The influence of traditional media on brand perceptions in social media

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Abstract

The information-sharing era in social media is benefitting companies, which in turn are encouraging consumers to share their thoughts and opinions. By assessing how consumers communicate about brands or products in social media, companies are able to gain insights into the online brand perceptions of consumers. The Brand as Intentional Agents Framework (BIAF) dimensions, warmth, competence, and morality are used to classify the online conversation of consumers regarding brands. Yet, the origins and effects of social media brand mentions are not clear. The present study aims to shed light on the question whether and to what extent there is a reciprocal relationship between the mass media (i.e. newspapers) and social media (i.e. brand perceptions) in a financial business context. Time-series analyses of social media and newspaper data indicate that mentions of banks in social media influence mentions of these banks in newspapers more significantly than the other way around. Moreover, newspaper articles about banks influence online brand perceptions of consumers about these banks. As a result, this study will contribute to the yet underdeveloped line of research on (intermedia) agenda setting in the context of business and the influence of mass media on brand perceptions.

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1. Introduction

The rise of social media has altered the interaction between consumers and companies (Hanna, Rohm & Crittenden, 2011). For instance, by using social media platforms such as review websites and other social networks, people search for information of and interact with products or services (Gruen, Osmonbekov, & Czaplewski, 2006). Popular social media, such as Twitter and Facebook, have become networks where consumers generate brand-related messages to share opinions and complaints (Andrei & Zait, 2014; Jansen et al., 2009). Research furthermore shows that on Twitter, a large portion (19%) of the tweets address a company or a brand (Jansen, Zhang, Sobel & Chowdury, 2009). Social media platforms offer companies branding opportunities such as engaging in online conversations with consumers and non-consumers, which could positively influence the corporate reputation (Dijkmans, Kerkhof & Beukeboom, 2015). On the other hand, social media can also pose a threat to brand image. Should a company *not* engage in the online conversation, a *negative* online image about their brand or product could negatively affect the company's reputation (Aula, 2010). The online conversation of stakeholders in social media can thus provide valuable information for companies. As a result, businesses participate in online communication while monitoring and measuring online conversations about their product or brand, with which they in turn manage their online reputations (Jones, Temperley, & Lima, 2009).

By assessing how consumers communicate regarding brands or products, companies are able to gain valuable and real-time insights into their online reputation. The potential of new information sharing is beneficial to companies that increasingly encourage consumers to share their thoughts and opinions (Kim, Sung & Kang, 2014). Complaints, comments, suggestions, support, and all other forms of online feedback provided by consumers can be used for company marketing strategies and to determine a business' (online) reputation (Pérez-Tellez, Cardiff, Rosso & Pinto, 2014).

According to Gray (2008), marketers see online reputation monitoring as an essential management practice. Several studies show that, among other elements, the reputation of a company and consumer perception about a company or brand is affected by online conversations (Jolly, 2001; Gruen et al., 2006). There are more reasons to use the online conversation to gain insights into the perception of consumers, and Schroeder (2014) shows several advantages over the more traditional research methods to obtain such insight (for example, customer surveys). Data obtained through researching social media provides a continuous flow of real-time consumer insights and behavioural and spontaneous feedback about brands or products instead of consumer self-reports on aspects of companies.

However, there are challenges in using social media data to assess consumer opinions. Challenges in analysing social media data include difficulties with data capture, and data inconsistencies and incompleteness (Chen & Zhang, 2014). The presence of so-called *noise,* irrelevant data, could affect the validity of data and thereby the results (Xiong, Pandey, Steinbach & Kumar,

2006). The significant amount of content and diversity within this content may have major implications on how firms monitor their online conversation (Kietzman, Hermkens, McCarthy & Silvestre, 2011). In order to make sense of all conversations in social media, companies could use monitoring tools. Such tools, for instance, monitor how often a company is mentioned (mention analysis), or how people feel about aspects of a company (sentiment analysis). Nevertheless, many other factors underscore the importance of assessing online conversations in social media.

Research conducted by Ridderbos (2015) assessed online conversations to gain insights on brand perceptions of consumers by using text mining to analyse data. Based on the Brand as Intentional Agents Framework (BIAF) by Kervyn, Fiske, and Malone (2012), she used the warmth and competence dimensions to classify online perceptions. While her study provides interesting insights on mapping online brand perceptions of several financial brands, it is still unclear what exactly influences the online brand perceptions of consumers.

According to previous research, mass media (e.g. newspapers and television) influence brand perceptions (Munn, 1960; Keller 1998). For example, Bravo, Montaner, and Pina (2012) show that non-corporate communication, such as the local news, is able to influence corporate images related to financial brands. This is in line with agenda setting theory (McCombs & Shaw, 1972), which argues that the media are able to set the public agenda. Carroll (2004) uses agenda setting theory to show that business news is able to influence perceptions of consumers measured by public opinion polls. Because of the rapidly changing media landscape, questions arise with regard to agenda setting effects between social- and traditional media. Groshek and Groshek (2013) argue that examining social media data is necessary to understand the reciprocal influence of traditional- and social media.

A few other studies already examine the relationship between Twitter and traditional media in the political context (Conway, Kenski & Wang, 2015; Groshek & Groshek, 2010). However, such studies have not been conducted within a business context. It is necessary to investigate whether online and offline business agendas influence one other, as they do in a political context. Earlier, the public had little influence on the media agenda. Because of the changing media landscape, certain media agendas are accessible to the public, and the power of traditional media may have shifted (Sayre et al., 2010; Conway et al., 2015). In platforms of their liking, the public generates content and thereby produces news (Kwak, Lee, Park & Moon, 2010; Pentina & Tarafdar, 2014). This is in line with research findings which indicate that social media and the public influence news media (Conway et al., 2015; Neuman, Guggenheim, Jang, & Bae, 2014).

