry would implicate that more variables are taken in account, increasing complexity and thus increasing the risk of biased research findings.

Thus the two pilot industry that are going to be analysed on the sustainability level of companies are the sugarcane industry in Brazil and the palm oil industry in South-East Asia (Malaysia and Indonesia). Looking at the simplified supply chains of both industries, there are some similarities, assuming that the generalisability the screening of both industries will likely be more similar. This could potentially create biased results in the generalisability of the

screening tool if used for industry that show more differences. The image below shows the simplified supply chains of both industries:

Simplified overview of the palm oil supply chain:

Simplified overview of the sugarcane supply chain:

Figure 2: Simplified representation of the pilot industries' supply chains (Source: Rabobank[89])

5.1.3 Company Classification Method

This paragraph focuses on the methodology behind creating SRI bonds. The structure of explanation is similar to the research model that has been given at the end of the previous chapter.

5.1.3.1 CSR Definition and Goals

Before sustainable bonds should be generated, the financial institution should have a perspective on what they perceive as CSR and what they like to achieve with the products.

For this research, the widely used definition by the Commission of European Communities (2001) has been used, which states CSR as: *A concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis.* These aspects then should be visible in the SRI bonds.

The goals of the Rabobank are made clear in the problem definition. The bank is interested to either classify or rank-score their current portfolio of companies on basis of having good CSR practices in place. The best performing corporations should be put in so-called green bonds that can be offered to investors with CSR goals. In order to achieve this, a feasible method

[8] https://www.rabobank.com/nl/images/Sugarcane.pdf
[9] https://www.rabobank.com/nl/images/Palm%20Oil.pdf

for identifying the corporations that perform well on environmental and social factors should be created. The method will be described in the next paragraph.

5.1.3.2 Choice of SRI Strategy

After CSR is defined we can continue with defining the Social Responsible Investment Strategy. There are several SRI strategies available, based on positive and negative factors, which take into account whole organisations and also solely individual projects (Eurosif, 2013). These are mentioned in paragraph 4.2.3, in which was determined that a best-in-class investment selection was the most appropriate for the goals that Rabobank has in mind. The best-in-class investment approach looks at selecting the best performing organisations within a selected group, to overcome a possible bias in the measurement (Kempf & Osthoff, 2007).

A notion to this approach applies in the case of Rabobank. Currently another SRI strategy is in place, the exclusion of holdings from the investment universe, meaning that the financial institution excludes certain companies that are active in unwanted activities, as arms-trade. Literature shows that these two strategies should not be combined, because having selected positive CSR-indices for the screening, organisations will not be penalised on poor performance and the outcome might not be aligned with the view of stakeholders (Delmas & Blass, 2010). Companies that are excluded should therefore not be incorporated in the best-in-class investment strategy.

5.3.3.3 CSR Indicators

This paragraph will look into how CSR can be explained, by making the indicators operational for measurement. This will be done in two steps. First, as a recapitulation on the literature review, we will write down the expected relationship of certain variables and the CSR performance of a company, which should be open for testing. Next step is the identification of specific business industry indicators.

Conforming the definition of CSR, the term encompasses all social and environmental concerns that a company encounters in its business processes. These two aspects can be defined in several variables. To deal with the potential spuriousness of these variables, we are trying to select individual variables that should be tested on a potential causal relationship with the sustainability level of a company. The literature review has found several of these assumed relationships which will be described below.

Customers' attitudes are positively influenced by companies that have shown to be sustainable. We assume that companies who are reliant on their brand will feel the urge to achieve a higher CSR performance than similar companies who are less dependent on their brand. We will measure this through mentioning whether the analysed company conducts marketing activities towards consumers.

The rise of the internet had influence on the transparency and the communication between stakeholders and companies. Companies disclose information about their business practices that could be visible by everyone connect to the internet. Furthermore, unethical practices can be made public with less effort. We assume that companies who are open for communication with stakeholders are more transparent and have a higher sustainability level than their non-communicating counterparts. We will measure this in two variables: (i) the amount (total words) of information on CSR that is disclosed by a company and (ii) whether a company is actively communicating on social media. The social media websites overlooked will be Facebook, Twitter and LinkedIn, all three are well represented in the countries that will be analysed (Winkels, 2013). More information is often supplied in CSR reports, voluntarily supplied reports on a company's own CSR practices. This is another variable that we will take in account during the data collection process, with the assumption that having such a report in place will lead to a higher CSR score.

Benchmarking between different companies is often difficult, which is the reason that stakeholders are increasingly searching for standardised metrics that identify the social performance of businesses. Examples of such metrics are certifications. In CSR reporting, standardisation is sought after by the Global Reporting Initiative (GRI). This NGO supplies standardised tools for CSR reporting, so companies can be benchmarked more easily. Companies who comply with standardised metrics such as GRI reports and certifications are assumed to have a higher CSR score.

These assumptions are summarised in the table below, with the paragraph in which the assumption is made, as well as the name of the test variable that is attached:

Thesis paragraph	Assumption	Test variable
4.1.1	Marketing leads to a higher CSR score	B2C marketing
4.1.1	Transparency on the internet leads to a higher CSR score	Active on social media
4.1.2	Voluntarily supplied CSR reports lead to a higher CSR score	CSR report available
4.1.3	More disclosed information on CSR leads to a higher CSR score	CSR disclosure
4.1.4	CSR certifications lead to a higher CSR score	CSR certifications
4.1.4	An available GRI report leads to a higher CSR score	GRI report
4.1.5	Having the GRI report audited leads to a higher CSR score	GRI audit

Table 5: Hypothesised relationships of the 'general' variables in regards to the CSR score

The above mentioned assumed relationships are not business industry specific and could potentially be existent globally. However in order to generate a good idea of the sustainability level of companies in the pilot industries, more in-depth indicators might be needed. Determining ourselves which issues are the most striking are outside the scope of this research and will likely increase the attention from NGO's once implemented in practice. We therefore rely on external sources, as shown in the research model, we include stakeholders in the process.

One of the stakeholders that is intensively trying to improve the sustainability in the whole supply chains, thus including agriculture, is the World Wide Fund for Nature (WWF). The NGO sees the issues in the industries, but also opportunities in the commodities supply chains, in which they are engaging with the private sector to achieve conservation goals (WWF, 2012). The organisation has identified 15 commodities with the biggest impact on areas of global conservation priority, in which the two pilot industries are present. In this study, each large commodity has its own overview of threats and opportunities (WWF, 2012). These opportunities can be translated to the best-practices that a company can perform in the industry it operates. In case the threats are not linked to the subsequent opportunities, they can be turned 180 degrees into a best-practice; a solution to the environmental or social threat.

The earlier mentioned study by Graafland & Eijffinger (2004) showed the process of creating a scoring. To do so, companies can be given a mark for their actions and achievements, on which the score can be constructed. Through this, we can rank-order the companies and see who performs best. In order to make the research feasible, and since it is the first attempt, we are trying to keep the process as simple as possible. Therefore, we will mark when a company is voluntarily trying to do something about the threats, as mentioned in the WWF document, without any weighing factor. Each industry that WWF identifies as having a big sustainable impact has multiple threats. We will create a so-called *industry score* that counts the number of CSR issues the company addresses. Although, this is a very limited approach, we have decided upon this as a first attempt and evaluate the results.

The next paragraph will focus on the data mining and the subsequent analysis of the data.

5.3.3.4 CSR Measurement and analysis

This paragraph will focus on the measurement and analysis process of the CSR on certain companies that will be selected from the two pilot industries: palm oil and sugarcane. The previous paragraph has given the CSR indicators that are going to be used, this paragraph

will discuss how they are going to be used. Firstly, the data types will be discussed, after which the unit of analysis and the research process will be determined and the paragraph finalises with the analysis of the data.

In the previous paragraph, we have differentiated between two types of CSR variables. The first variable type is a 'general' CSR variable. These variables are hypothesised to have effect on the CSR score of any organisation. The second variable type is a specific 'industry' variable. These variables should be determined on basis of the largest CSR threats in the particular industry, in accordance with stakeholders. These variables will be determined once the pilot industries are analysed. The general CSR variables, including their level of measurement are stated in the table below:

Variable	Level of measurement	Explanation
Company name	Nominal	The unique identifier
Parent company	Nominal	For validation purposes
Countries active	Nominal	For validation purposes
Company website	Nominal	For validation purposes
CSR certifications	Nominal	All CSR related certifications the organisation has
GRI report	Dichotomous	Whether the organisation has a CSR report according to GRI standards
GRI audit	Dichotomous	Whether the GRI standardised CSR report is audited by an external company
CSR disclosure	Ratio	Number of words disclosed on CSR subject by organisation
Active on social media	Dichotomous	Whether the organisation is active (means posting) on Twitter, LinkedIn and/or Facebook
B2C marketing	Dichotomous	Whether the organisation is conducting marketing to end-users
Online Criticism <5 years	Dichotomous	Whether the organisation has received criticism from stakeholders regarding the largest CSR issues in their business industry

Table 6: Variables selected for data mining

The industry variables will be drawn up after the largest threats in the particular industry are identified. Once a company discloses to do voluntary work towards solving the threat, we will give a mark towards this variable. A final 'industry score' will be given by counting these marks. The scoring will be based on the number of CSR threats the stakeholders have identified to exist.

