How media influence South African agri-businesses' CSR-programs

-Can CSR create incentives for agri-businesses to include small-scale farmers in their supply chain, despite high transaction costs?

Madelene Casselbrant

"The narrow way - to live for others in order to save one's self.
The broad way - to live for others in order to save one's self-esteem."

Dag Hammarsköljd, Markings

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Summary

In UNDP (2008) the UN Commission on the Private Sector and Development stresses the importance to develop the private sector within the African agricultural sector as a mean in succeeding to reach the Millenium Development Goals. Since the 90s the number of larger agri-businesses in Sub-Saharan Africa has increased. When an agribusiness establishes in a developing area, it can be mutually beneficial both for the profit of the company and for the economy of the developing area. However, it can also pose a threat to local small-scale farmers since, as Vorley *et al.* (2009) points out, for an agribusiness to collaborate with small-scale farmers in comparison with large-scale farmers, involve larger transaction costs.

Hall (2012) mentions that there is an increased presence of both South African agribusinesses and large-scale farmers elsewhere in Africa. Consequently, South African agribusinesses choice to either collaborate with small-scale farmers or not, affects people across the continent.

The present study considers that to include small-scale farmers in the value chain can be a corporate social responsibility (CSR) strategy for large South African agribusinesses. The strategy is a potential method for the agribusinesses to surpass the transaction costs of selecting to collaborate with small-scale farmers compared to large-scale farmers.

Buhr & Grafström (2007) finds few previous studies that look at media's influence in how firms' managements develop CSR-programs. Yet Alvarez *et al.* (2005) reflects that newspapers, magazines, businesses' websites and televised business programs are important sources of information for business managements. The aim of the present study is to specifically address what role South African media play in creating a social expectation on South African agribusinesses to include small-scale farmers in their values chain, as a part of their CSR program. If a relationship exists it indicates that stakeholders who want to empower small-scale farmers can use media to demand more CSR from agribusinesses, to increase the companies' efforts to include small-scale farmers in their value chain. The theoretical framework of the study constitutes of economies of scale, transaction economics and product differentiation.

The topic is approached by a quantitative media discourse analysis, studying the sustainability reporting of 19 different South African agribusinesses and 18 newspapers during the years 2008-2012, to see to what extent the topic of the exclusion or inclusion of small-scale farmers is reported in the documents. In order to establish a relationship, the result from the media collection is regressed on the result from the sustainability reporting. The data is regressed using first a panel data approach and then a time series analysis.

The study establishes that a causal relationship exists, where media explains the change in sustainability reporting on the topic. However, the characteristic of the relationship, whether it is positive or negative, depends on the level and the time aspect. On an aggregate level and with an instantaneous time aspect, the relationship is found to be positive. Yet, on an individual business' level, with a six to four months' time lag, the relationship is found to be negativeThere are some additional findings from the study. South African companies that are subsidiaries of global companies are more likely to report on the CSR-topic. No such conclusion can be drawn that retailor are more likely to address the issue compared to other agribusiness, even though they have direct contact with the final consumer in the value chain. The year 2011 is found to have a negative impact on the CSR-reporting on the topic. Possible explanations can be that the ongoing food crises lead to a decrease in the demand for CSR-product, since CSR-products can be considered to be normal goods, meaning that the agribusinesses had little economic incentive to provide them.

Abbreviations

AR(1)   Autoregressive Process of the First Order

CIA   Central Intelligence Agency

CR   Corporate Responsibility

CSR   Corporate Social Responsibility

EP   Expansion Path

IFAD   International Fund of Agricultural Development

LAC   Long-run Average Cost

LMC   Long-run Marginal Cost

MDG   Millennium Development Goals

MNC   Multinational Companies

SAC   Short-run Average Cost

SMC   Short-run Marginal Cost

SR   Social Responsibility

UN   United Nations

UNDP   United Nations Development Programme

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1 Introduction

Since 2000 a main focus for the progress on developing countries has been on fulfilling the eight Millennium Development Goals (MDG). Even though Sub-Saharan Africa is among the world's regions that have done the most progress according to UN (2013) it faces the largest challenges to fulfill the MDGs. As an example, it is pointed out in the same report that Sub-Saharan Africa is the only area in the world where the number of people living in extreme poverty increased from 1990 to 2010. In the early 00's the United Nations began recognizing the private sector as a possible part of the solution to fulfilling the MDGs. In a report by the UN Commission on the Private Sector and Development, UNDP (2004), the commission stresses that local corporates and multinational companies (MNC) play an important role in eradicating poverty in developing countries. The report identifies the private sector as a large variety of enterprises: everything from MNCs to small-scale enterprises, such as small-scale farmers. A different report by the commission, UNDP (2008), stresses the importance to develop the private sector within the African agricultural sector as a mean in succeeding to reach the MDGs.

A large development of the Sub-Saharan agricultural sector has occurred since the 90's. Mainly, the number of larger agri-businesses in Sub-Saharan Africa has increased. As an example, Reardon & Weatherspoon (2003) mention that in 2003 larger supermarkets had 55 % of the whole food retail sector in South Africa. Weatherspoon *et al.* (2001) mentions that part of the explanation to why larger companies, such as MNCs establish businesses in emerging regions like Sub-Saharan Africa, is to get the benefit in getting new market access. When an agribusiness establishes in a developing area, it can be mutually beneficial both for the profit of the company and for the economy of the developing area. Among the benefits UNDP (2004) considers, are that the larger companies can contribute with knowledge, contact-network and resources. Hazell and Diao (2005) argues that there are great potential for Sub-Saharan African small-scale farmers to increase their income if they are included in the growing African agricultural market. Globally there is no other agricultural market that is expected to grow as much as the African market of traditional crops. The African consumption of traditional products is 70 % of the total consumption, while the outputs of these products are expected to double by 2020, corresponding to a worth of $50 billion annually in the prices of 1996-2000. At the same time the urbanization and market establishment is expected to increase. Crops that traditionally are grown for families' own livelihood can become market products when an accumulative share of the population quit farming and move into urban areas.

Yet, the larger companies can pose a too large competition for small-scale farmers already established in the area. Reardon & Weatherspoon (2003) takes the example of supermarkets, that when they establish in a developing region they pose a threat to local small-scale farmers. The farmers face the problem of relatively high costs compared to the size of their operations, as well as the problem of upholding the quality standards demanded by the large supermarkets. Louw *et al.* (2008) adds that supermarket chains tend to favor to collaborate with larger producers that can comply with their requirements. The reason, as Vorley *et al.* (2009) stresses, is that for an agribusiness to collaborate with small-scale farmers involve larger transaction costs compared to large-scale farmers. Hobbs (1997) argues that according to transaction economics, a firm will choose to collaborate with the economic actor that is the most transaction-cost-efficient, indicating large-scale rather than small-scale farmers. Pingali *et al.* (2005) means that the private sector is likely to only invest when the potential benefits surpasses the potential additional costs of collaborating with small-scale farmers rather with larger farms.

In IFAD (2004) it is stated that for 65 % of the African population, agriculture is the primary source of livelihood and has a share of 30-40 % of the African countries' GDP. South Africa diverts from the statistics with the agricultural sector making up 2,6 % of GDP and employing 9 % of the population, according to CIA (2014). However, in South Africa's National Development Plan by gov.za (2011) it is mentioned that one million new jobs can be created within the agricultural sector by 2030, of which 300 000 are within small-scale farming. Such increase in number of work opportunities is a great improvement for a country that suffers from problem of high unemployment. Furthermore, while the agricultural sector is a smaller share of the GDP than elsewhere in Africa, the South African agribusinesses are the largest on the continent. When Dentoni & Mitsopoulos (2013) lists the 50 largest agribusinesses in Sub-Saharan Africa, 20 originate from South Africa. Hall (2012) mentions that there is an increased presence of both South African agribusinesses and large-scale farmers elsewhere in Africa. According to Reardon *et al.* (2005), South African supermarket chains' investments are important explanations to why the supermarket sector is growing in other African countries. Hence, South African agribusinesses have a growing impact on the economic situation for both South African small-scale farmers, as well as for small-scale farmers in other Sub-Saharan countries. Consequently, South African agribusinesses choice to either collaborate with small-scale farmers or not, effects people across the continent.

1.1 Research Question and Motivation

McWilliams & Siegel (2001) states that Corporate Social Responsibility (CSR) is a strategy for firms to gain monopolistic power through product differentiation. Vorley *et al.* (2009) argues that collaborating with small-scale farmers is a possible CSR approach to gain market shares in a competitive market. The present study considers that to include small-scale farmers in the value chain can be a CSR strategy for large South African agribusinesses. The strategy is a potential method for the agribusinesses to surpass the transaction costs of selecting to collaborate with small-scale farmers compared to large-scale farmers, by gaining monopolistic power.

According to Whetten *et al.* (2002), CSR involves social expectation on a firm to act in a socially responsible manner. Luo & Bhattacharya (2006) declares that in the last years there has been an increase in the number of firms signaling to their stakeholders that they take social responsibility. Simultaneously the media coverage on the phenomenon of CSR is growing. Alvarez *et al.* (2005) reflects that the regular source of information for top managers is not academic articles, nor books describing scientific management methods. Rather it is newspapers, magazines, businesses' websites and televised business programs. Interestingly, limited research has so far been done on how management ideas are formulated through mass media. McWilliams & Siegel (2001) media play a role in changing the demand of CSR among consumers and the social performance of firms are reported in media. From Alvarez *et al.* (2005) and McWilliams & Siegel (2001) it can be argued that media both has an direct and indirect influence over how firms' management formulate their CSR-programs. The direct effect is from the managements themselves having media as a main source of information, while the indirect effect is that media formulates social expectations with the consumers on the agribusinesses, and create a demand for specific CSR that the businesses need to supply to their consumers. A pioneering study by Buhr & Grafström (2007) looks at media's role in influencing managements' decisions on working with CSR. It is mentioned that there are previous studies that look into how individuals, organizations, non-governmental organizations, consumers, governments, consultants and firms create the expectations of what CSR involves. However, Buhr & Grafström (2007) finds few previous studies that looks at the role of business media, nor media in general in influencing in how managements develop firms' CSR-programs.

In the present study, the area of interest is to, on the same line as Buhr & Grafström (2007), look at how media influence agribusinesses' CSR-related decisions. The study is narrowed down to investigate if there exists a relationship between how South African media report on the inclusion or exclusion of small-scale farmers in the agricultural market, and how South African businesses respond to incorporate the topic as a part of their CSR, in order to conserve and even improve their brand image. Kolk & Lenfant (2010) states that of the research that has been done on CSR in developing countries, little attention has been paid to Africa. The two countries that have gotten the most attention in Africa are South Africa and Nigeria. The main topic when looking at CSR in a South African context is how business is done in an ethical manner linked to the history of apartheid in South Africa. Kolk & Lenfant (2010) insists that there is a need for more research on other CSR topics than the ones concerning apartheid in a South African context.

1.2 Research Question

In following section the aim, the research questions and the hypothesis of the study are stated. Furthermore the methods to approach the research questions and the expected results are described.

1.2.1 Aim and research question

The contribution of the present study is to extend the research within an area that has so far received little attention: to investigate the role media play in managements' decision on firms' CSR-program. The aim is to investigate what role South African media play in creating social expectations on South African agribusinesses to include small-scale farmers in their values chain, as a part of their CSR program. To fulfill the aim, the study seeks to answer following four questions:

   I. To what extent do South African media, during the years 2008-2012; report on the topic of exclusion or inclusion of small-scale farmers?

   II. To what extent do South African agribusinesses, during the years 2008-2012; report on the topic of exclusion or inclusion of small-scale farmers as a part of their sustainability reporting?

   III. Does a significant cause- and effect relationship exist between questions I and II, where the result from the first question would explain some of the results in the second question?

   IV. Do the media that address the topic and is printed closer in time to the publication of an agribusiness' annual report, have a larger influence than media printed more distant in time?

Obtaining more empirical insights into the potential causal relationship between the media coverage of the situation of smallholders in relation to the dynamic growth of agribusinesses in South Africa, can potentially make the managements and boards of the businesses more aware of the potential implications that how they deal with smallholders has on their firm image. CSR

may function as a mechanism through which an economic incentive is created for larger value chains to actually incorporate smallholders.