The units of analysis are single companies within the business industry that we are going to analyse. The companies will include certain companies that are currently in the portfolio of Rabobank, but will be accompanied by companies that are actively seeking to become more sustainable. Excluding these additional companies could bias the results, as the sample is an invalid representation of reality and could potentially not give the actual frontrunners in the

industry. The unit of analysis will determined once a start is made with the pilot industries.

The study focuses on content. As the organisations are based in different continents we will use the internet for finding information on them. Information should be open for the public, and available for reproduction of the study. Certain variables have been added for validation options, as the company website, the countries in which the organisation is active and a potential parent company. We will use these variables for analysis, but it will give insight on where the information is found.

We will use an excel list in which all the companies are placed, linked to each variable, both general and industry-specific variables. The data found will be placed, according to the level of measurement, in the subsequent cell. Next to this, per organisation, we will use a Word file to store all the information the organisation supplies regarding their CSR operations. This will help counting the number of words that is disclosed on the topic, as well it could be used for validation purposes.

Firstly, the website will be analysed. Subsequently, the search engine Google will be addressed to find whether each of the companies has received any online criticism towards their business operations, in the fields of the threats in their industry. The searches will be conducted by using the company name, without their legal form, and each of the threats that are active in the industry. In addition, trade names, if applicable, are sought after as well. Furthermore, the search option in social media networks Twitter, Facebook and LinkedIn will be used to find the companies that are going to be analysed to see if they exist, and are active on social media. During the data mining process, if certain recurring variables show up, these will be counted as one.

The data that will be gathered will be open for analysis. The analysis should ideally find a methodology that we can predict beforehand whether a company is green, on basis of the found information. Firstly, the *industry score* will be determined, by counting the issues the company mentions to address. Once this score is known, it will be held against the 'general' variables, to see if the assumed relationships of the 'general' variables are existent. See for the expected relationships table 5 in the previous paragraph. Of course, these results are both based on the content that is found, mostly supplied by the organisations themselves and could therefore be open for greenwashing (Mahoney et al., 2012). The next paragraph will focus on the validation of the results and, if possible, the creation of the ranked list of companies on basis of their CSR score.

5.3.3.5 Validating and ranking

Validation in regards to CSR is a difficult subject and is addressed several times as being an issue in the literature review. Some of the terms mentioned that we should overcome to create valid results are greenwashing, operational secrecy, information overload, communication bias and subjectivity. All these terms could create bias in the outcomes of the data analysis of this study. This paragraph will address the issue of validity in regards of this project and describes the steps forward to a ranking system.

Beforehand, it should be noted that researching the individual issues addressed above are outside the scope of this project. As the research questions describes, we are looking into the possibility of creating a tool that makes it possible to conduct a simple sustainability screening on basis of publicly available information. Thus, in accordance with the described process, we will gather the found information, and will try to find best method for classifying companies on a learning-by-doing approach. The validation process limits itself to finding whether the scoring results created in this project are valid.

The hypothesised relationships between variables are backed up by found literature and industry issues are lend from stakeholders. However, the first – "general variables" – are not specifically made for the pilot industries. Therefore we feel the need to validate the assumed on external results. The ideal situation would be that there is a list available in which certain companies in one of the pilot industries are being rated, on a transparent methodology. If these lists where to found, it could potentially make this project redundant. In case such lists do not exist, we will ask industry experts to help validate the found results. The methods will be discussed once the options per pilot industry are known.

Ranking of the companies of their CSR operations is possible if the results of the test are trustworthy. At this stage it is unknown whether the results will allow for this. As for the learning-by-doing approach, ranking should be done per industry after the data analysis.

This ends the theoretical explanation of the research model. The road forward is to test the companies in the two pilot industries on their sustainability level.

5.2 Application of Methods

This paragraph will focus on the practical side of the project. It will put the theorised methodology into practice. Two pilot industries have been selected, companies in respectively the palm oil industry and the sugarcane industry will be analysed and determined if the methodology is sufficient drawn up to classify these companies.

5.2.1 Palm Oil Methodology

The first industry that will be analysed is the palm oil industry in South-East Asia. Firstly, the process is determined, after which the results are drawn.

5.2.1.1 Process

The methodology for classifying the companies in the palm oil industry starts with the description of the process, the plan of approach for the gathering of information and how the results will be sought after. We will follow a step-by-step procedure as mentioned in chapter 5.1. First we will determine the indicators that we will gather information on, give a brief introduction to the measurement process and will then focus on the validation of the results.

As mentioned earlier, we have differentiated between two types of variables, general variables and industry variables. The general variables are based on the literature review and are already drawn up at an earlier stage. The industry variables for the palm oil industry need to be found. For this, we refer to a study conducted by WWF, called "*Better production for a living planet*" (WWF, 2012) that mentions certain CSR threats in the palm oil industry. Together, these lead to the following variables, of which each individual will be analysed per company in our data set:

General variables	Industry variables
CSR certifications	Prevent deforestation
GRI report	Reduce biodiversity Loss
GRI audit	Protect Indegenous People
CSR disclosure	Alleviate poverty
Active on social media	Reduce use of fertiliser & pesticides
B2C marketing	
Online Criticism <5 years	

Table 7: Palm oil CSR variables for data mining

The second stage is the selection of companies in the palm oil industry that are going to be analysed. The companies that we are most interested in are in the current portfolio of the Rabobank. Furthermore, in order to get a non-biased overview of the best performing companies on a sustainability level, we have sought for a number of upstream palm oil companies that are located in South-East Asia and who are voluntarily working towards cleaner production processes. During this search, we found the Roundtable on Sustainable Palm Oil (RSPO), a NGO that actively seeks to unite stakeholders from the palm oil industry and implement global standards for sustainable palm oil. One of the initiators of this initiative is WWF, who has assessed the certain palm oil producers that are also RSPO members. [10] We have chosen to use this list of companies, in collaboration with the investment portfolio of the Rabobank, to use as the unit of analysis, towards creating a good overview of the frontrunners in the palm oil industry.

If we look more thorough at the activities of the RSPO, we see that they have two focus points: nature conservation and benefits for communities. In order to reach this, the initiative has created a certification system for sustainable palm oil. It is accredited on the following four points: (i) fair working conditions, (ii) the protection of people's lands and rights, (iii) no clearing of primary forest, which are forests of native tree species and (iv) conservation of wildlife on plantations. Once these points are met, the palm oil produced on that cultivated land will be certified. In order to assure the quality, qualified independent certifiers inspect each plantation to ensure that the companies meet these standards. The reports of these certifiers are transparent and available on the website of the RSPO. Whoever finds a violation of these rules is able to file a complaint towards the RSPO.[11]

Aside from the limited usage of fertilisers and pesticides, all variables on which the RSPO monitors the sustainability of the companies are similar to the *industry score* of our looked-after methodology. With the audit process in place, it seems like a good start in the company classification of the palm oil industry, more valid than a score based on the public available content. We could chose to classify this as our result in the palm oil industry, on condition that the stakeholders for the green bonds agree upon the validity of this method. Although we see the benefits of this list, we have noted that in the sugarcane industry and highly

[10] http://wwf.panda.org/what_we_do/footprint/agriculture/palm_oil/solutions/responsible_purchasing/wwf_assessment_of_rspo_member_palm_oil_producers_2013/

[11] http://www.rspo.org/consumers/about-sustainable-palm-oil

likely other industries such a list is not available, and therefore exclude ourselves from using these results in the data mining process and will be using this as a validation tool for our results.

The validation list of palm oil producing companies provided by WWF focuses on the so-called Annual Communication of Progress (ACOP) reports. These reports are supplied by the producers of palm oil themselves and not independently verified. WWF is aware of this, thus it should be noted that the results are not perfect. WWF has scored the companies on a scale of 1 to 7, on basis of several criterion of the ACOP-reports. These are whether a member has reported its progress, whether it has set a time-bound plan (TBP) towards certification, whether it has disclosed how much palm oil it is producing as well as how much of that palm oil is certified as sustainable (WWF, 2013). The table below shows the scoring:

Criterion	**Points**
Whether the member reported:	1 point for reporting, 0 point for non-submission
Whether the member set a time bound plan (TBP):	1 for a TBP, 0 for none
Whether the TBP deadline is before or after 2015:	1 for 2015 or sooner, 0 for after 2015
Percentage of member's total estate area that is certified:	0% = 0 point Up to 25% = 1 point Up to 50% = 2 points Up to 75% = 3 points Up to 100% = 4 points

Table 8: scoring methodology WWF score

The next paragraph will focus on the results of the sustainability assessment of the companies in the palm oil industry, based on the above process.

5.2.1.2 Results

The results paragraph is built up in two parts. Firstly, the industry score is compared with the general scores. Second is the validation process, in which the results generated in the content analysis will be compared to the scoring list of WWF.

Firstly, we give information on how often the companies we have analysed were compliant with the variables that we sought after, with other words had the variable in place, or reported positively towards an industry issue. The percentages of these results are shown in the table below:

Variables	Information found (in %)
CSR certifications	26%
GRI report	8%
GRI audit	0%
CSR disclosure	100%
Active on social media	37%
B2C marketing	8%
Online Criticism <5 years	34%
Prevent deforestation	76%
Reduce biodiversity Loss	71%
Protect Indegenous People	66%
Alleviate poverty	79%
Reduce use of fertiliser & pesticides	87%

Table 9: Percentage of companies compliant towards variable

Looking at the general variables, companies do not disclose much regarding the CSR certifications, although in 8 cases an ISO 14001 certification was communicated. GRI reports are seldom initiated and B2C marketing is almost never conducted, since most companies are in the beginning or middle of the supply chain.

Following are the results of the industry scores, compared with the general variables. Both variable types are based on the content that was available publicly, meaning that we will question the validity of these found results. Excluded in the table below are the two variables regarding the GRI reports. All three companies that provided a GRI report had the highest possible industry score, meaning that these companies supplied information regards their approach towards the sustainability issues in the palm oil industry. The table below shows the results on the other dichotomous general variables:

Industry Score	Certifications	Active on social media	Online criticism	Total cases
0	100%	0%	0%	1
1	0%	50%	0%	2
2	14%	14%	14%	7
3	20%	40%	20%	5
4	0%	0%	100%	2
5	48%	48%	43%	21

Table 10: Comparison industry scores and general variables in the palm oil industry

Firstly, we see that most of the companies that are analysed have knowledge about the sustainability issues that arise in the palm oil industry, and over 55% of the companies analysed report on their activities regarding all the five most critical issues, thus have received the highest industry score of 5.

The figure below shows the comparison between the industry scores and the number of words disclosed by the companies. This addresses the information overload issue opted by Coombs and Holladay (2013), meaning that more information is not always better, as mentioned in paragraph 4.1.4.

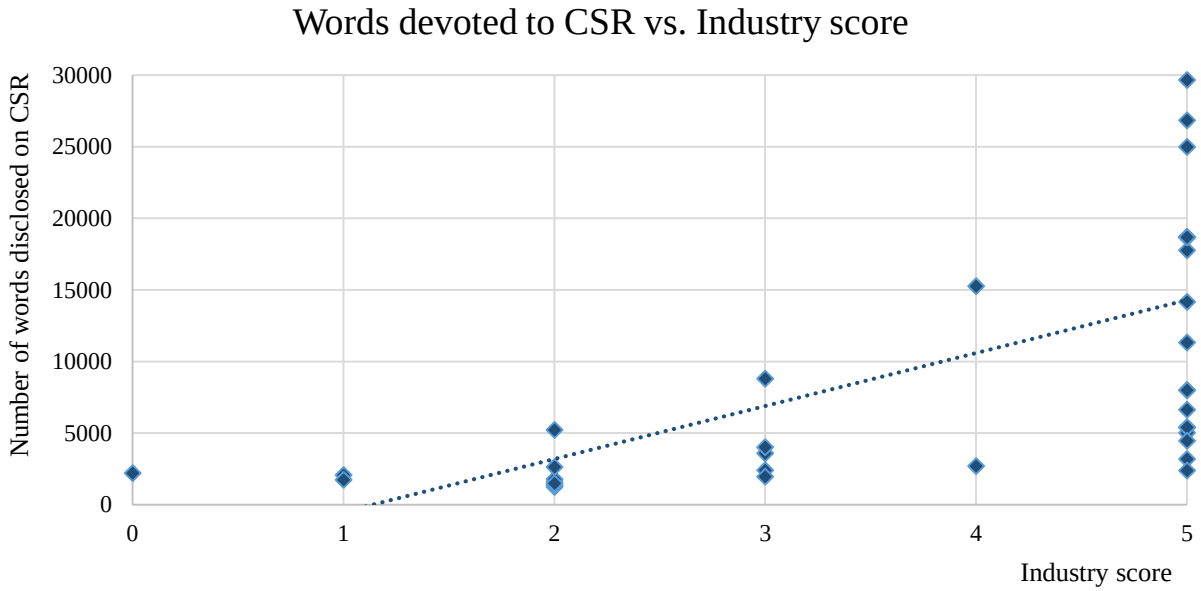

Figure 3: Comparison between industry score and number of words disclosed on company's website and in reports

What we find in this scatterplot, if we are looking at the linear trend line, is that there seems to exist a relationship in the number of words disclosed on CSR and the industry score. However, it seems obvious that exogeneity is on the lure, as the number of words increases, it is highly likely that more information on industry issues is disclosed, which causes the industry score to be higher.

We believe these results have several validation flaws, as both the industry score as the general variables have been found through the same data mining process and all variables have been found through the quick analysing method for classifying these companies, which we are after. Due these validation options, and the inadequate cell count of the results, mainly due that most companies are graded with the highest score, we leave these results open for interpretation and will continue to validate these results with the scores mentioned in a list provided by WWF, which we discussed in the previous paragraph.

Starting with the validation process, we have two datasets that we want to compare. One is developed by us (see appendix A), the second is developed by the WWF. The data that we have found is fully based on publicly available data, the data made public by WWF is based on information that is disclosed by these companies to WWF. The information is disclosed in a so-called ACOP, a list with questions generated by WWF, which has good grounds to benchmark

the analysed companies, as long as the ACOP is sufficiently substantiated. We assume that validating these results between these two different types of data could limit spuriousness between the variables. However, both datasets are based on voluntary supplied information from the company. It is therefore important to include voluntariness of reporting in the requirements of being a 'green' company, in order to make these results valid.

Firstly, the WWF scores from the external dataset are compared to the industry scores. We have chosen for a boxplot as it gives a useful representation of the data:

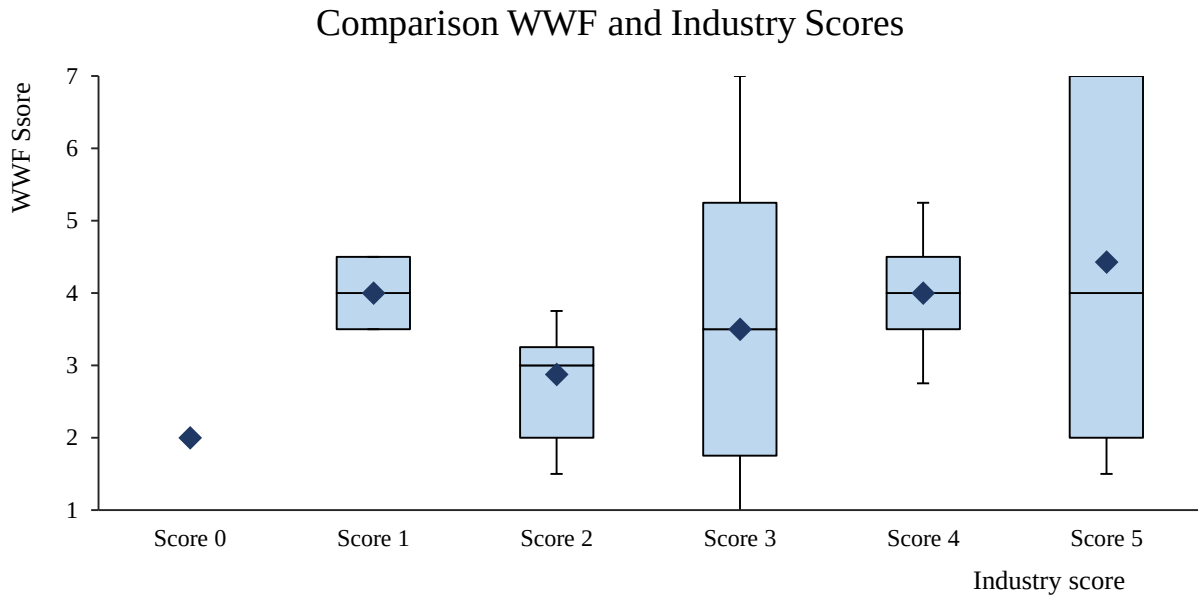

Figure 4: Boxplot overview of relationship WWF Score and Industry Score

Looking at the means in the boxplot above, apart from the companies with an industry score of 1 (n=2), it seems that there are some similarities between both scores. Aside from the similarities, the data is also largely scattered. We are seeing large differences in the box with an industry score of 5. If we further analyse these companies, we see that the difference is largely due the fact that companies with a low WWF score do not have more than 8% of their estate area certified according to the RSPO standards:

Company Name	% of estate area certified	WWF Score
PT Agro Bukit	0%	3
PT Salim Ivomas Pratama Tbk	0%	3
PT Sampoerna Agro	8%	3
First Resources Limited	0%	2
Genting Plantations Berhad	0%	2
PT Austindo Nusantara Jaya Agri	0%	2
PT Bumitama Gunajaya Agro	0%	2
PT Inti Indosawit Subur	nd	2
PT Mentari Pratama	nd	1

Table 11: Companies with an industry score of 5 and a WWF score of <4

Further research should determine the importance of the certification of land according to the RSPO standard. If the bank and its stakeholders determine RSPO certificated land does influence the sustainability level of a company, these results could then be incorporated in the screening process. Leaving these companies out of the equation, creates a list of 30% of the companies, which include all the companies that received the highest industry score and a WWF score of 4 of higher. It should be noted that all the companies that received the highest WWF score received the highest industry score mark, which does give some ground for the effectiveness of measuring the CSR content supplied by the companies themselves.