Consumers may learn from this analysis that shopping consciously and expressing a preference for 'smallholder friendly' value chains might actually have an effect on firms' strategies to include smallholders. Consumers' demand for firms' to be socially responsible in this aspect can make the firms' realize that they can attract consumers through supplying the demanded CSR.

Other stakeholder that work to empower small-scale-farmers, such as farmers' unions, non-governmental organizations and governments, can realize that media can be a tool to create economic incentives among large agribusinesses to include small-scale farmers.

The challenges that face small-scale farmers to be included in the market relate to the theory of economies of scale. For large agribusinesses to collaborate with small-scale farmers can involve increased transaction costs. In order to at least break even by collaborating with small-scale farmers, the agribusinesses can do so as a part of their CSR- program, which provides a product differentiation of their products and is a strategy to gain market power. Hence, the economic concepts economies of scale, transaction costs and product differentiation are the fundaments of the study's theoretical framework.

1.2.2 Methods and data

The method used is a quantitative media discourse analysis. In order to collect the data a content analysis of South African newspapers and the annual reports of 19 different South-African agribusiness firms, is conducted. The annual reports are studied during five years, from 2008 to 2012, while the media are studied from November 2007 to July 2012. The panel data received from the data collection is then analyzed using a Tobit-model specification, as well as with a time series approach.

1.2.3 Expected results and hypothesis

The expected result of the study is to find a positive casual relationship between how much the media report on excluding or including small-scale farmers from the market, and how much the agribusinesses report on the topic. If such a relationship exists it indicates that media influence agribusinesses to integrate the topic of including small-scale farmers as a part of the firms' CSR-programs. The hypothesis of the study is:

> H_0: There exists a positive relationship between the extent of media's reporting and the agribusinesses' CSR efforts, on the topic of exclusion or inclusion of small scale farmers from the market.

> H_a: There does not exist a positive relationship.

The null hypothesis is rejected if the relationship either is negative or not significant.

1.3 Delimitations

The study is geographically limited to South Africa. It may seem counter-intuitive to select the country in Sub-Saharan Africa where agriculture, according to CIA (2014), makes out a small share of the nation's GDP and work force compared to other African countries. However, as mentioned in Section 1.1, South African agribusinesses are more represented on the list of the agribusiness from Dentoni & Mitsopoulos (2013) than any other country, suggesting that the value South African agriculture is large compared to elsewhere in the region. Furthermore, Reardon *et al.* (2005) indicates that the agricultural sector in South Africa is involved in other

countries in Sub-Saharan countries. Hence, South African agribusinesses do not merely affect the opportunity for small-scale farmers in South Africa to be integrated in the value chain, but farmers across the continent.

The firms included in the study are all African-based agribusinesses (see Section 1.4.1 for a definition). By only including agribusinesses it is ensured that the companies somehow have an impact on small-scale farmers in the region. The firms are selected from Dentoni & Mitsopoulos (2013) list of the 208 largest Sub-Saharan agribusinesses in 2010. The companies are selected because they originate from South Africa and because they publish their annual reports consistently on their websites during the years 2008-2012. A crucial point for the study is to look at how the companies' CSR reporting has changed over time. Therefore it is necessary to select a content that is produced annually and consistently. For this reason both annual reports and sustainability reports can be considered. However, many of the companies selected for the study do not produce sustainability reports consistently. Hence, the study is limited to look at the CSR reported in annual reports.

The media content studied is South African newspapers that can be collected by using the media database Factiva. The limitation is based on the choice to only include South African companies. It is necessary to choose media that both the managements and the consumers of the agribusinesses are likely to read. It can be argued that South African managements read international newspapers. It is possible to select international business media such as Financial Time, which is the subject of a content analysis conducted by Buhr & Grafström (2007). However, it is reasoned that it is more likely that a larger share of both the consumers and managements read national newspapers rather international ones. Hence, the study is limited to South African media. An option could have been to include media from the countries in which the selected agribusinesses have subsidiaries. Why this is not done is because of the study's time constraint. Finally, it is preferred to use newspapers rather than other type of media since it is possible to study the newspapers continuously through accessing archived articles by using electronic archives, such as the media database Factiva.

Because of time constraint the number of years studied is limited to five years. Annual reports are studied during the years 2008 to 2012, while media is collected from November 2007 to July 2012. The years 2008 to 2007 are selected because the chosen companies published their annual reports consistently on their website during these years, which is not the case if an earlier or later time interval had been chosen instead. Hence it is possible to study the annual reports consistently through out the whole time interval. One of the research questions is to study if the closer the media is published to the publication of an annual report, the more effect the article has. The approach that is used to study the question makes it necessary to collect media from six months before the first annual reports is published, to three moths before the last included report is published.

A final limit is the fact that only reports and media written in English can be used because the author is limited in language knowledge. However the language constraint is expected to have limited effect. According to CIA (2014) English is an official language in South Africa, indicating that large newspapers should be available in English.

1.4 Definitions

The three concepts *'agribusiness', 'corporate social responsibility'* and *'small-scale farmers'*, are all of importance for the study. In following section the concepts are defined.

1.4.1 Agribusiness

Cook & Bredahl (1991) ascribes agribusinesses the characteristic of working with all operations involved in the production and distribution of food and fiber. FAO (2014) defines agribusiness as: *"the collective business activities that are performed from farm to fork. It covers the supply of agricultural inputs, the production and transformation of agricultural products and their distribution to final consumers."* Furthermore, agribusinesses work with products that are: *"mostly perishable, variable in quality and not regularly available."*

In the present study, the concept of agribusinesses refers to the type of companies listed in Dentoni & Mitsopoulos (2013) list of the 208 largest Sub-Saharan agribusinesses in 2010. The companies included on the list works with: input supply, agricultural production, food processing, retail or distribution.

1.4.2 Corporate social responsibility

Grafström & Windell (2011) mentions that a large quantity of research has attempted to find a universal definition of CSR. Still there is no universally accepted definition, but several different ones. Frankental (2001), describes CSR as *"a vague and intangible term, which can mean anything to anybody, and therefore is effectively without meaning" (p.20).* Larsson (2011) highlights that there has been a change in academic research to substitute CSR with the broader term corporate responsibility (CR). The intuition is that everything that previously has been included in the term CSR is not necessarily of social character. It can be that a company works with environmental issues, but takes no social responsibility. Larsson (2011) defines the broader term social responsibility (SR) as *"social issues that are relevant in the context of CR" (p.5).* Since exclusion of small-scale farmers is an issue of social character, the present study uses the abbreviation CSR. Still, here it is acknowledged that CSR may include more than just the social aspect of CR, such as environmental issues.

Whetten *et al* (2002) defines corporate social responsibility as:

> *"societal expectations of corporate behaviour; a behaviour that is alleged by a stakeholder to be expected by society or morally required and is therefore justifiably demanded of a business" (p.374).*

The present study considers *"social expectations of corporate behavior"* as a defining characteristic of CSR. The specific characteristic is of importance since it is desired to investigate if media creates social expectations.

1.4.3 Small-scale farmers

IFAD (2008) ascribes small-scale farms as being two hectares or less. Murphy (2010) stresses that it is necessary to not only define small-scale farms by material assets. Small-scale farmers are also defined by *"marginalisation in terms of geography, assets, resources, markets, information, technology, capital, and non-land assets" (p.3).* Kirsten & Van Zyl (1998) looks at the term small-scale farmers in the context of South Africa. One of two dimensions that are addressed in the article and are important for the present study is that there is a prejudice prevailing in the South Africa where small-scale farmers are in general considered to be black farmers, and large-scale farmers to be white. The second dimension is that it is noticed that there is not a large difference in South Africa between small-scale farmers and rural small-scale enterprise, since both groups commonly have diversified income sources. Additionally, for rural small-scale enterprises a large share of their income can come from farming, just as for small-scale farmers. In the present study small-scale farmers are defined on the same line as Murphy (2010). More specifically small-scale farmers are defined by the challenges they face

as farmers who do not experience economies of scale. It is acknowledged that small black-owned farms, referred to as emerging farms, are a subset to small-scale farms in South Africa. Finally, even though Kirsten & Van Zyl (1998) points out that small-scale farmers and small-scale business is not that different form each other, in the present study the two terms are separated. The focus of the study is to look at small-scale farmers, not small-scale businesses, even though small-scale farmers can, according to UNDP (2004), be a sub-set of small-scale businesses.

2 Theoretical Framework and Literature Review

The following chapter demonstrates that economies of scale, transaction cost economics and product differentiation, are three economic concepts that relate to the study. The concepts are described here in order to establish a theoretical framework within which the problem of inclusion or exclusion of smallholders from agribusiness in South Africa is being analyzed. At the end of the chapter previous similar studies are reviewed in order to understand the contribution of the study.

2.1 Economies of scale

Perloff (2011) describes economies of scale as when a firm's output increases the average costs decline. Allen *et al.* (2009) states that it is expected that the firm cannot grow beyond a certain level and still experience economies of scale. Figure 1 and 2 illustrates economies of scale.
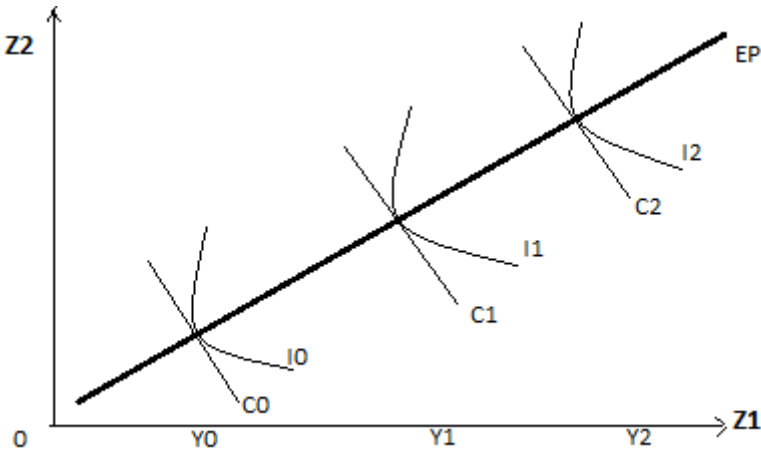
Figure 1 Production functions of y_0 , y_1 and y_2 and the expansion path. Source: author's own design, based on Figure 6.8 in Gravelle & Rees (2004)

Figure 2 Short-run marginal-and average costs' functions for y_0, y_1 and y_2; long-run average and marginal costs' functions. Source: author's own design, based on Figure 6.11 in Gravelle & Rees (2004)
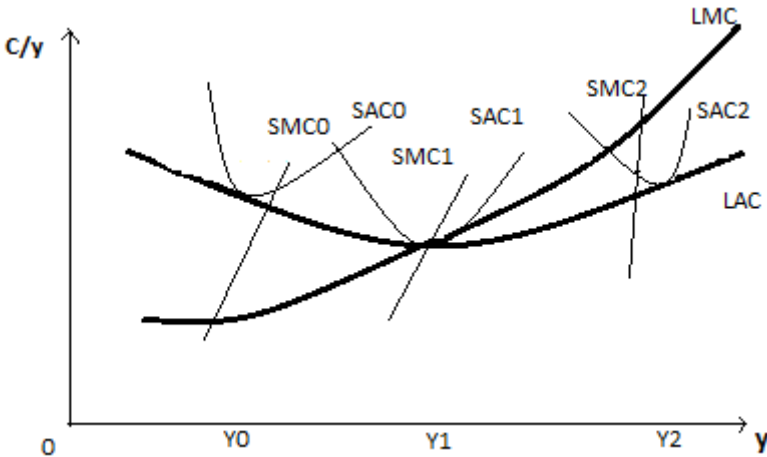
Figure 1 shows the production functions at three different production levels, y_0 , y_1 and y_2. The point at which the isoquant and the cost function meet indicates the optimal input option for

each production level. The expansion path (EP), cuts through the three optimal points. Figure 2 illustrates the short-run marginal cost (SMC) and the short-run average cost (SAC) at each production level. Furthermore it shows the long-run marginal cost (LMC) and the long-run average cost (LAC). When a production level is at a point before the LMC cuts LAC, a firm is experiencing economies of scale, meaning that the average cost of producing declines. However when a production level is beyond the optimal point where LAC intersects LMC the firm is experiencing diseconomies of scale, and the average cost per output is instead increasing.