It is assumed that more CSR disclosure will also lead to a higher sustainability score. We have measured the words regarding the topic CSR that was found on the websites of the companies analysed, including sustainability reports. The scatterplot below shows this relationship:

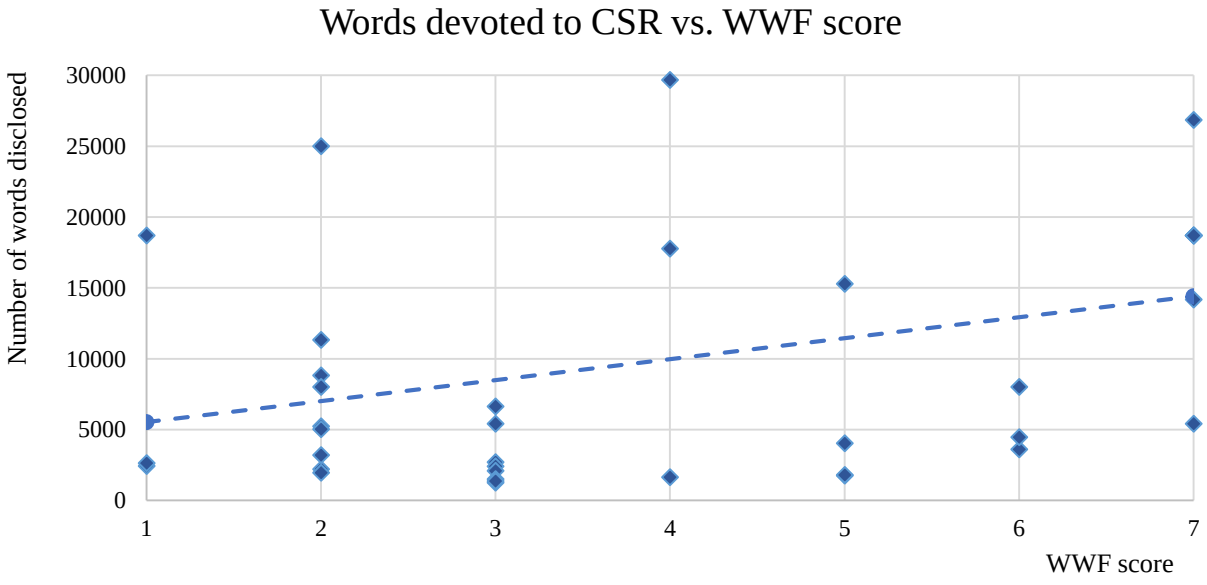

Figure 5: Comparison between WWF score and number of words disclosed on company's website and in reports

Although also in this graph the data is scattered, we also see a positive trend towards a higher score with more disclosure. However, we will not commit ourselves to any conclusions, especially in terms of the predictive power of these results.

Continued, we look at the relation between the WWF scores and the dichotomous general variables of our data, which is shown in the table below:

WWF Score	Certifications	Active on social media	Online criticism	Total cases
1	0%	33%	33%	3
2	78%	33%	11%	9
3	13%	25%	13%	8
4	25%	25%	50%	4
5	25%	0%	50%	4
6	33%	33%	33%	3
7	29%	86%	71%	7

Table 12: Comparison WWF scores and general variables in the palm oil industry

What this information tells us, is that according to the data provided by the WWF, companies that actively promote their certifications are in most cases not classifiable as sustainable, whereas being active on social media is often related to being sustainable. However, looking at the predictability of being active social media as the sole classifier of being sustainable leads, on basis of this dataset, we get a 43% chance of predicting correctly that a company that is active on social media scores the highest on basis of the WWF scoring method. We notice a trend in that the higher companies score on the WWF ranking, the more likely they have received criticism from external stakeholders for conducting inappropriate activities regarding any of the found industry issues.

We will leave these results for now and continue to interpret the results in chapter 5.3. We continue with building a methodology for the sugarcane industry in Brazil.

5.2.2 Sugarcane Methodology

Now that the first analysis is conducted on the palm oil industry, we will now apply the process in the second pilot industry, the sugarcane industry in Brazil.

5.2.2.1 Process

This paragraph will follow a similar structure as the palm oil process paragraph. It will start with finding the indicators on which the companies in the sugarcane industry will be screened. Second, it will take the unit of analysis in account and finally it will discuss the validation of the results.

Firstly we will generate the variables on which the companies in the sugarcane industry will be screened. The selected 'general' variables are selected at an earlier stage, the industry variables will be selected from the WWF study "Better production for a living planet" (WWF, 2012). The variables are grouped together in the table below:

General Variables	**Industry variables**
CSR certifications	Water quality & availability
GRI report	Improving livelihoods
GRI audit	Preventing deforestation
CSR disclosure	Reduce biodiversity loss
Active on social media	Reduce greenhouse gas emissions
B2C marketing	
Online Criticism <5 years	

Table 13: Sugarcane CSR variables for data mining

The companies that are going to be screened will be taken from two different sources. The first list of companies is taken from the portfolio of the Rabobank, the second list is taken from an external source that will highly likely include the frontrunners of the sugarcane industry, due the voluntary steps they take towards CSR practices. The companies we have chosen are part of the Bonsucro initiative. The approach of this NGO is similar as the palm oil initiative RSPO. Bonsucro is a global, multi-stakeholder organisation fostering the sustainability of the sugarcane industry, through a metric-based certification scheme. One

reason for choosing this voluntary scheme is that is the only biofuel scheme approved by the EU that fully focuses on the sugarcane industry.[12]

Validating the results of the sugarcane industry is more difficult than the palm oil industry, as research on this subject showed there is no list available that scores Brazilian sugarcane companies on their CSR operations. Taking in account the similarities between the CSR bodies RSPO and Bonsucro, the latter might be able to make a distinction, e.g. by looking at the amount of certificated sugarcane output. Bonsucro also takes in account several principles that a company should abide by in order to get the certificate. These are that a company should (i) obey the law, (ii) respect human rights and labour standards, (iii) manage input, production and processing efficiencies to enhance sustainability, (iv) actively manage biodiversity and ecosystem services and (v) continuously improve key areas of the business.[13] There are several similarities between the variables drawn up in this study and the principles of Bonsucro. Unfortunately, a telephone discussion found out that the initiative does not disclose information about the percentage of a company's output and leaves that to the company itself. With other words a company could have either 1% or 100% certified output but will be listed as the same on the Bonsucro website. The contact person however advised me to look at the date of when the Bonsucro certification was granted. This information is publicly available and as a first step, we will validate our results hereupon. Taking this in account, the results will likely be have to validated by industry experts.

The next paragraph will focus on the results of the sustainability assessment of the companies in the sugarcane industry, based on the above process.

5.2.2.2 Results

The results on the analysis of the sugarcane industry are built up similarly as the paragraph on the palm oil results. We will start analysis the differences in the found data of our own dataset, divided into two types: general variables and industry-specific variables. Further on we try to validate our found results.

Firstly, after the data mining process, we see how often companies have supplied the information or address to the variables where we are after. The table below shows the result:

[12] http://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes
[13] http://bonsucro.com/site/wp-content/uploads/2013/02/Bonsucro-Production-Standard-4.1.1.pdf

Variables	Information found (in %)
CSR certifications	47%
GRI report	12%
GRI audit	9%
CSR disclosure	100%
Active on social media	41%
B2C marketing	6%
Online Criticism <5 years	9%
Improve water quality & availability	69%
Improve livelihoods	88%
Reduce deforestation	79%
Reduce biodiversity loss	44%
Reduce greenhouse gas emissions	38%

Table 14: Percentage of companies compliant towards variable

Similar to the palm oil industry, the companies that we have analysed are in the upstream area of the supply chain and therefore seldom conducting B2C marketing practices. We will not further analyse this variable. We also notice the low amount of criticism from external stakeholders on the company's CSR operations. Furthermore more companies disclose information on social issues as on environmental issues.

Again, an industry score has been drawn up by counting the number of industry issues a company is compliant towards. We have compared the results of the industry scores with the general variables to see if there are any relationships between these two types:

Industry score	Certifications	GRI report	GRI audit	Active on social media	Online criticism	Total cases
0	0%	0%	0%	100%	0%	3
1	0%	0%	0%	0%	0%	3
2	20%	0%	0%	0%	0%	5
3	50%	0%	0%	17%	0%	6
4	71%	0%	0%	57%	0%	7
5	70%	40%	30%	60%	30%	10

Table 15: Comparison industry scores and general variables in the sugarcane industry

In the sugarcane industry, we notice a similar trend in regards to online criticism as in the palm oil industry. It seems that the organisations that disclose more information on their CSR activities, there is a higher chance that there is criticism from external stakeholders on their CSR activities in regards to the specific industry issues determined by WWF. In this industry, companies with a higher industry score have often disclosed information about their CSR certifications and have GRI reports supplied, and have them in some cases audited. Not

aligned with our assumption in regards to transparency is that all the companies that score lowest on their industry score are active on social media.

The final variable compared to the industry score is the number of words that is disclosed by the organisations. Again, it is likely that this information will be subject to exogeneity, as more with more information disclosed there is a higher chance that more operations towards CSR issues will be mentioned.

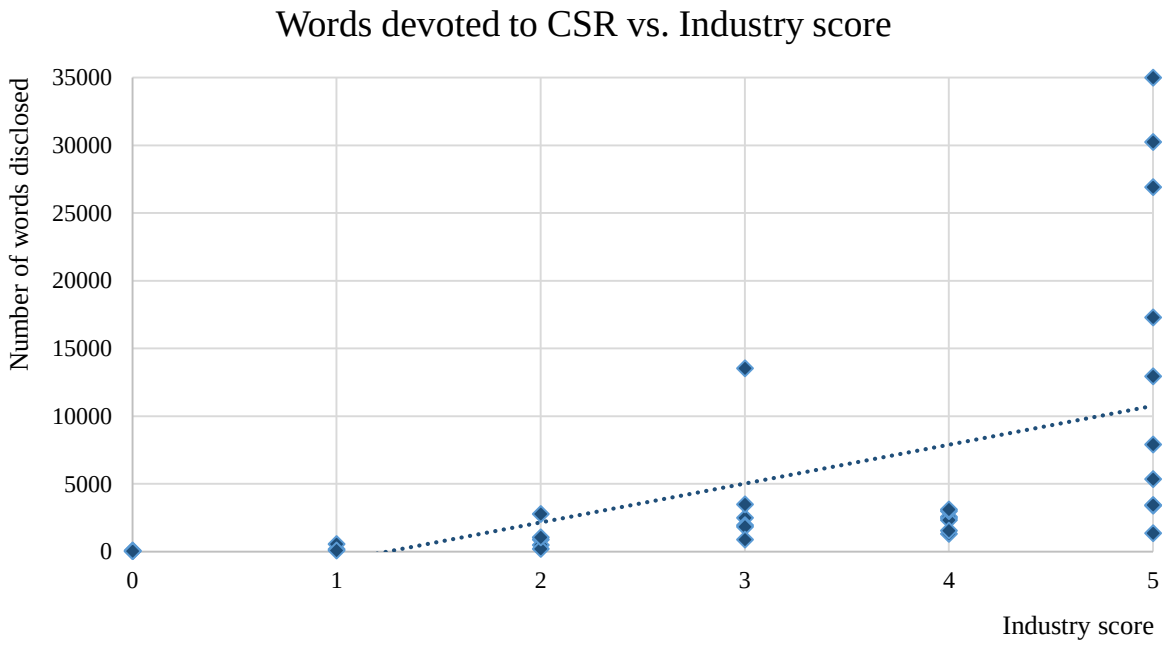

Figure 6: Comparison between industry score and number of words disclosed on company's website and in reports

The above found results are to be validated. Instead of the palm oil industry, there is no validation list available. As an advice from an employee from the Bonsucro initiative, we will firstly be looking at the Bonsucro certified companies, and specifically at the publishing date of the certificates. This dataset is publicly available at their website.[14] This dataset contains 43 sugarcane mills, of which 34 are owned by large energy companies, who do not disclose information about the individual mills, which is a limitation of the dataset. The company with the largest number of certificates is Raizen Energia S/A, a joint venture of Cosan and Royal Dutch Shell (n=12). In case we cannot find information on a single mill, we will analyse the parent company and group the companies together. Through this method, we have found 9 Bonsucro certified companies suitable for analysis. In the table below we will specify the differences between these and the industry average on our dataset, to find any evidence for companies with a Bonsucro certificate for being green:

[14] http://bonsucro.com/site/certified-members

CSR variable	Bonsucro certificated	Industry average
CSR certifications in place	78%	47%
GRI report in place	11%	12%
GRI report audited	11%	9%
Average words disclosed on CSR	11830	5618
Percentage active on social media	78%	41%
Conducting B2C marketing	11%	6%
Percentage received online criticism <5 years	22%	9%
Average industry score	4	3,2

Table 16: Comparison between Bonsucro certified companies and industry average

If we look at the assumed relationships between the suggested variables and the CSR performance of companies, we find several expected results. The companies with a Bonsucro certificates disclose more often information about their CSR certifications, disclose more information on CSR and have a higher average industry score. Further analysis should determine the effectiveness of these results.

After the first analysis of the two pilot industries, we will continue to try to improve the methodology to see the feasibility of classifying companies on their CSR activities on basis of the analysis of publicly available information.

5.3 Improving the Methodology

Through analysing what we have learned and validating the results, in this chapter we try to come up with an answer to the sought after question to what extent the companies in the analysed industries can be classified on their sustainability level.

5.3.1 Learning points

After analysing the two pilot industries, we will draw up our findings in relation to the company screening process. We will look back at the assumptions made in the literature review and relate these to the processes in the methodology.

The table below shows the assumed relationships that we have drawn on basis of the literature review. Ideally we would like to be able to predict beforehand whether a company is classified green. After the assumed relationships we have, on basis of our dataset, given the prediction power in percentages to see the likeliness of a company being sustainable if the

variable is in place. By sustainable, we mean that it has the highest industry score, meaning it voluntarily provides information regarding the company's operations towards the largest issues in the respective industry.

	Prediction highest industry score (in %)	
Assumption	**Palm oil**	**Sugarcane**
Marketing leads to a higher CSR score	nd	nd
Transparency on the internet leads to a higher CSR score	72%	43%
CSR certifications lead to a higher CSR score	77%	44%
An available GRI report leads to a higher CSR score	nd	100%*
Having the GRI report audited leads to a higher CSR score	nd	100%*
Having received online criticism lowers the CSR score	69%	100%*

Table 17: Prediction of general variables on industry score (n = 3)*

We have chosen to not statistically test these relationships, as we assume that the validity of the datasets is relatively low, and focus on visualising what we have found. How for instance the prediction score of 72% of transparency within the palm oil industry should be read, is that on basis of our dataset, there is a 72% certainty that in case of social media activity of a company, the company also voluntarily addresses company information on all the found issues within the palm oil industry. We have seen that the companies that are analysed do not often conduct B2C marketing and have seldom a GRI report in place. Therefore we disregard these relationships in terms of building our methodology. We notice differences between both industries in regards to the CSR certifications and the transparency on the internet, measured through activity on social media. Especially in the sugarcane industry, it does not tell much whether a company is active on social media. With these different results on basis of the general variables, it seems that benchmarking is not relevant for this point of time. Next to this, we should be careful incorporating these variables, as it could exclude certain companies that could be best-in-class.

An interesting factor is the relationship between online criticism and CSR performance. Where our methodology and both WWF and Bonsucro classifies certain companies as 'green', these companies often received criticism on their activities in regards to CSR. If we are looking at the earlier mentioned reasons for reporting (§4.1.3) we see possible explanations in reputational benefits and/or interest in all-round credibility from greater transparency, in the sense that the reports are a result of being criticised on their CSR performance (Kolk, 2010). This could also explain why some companies are not reporting, as it could wake up sleeping dogs, such as environmental organisations (Kolk, 2010). Obviously, when building a

methodology to find the best performing companies, this variable should not be taken in account as being linked to being sustainable, particularly when the methodology is being shared with stakeholders.

The validation process seemed to be of high importance during the company screening process. We will go deeper in the process in the next paragraph.

5.3.2 Validation

In the validation of the methodology, we will classify how accurate the data is and how the way to go forward should be defined.

During the analysis on both pilot industries, we have largely focused on validating the found results. As mentioned in the literature review, there is a high believe that CSR information supplied by organisations could be biased, in order to look better to the outside world (Kolk, 2010) (Mahoney et al., 2012) (Coombs & Holladay, 2013). Before implementing this tool into practice, more validation seems to be required.

Firstly we will discuss whether the validation lists are correct. Both the RSPO as Bonsucro are promoting sustainable output in the broadest sense of the word. However, there are also negative sounds to be found in regards to the RSPO. A study by Sawit Watch (2013) has found severe human rights violations at three RSPO certificated farms. Second, in the case of Bonsucro, it is unknown how much of the sugarcane output is certified. Unless the company decides to communicate the numbers, it is classified for the public. These are serious validation issues.

The RSPO provided us with the most suitable information in regards to companies within the palm oil industry. Whether or not companies conduct greenwashing by certifying their palm oil illegitimate is outside the scope of this research and should be agreed upon by stakeholders once green bonds are decided to be put in practice.

The list of Bonsucro-certified mills leave some questions unanswered. It is unknown how much of the output generated by companies is sustainable. Although the basis on which the certification is created (§ 5.2.2.1) seems valid, with solely 3.7% of all sugarcane land being certificated, more research is needed in regards to determine the effectiveness of this certificate and the reason why so few companies have committed themselves to the Bonsucro certificate.