Gravelle & Rees (2004) elaborate the theory further with following definition for the elasticity of cost with respect to output:

$$E_y^c = \frac{\partial \ln C(p,y)}{\partial \ln y} = C_y(p,y)\frac{y}{C(p,y)} = \frac{LMC}{LAC} \tag{1}$$

Equation 1 indicates that the elasticity of cost with respect to output equals the long-run marginal cost (LMC) divided by the long-run average cost (LAC). As defined in Equation 2, a firm experience economies of scale when the elasticity is below 1. However, if the elasticity instead is larger than one, as in Equation 3, the firm has diseconomies of scale.

$$\frac{LMC}{LAC} < 1 \tag{2}$$

$$\frac{LMC}{LAC} > 1 \tag{3}$$

Pindyck & Rubinfeld (2004) adds that if larger firms in a market have lower costs due to scale-advantages compared to smaller firms, the higher costs for the smaller firms can create barrier to entry the market. Kirsten & Van Zyl (1998) explains that why farms become more productive as they grow is because of market imperfections on several markets. The example is given of credit markets, which can be imperfect if credits are given based on the size of farms. If both the land and labor market are perfect it will lead to a system where the productivity on all farms are the same; the only variable that causes a variation in yield between farms is farm size. However, if also the land and the labor markets are imperfect it will generate a positive relationship where productivity is determined by farm size. Kirsten & Van Zyl (1998) means that the markets in South Africa, such as labor, land, credit, insurance, are imperfect or even missing, especially for small-scale farmers. The limited access to these markets causes short-term economies of scale. The economies of scale in these cases are false since they are temporary, caused by small-scale farmers being excluded from the market. If the markets would be more adapted the economies of scale would not occur. Yet, even though it is a short-term problem that could be changed by developing the markets into being more inclusive, by not combating the problem, the farm structure in countries like South Africa will be focused on large-scale farms.

2.2 Transaction cost

Williamson (1979), one of the pioneers within the field of transaction economics, states that the field is cross-disciplinary, combining economics, contract law and organization theory. The discipline diverts from neoclassic economics since it does not rely on idealistic models based on perfect markets. The market cannot be perfect when there exist transaction costs, since they

arise due to frictions on the market. Hobbs (1997) elaborates that transaction costs can be divided into three categories. First, the costs connected acquiring information about, e.g. products, prices and trading partners. Secondly, costs of negotiations, meaning the costs of operating the transactions. Finally, monitoring and enforcement costs arise after the transaction has been made; costs connected to control that the terms of agreement are fulfilled, such as the standards and quality. Birthal *et al.* (2005) mentions that another common division is that transaction costs either are tangible or intangible. Tangible relates to costs of transportation and communication. Intangible costs are connected to moral hazards and uncertainty.

Hobbs (1997) stresses the importance of acknowledging the existence of transaction costs in the vertical coordination between different actors in the value chain. Knowing that costs arise leads to the possibility that the vertical coordination can be conducted "*in the most transaction-cost-efficient manner*" *(p.1084)*. Birthal *et al.* (2005) defines that '*efficient*' in the context means: "*in a perfectly competitive situation, institutions with the lowest production and transaction costs for a given activity will have an edge over others and dominate the market*" *(p.5)*. John & Weitz (1988) explains that a common theory is that firms that are transaction-cost minimizing rather have a vertical than horizontal integration. Vertical integration indicates that firms collect the whole supply-chain under one company, instead of collaborating with many different market actors. Related to transaction costs economics, Hobbs (1997) point out that a common criticism to the theory is the difficulty to measure transaction costs, since they are not easily separated from other costs. Therefore, rather than accounting the transaction costs, it can be more accurate to analyze how important transactions costs are for individual actors on the market.

2.2.1 The role of transaction costs for small-scale farmers

Pingali *et al.* (2005) mentions that an inverse relationship exists between economies of scale and transaction costs. Transaction costs are becoming increasingly prohibitive for small-scale farmers. The farmers are stuck in traditional production systems, excluded from fulfilling the requirements demanded by modern agricultural food system. Large-scale producers are more favored into entering into the modern food systems. Transactions costs that are special for farmers arise especially from attempts to participate in the gradually vertically coordinated markets. The bundle of transactions costs a specific farmer faces determines the farmer's market participation. To overcome transaction costs farmers can choose to collaborate with each other to, as a unit, experience large-scale advantages. Key *et al.* (2000) conducted a study with Mexican farmers, where the findings of the study are inline with the view of Pingali *et al.* (2005). The study finds that fixed and proportional transaction costs affect farmers' decision to access the market. If the transaction costs are too large, the farmers will choose not to enter the market, but instead stay as subsistence farmers.

In a literature review Jordaan *et al.* (2014) identifies which '*stumbling blocks*' exist as barriers for small-scale farmers to enter the market. The '*stumbling blocks*' that are found are that large retailers demand a consistent supply of agricultural products that is difficult for small-scale farmers to fulfill; the small scale of operations; how small-scale farms are operated; the lack of property rights; insufficient access to credit markets; insufficient access to market information; poor infrastructure; limited support service; distrust among actors along the value chain, and long distance to physical market. In following paragraphs several different types of transactions costs that small-scale farmers face are discussed in further detail.

Poor infrastructure
Hazell and Diao (2005) says it is most problematic for small farmers who live in remote areas with limited infrastructure development to access the market. A study by Strasberg et al. (1999)

show that limited access to good roads decreases the economic incentive to use inputs such as fertilizers, since it increases the transaction costs by attaining these inputs. Pingali *et al.* (2005) mentions that it is difficult for small-scale farmers to enter a production of some high-value goods because of bad infrastructure, since high-value goods are commonly more perishable. With poor infrastructure the high-value products are destroyed before having reached the market. Furthermore, the transaction costs that arise by the quality of infrastructure are geographically dependable. Some areas where small-scale farms are situated are more high-quality than others, since they have better access to roads. To enter the market for farmers living in low-quality areas involves larger transactions costs since more time is needed to access the market. A different point Pingali *et al.* (2005) makes is that less access to good roads means less access to market information.

Lack of credits
An example of transaction cost that arise due to the size of small-scale farms is the difficulty to access credit markets. Research conducted by Ahmed (1989) shows that to access the informal credit market involve less transactions costs for farmers in Bangladesh than the formal one. It can be explained by that farmers usually know the lender when it concerns an informal loan. On the other hand, transactions costs decrease per unit of loan faster for formal loans compared to informal ones. Pingali *et al.* (2005) mentions that the transaction costs related to investments are more difficult for small-scale farmer to cope with compared to large-scale producers, because of diseconomies of scale. The investment costs arise if the farmers choose to modernize their food system. It can be that the farmers decide to produce high-value crops instead of staple goods. Modernizing the food system increases the economic exchanges between actors on the input and output markets, leading to increased transaction costs. For certain high-value crops, costs rise because there exist a monopsony on the number of buyers.

Marketing and distribution
Different marketing channels involve more or less transaction costs. Among grain farmers in Ethiopia, Gabre-Madhin (1999) finds that it is preferred to use grain brokers as market channel. However increased brokers usage is related with an increase in transactions costs. The more developed a farmer's social network is, the less brokers will be used, leading to a decrease in transaction cost.

Fulfilling quality and standard requirements
As already mentioned, some high-value crops are more perishable. Pingali *et al.* (2005) points out with perishable goods it is necessary to have access to storages in order to keep the quality of the crop. Hazell and Diao (2005) describes a dramatic change in the agricultural markets, which is putting large demands on small farmers in developing countries to fulfill food safety standards to be able to compete on an growingly competitive market. On a similar note, Louw *et al.* (2008) argues that it is becoming increasingly difficult for small-scale farmers to supply to large supermarket chains, because of the increased requirements from the chains to fulfill food safety standards, consistent supply and sufficient quality.

Labor related health costs
Hazell and Diao (2005) raises the concern that the spread of HIV and AIDS is another problem that makes small-scale farmers more vulnerable than larger farms. Small-scale farmers mainly rely on family labor. Many small farmers perish in the illness, leaving their children orphan.

In summary, due to the inverse relationship between economies of scale and transaction costs, the transaction costs the farmers are facing decreases as a farm's production grows. The barriers for farmers to enter the market that has been presented above, is related to infrastructure, credit, marketing, training, quality, investments, prohibitive market structures, and the lack of property rights.

2.2.2 Transaction costs when large agribusiness collaborate with small-scale farmers

A consequence of the higher transaction costs facing small-scale farmers is that collaborating with these farmers involves higher costs. Hartmann (2011) points out that there exists an imbalance in the food sector where there are few intermediate buyers, who have a lot of power over the large amount of suppliers. The suppliers are more dependent on one single buyer than what a buyer is of its suppliers. Pingali *et al.* (2005) points out that it is potential that for the private sector to collaborate with small-scale farmers may include "*new set of transaction costs*". There is a lack on research on what the additional costs and potential benefits there are from collaborating with small-scale farmers are. The costs for a large number of small-scale farmers to supply to a small number of larger agribusinesses can generate extensive costs.

Karamchandani *et al.* (2011) argues that while the payments to contract small-scale farmers as suppliers are lower, it involves higher costs for distributing inputs; collecting outputs; training, and monitoring. Small-scale farmers rarely have access to high quality inputs. If the farmers have access to inputs, they may lack the training to use the inputs efficiently. Furthermore, their outputs do not live up to the quality standards. Vorley *et al.* (2009) argues similarly that there are problems for the small producers since they have little access to information; credit; technology, and they have weak negotiation position. Another perceived problem is that small farmers are less trustworthy to fulfill business agreements, since they lack the technical skills and technology to supply the products to the right quality at the right time, without breaking the consistency. Likewise, Karamchandani *et al.* (2011) brings up that the problem of side-selling may arise, where the outputs that are supposed to be sold to the contracting companies are sold elsewhere.

Pingali *et al.* (2005) categorizes the transaction costs that arise when partnering with small-scale farmers as either being logistic or related to asymmetric information. Examples of logistics costs are the costs of transportation and packaging. Costs related to asymmetric information or contract enforcement include costs for management and supervision. These can be bureaucratic costs or opportunity costs for the time it takes to communicate and coordinate the farms. It costs to establish and monitor long-term contracts. Other costs arise when evaluating how reliable potential supplier are, or to screen the quality of the suppliers' products. Finally there are transfer costs connected to inaccessibility to good infrastructure and storage.

Karamchandani *et al.* (2011) points out that the increased transactions costs involved with supplying small-scale farmers lead to it being companies with scale advantages that can contract them as suppliers. The example is provided that Coca-Cola would not have been able to contract small-scale farmers in Uganda if it was not for the corporate's beneficial economic situation.

2.3 Product differentiation and CSR

Pindyck & Rubinfeld (2004) explains that within monopolistic competition a separate firm differentiates its product from similar products of other firms in order to gain market shares. By product differentiation the firm can gain monopoly power. With monopoly power a firm gains a space to set its own prices, and is not completely dependent on the competitive market equilibrium. According to Snyder & Nicholson (2012) product differentiation can be explained through a modified Bertrand competition model. In the model n firms simultaneously choose prices $p_{i(i=1,...,n)}$ for their differentiated products, where a_i is the attribute that firm i use to differentiate its product from the other firms' similar products. Firms i's demand functions is:

$$q_{i(p_i, P_{-i}, a_i, A_{-i})} \qquad (4)$$

P_{-i} is the price for all other firms, except for firm i, while A_{-i} list all other firm's attributes expect for firm i. Firm i's cost function is:

$$C_{i(q_i, a_i)} \qquad (5)$$

Hence, the profit function looks a follow:

$$\pi = p_i q_i - C_{i(q_i, a_i)} \qquad (6)$$

The profit function of the Bertrand model for differentiated products is differentiable, in contrast to the Bertrand model of homogenous products. For this reason the Nash Equilibrium can be solved by the best-response functions. In order to get the first order conditions, the profit function is differentiated with respect to prices:

$$\frac{\partial \pi}{\partial p_i} = q_i + p_i \frac{\partial q_i}{\partial p_i} - \frac{\partial C_i}{\partial q_i} \cdot \frac{\partial q_i}{\partial p_i} = 0 \qquad (7)$$

where $q_i + p_i \frac{\partial q_i}{\partial p_i}$ represent the marginal revenue from an increase in price. Since the price is increased by the product differentiation, the revenue for each q_i increases as well. However, $p_i \frac{\partial q_i}{\partial p_i}$ captures the negative effect from a decrease in the sales. The final term represents the cost savings connected to the decrease in sales. To solve for the Nash Equilibrium the system of FOC for all $i = 1, \ldots, n$ is solved simultaneously.

McWilliams & Siegel (2001) considers CSR as a strategy within product differentiation. By using product differentiation a firm can maximize profit through seeing CSR as an investment. Furthermore, if a firm markets its products as socially responsible it is possible that it signals to consumers as high quality goods, and that the firm is reliable.

Dawkins & Lewis (2003) discusses that a change has occurred in consumers mind set towards companies. Previously the products and prices were most important. Today, consumers also consider the corporate responsibility of a company. McWilliams & Siegel (2001) mentions that there are two main groups that demand CSR from firms. The first group is the consumers, while the second group is other stakeholders. Other stakeholders include employees, unions, investors, government, minority groups and local organizations. CSR-goods are described as normal goods, meaning that the more income consumers have the more CSR they will demand. Additionally, the demand of CSR goods is affected by the price of substitutes, meaning that if the price of a non-CSR good goes up and not the CSR-good, the demand for the CSR-good increases. Paul & Siegel (2006) states that a majority of MNCs face demands from "consumers, employees, suppliers, community groups, government, nongovernmental organizations, and institutional shareholders" to have a CSR-program. Hartmann (2011) points out that except for consumers, other stakeholders, such as government, NGOs and activist, are expected to demand

social responsible business from the food sectors. Dawkins & Lewis (2003) argues that when a company decides on its CSR program it needs to be developed in dialogue with their different stakeholder. Kitzmueller & Shimshack (2012) argues that both the preferences of stakeholder and shareholder are for importance for firms' behavior in determining their level of CSR.

McWilliams & Siegel (2001) argues that in order to meet the demand from consumers, firms need to use their inputs, such as labor, capital and resources to provide the CSR-outputs. Even though it costs more for firms to provide CSR-goods it is possible that the average cost of producing the goods decreases with growing output, indicating economies of scale. When economies of scale exist connected to specific CSR-goods, larger firms will provide more output than smaller firms. For firms there is an optimal level of CSR to provide. Even though they face higher costs, they can also set a higher price, since the consumer of CSR goods are willing to pay a higher price to receive the CSR attributes they demand.

McWilliams & Siegel (2000) admits that results from some research show that there exits a negative relationship between CSR and a firm's financial performance. However, it is argued that these studies do not consider the increased profit from research and development (R&D). It is shown in McWilliams & Siegel (2000) that using CSR as product differentiation is positively related with an increase in R&D. Porter & Kramer (2011) agrees that combating threats to social welfare can lead to new technologies and to improved productivity. Therefore social responsibility can lead to increased revenues. Paul & Siegel (2006) adds that previous research fails to include the benefits from firms' CSR activities decreasing negative externalities, and the negative impact on firms' financial performance the externalities have if they are not combated. Hence, when firms decide on the optimal level of social responsibility, the calculations should go beyond profit maximization with respect to input and output cost; externalities ought to be included in the equation. McWilliams & Siegel (2001) states that a firm can determine the profit maximizing level of CSR using a cost-benefit analysis, and set the level where the increased revenue equals the increased costs. Paul & Siegel (2006) lists potential benefits as: *"reputation enhancement, the potential to charge a premium price for its product(s), or the enhanced ability to recruit and retain high quality workers" (p.208)*. Bouquet & Deutsch (2008) argues that for MNCs having extensive CSR can provide legitimacy for the corporate to establish in a new country, and improve the relation with key stakeholders. Porter & Kramer (2011) states that firms should think beyond CSR and rather think of it as creating shared value, which are both of economic values for the firms and social values for society. With shared values there is no trade-off between corporate responsibility and economic performance. It is argued that the most sustainable creation of shared values is the shared values that have a close connection to a firm's core business. However, it is pointed out that a majority firms perceive social responsibility as something to do in the marginal of the business, and not as a part of the core business. Furthermore, that it is an expense that needs to be paid to improve reputation from outside pressure. Dawkins and Lewis (2003) addresses that a company's CSR should be intuitive and linked to the corporates' core business, rather than to give to charities or similar. Likewise, Porter & Kramer (2006) argues that each company must choose which CSR topics to address in their program and these topics ought to be sector specific in order to create shared values. It is added that: *"No business can solve all of society's problems or bear the cost of doing so" (p.6)*.

Kennedy *et al.* (1997) mentions that it is becoming more common for agribusinesses to use value-added competitiveness rather than commodity competitiveness, which traditionally is more common. Through values-added competitiveness, increased customer value is created. The strategy is based on knowing the customer demand, and then being able to respond to it. McWilliams & Siegel (2001) states that food products are experience goods, and that

consumers care more about the reputation of a firm when they buy experience goods than other type of goods. It is therefore believed that consumers care more about firms' CSR when they buy experience goods. Porter & Kramer (2011) give the example on how large businesses can create shared values by supplying their suppliers with *"inputs, sharing technology, and providing financing" (p.70)*. By being provided with these products suppliers can resist marginalization. At the same time it improves the efficiency of the supplier, which in its turn improves the economic values for the businesses. Nestlé is an example of an agribusiness that takes measure to include small-scale farmers as a part of their CSR policy. In order to ensure that right quality of coffee beans from their suppliers they established local facilities in Africa and Latin America. Being in the area it is possible for the corporate to provide training, credits and inputs to the farmers. In turn, Nestlé got the quality of the beans that they wanted

According to Snyder & Nicholson (2012) product differentiation can be because of the firm's choice to use more expensive inputs in the production. An example would be that it costs more for firms to use inputs from small-scale farmers as a part of the CSR-program, due to the additional transaction costs. Hence the firm's product differentiation therefore depends on their choice to use more expensive inputs. Since the firm's choice is then considered, it yields another set of FOC's, different from the one indicated in Equation 9. Firm's i's FOC with respect to $a_{i,}$ is then:

$$\frac{\partial \pi_i}{\partial a_i} = p_i \frac{\partial q_i}{\partial a_i} - \frac{\partial c_i}{\partial a_i} - \frac{\partial c_i}{\partial q_i} \cdot \frac{\partial q_i}{\partial a_i} = 0 \qquad\qquad (\ 8\ )$$

2.4   Previous similar studies

Even though media is a major source of information for businesses' mangers, there are few studies looking at the relation between media and management decisions. Even more specific, there are barely any previous studies that look at the relation between media and managers' decisions on firms' CSR-programs. Here two studies are presented that approach the topic. The methods and the findings of the studies are described in order to establish the take-off point of the present study.

Buhr & Grafström (2007) studied how businesses' media have shaped the meaning of CSR. In order to approach the research question a content analysis was conducted. The selected corpus of the content analysis was the British business paper *'Financial Times'*. The business paper was screened for articles between the years 1988 to 2003, with special focus on the year 1999-2003. In order to find the articles, the media database Factiva was used, by typing in the keywords *'CSR'* and *'corporate social responsibility'*. Since CSR could be the abbreviation of other terms the articles found using the keyword was qualitatively deselected if they did not relate to the concept. Any articles that mentioned either of the keywords but did not actually address the meaning of them were also deselected. When the researchers were done with the screening they had found 268 article mentioning CSR, whereof only 16 were printed before 1998. In contrast there were more than 100 articles printed in 2002. For the period 1988-1998 the analysis was of qualitative nature, using the software NVivo 2.0. The period 1999-2003 was analyzed using both qualitative and quantitative research methods. First a corpus analysis was done, meaning that common words in the article were categorized into themes. Then, again the NVivo 2.0 software was used for a more thorough content analysis. The analyses resulted in two categories. The first was a category of the themes identified through the corpus analysis, and the second category consisted of rhetoric connected to CSR. A conclusion that was drawn

was that the meaning the Financial Times portrayed of CSR corresponded to how the concept in general was developed late '90s and early '00s. Secondly the study found how CSR became reporting material by the business media printing articles on corporate 'heroes' and 'villains'. Much media attention was given to large corporations. In general the reporting on CSR was found to be positive. Finally, the article stressed the need for further research on the role of business press in giving meaning to management trends.

Grafström & Windell (2011) did a similar study using a content analysis. The focus of the study was to see how CSR was framed in business media for the years 2000-2009. Two British newspapers were studied, *'Financial Times'* and *'The Guardian'*. As mentioned in the previous paragraph, *'Financial Times'* is a business news media. *'The Guardian'* is a general newspaper, but it was argued that it has a large spread among business people. In the study the two papers were screened for ten years using the keyword *'corporate social responsibility'*. The full name was used to not get irrelevant hits. In total 1762 articles were found, of which a sample was analyzed. All articles were coded in accordance to a pre-decided coding scheme. Three coders were a part of the process. To ensure that their coding was consistent, they all initially screened the same 10 articles independently to compare that the results corresponded with each other's. There were three analytical themes: *'dominant themes'*, meaning the major theme in each article; *'dominant arguments'*, indicating the major argument in an article, and whether the argument was positive or negative; and the last theme was *'dominant actors'*. The research showed that media provide an understanding of CSR to businesses by conveying the meaning of the concept, how it is practically done, and why corporates should be updated on the subject. In the research it was noticed that the number of CSR articles decreased in 2008-2009. It was speculated that the decline was an effect of the financial crisis, but the issues was not further studied in the article.

The studies by Grafström & Windell (2011) and Buhr & Grafström (2007) both use content analysis to look into how CSR influence businesses. While Buhr & Grafström limited the study to business media, Grafström & Windell included The Guardian, which is a general newspaper. In the present study, similar to both previous studies, media's influence on businesses' CSR is studied by doing a content analysis. Specifically a quantitative media analysis is done, studying general newspapers. While the two previous researches looked at CSR in general, here the focus is to look at how businesses respond to a specific topic within CSR conveyed in media. In contrast to the previous studies, the present study uses an econometric approach in analyzing the data collected from the content analysis.

3 Method

To econometrically establish if a relationship exist between media and the agribusinesses' sustainability reporting there is a need for a method that enables to interpret qualitative information from media and the annual reports, quantitatively. Quantitative media analysis enables such an approach. When the data has been collected using a content analysis, the data is modeled using both a Tobit model specification and an autoregressive process of the first order, AR(1). The following chapter describes how the mentioned methods have been used to test if the study's hypothesis holds.

3.1 Empirical background

The agribusinesses included in the study were selected from a list compiled by Dentoni & Mitsopoulos (2013), presenting the 208 largest Sub-Saharan agribusiness in 2010. The sources of which the list are based on are The Africa Report, African Business Research Limited, the Africa Business Pages; as well as the FAO report 'Private Sector Agribusiness investments in Sub-Saharan Africa. All the agribusiness on the list follows the legal jurisdiction of a Sub-Saharan country. The 19 companies that are included in the study are presented in Table 1.

Table 1 The 19 agribusinesses included in the study

ID	Company	Type of business	Global
1	Shoprite Holdings	Retail	No
2	Pick'n Pay	Retail	No
3	Massmart	Retail	Yes (Walmart since 2011)
4	Spar Group	Retail	No
5	Sabmiller Plc	Processing(beverages)	Yes
6	Woolworths	Retail	No
7	Tiger Brands Limited	Processing	No
8	Nampac	Food packaging	No
9	Pioneer Foods	Food processing	No
10	Distell Group Limited	Processing(beverages)	No
11	Tongaat Hulett Limited	Processing	Yes (Anglo American PLC up to 2009)
12	Astral Foods Limited	Processing	No
13	Illovo Sugar Limited	Processing	Yes (Associated British Foods)
14	Anglovaal Industries	Processing	No
15	Afgri Limited	Processing	No
16	Rainbow Chicken Limited	Processing	No
17	KAP International Holdings	Processing	No
18	Oceana Group Limited	Processing (fishery)	No
19	Sovereign Food Investment Ltd	Processing	No

As can be seen in the table, five of the agribusinesses are retailers, one is a packaging company, and the rest are processors. The processing companies include the ones that have processing and production as a part of their operations. The last column in the table specifies which companies that are *'global'*. These companies are defined as global because they are all owned by larger corporates not established in Africa. Notice that Massmart counts as a global company since 2011 and onwards, not before. The reason is that Massmart was merged with Wal-Mart in 2011. In contrast, Tongaat Hulett was owned by Anglo American PLC until 2009,

but then the agribusiness bought back its' shares. Hence it is counted as a global company up to 2009.