In order to go deeper in determining the validity of the sugarcane industry, we have conducted several introductory telephone interviews questioning with sugarcane experts. The outcome of an interview with an employee of Bonsucro was that sustainability should be

defined differently, the subject was to broad defined. An interview with Luiz Fernando do Amaral, former board director of Bonsucro and currently sustainability head in Brazil for Rabobank found it difficult to determine which companies were the absolute best, as many companies do great things on a sustainability level. He added however an issue that was lacking our methodology, which is whether a company has sustainability procurement policies in place for their sugarcane suppliers, admitting that this is hard to identify, also outside of the research scope. However, it seems to be one of the biggest issues in the industry.

We will take this validation issues in account and continue to finalise our results in the next paragraph.

5.3.3 Finalising

In this paragraph, we will take our knowledge of the company screening process that has been conducted on two pilot industries. We will determine what the maximum result of analysing these industries are within the scope of this project, which is solely on basis of public available information.

Firstly, we are looking at both industries and their respective industry scores. During the project we have differentiated between industry variables and general variables. The general variables have not been determined trustworthy in predicting the CSR score and therefore will focus on the industry scores. We noticed during the process that we would not be able to generate a list in which we could rank order the companies, due lack of knowledge and information. We could however see a small trend in the industry score and the actual CSR performance, on basis of validation lists of the RSPO and Bonsucro. The table below shows the percentage of companies that are around the top 50% performers on basis of our methodology, compared with the externally validated sustainable frontrunners:

Industry	Highest ranked companies within industry score (in %)	Externally validated companies within best-in-class companies
Palm oil	55%	100%
Sugarcane	50%	75%

Table 18: Comparison industry scores vs validated companies

We find that, in the palm oil industry, all companies that have an industry score of 5 (the maximum) fall in the same category as all the frontrunners as identified by WWF. In the sugarcane industry, the industry scores are generally lower. We have looked at the 50% best

performing companies in our methodology, which have an industry score of either 4 or 5. In this selection, only 75% of companies within the Bonsucro certificates fall in this selection. There are two companies in total that fall in this category: Tropical BioEnergia SA and Usina Alta Mogiana. The first, a subsidiary of BP, does not share a lot of information on their sustainability processes. In terms of the voluntariness aspect of CSR and the transparency aspect, we might argue if this company would classify becoming a frontrunner. Usina Alta Mogiana on the other hand supplies more information, which focuses mostly on the social aspects, i.e. human health. Because there is no reporting on biodiversity losses and greenhouse gas emissions, this company has received an industry score of 3. In case sugarcane experts would classify this company as sustainable, the methodology should be overthought and possibly updated with a weighing scale, as some issues might be more important to overcome than others.

In the palm oil industry, if we are looking at the 55% of companies that received the highest industry score, we could incorporate the WWF scores. We have noted earlier, in §5.2.1.2 that in case Rabobank and its stakeholders agree upon the effectiveness of the RSPO certificate, a total of 9/21 companies that do not have RSPO certified land mass in place could be deselected from the list. What this method in this case could generate, on basis of publicly available information, is a list of 12 potential frontrunners in the upstream part of the palm oil supply chain.

In the sugarcane industry, we assume that at least a large part of the sustainable frontrunners is located in the top 50% of companies on basis of their industry score. However, also after the discussion with sugarcane experts, further analysis and validation will highly likely be needed in order to use this methodology in practice.

What this process has shown is that there is some distinction to be made between companies that score high and low on their sustainability levels within a certain industry, on basis of publicly available data. Which part of the companies it, and moreover, whether the results are valid should be continued to be analysed with external sources.

The next chapter will discuss the results of the design and effectivity of the company classification tool.

6 Results

Now that the two pilot industries are analysed, the results in regards to the creation and effectiveness of the tool can be drawn. This chapter will answer all the sub research questions as stated in chapter 3.

In regards of the socially responsible investments that we are after, we had to choose the most suitable company screening procedure. A selective number of sustainability screenings has been analysed, of which the so-called best-in-class investment selection seems the most appropriate for our project. This approach looks at selecting the best performing organisations in a selected group, on basis of selected criteria. This company screening approach has been used integral throughout the rest of the project.

The best-in-class investment selection uses certain pre-determined criteria, on which companies are analysed through a questionnaire-based method. The criteria we have chosen have been grouped into two types: general variables and industry variables. The general variables focus on hypothesised relationships that can be used throughout multiple industries. Industry variables are selected and specific per industry. These are based on industry specific variables. We have not been able to find general variables that could predict the sustainability level of the analysed companies, although it seems that more criticism on their activities generally happens more often with companies that promote themselves to be sustainable and thus receive a high industry score. For obvious reasons, we have not taken this general variable in account when classifying companies.

The industry variables have been taken from stakeholders who have a large influence in both industries. We have created the classifying indicators from a list that mentions the largest issues in the respective industry and turned the issues into possibilities, for a company could improve its operations towards these. These specific variables appear to have a bigger prediction score than the general variables.

Palm oil industry criteria	**Sugarcane industry criteria**
Prevent deforestation	Water quality & availability
Reduce biodiversity loss	Improving livelihoods
Protect indigenous people	Preventing deforestation
Alleviate poverty	Reduce biodiversity loss
Reduce use of fertiliser & pesticides	Reduce greenhouse gas emissions

Table 19: Selected industry criteria

A large part of the process focuses on the validating of the found data. This project focuses on the possibility of using publicly available information in the process of determining whether a company can be regarded as sustainable. Therefore it is of utter importance that the data is verified, to prevent greenwashing. We have looked at certificates to verify our data. Although the results showed that several general variables responded positively with the verification data, i.e. being active on social media and the number of words reported on CSR, we have chosen to not incorporate those variables in our final methodology, as the predictability is fairly low, meaning that we might lose focus on the actual frontrunners in the particular industry.

The validation of the results are highly important, as it is likely that using this tool into practices will generate high attention from stakeholders. As CSR is a very broad subject, with no single answer, we have argued multiple times to include stakeholders in each step of the decision process, which could lead to an increase in the believe of a valid screening to the outside world.

Ideally, the end result would deliver a tool that works in multiple industries, therefore we have looked in the possibility of generalising the results of the pilot industries. Earlier we have seen that the general variables could not guarantee that the correct companies were selected, which makes determining a general methodology for this moment and with this dataset impossible. We could look however at the process underlining this methodology. In regards of the best-in-class investment selection, it seems that using pre-determined best practices or indicators, ranked by a stakeholder and/or a specialist could work to generate a ranking list in which multiple companies can be classified.

The tool that we have developed focuses solely on the respective industry variables. We noticed that in these two pilot industries, once these variables are included in the process it has shown to be likely that we create a distinction between potential sustainable companies and companies that do not seem to be sustainable frontrunners. On basis of the methodology that we used, we found that an approximate 50% of companies could be deselected from the total company portfolio. These remaining companies should be further analysed, which seems not possible with solely publicly available information. Although the validation process could never be perfect if an actual list of sustainable frontrunners existed (which would make this project obsolete), we assume these results could be a small step towards the identification of actual sustainable frontrunners. The table below shows the companies that have been selected according to our methodology, of which we assume the frontrunners of the two industries are within this list:

Frontrunners palm oil industry	Industry score (0-5) vs WWF score (1-7)	Frontrunners sugarcane industry	Industry score (0-5) vs Bonsucro certified (y/n)
First Resources Limited	5 / 2	Adecoagro	4 / y
Genting Plantations Berhad	5 / 2	Agrovale	4 / n
Golden Agri-Resources Ltd	5 / 4	Biosev	5 / n
New Britain Palm Oil Ltd	5 / 7	Della Colletta	4 / n
PT Agro Bukit	5 / 3	Grupo São Martinho	5 / y
PT Agro Indomas	5 / 7	Guarani	4 / y
PT Agrowiratama	5 / 7	Jalles Machado SA	5 / n
PT Austindo Nusantara Jaya Agri	5 / 2	Nardini	5 / n
PT Bakrie Sumatera Plantations TBK	5 / 4	Odebrecht	5 / y
PT Berkat Sawit Sejati	5 / 7	Raízen Energia S/A	5 / y
PT Bumitama Gunajaya Agro	5 / 2	Unidade Junqueira	4 / y
PT Inti Indosawit Subur	5 / 2	Usina Delta S/A	4 / n
PT Mentari Pratama	5 / 1	Usina Santa Adélia S.A.	5 / n
PT Musim Mas	5 / 7	Usina Santo Antonio	5 / y
PT Sahabat Mewah dan Makmur	5 / 6	Usina São Luiz S/A	5 / n
PT Salim Ivomas Pratama Tbk	5 / 3	USJ Açucar e Alcool S.A.	4 / n
PT Sampoerna Agro	5 / 3	Zilor Energia e Alimentos	5 / n
PT Unggul Lestari	5 / 7		
R.E.A. Holdings Plc	5 / 6		
Sime Darby Plantation Sdn Bhd	5 / 7		
Wilmar International Ltd	5 / 4		

Table 20: potential frontrunners pilot industries

It should be noted that the selection of these companies are purely based on the disclosure of the companies themselves in regards to the best CSR practices that we have determined on basis of criteria that stakeholders have identified. We have used the best-in-class investment selection that focuses on best practices and companies will in this regard not be penalised on poor performance (Delmas & Blass, 2010).