The companies' information studied was their sustainability reporting. Sustainability reports are a communication channel for companies to provide a presentation of their CSR-process. Kolk (2004) states that the first separate sustainability report was introduced in 1989. Before then, Neu *et al.* (1998) mentions that it occurred that companies included social and environmental disclosures as a part of their annual reports. Fourteen years after the first sustainability report was introduced, KPMG (2013) states that CSR reporting is today "*undeniably a mainstream business practice worldwide*" *(p.11)*. In a survey in 2013 by KPMG, where 4100 global companies were screened, 71 % had some sort of sustainability reporting. KPMG's report lists that the possible way in which a company can present its sustainability reporting are: as a section in the annual report; in a separate sustainability report; in an integrated report including both annual- and sustainability reporting; or using a web-based reporting instead of published reports. As mentioned in Section 1.3, in the present study only the sustainability reporting in annual reports were considered. In the present study the media was any English-printed South African newspapers that are accessible through Factiva. Factiva is a database provided by Dow Jones to subscribers. The database collects different types of international media, such as newspapers, multimedia and web-media. The media included are listed in Table2.

Table 2 South African media sources included in the study
Source: SAARF (2014), and for **Mail&Guardian (2014)
***The figure includes the readers of both the Saturday and Sunday Edition**

Independent Newspapers Limited	Type of newspaper	Number of readers, 000s, Jul 11-Jun 12
Cape Argus	Daily	288
Cape Times	Daily	261
Daily News	Daily	342
Pretoria News	Daily	147
Saturday Star	Weekly	236
Sunday Tribune	Weekly	438
The Mercury	Daily	237
Weekend Argus	Weekly	323*
The Sunday Independent	Weekly	67
The Star	Daily	683
Times Media Group		
Sowetan	Daily	1651
The Times	Daily	342
Sunday World	Weekly	1577
The Sunday Times	Weekly	3688
Business Day	Daily	68
Daily Dispatch	Daily	237
Financial Mail	Weekly	126
The Weekend Post	Weekly	203
Other		
Mail & Guardian Online	Web-based	1051**

There were 18 different newspapers used, all of which were a part of either one of the two following media groups: Independent Newspapers Limited and Times Media Group. Additionally, Mail & Guardian Online was included, Africa's first web-based news source, which articles also can be extracted from Factiva. In the table it is presented whether the newspaper is produced daily and weekly. In the last column the average number of readers of each issue is provided for each magazine. The exception is for Mail & Guardian, where the figure indicates the number of unique visitors on the website each month.

3.2 Quantitative media discourse analysis

Hess *et al.* (2012) conducted a quantitative media discourse analysis looking at what distorting effect the regulation of seasonal foreign farm labor has in Germany. It is explained that a discourse is divided into frames, and frames in their turns are made up out of statements. Following definition is used:

"a discourse is made up of the frames relevant to a certain topic or policy issue. A frame is a set of statements that represent a collectively shared interpretative pattern of this issue. A statement is the smallest unit of information within the discourse…. statements are made by actors"(pp. 714-715)

For the present study a quantitative media discourse analysis was conducted. The discourse, indicating the general research topic of the study, was to look if South African newspaper media influence large agribusinesses into integrating small-scale farmer in their global value chain, as a part of their CSR-program. The frames were the set of statements collected from two kinds of sources: newspapers media and large agribusinesses' annual reports. The statements that were collected were either printed in articles or in the annual reports of the 19 selected agribusinesses. The statements were collected since they somehow addressed the topic of either including or excluding small-scale farmers from the market. For the study there were two types of actors: agribusinesses and the actors using media to address the topic.

3.2.1 Data collection using content analysis

In the study by Hess *et al.* (2012), a two-step content analysis was conducted in order to collect the information to analyze. Similar, in the present study a content analysis has been used for data collection. Buhr & Grafström (2007) mentions that the media articles included in their study were the primary source of data. Likewise, in the present study the main datasets analyzed are the data coded from media and annual reports.

Krippendorff (1989) states that content analysis is among the most important methods for research in social sciences. A common definition is Berelson (1952) "*Content analysis is a research technique for the objective, systematic and quantitative description of the manifest of communication*" *(p. 489)*. Bernard (2011) mentions that content analysis is commonly used for quantitative analysis. Bryman (2008) lists that an advantage with the method is that it is a flexible and transparent research method as long as the coding scheme is well developed. Furthermore, it allows longitudinal analysis. A very important advantage with the method is that the information studied is not reactive to the researcher. The documents are not changed because of a researcher's study of them. Two of the disadvantages listed are that the content analysis depends on the quality of the documents studied. Secondly, a coding scheme can never be entirely objective, without the researcher putting in its own interpretations to it.

3.2.2 Sampling the content

Bryman (2008) points out that a part in sampling when doing a content analysis is to determine which contents to study. When studying media it is common to select one or two types of

media, and then select within those media, which specific media to study. Similarly, Bernard (2011) lists a part of sampling is to identify the *'corpus'* of text.

In order to select what business content to study, the South African agribusiness had first to be selected. For the present study it was necessary to study information that could be followed over time. Hence, the companies that were selected for the study had continuously published at least their annual reports on their websites during the most recent years. Based on the condition 19 South African companies were selected (see Table 1, Section 3.1). Initially both annual reports and sustainability reports were screened, since the companies included their sustainability reporting in both reports. Since only a few of the companies produced sustainability reports consistently for the whole time period, it was decided to focus the study to the annual reports.

After selecting the *'corpus'* of the agribusinesses information, the next step was to select the *'corpus'* of the media information. Hess *et al.* (2012) selected three *"reputable"* German newspapers, each representing different political viewpoints. Buhr & Grafström (2007) limited their study to business media. Specifically they used the international recognized business paper Financial Times. Grafström & Windell (2011) was similarly mainly interested in looking at how business media influence the meaning of CSR. Yet, they chose to include the British newspaper The Guardian. The argument was that both papers *"are widely read by the business community"* (p. 224). Additionally, both newspapers had written about CSR since the genesis of the concept.

Similar to both Buhr & Grafström (2007) and Grafström & Windell (2011), the present study used Dow Jones' database Factiva to access different media. In contrast to both Buhr & Grafström (2007) and Grafström & Windell (2011) the present study used general newspaper, rather than only limiting the study to using business newspaper, even though the present study had related research topic. The rationale behind why general media was used rather than business media was based on what both Frenkel (2005) and Alvarez *et al.* (2005) point out that newspapers in general is a source of management's knowledge.

3.2.3 Sampling dates

After identifying the *'corpus'*, a second part in sampling, according to Bryman (2008), is to select the time interval of the study.

The annual reports were studied for the years 2008-2012. The reason why five years were studied was a trade-off in the interest to follow the development over a continuous time period, with what was a reasonable workload of data within the time limit of the study. As evident from KPMG (2013)'s report, CSR is becoming increasingly a more common business practice, and therefore is was decided to choose five years as close to present time as possible. However, there exists a time lag from when a financial year is over until a company has published its annual report on their websites. The time lag became a limit to how close in time the study could be done. By 2013, several of the selected company had not yet published their annual reports on their website, explaining why 2012 was the final year included in the study.

A part of the study was to see if there was a difference in the relationship between the average numbers of relevant articles published the three months before each annual report was published, in comparison to six months before. Hence, the media needed to be sampled starting with six months before the first annual reports was published, and ending three months before the last reports was published. The first annual report in 2008 was published in May. Therefore the starting point for the sampling of media was November 2007. The last report was published in December 2012, meaning that the end date of the media was September 2012.

3.2.4   Unitizing

Both Bryman (2008) and Bernard (2011) mention that the unit needs to be selected; which unit to choose mainly depends on the character of the research question. A unit can be, as an example, the number of times a certain keyword is used in the selected. Bernard (2011) defines the part of sampling as unitizing or segmenting. It is mentioned that an appropriate unit for comparing cross texts is to use the whole text.

The whole text was the unit for the media articles, meaning that each relevant article was counted as one. When the unit for the annual reports was decided it was reasoned necessary to use a unit that was more sensitive to small changes in the reporting written from one year to another. Two considered options were either to use the unit *'relevant pages'* or the unit *'relevant paragraphs'*. It was acknowledged that there exist obvious disadvantages with both units. The difference from one year to another by using pages could just be that the company may have reused an identical text, which in one year accidently falls onto two pages. Similarly, an identical text could have been broken down to more paragraphs from one year to another. It was reasoned that the second unit, the unit *'number of relevant paragraphs'* was a better measure of sensitivity since it was a smaller unit. There was no measurement taken to improve the disadvantages of using the selected unit. A paragraph was considered to be a solitary unit of text on a specific topic, separated from the rest of the text by beginning on a new row or with indentations. Expectations were textboxes; case studies within reports; lists; tables, and diagrams, which all were counted as one paragraph. Headings and captions to images were not considered. What was defined as *'relevant media article'* or as a *'relevant paragraph'* is described in Section 3.2.6.

3.2.5   Selecting keywords

Both Hess *et al.* (2012) and Buhr & Grafström (2007) used keywords to collect the content to analyze. Buhr & Grafström simply used *'corporate social responsibility'* or *'CSR'* in order to find their articles in Factiva. Hess *et al.* (2012) used a matrix of keywords: nine labor related and 17 farm- or laborer market related, generating a total of 153 keywords.

For the present study initially the keywords combination *'small-scale farmers'* AND *'market'* was used when finding media articles in Factiva. It was realized later on in the study that the search combination was too narrow. Hence the keyword *'small-scale farmers'* was used on its own to broaden the search. When searching for relevant paragraphs in the annual reports the document-search function in the pdf-reader program was used. Since that function is more sensitive to exact spelling than the search engine in Factiva, it was necessary to use wider keywords. After evaluating different keywords, *'small'* and *'farm'* were selected.

3.2.6   Pilot study and grounded theory

Before the actual data collection commenced a pilot study was done. The annual reports for five of the companies were screened during 2008-2012. Furthermore, every seventh media article found using the keywords during the selected time frame was collected. By conducting the pilot it was possible to evaluate how well the keywords worked. Another important aspect was that it was possible to develop and establish what was going to be defined as *'relevant articles'* and *'relevant paragraphs'*.

To further evaluate whether the results from using the keywords were relevant or not, both Hess *et al.* (2012) and Buhr & Grafström (2007) used qualitative analysis. In the present study, qualitative analysis was applied as well. More specifically, and similar to Hess *et al.* (2012), the method of grounded theory was used. According to Bryman (2008) grounded theory is an

iterative analytical method where there is a feedback process going on simultaneously as the data collection. The initial research question was to see if there were news articles and annual reports addressing the exclusion or the inclusion of small-scale farmers. Before commencing the pilot data collection, an understanding of the main challenges facing small-scale farmers to be included in the market had already been established through literature review (from which the findings are presented in section Section 2.2). Through the pilot study it was possible to confirm the challenges already identified; to reevaluate some, and to identify new challenges. Hence, there was a feedback process during the pilot collection, in accordance with the grounded theory method.

Six main challenges were identified through iterative feedback. Since it was common that more than one of the six challenges were listed in the same paragraph, an additional one was added. The additional challenge both identified for when several challenges were mentioned at once and for when a general statement was given on including or excluding small-scale farmers. The seven main challenges are presented in Table 3. The frequencies, of which the different challenges occurred, when conducting the actual data collection, are also shown. There are two columns for the frequencies in media and two columns for the frequencies of paragraphs in annual reports. The columns divide the frequencies into whether they represents statements for when an actor was taking an action to include a small-scale farmer in spite of a challenge, or if an actor identified the risk of excluding small-scale farmers because of the specific challenge.

Table 3 Identified themes challenges to small-scale farmers, in media November 2007-September 2012, and January 2008-December 2012 for annual report (AR) by agribusinesses

Themes connected to small-scale farmers	Including in Media	Excluding in Media	Including in AR	Excluding in AR
Environmental	0	13	2	0
Adequate training	10	1	13	0
Access to credits	25	28	19	5
Property rights	1	18		0
Logistic	10	5	3	0
Quality and standards	3	2	17	1
Combination of several	86	79	141	5

As can be seen in the table, *'Combination of several'* is the most frequently occurring, indicating that it perhaps can be disaggregated to be more informative in a future development of the study.

Based on the variables that were identified from the pilot, a *'relative paragraph'* was identified to address any of these variables. Likewise, a '*relevant article'* was defined to be an article where any of challenges were mentioned.

3.2.7 Ensuring inter- and intra coder reliability

Another important part of the pilot was to develop a coding manual. Bryman (2008) states that coding in content analysis needs to be systematic and objectively. Therefore the rules for a content analysis need to be clearly specified in advance. Being systematic is described as applying the pre-decided rules consistently. Furthermore, if the content analysis is both continuous and systematic it enables any researcher to replicate the study and reach the same result. A content analysis should be done having a coding schedule and a coding manual. On the coding schedule the data is gathered. The coding manual should provide instructions on how to fill in each dimension of the coding schedule. Both Bryman (2008) and Bernard (2011)

stress the importance of inter-coder reliability in content analysis. It means that two independent coders should get the same results. Bernard elaborates on methods to evaluate if a coding manual is inter-coder reliable, such as letting two different coders use the coding manual to see if they achieve the same results. If the results have a low correspondence, the coding manual needs to be revised.

In Grafström & Windell (2011) the project involved three different coders. To ensure inter-coder reliability, a sample of ten articles was coded by the whole coding team. Furthermore, throughout the research project the group had meetings as soon as any disagreement occurred. Bryman (2008) points out that when a single researcher conducts a study it is necessary to ensure intra-code reliability, meaning that the coding is consistent throughout the whole research. For the present study there was just one researcher involved with the data collection. In order to ensure intra-coder reliability a coding manual was developed while conducting the pilot version of the data collection. By working according to the coding manual it was also ensured that another researcher would be able to conduct the same data collection and reach the same result.

3.3 Method for panel data analysis

While screening the companies' reports it was noticed that not all agribusinesses reported each year that they included small-scale farmers as a part of their CSR-program. The scenario can be compared to an example by Cameron (2009): if households are asked about their expenditures on buying cars a large share of the respondents will have had none expenditures on buying a car. It leads to a high concentration of observations at the limit value of zero, while the other respondents will have positive values. Wooldridge (2012) explains that a dependent variable will not have a conditional normal mean distribution if a large share of the observed values is zero. Tobin (1958) clarifies that when there is a high concentration of the dependable value around the limit it should be taken into consideration when regressing. Cameron (2009) adds that when a sample is censored, then an ordinary lest square regression will not give consistent coefficients. Furthermore a multiple regression could not be used when such a concentration exists, because the concentration disrupts the assumptions of a multiple regression. Finally, it is possible that the independent variables affect both the response of the non-limit values and how probable it is that a given observation of the dependable is at the limit. To take both aspects into consideration it is necessary to use a Tobit model, which is a hybrid of a probit and multiple regression model.

According to Cameron (2009) and based on Tobin (1958), the set-up of the Tobit–model is as follows:

Given the dependent variable being left-censored and L being the limit value, 0, the regression model is specified by a latent variable, y^* which is unobserved when is it smaller than L. The regression is specified as follow:

$$y^* = \beta_i X_i + \varepsilon_i \quad i = 1, \ldots \ldots, N \qquad \varepsilon \sim N(0, \sigma^2) \qquad (9)$$

where X_i is a vector, $K \times 1$, which includes all explanatory variables that are all fully observed. The relationship between variable y_i and the latent variable y^* are explained by Equation 10:

$$y = \begin{bmatrix} y^* \; if \; y^* > L \\ L \; if \; y^* \leq L \end{bmatrix} \qquad (10)$$

The probability that an observation is censored is given by:

$$Pr(y^* \le L) = Pr(X_i'\beta + \varepsilon_i \le L) = \Phi\{(L - X_i'\beta)/\sigma\} \qquad (11)$$

where $\Phi\{(L - X_i'\beta)/\sigma\}$ is the standard normal cumulative distribution function. Equation 12 describes the expected value for the non-censored observations of **y**:

$$E(Y_i|X_i, Y_i > L) = X_i'\beta + \sigma - \frac{\phi\{(X_i'\beta - L)/\sigma\}}{\Phi\{(L - X_i'\beta)/\sigma\}} \qquad (12)$$

where $\phi\{(X_i'\beta - L)/\sigma\}$ represents the standard normal density.

Wooldridge (2012) states that the log-likelihood function for each observation can be derived and then maximized in order to estimate the coefficients.

3.3.1 Validity tests

Cameron (2009) identifies that the assumption of homoscedasticity and normality of the error terms are crucial in order for a Tobit model to be correct. Hence, in order to test if a Tobit model holds it is necessary to test for normality of residuals. When running a Tobit model in Gretl, the statistical software used in the present study, the program provide the test statistics for Chesher and Irish test of normality be default.

The null hypothesis of the test is:

H_0: error is normally distributed

According to Chesher & Irish (1987) null hypothesis is accepted when the p-value is below 0,15.

Another important test to run to ensure the validity of the model, is to test for multicollinearity between variables. According to Gujarati & Porter (2009), multicollineraity can be detected using a variance-inflating factor (VIF), which shows if multicollinearity between variables inflates an estimator. VIF is defined as:

$$VIF = \frac{1}{(1 - r_{23}^2)} \qquad (13)$$

If $VIF = 1$ there is no multicollinearity between variables. When $VIF \ge 10$ there is a large problem with multicollinearity. Wooldridge (2012) mentions that when there exists a problem with multicollinearity there is no single way to solve the problem. Dropping an independent variable can solve the problem, but it can also lead to bias.

3.3.2 Variables

Here the variables that were used when regressing are presented. First presented are the variables used in the Tobit-models, followed by the variables used in the AR(1) regression.

Variables used in Tobit-model specifications
The dependent variable, ***Weighted_relevant_paragraphs*** was how many paragraphs there were in each published report weighted by the reports' length in pages. The reason why the number of paragraphs was weighted was to ensure that an agribusiness reported more or less in relation to another, even when the lengths of the reports were considered.

In order to test the robustness of the results from the first model, the second Tobit-model used an alternated version of the dependent variable, ***number_of_relevant_paragrpahs***. It differs from the original dependent variable since it is the actual number of relevant paragraphs and hence not weighted by the length of each report.

The independent variable **Threemonths** was the moving average of number of relevant articles published three months before each report was published. If the exact date of publication was provided in the annual reports, it was taken into account when in a month the report was published. When a report was published before the 20th in the month, it was the average of the three previous months that was used. If a report was published after the 20th it was the average of the two previous months and the present month that was used.

The second independent variable, **Sixmonths** was the moving average of number of relevant articles published between six months and four months before each report was published.

Dummies for the five time periods were included in the model to take into consideration the time aspect of the data.

The dummy variable, **global,** was included. The value of the dummy was 1 when an agribusiness was a part of a global corporate that did not originate from South Africa. The reason why the global dummy was included was that when Massmart's reports were screened it was noticed that in 2011, 51 % of Massmart's shares were bought by the American retail chain Wal-Mart. In Massmart's annual report of 2011 it was the first time they reported on taking social responsibility to include small-scale farmers. The discovery gave rise to the interest to see if a company being global made it report more on its responsibility to include small-scale farmers.

Noreporting was a dummy variable that is 1 for all companies that did not report anything on the subject in any time period, meaning that these business units had zero results for all the years. The dummy was used because before Model 1 (presented in Section 4.1.1) was tested, Model A was tested (which can be seen in Appendix 1). Model A differed from Model 1 since unit dummies were included. The unit dummies took over some of the explanatory power from the independent variable. Model A suffered from multicollinearity. Therefore the model was re-specified by replacing the unit dummies with the dummy variable **Noreporting,** since several of the significant unit dummies in Model A where the units that did not report anything about small-scale farmers.

An additional dummy variable, **retail,** was included. If an agribusiness was a retail chain the value of the dummy was 1, otherwise 0. The intuition was to see if the reporting of an agribusiness was affected by having direct contact with the final consumers.

Variables used in AR (1)
The dependent variable, **Weighted_relevant_paragraphs_per_month**, aggregated how many paragraphs were printed each month divided by the reports' pages, disregarding which business unit it was that printed the paragraphs.

Media was a variable that aggregated how many articles were printed on the topic each month from January 2008 to December 2012. It did not consider if the articles were printed before a report was printed from a specific company.

The variables **Share_of_global** and **Share_of_retail** represented how large share of the dependent variable that was reported from either global or from retail companies each month. The purpose of the variables was to capture similar information as the dummy variables as **Global** and **Retail.** However, the share-variables were to some extent endogenous and also not as intuitive as the dummy variables. Hence more attention was paid to the significance of the dummy variables rather than the share variables when analyzing the results.

4 Results and analysis

In the following chapter the results, both from the data collection and the econometric modeling, are presented and analyzed.

4.1 Results and analysis from the data collection

As mentioned earlier, 19 companies are included in the study and their annual reports are studied over five years. There are more cross-sectional units than time-periods making the data what Gujarati & Porter (2009) explains to be a short panel. The total number of observations should have been 95. However, for two companies the annual report of 2009 is missing. Since the two observations are missing the data was initially unbalanced, making the inference difficult. Pigott (2001) mentions that a remedy to missing values can be to replace the missing values with a mean value of all the observations of that variable. In the present study the two missing values are replaced with mean values. The mean values used are the means of the observations from the year before and the year after from the two respective agribusiness-units.

Figure 3 show how many 'relevant articles' are published each month from November 2007 to September 2012 and how many 'relevant paragraphs' prevailed in the annual reports published from January 2008 to December 2012. From the figure it is obvious that there is a large variation in both how many articles and paragraphs are published each month. Another observation that is possible to see from the figure is that there seems to be more articles published in 2011 and 2012 than earlier. A spike to notice for the media is in November 2011. It is possible that the spike is caused by an increased media attention on small-scale farmers in relation to environmental issues, since the 17th United Nations Climate Change Conference was held in Durban in November 2011. For the business' reporting, there seems to be a higher variation in how many relevant paragraphs occur each month during the years 2011 and 2012 compared to the three earlier years.
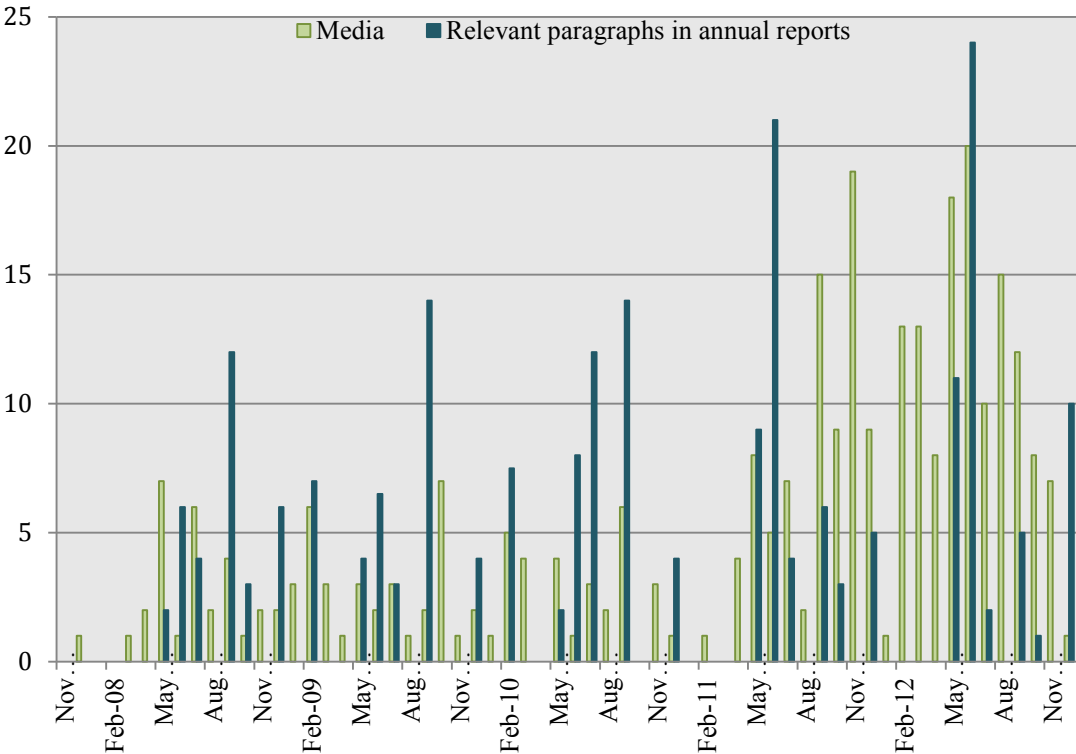

Figure 3 Number of relevant articles printed in the media each month November 2007-December 2012 and number of relevant paragraphs published in annual reports monthly from January 2008 to December 2012

In Table 4 summary statistics is presented for *'relevant articles'* published annually from November to October each year, representing the years 2008-2012 (in order to have whole year October 2012 is included, even though the month is not actually a included in this part of the study). It can be seen that the least articles are printed in 2008, even though it is quite even how many articles are published during the first three years. There is a large increase in number of articles published in 2011, while the most are printed in 2012. The smallest variation in number of articles printed each month is in 2009, while the largest variation occurs in 2012.