The following chapter will conclude our project, provide the limitations and discuss the recommendations on going forward.

7 Conclusion, Limitations and Recommendations

This chapter will evolve around the conclusion of the project, including a discussion in regards to the limitations of the whole and will discuss recommendations, how we perceive this research to be continued.

Firstly we will recap and mention the main research question:

In what way is it possible to create a tool that makes it possible to conduct a simple company screening, which leads to an adequate identification of the sustainable frontrunners within particular industries?

If we take the main research questions literally, we must say that it is not possible to adequately identify the sustainable frontrunners on basis of the simple sustainability screen that we have conducted. Since we have no clear idea who are the top performers in the industries, we are unable the generalise methodology towards a broader playing field.

However, we did find some results. We noticed that the top performers in the industries was found in the around top 50% scoring companies of our methodology. In case the whole portfolio of the Rabobank will be classified on the sustainability performance of companies, this tool could be introduced with a goal to exclude certain companies from the sustainability portfolio. Within the research question, the word adequately is precarious, as it is not possible in these industries to validate the frontrunners, but it has shown to be assumption based.

Classifying the companies on their corporate communications and on publicly available information was assumed to potentially deliver biased results. As we have not conducted an in-depth study on each of the companies that scored well, we are not certain whether this is true or not. However, after comparing the results with the validation list, it seems that the classification process has included almost all of the possible frontrunners, which could substantiate against this assumption.

Throughout the project, we noticed that the subject of CSR was broad and difficult to interpret, once not clearly defined. Identifying a sustainable frontrunner is difficult when there are many variables that could explain sustainability. The study is therefore limited in regards of lack of expert analyses, who could have better mapped the definition of sustainability for that particular industry.

Furthermore, the validation of the results limit the adequate identification, as mentioned in the main research question. The study is solely based on results acquired from desk-research.

Due time and money restrictions, it was not possible to visit the actual sites to validate whether the information disclosed by the companies was based on facts. Instead we have chosen for validating the companies on basis of relatively common certifications. As not all companies are part of these certifications it could lead to biased results. We will need more in-depth research to understand the companies' behaviour towards Bonsucro and the RSPO and the actual sustainable impact these certifications have.

We have been looking for a simple approach for classifying companies. This simplified approach has been integral in the classification process. As mentioned earlier, it is likely that some of the industry's issues are more noteworthy than others, thus the lack of a weighing system could deliver limited results. This is at the same time a recommendation for future use.

We highly recommend to start a dialogue with stakeholders regarding the definition of sustainability. By stakeholders we think of investors, NGO's and the companies that are being analysed. Investors who are willing to invest green could possibly have ideas regarding this subject. In that case, when multiple stakeholders agree upon a certain bond being sustainable, there will likely be lower resistance towards the end product.

In case Rabobank wants to go through with classifying its portfolio as proposed in this study, it should determine which road it should take. One way is collecting the data by itself, through for example analyses from industry experts, or incorporate the questionnaire in the investment process. Another way could be through collaborating with stakeholders, such as NGO's, clients and industry experts, to map and analyse the entire industry, as Bonsucro and the RSPO are currently doing. One should determine which process works the best, although it will be highly important to incorporate stakeholders in the decision process, once the classification of companies and thus the green bonds on basis of frontrunners will be put into practice.

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Appendix A Dataset Palm Oil

Company Name	Parent Company	Countries active	Company Website	Deforestation	Biodiversity Loss	Protect Indegenous People	Alleviate poverty	Fertiliser & Pesticides	Industry Score
PT Bumitama Gunajaya Agro		Indonesia	http://www.bumitama.com/	yes	yes	yes	yes	yes	5
PT Sahabat Mewah dan Makmur	ANJ	Indonesia	http://www.anj-group.com/	yes	yes	yes	yes	yes	5
PT Austindo Nusantara Jaya Agri	ANJ	Indonesia	http://www.anj-group.com/	yes	yes	yes	yes	yes	5
PT Inti Indosawit Subur	Asian Agri	Indonesia	http://www.asianagri.com/	yes	yes	yes	yes	yes	5
PT Bakrie Sumatera Plantations TBK	Bakrie	Indonesia	http://www.bakriesumatera.com/	yes	yes	yes	yes	yes	5
Boustead Plantations Berhad	Boustead	Malaysia	http://www.boustead.com.my/	no	no	no	yes	yes	2
PT Sawit Sumbermas Sarana	Citra Borneo Indah	Indonesia	http://en.ssms.co.id/	no	no	no	yes	no	1
First Resources Limited	First Resources	Indonesia	http://www.first-resources.com/	yes	yes	yes	yes	yes	5
Golden Agri-Resources Ltd	GAR	Indonesia	http://www.goldenagri.com.sg/	yes	yes	yes	yes	yes	5
Genting Plantations Berhad	Genting	Malaysia	http://www.gentingplantations.com/	yes	yes	yes	yes	yes	5
Global Palm Resources Holdings Ltd.	Golden Palm Resources	Indonesia	http://www.gprholdings.com/	no	no	yes	yes	yes	3
PT Agro Indomas	Goodhope	Indonesia & Malaysia	http://www.goodhopeholdings.com/	yes	yes	yes	yes	yes	5
PT Agro Bukit	Goodhope	Indonesia & Malaysia	http://www.goodhopeholdings.com/	yes	yes	yes	yes	yes	5
Hap Seng Plantations Holdings Bhd	Hap Seng	Malaysia	http://www.hapsengplantations.com.my/	no	yes	no	no	yes	2
IJM Plantations Berhad	IJM	Indonesia & Malaysia	http://www.ijm.com/	yes	yes	no	no	yes	3
PT PP London Sumatra Indonesia Tbk	Indofood	Indonesia	http://www.londonsumatra.com/	no	no	no	yes	yes	2
PT Salim Ivomas Pratama Tbk	Indofood	Indonesia	http://www.simp.co.id/	yes	yes	yes	yes	yes	5
IOI Group	IOI	Malaysia	https://www.ioigroup.com/	no	yes	yes	no	yes	3
Keck Seng (Malaysia) Berhad	Keck Seng	Malaysia	http://www.my.keckseng.com/	no	no	no	no	yes	1
Kuala Lumpur Kepong Berhad	KLK	Indonesia & Malaysia	http://www.klk.com.my/	yes	yes	no	no	yes	3
New Britain Palm Oil Ltd	Kulim	Papua New Guinea	http://www.nbpol.com.pg/	yes	yes	yes	yes	yes	5
Lam Soon Plantations Sdn Bhd	Lam Soon	Malaysia	http://www.lamsoon.com.my/	no	no	no	no	no	0
M.P. Evans Group PLC	MP Evans	Indonesia & Malaysia	http://www.mpevans.co.uk/	yes	yes	yes	no	yes	4
PT Agrowiratama	Musim Mas	Indonesia	http://www.musimmas.com/	yes	yes	yes	yes	yes	5
PT Musim Mas	Musim Mas	Indonesia	http://www.musimmas.com/	yes	yes	yes	yes	yes	5
PT Berkat Sawit Sejati	Musim Mas	Indonesia	http://www.musimmas.com/	yes	yes	yes	yes	yes	5
PT Unggul Lestari	Musim Mas	Indonesia	http://www.musimmas.com/	yes	yes	yes	yes	yes	5
PT Mentari Pratama	Musim Mas	Indonesia	http://www.musimmas.com/	yes	yes	yes	yes	yes	5
PT Perkebunan Nusantara III	State-owned	Indonesia	http://www.ptpn3.co.id/	yes	no	no	yes	no	2
R.E.A. Holdings Plc	REA	Indonesia	http://www.rea.co.uk/	yes	yes	yes	yes	yes	5
PT Sampoerna Agro	Sampoerna	Indonesia	http://www.sampoernaagro.com/	yes	yes	yes	yes	yes	5
Sime Darby Plantation Sdn Bhd	Sime Darby	Indonesia & Malaysia	http://www.simedarbyplantation.com/	yes	yes	yes	yes	yes	5
PT Swakarsa Sinarsentosa	DSN Group	Indonesia	http://www.dsn.co.id/	yes	no	no	yes	no	2
TDM Plantation Sdn Bhd	TDM	Malaysia	http://plantation.tdmberhad.com.my/	no	no	no	yes	yes	2
Tradewinds Plantations Berhad	Tradewinds	Malaysia	http://www.tpb.com.my/	yes	no	no	yes	yes	3
United Plantations Bhd	United Plantations	Malaysia	http://www.unitedplantations.com/	yes	yes	no	yes	yes	4
Wilmar International Ltd	Wilmar	Malaysia	http://www.wilmar-international.com/	yes	yes	yes	yes	yes	5
PT Triputra Agro Persada		Indonesia	http://www.tap-agri.com	yes	no	yes	no	no	2

Company Name	Certifications	GRI report	GRI audit	Words devoted to CSR	Active on social media	Uses B2C marketing	Online Criticism <5 years
PT Bumitama Gunajaya Agro	yes	no	no	3189	yes	no	yes
PT Sahabat Mewah dan Makmur	yes	no	no	8002	no	no	no
PT Austindo Nusantara Jaya Agri	yes	no	no	8002	no	no	no
PT Inti Indosawit Subur	yes	no	no	25000	no	no	no
PT Bakrie Sumatera Plantations TBK	yes	yes	no	17770	no	no	no
Boustead Plantations Berhad	no	no	no	5226	yes	no	no
PT Sawit Sumbermas Sarana	no	no	no	2080	yes	no	no
First Resources Limited	yes	yes	no	11335	no	no	no
Golden Agri-Resources Ltd	no	yes	no	46077	no	no	yes
Genting Plantations Berhad	yes	no	no	5023	no	yes	no
Global Palm Resources Holdings Ltd.	no	no	no	2417	no	no	no
PT Agro Indomas	yes	no	no	5407	yes	no	no
PT Agro Bukit	yes	no	no	5407	yes	no	no
Hap Seng Plantations Holdings Bhd	no	no	no	1623	no	no	no
IJM Plantations Berhad	no	no	no	8812	yes	no	no
PT PP London Sumatra Indonesia Tbk	yes	no	no	1785	no	no	yes
PT Salim Ivomas Pratama Tbk	no	no	no	2395	no	yes	no
IOI Group	no	no	no	3593	yes	no	yes
Keck Seng (Malaysia) Berhad	no	no	no	1747	no	no	no
Kuala Lumpur Kepong Berhad	no	no	no	4023	no	no	no
New Britain Palm Oil Ltd	yes	no	no	26846	no	no	no
Lam Soon Plantations Sdn Bhd	yes	no	no	2209	no	yes	no
M.P. Evans Group PLC	no	no	no	2693	no	no	yes
PT Agrowiratama	no	no	no	18683	yes	no	yes
PT Musim Mas	no	no	no	18683	yes	no	yes
PT Berkat Sawit Sejati	no	no	no	18683	yes	no	yes
PT Unggul Lestari	no	no	no	18683	yes	no	yes
PT Mentari Pratama	no	no	no	18683	yes	no	yes
PT Perkebunan Nusantara III	no	no	no	2632	no	no	no
R.E.A. Holdings Plc	no	no	no	4463	no	no	no
PT Sampoerna Agro	no	no	no	6629	no	no	no
Sime Darby Plantation Sdn Bhd	no	no	no	14169	yes	no	yes
PT Swakarsa Sinarsentosa	no	no	no	1245	no	no	no
TDM Plantation Sdn Bhd	no	no	no	1366	no	no	no
Tradewinds Plantations Berhad	yes	no	no	1957	no	no	no
United Plantations Bhd	no	no	no	15274	no	no	yes
Wilmar International Ltd	no	no	no	29675	yes	no	yes
PT Triputra Agro Persada	no	no	no	1489	no	no	no

Table 21: Dataset Palm Oil

Appendix B Dataset Sugarcane

Company Name	Countries Active	Company Website	Water Quality & Availability	Livelihoods	Reduce habitat destruction	Reduce biodiversity loss	Greenhouse gas emissions	Industry score
Agrovale	Brazil	http://www.agrovale.com/	yes	yes	yes	yes	no	4
CEVASA	Brazil	http://www.cevasa.com.br/	no	Yes	No	No	Yes	2
Della Colletta	Brazil	http://www.coletta.com.br/	yes	yes	yes	yes	no	4
Grupo Farias	Brazil	http://www.grupofarias.com.br/	no	yes	yes	no	no	2
Grupo São Martinho	Brazil	http://www.saomartinho.ind.br/	yes	yes	yes	yes	yes	5
USJ Açucar e Alcool S.A.	Brazil	http://www.usj.com.br/	yes	yes	yes	yes	no	4
Guarani	Brazil	http://www.aguarani.com.br/	yes	yes	yes	no	yes	4
Biosev	Brazil	http://www.biosev.com/	yes	yes	yes	yes	yes	5
Nardini	Brazil	http://www.nardini.ind.br/	yes	yes	yes	yes	yes	5
Santa Cruz S/A Açúcar e Alcool	Brazil	http://www.usinasantacruz.com.br/	yes	yes	yes	no	no	3
Usina Alta Mogiana	Brazil	http://www.altamogiana.com.br/english/index.html	yes	yes	yes	no	no	3
Unidade Junqueira	Brazil	http://www.altoalegre.com.br/	yes	yes	yes	no	yes	4
Usina Açucareira São Manoel S.A	Brazil	http://www.saomanoel.com.br/	no	no	no	no	no	0
Usina Santa Adélia S.A.	Brazil	http://site.usinasantaadelia.com.br/	yes	yes	yes	yes	yes	5
Usina São Luiz S/A	Brazil	http://www.usinasaoluiz.com.br/	yes	yes	yes	yes	yes	5
Usina Vertente Ltda	Brazil	http://www.usinavertente.com.br/	no	yes	yes	no	no	2
Zilor Energia e Alimentos	Brazil,USA	http://www.zilor.com.br	yes	yes	yes	yes	yes	5
Clealco Acucar e Alcool SA & Condominio	Brazil	http://www.clealco.com.br/eng/	yes	yes	yes	no	no	3
Companhia Alcoolquimica Nacional	Brazil	http://www.grupojb.com.br/portal/	no	yes	no	no	no	1
Coplasa Acucar e Alcool	Brazil	http://www.usinamoreno.com.br/home/	yes	yes	yes	no	no	3
Ferrari Agroindustria S.A.	Brazil	http://www.usinaferrari.com.br/	no	no	no	no	no	0
Grupo Virgolino de Oliveira	Brazil	http://www.gvo.com.br/	no	yes	no	no	no	1
Jalles Machado SA	Brazil	http://www.jallesmachado.com.br/english/	yes	yes	yes	yes	yes	5
USA Usina Santo Angelo Ltda	Brazil	http://srv3.usangelo.com.br/	yes	yes	yes	no	no	3
Usina Colombo S/A	Brazil	http://www.acucarcaravelas.com.br/	yes	yes	yes	no	no	3
Usina de Acucar Santa Terezinha	Brazil	http://www.usacucar.com.br/	no	yes	yes	no	no	2
Usina Delta S/A	Brazil	http://www.deltasucroenergia.com.br/frontend/	yes	yes	yes	yes	no	4
Usina Santa Fe	Brazil	http://www.usinasantafe.com.br/	no	no	no	no	no	0
Usina Santa Isabel SA.	Brazil	http://www.usinasantaisabel.com.br/	yes	yes	no	no	no	2

Company Name	Certifications	GRI report	GRI audit	Words devoted to CSR	Active on social media	Uses B2C marketing	Online Criticism <5 years
Agrovale	no	no	no	1327	yes	no	no
CEVASA	yes	no	no	897	No	no	no
Della Colletta	yes	No	no	2475	no	no	no
Grupo Farias	no	no	no	490	no	no	no
Grupo São Martinho	yes	yes	yes	26909	yes	no	no
USJ Açucar e Alcool S.A.	yes	no	no	2563	no	no	no
Guarani	no	no	no	2341	yes	yes	no
Biosev	yes	yes	no	17300	no	yes	yes
Nardini	yes	no	no	1366	no	no	no
Santa Cruz S/A Açúcar e Alcool	yes	no	no	2500	no	no	no
Usina Alta Mogiana	yes	no	no	1953	yes	no	no
Unidade Junqueira	yes	no	no	3005	yes	no	no
Usina Açucareira São Manoel S.A	no	no	no	95	yes	no	no
Usina Santa Adélia S.A.	yes	yes	yes	12956	yes	no	no
Usina São Luiz S/A	no	no	no	3406	no	no	no
Usina Vertente Ltda	no	no	no	219	no	no	no
Zilor Energia e Alimentos	no	yes	yes	7905	no	no	no
Clealco Acucar e Alcool SA & Condominio	no	no	no	1848	no	no	no
Companhia Alcoolquimica Nacional	no	no	no	183	no	no	no
Coplasa Acucar e Alcool	no	no	no	3502	no	no	no
Ferrari Agroindustria S.A.	no	no	no	56	yes	no	no
Grupo Virgolino de Oliveira - Pro-Forma Consolidated	no	no	no	556	no	no	no
Jalles Machado SA	no	no	no	3438	yes	no	no
USA Usina Santo Angelo Ltda	no	no	no	891	no	no	no
Usina Colombo S/A	yes	no	no	13544	no	no	no
Usina de Acucar Santa Terezinha	no	no	no	2791	no	no	no
Usina Delta S/A	yes	no	no	3106	yes	no	no
Usina Santa Fe	no	no	no	56	yes	no	no
Usina Santa Isabel SA.	no	no	no	1073	no	no	no

Table 22: Dataset Sugarcane