Table 4 Summary statistics for *'relevant articles'* printed annually from November to October, representing the years 2008-2012

	Nov 07-Oct 08	Nov 08-Oct 09	Nov 09-Oct 10	Nov 10-Oct 11	Nov 11-Oct 12
Total	25	35	29	55	146
Mean	2,083	2,917	2,417	4,583	12,167
St . Dev	2,353	1,832	1,975	4,502	5,441
Max	7	7	6	15	20
Median	1	2,5	2	3,5	12,5
Min	0	1	0	0	1

Table 5 presents summary statistics on how many relevant paragraphs are found in the annual reports each year 2008-2012. Since it varies how many companies reported any information each year the top rows of the table show the summary statistics for all the companies, while the bottom rows show the summary statistics only for the companies that report in a given year. Analogous with the media there are more paragraphs published in 2011 and 2012, while the reporting is more evenly distributed in the first three years. What can be noticed is that even though the most paragraphs are published in 2012 there are also more companies reporting that year. The most paragraphs printed per report when only considering the companies that did report, is in 2011.

Table 5 Summary statistic of number of relevant paragraphs published in reports each year 2008-2012

	2008	2009	2010	2011	2012
Number of paragraphs	40	38,5	40	48	53
Mean	2,11	2,03	2,11	2,53	2,79
Standard dev. mean	2,90	3,42	3,51	4,22	4,16
Max	10	13	13	17	12
Median	1	0	0	1	1
Min	0	0	0	0	0
Number of companies that reported	10	9	9	10	12
Summary statistics, given any reporting on the topic is produced					
Mean	4,00	4,28	4,44	4,80	4,42
Standard dev. mean	2,91	3,93	4,00	4,85	4,52
Median paragraphs	3,5	3	2	3,5	2
Min paragraph	1	1	1	1	1

The histogram in Figure 4 shows the distribution of the explanatory variable. It can be seen that the distribution is left censored. Hence, it is justified to use a Tobit model specification.
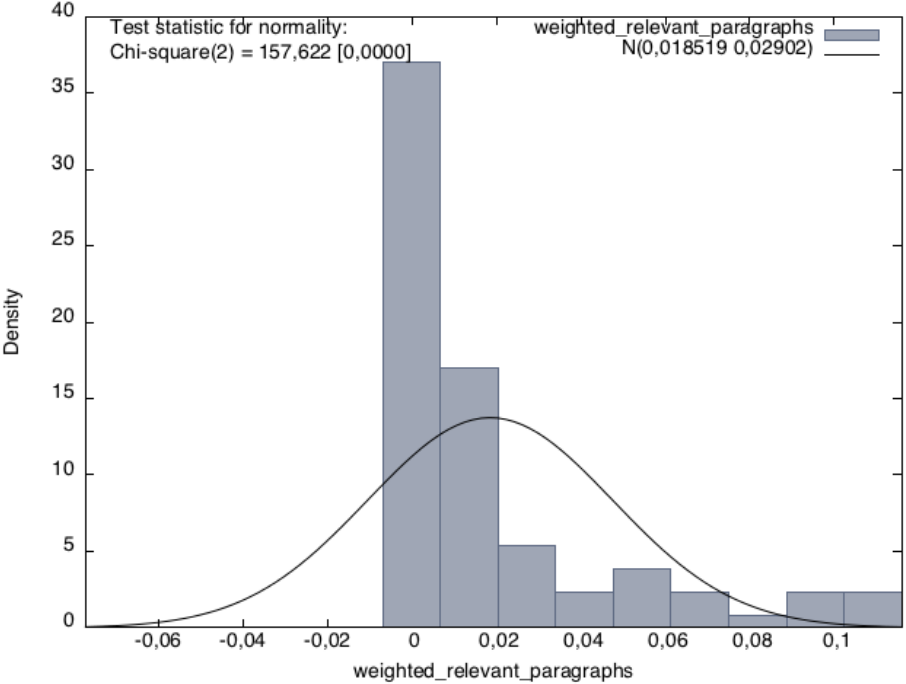

Figure 4 The distribution of the dependent variable, *Weighted_relevant_paragrapghs*

4.2 Econometric analysis

In following section the collected panel data is analyzed first using two different Tobit model specifications and then using an AR(1) model.

4.2.1 Results from the Tobit model

Different specifications are tested using a Tobit model. It is discovered that there is a big issue with multicollinearity between *Threemonths* and *Sixmonths*. By looking at several model specifications where the variable *Sixmonths* have more explanatory power than *Threemonths* it is decided to drop the second variable in order to surpass the problem of multicollinearity. The consequence of dropping one of the variables is that it is no longer possible to see if the media printed closer in time to when a report is published has a larger effect on the businesses' CSR.

In Model 1, which output is seen in Table 6, the variables *Sixmonths, Global, Noreporting*, *Retail,* as well as the time dummies *2008, 2009, 2010, 2011* are included. From the output table it can be seen that the dummy variable *Noreporting* is significant at a 99 % confidence interval. The dummy variable *Global* and the constant are significant at a 95 % confidence interval level. Furthermore, the explanatory variable *Sixmonths* and the time dummy for *2011* are significant at a 90 % confidence interval level. Finally, the dummy variable *Retail* and the time dummies *2008, 2009,* and *2010* are not significant. The time dummy *2012* is dropped to surpass the dummy trap.

Table 6 Econometric output from Model 1

	Coefficient	S. Error	p-value	
const	0,0801	0,0369	0,0301	**
Sixmonth	-0,0098	0,0054	0,0682	*
Global	0,0305	0,0131	0,0200	**
No reporting	-0,0765	0,0119	<0,00001	***
Retail	0,0125	0,0101	0,2146	
2008	-0,0435	0,0304	0,1529	
2009	-0,0336	0,0333	0,3128	
2010	-0,0467	0,0305	0,1257	
2011	-0,0487	0,0276	0,0779	*
p-value	8,07E-15			
Left-censored observations: 45				
Right-censored observations: 0				
Test for normality of residual -				
Null hypothesis: error is normally distributed				
Test statistic: Chi-square(2) = 24,6496				
with p-value = 4,44033e-06				

The independent variable *Sixmonths* has a negative coefficient with the value -0,0098, which indicates that the variable has a negative relationship with the dependent variable *Weighted_relevant_paragraphs*. The result can be interpreted as if the reporting in media on the topic of small-scale farmers increases on average between six to four month before a business report is published, the number of paragraphs per page in the report on the topic will decrease. It is an indication that the more media write on this particular CSR-topic the less will the agribusiness care about working on the topic as a part of their CSR-program. The result is unexpected, since it was assumed that media should have a positive influence on the reporting on the topic. Yet, the result shows that there exists a relationship and that agribusinesses are not indifferent to what the media writes.

The dummy variable *Global* has a positive coefficient of 0,0305. The result is expected since it was the researchers experience when screening the annual reports, that the reports that were from global company reported more on the topic. The year dummy for 2011 has a negative affect on the dependent variable.

A VIF-test is conducted in order to ensure that multicollinearity between the variables is not a problem for Model 1. The results from the VIF-test are presented in Table 7. As can be seen all the VIF-values are below 10, showing that the model does not have problem with multicollinearity.

Table 7 The VIF-values for Model 1

Variable	VIF-statistic
Sixmonths	7,754
Global	1,127
Noreporting	1,171
Retail	1,021
dt_1	8,557
dt_2	8,81
dt_3	8,845
dt_4	7,341

4.2.2 Assessing the robustness of the results

In order to test the robustness of the results in Section 4.2.1 a different version is tested where the dependent variable *Weighted_relevant_paragraphs* is changed to *Number_of_relevant_paragraphs*. The output from the new model is presented in Table 8.

Table 8 Output from Model 2

	Coefficient	Std. Error	p-value	
const	12,1544	4,3519	0,0052	***
Sixmonth	-1,4980	0,6327	0,0179	**
Global	3,1307	1,5270	0,0403	**
Retail	2,0011	1,2768	0,1171	
Noreporting	-10,2717	1,8298	<0,00001	***
2008	-8,1435	3,7053	0,0280	**
2009	-6,7104	3,8756	0,0834	*
2010	-7,2937	3,5847	0,0419	**
2011	-6,7675	3,1516	0,0318	**
p-value	8,26E-14			
Left-censored observations: 45				
Right-censored observations: 0				
Test for normality of residual -				
Null hypothesis: error is normally distributed				
Test statistic: Chi-square(2) = 28,4779				
with p-value = 6,54789e-07				

As can be see the *Global* and the *Noreporting* dummies are both significant at the same level as in Model 1, while the dummy variable *Retail* is still insignificant. The significance level of the constant increases to 99 %, while the significance of S*ixmonth* and *2011* increase to 95 %. A large difference between Model 1 and 2 is that in the second model the year dummies *2008* and *2010* are significant at a 95 % level, while *2009* is significant at a 90 % level. None of these variables are significant in Model 1. Model 2 passes the Chesher and Irish test for normality with a p-value of 6,54789e-07. The results from Model 2 seconds that there exists a relationship between media and CSR reporting that is negative, while there is a positive relationship between a company being global and reporting on the topic. The model brings to light that a negative relationship can exist between several of the year dummies and the CSR reporting, not just *2011.*

4.2.3 Time series analysis

The previous model use a panel data approach, and they show that a negative relationship exists between media and CSR, when dividing the data into units over time. However, in Figure 3 in Section 4.1, it can be seen that the development of CSR over time seems to follow the development of media, indicating a positive relationship. Hence, a final model is tested with a times series approach rather than as panel data. The model used is a AR(1) model. In the model *Weighted_relevant_paragraphs_per_month* is the dependent variable, while *Media, Share_of_global* and *Share_of_retail* are the explanatory variables. Additionally a lag of the dependent variable is included. In contrast to the previous models time frame for the media is from January 2008 to December 2012. The output of Model 3 is presented in Table 9.

Table 9 Output of Model 3

	Coefficient	S. Error	p-value	
Media	0,002	0,001	0,100	*
Share_of_global	0,037	0,015	0,020	**
Share_of_retail	0,035	0,015	0,021	**
Yt-1	-0,009	0,224	0,969	
R-squared	0,190			
Adjusted R-squared	0,145			
P-value(F)	0,000			
Durbin-Watson	1,913			

As can be seen in Table 9, both share-variables are significant at 95 % level, and the *Media* variable is significant at 90 %, while the lag-variable, *Yt-1*, is not significant. The Durbin-Watson value is 1,913, which according to Wooldridge (2012) indicates no autocorrelation. According to the R^2-value 19 % of the variation in the dependent variable is explained by the model, while the adjusted R^2, which adjusts for adding additional explanatory variables, suggests that 14,5 % of the variation is explained.

An important difference between the panel and the times series approach is that Model 3 indicates that it is a positive relationship that exists between *Media* and *Weighted_relevant_paragraphs_per_month*. It can be interpreted as the more media report on the topic in the same month as companies' publishes their reports, the more the companies will report on the topic. Both the *Share_of_global*- and the *Share_of_retail*-variable indicate that the larger share of the CSR reporting that is from global and retail companies, the more companies will report. The *share_of_global* result support the positive significance of *Global* in Model 1 and 2, while *Share_of_retail* suggests that also an agribusiness being a retail chain matters. However, little attention should be paid to the results of these variables since they are to some extent endogenous.

There is no problem with multicollinearity in the model, which can be seen in Table 10.

Table 10 VIF-values for variables in Model 3

Variable	VIF factor
Media	1,07
Share_of_global	1,386
Share_of_retail	1,128
Yt-1	1,422

5 Discussion

The following chapter includes an analytical discussion of the results presented in Chapter 5. Furthermore the validity and the reliability of the study's results are discussed. Finally, suggestions on further research and the ethical aspect of the research are stated.

5.1 Analytical discussion

As mentioned in the results, Model 1 shows a negative relationship between the media articles printed on the topic of exclusion or inclusion of small-scale farmer six to four months before an annual report is published, and the agribusinesses incorporating the topic as a part of their CSR program. The result diverts from the hypothesis of the study. However, Model 3, which is a time series approach, show that when not looking at businesses level, but at an aggregate level, the casual relationship between media and CSR-reporting on the topic is positive. The media printed in one month has an immediate, positive effect on all businesses' CSR reporting.

A possible explanation to why the relationship is negative on business level may be that when the media reporting on the topic increases, business managers consider the topic to be too expensive to address and rather switch to a different topic. The phenomena may arise since the businesses managements are more interested in providing CSR to the least cost, without thinking of the long-term benefits of addressing a problem that is linked to their business. Dawkins and Lewis (2003), Porter & Kramer (2006) and Porter & Kramer (2011) all argues that a company's social responsibility should be connected to their core businesses. Porter & Kramer (2011) illustrates with their example of Nestlé that a way for agribusinesses to create shared values can be to involve small-scale farmers in their value chain. However, Porter & Kramer (2011) mentions that most companies' CSR-programs have a weak link to the businesses' operations. Instead companies are too stuck in the mindset where there exists a trade-off between CSR-effort and profit maximizations, leading to short-term rather than long-term efforts. McWilliams & Siegel (2001) adds that the reason why some research show that a profit-maximizing firm should not work with CSR, is because the benefits are not considered, only the costs and revenues. Porter & Kramer (2006) states: "no business can solve all of society's problems or bear the cost of doing so". However, the problem is that instead of thinking of long-term benefits companies choose to implement CSR-programs connected to short-term effort to, what they think, decrease the negative impact of CSR on profit maximization. If it is then reported in the media that the exclusion of small-scale farmers is an increased problem it may be connected with increased expenses to combat the problem. Hence, a profit maximizing company that does not consider the benefits of long-term efforts to a CSR-program closely linked to the core business may rather choose a different CSR-topic to address.

Since the variable *threemonths* was dropped it is not possible to analyze if the media printed closer in time to the publication of an annual report have larger impact.

From the output from Model 1 and 2 it is possible to see that the variable *Retail* is not significant. It indicates that for an agribusiness, having direct contact with the final consumers does not impact the extent to which the company chooses to include small-scale farmers as a part of their CSR-program.

The coefficients for the year dummy *2011* is negative in Model 1, while all included year dummies are negative in Model 3. Historical explanations that can be considered are the financial crisis and the food crises that occurred with peaks in 2008 and 2011. There is empiric support to why these events can explain a decline in the demand of CSR. McWilliams & Siegel

(2001) mentions that CSR-goods are normal goods. Increasing food prices indicate that consumers' income decreases. Less CSR-goods are hence demanded, leading to fewer incentives for agribusinesses to supply such goods. Another event that can explain why there is negative relationship between *2011* and the explained variable is that the 17th United Nations Climate Change Conference was held in Durban in November 2011. While it is the researchers experience that the reason why media increased in 2011 was because more articles were printed on the topic of climate change in relation to small-scale farmers, it is possible that agribusinesses put more effort into environmental projects rather than small-scale farmers. It is as Porter & Kramer (2006) means that a firm can just select a limited number of CSR-topics to focus on. Perhaps there occurred a trade-off between focusing on the inclusion of small-scale farmers and more environmental topics.

The coefficient for the dummy variable *Global* indicates a positive relationship between a company being global and it having more CSR-policy about small-scale farmers. There are two possible explanations. The first theory is based on the assumption that for a South African company to be a subsidiary of a larger company indicates that the company has a better economy in relation to most of the other companies. Karamchandani *et al.* (2011) mentions that the transaction costs a company face when contracting small-scale farmers make it harder for smaller agribusiness to contract farmers. Hence there exists economies of scale in contracting small-scale farmers, and the larger a company is, the less expensive it becomes for the company to contract small-scale farmers. This is in line with McWilliams & Siegel (2001) theory that their exist economies of scale in CSR in general, where the larger a company is the easier it is for the company to have a CSR-program. Another possibility to why *Global* is positive follows the line of Bouquet & Deutsch (2008) that mean that CSR provides legitimacy for companies to enter new countries. The theory explain Massmart's switch that when they were bought by Wal-Mart was when they begun report on the inclusion of small-scale farmers.

5.2 Reliability and validity

If the study is replicated there is one factor that can lead to the replicated study gets slightly different result. There was just one researcher conducting the study. Even though the researcher used a coding manual in order to ensure consistency when coding the information, with other researcher attached to the study it would have been possible to test how consistent the coding was. It could have been possible to check closer for intra-coderreliability as well, but this was not done because of the time constraint.

There are three factors that affect the internal validity of the study. First of all, the information on which the data rely on were found using keywords. Even though the keywords were evaluated for how well they worked, it is possible that the researcher may have overlooked an important keyword. If so, information may have been missed which could have influenced the results. A further limitation in the study was that the sustainability reports of the agribusinesses were not included. The reason was that it became too difficult to compile the information into a balanced data set when there were many companies that did not publish their sustainability reports consistently during the time period. If sustainability reports had been included, it is possible that some companies had reported more during each year, which would have affected the results. A final constraint to the accuracy of the results is that some companies only stated what month their report was published and not the exact date. The correlation could have been stronger if the exact date had been used.

Concerning the external validity of the study, it is likely that the finding of there not existing a positive casual relationship between media and CSR on business level is a locally representative result. If a similar study is carried out in a different setting where perhaps the

demand for CSR among society is stronger, the findings will possibly be different. That the variable *Global* is significant is in line with theory indicates that it is a result that is globally representative.

5.3 Further research

Here suggestions on future developments of the study are provided. It is possible that the study is the first that uses econometrics to investigate if there exist a cause-effect relationship between media and CSR. More research needs to be done within the area in general. Here a specific CSR-topic has been studied. The same method can be used to study other CSR topics, or several CSR topics in the same study.

The study finds that the characteristic of the relationship between media and CSR depends on what level it is analyzed: if it is on business level it is negative but on an aggregate level it is positive. Further research is needed to elaborate these findings and to understand why this difference arises.

As mentioned in Section 5.2, it may not be possible to generalize the result of the study to other settings than South Africa. Therefore it would be important to study what the result would be in a different region, to see if the results are regional or global. To conduct the study in a different area would also enable a comparison of the affect on how strong consumers demand for CSR is in different regions, and how this affects the relationship between media reporting and CSR. For the topic studied here the relationship was negative in a South African setting. Would the relationship still be negative if the same study was conducted in a different region?

To develop the study it would be interesting to include other CSR-topics. If the media reporting on one or two additional CSR-topics had been included it would be possible to see if there is a substitution effect in companies' consumption of different CSR-topics. If the media reporting of one CSR-topic increases, how does this affect the companies' consumption of that topic, and how does it affect the consumption of the other topics?

Another different development would be to include other actors than media. What if, as an example, NGO-reports and governmental investigations where included as additional explanatory variables apart from the media reporting, which actor would have the largest effect on the companies? Which voice is more influential when the business managements decide their CSR-program?

5.4 Ethical perspective of the study

Gustafsson *et al.* (2011) separates between what can be translated as research ethics and researcher's ethics, where the latter is defined as internal research ethics. Research ethics are the moral dilemmas that a researcher needs to address when conducting the research. An example is how to treat participants in a study with respect to their privacy. A researcher's ethics is to what extent a researcher treats the research in an ethical way. For the present study an ethical dilemma is that information studied is used from selected agribusinesses that are unaware that they are a part of the study. Potentially the study can harm the companies' brands. Yet, what justifies the study including these selected companies is that only public information from the companies' websites is used. An important aspect connected to the research ethics of the study is to transparently account for which sources have been used, and what in the text is from a source and what are the researcher's own words. Furthermore, it is important to transparently describe how the research has been conducted, to make it easier for stakeholders of the study to replicate the study. Another aspect has been to describe the limits of the study to ensure that the stakeholders of the study are aware of the limits of the results.

6 Conclusion

Here the different conclusions drawn are presented, which relates back to the research questions in Section 1.2.1 and the hypothesis stated in Section 1.2.3.

To two first research questions address to what extent South African media and agribusinesses reported on the topic of exclusion or inclusion of small-scale farmers during the years 2008-2012. The study finds an increase in the reporting in South African media on the topic during the years 2008-2011, with the most reporting in 2012. At the same time there is a variation in how much is reported between different months. As with media, more companies reported on the inclusion of small-scale farmers as a part of the CSR-program in 2011 and 2012, compared to the three first years. The increase is caused both by more agribusinesses reporting, and that they on average report more. There is a large variation in how much is reported between different reports.

The third question was if there exist a significant cause- and effect relationship between questions I and II, where the result from the first question would explain some of the results in the second question. The study show that a relationship exists between what is reported in media and what is reported in the selected agribusinesses' annual reports, on the topic of the exclusion or inclusion of small-scale farmers.

The study finds that the character of the relationship depends on which level it is analyzed. On an aggregate level, which only considers the time dimension and not the difference between the 19 agribusinesses, media has an immediate positive effect on the CSR reporting. However, the study also finds that on business level, with a lagged effect on four to six months, the media reporting has a negative effect on individual companies' reporting. When discussing why the relationship is negative a possible explanation is that when it is reported in the media that the exclusion of small-scale farmers is an increased problem it may be connected with increased expenses to address the problem. Hence, a profit maximizing company, which does not consider the benefits of long-term efforts to a CSR-program closely linked to the core business, may rather choose a different CSR-topic to address. Since the character of the relationship between media and the CSR reporting on the topic of exclusion or inclusion of small-scale farmers can be either negative or positive, depending on which level it is analyzed, the hypothesis of the study, which stated that the relationship is positive, can neither be rejected or accepted. Instead, future studies are needed on the topic further elaborated on the character of the established relationship.

The fourth and final question asked if the media published closer in time have a larger influence than media more distant in time, on the agribusinesses' reporting on the topic? Due to problem with multicollinearity between the explanatory variables, the research question is not addressed.

There are some additional interesting findings from the study. South African companies that are subsidiaries of global companies are more likely to report on the CSR-topic. No such conclusion can be drawn that retailor are more likely to address the issue compared to other agribusiness, even though they have direct contact with the final consumer in the value chain. The year 2011 was found to have a negative impact on the CSR-reporting on the topic. Possible explanations can be that the ongoing food crises lead to a decrease in the demand for CSR-product, since CSR-products can be considered to be normal goods, meaning that the agribusinesses had little economic incentive to provide them.

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Appendix 1: Econometric output from Model A

Table 11 Output from Model A, which is described in Section 3.3.2

	Coefficient	Std. Error	p-value	
const	0,0163	0,0259	0,5289	
Sixmonth	0,0004	0,0036	0,9036	
Global	0,0150	0,0108	0,1651	
Retail	-0,1391	0,0190	<0,00001	***
2008	0,0000	0,0206	0,9992	
2009	-0,0091	0,0193	0,6362	
2010	-0,0098	0,0207	0,6368	
2011	-0,0081	0,0198	0,6811	
du_1	0,1928	0,0219	<0,00001	***
du_2	0,1677	0,0262	<0,00001	***
du_3	0,1093	0,0222	<0,00001	***
du_4	-0,0005	0,0085	0,9538	
du_5	-0,0052	0,0163	0,7486	
du_7	-0,1394	0,0155	<0,00001	***
du_8	0,0005	0,0113	0,9634	
du_9	-0,1394	0,0154	<0,00001	***
du_10	-0,0132	0,0126	0,2959	
du_11	0,0420	0,0154	0,0064	***
du_12	-0,0202	0,0141	0,1521	
du_13	0,0565	0,0182	0,0019	***
du_14	-0,1391	0,0157	<0,00001	***
du_15	-0,0053	0,0123	0,6640	
du_16	-0,1389	0,0160	<0,00001	***
du_17	-0,0333	0,0146	0,0231	**
du_18	0,0153	0,0120	0,2011	

Left-censored observations: 45

Right-censored observations: 0

Test for normality of residual -

Null hypothesis: error is normally distributed

Test statistic: Chi-square(2) = 5,38695

with p-value = 0,0676455