Therefore, the present study aims to clarify the reciprocal influence of mass media and social media by implementing agenda setting theory in a financial business context. This study focuses on the (possible) relationship between the attention devoted to the four primary Dutch banks in newspapers and the online brand perceptions of consumers about these banks (BIAF mentions). It aims to contribute to the yet underdeveloped line of research regarding (intermedia) agenda setting within the business context.

Investigation of the new multi-platform media environment is particularly significant. Traditional and social media have emerged as powerful platforms, not only for news organizations and PR practitioners, but also for marketers. A better understanding of the interplay between traditional and social media (online brand perceptions) will provide insight into how marketers need to actively participate in both traditional and social media. Moreover, it will help PR practitioners to, in turn, determine whether they should focus on influencing mass media or develop strategies related to marketing contents on social media.

2. Theoretical background

2.1 Brand perception

Research demonstrates that the dimensions warmth and competence of social perception are applicable to persons, cultures, and objects (Fiske et al., 2002; Cuddy et al., 2007, 2008, 2009; Cuddy, Fiske & Glick, 2004; Poppe & Linssen, 1999; Aaker, Vohs & Mogilner, 2010). Fournier (1998, 2012) proposes that people relate to brands similarly to the way they relate to people. Therefore, the warmth and competence dimensions from the social perception model, Stereotype Content Model (SCM), are used to predict how consumers perceive companies and brands.

SCM states that people tend to form impressions of people and groups and act according to these impressions (Fiske Cuddy & Glick, 2002, 2007). Warm-cold and competent-incompetent are the underlying dimensions of the SCM. The warmth dimension entails the intention of people toward other people, and competence is defined as ability to carry out these intentions. In the first study of Fiske et al. (2002) on social perceptions, Americans were asked in a survey to evaluate social outgroups based on characteristics of warmth such as friendliness and helpfulness, and on competences such as intelligence and efficiency. Results indicated that people evaluated outgroups differently, based on their perceived status and competition. Outgroups with high status and much competition, such as Jews and Germans, were perceived as competent but cold. On the other hand, people who had a lower status and hardly any competition, such as housemothers, were perceived as incompetent yet warm.

Aaker, Vohs, and Mogilner (2010) researched whether the underlying aspects of status and competition were also applicable to the public's perception of companies. In an experiment with commercial versus non-profit organizations, they found that non-profit organizations were perceived as warmer than commercial organizations as the former show less competition. Companies with higher status and higher competition, such as commercial organizations, were perceived as competent and cold. The findings of their study suggest that people use dimensions of warmth and competence to distinguish non-profits and for-profits, which is in line with aforementioned findings.

Another study conducted by Cuddy, Fiske, and Glick (2007) indicates the connection between social perception and emotional and behavioural responses to the warmth and competence dimensions. Findings showed each combination of either high or low competence and/or warmth elicit unique emotional and behavioural responses. As the warmth dimension is linked to others' intentions, it predicts active behaviour, whereas the competence dimension entails the ability to carry out these intentions and thus predicts passive behaviour. The emotional responses mentioned include admiration, contempt, envy, and pity. Specifically groups perceived as warm and competent elicit admiration as emotional response and active facilitation as a behavioural response. Subjects perceived as cold and incompetent elicit contempt and active harmfulness in the study. Groups stereotyped as warm and incompetent elicit pity and active facilitation, while groups stereotyped as cold and

competent elicit envy and passive facilitation.

Moreover, research conducted recently into social psychology suggests that, besides warmth and competence, a third dimension plays an important role: morality. Certain papers, such as Fiske et al. (2012), use warmth and morality interchangeably. SCM has not distinguished a difference between warm and moral perceptions. Although it is a well-validated model, recent studies indicate that morality is an important third dimension whereby people perceive one another and brands (Brambilla & Leach, 2014; Leach, Ellemers & Barreto, 2007; Brambilla, Rusconi, Sacchi & Cherubini, 2011).

Brambilla and Leach (2014) state that the warmth dimension can be separated into sociability and morality. Sociability is an extension of warmth and is therefore important to facilitate affective relations between the public and brands. Morality focuses more on the importance of acting correctly in the eye of public norms and values. Brambilla et al. (2011) show that in trying to determine what kind of a person they are, participants make use of morality traits – such as honesty and trust – more often than warmth or competence traits. Goodwin, Piazza, and Rozin (2014) further investigated what traits people use to create global impressions of one another. They found similar insights as the aforementioned studies, confirming that morality and warmth perceptions are indeed two separate constructions, and that morality traits are even more important than warmth traits.

In relation to brands, MacInnes (2012) states that by adding relevant dimensions such as morality and/or excitement, more useful insights about brand perceptions of consumers can be deduced. Therefore, in the present study, besides the competence and warmth dimension, the morality dimension is used to deduce online brand perception. This third dimension focuses on the reliability and integrity of brands. According to Fiske and Malone (2013), the moral aspects are relevant to companies, particularly to financial brands, stating that financial companies have violated the expected trust to gain more profits, and thus confirming the relevance researching morality in this study.

2.2 Brand as Intentional Agents Framework (BIAF)

The BIAF is at the base of data collection in this study. Recent research into consumer brand perception states that besides the traditional deliverance of benefits for consumers, the relational and emotional aspects of brands are gaining importance (Fournier, 2009; Ahuvia, 2005). This reflects in recent conceptualizations of brand perception as the way consumers perceive and judge brands based on skills and relational and emotional aspects (Kervyn et al., 2012). A model that considers all these aspects is the Brands as Intentional Agents Framework (BIAF). This model suggests consumers perceive a brand based upon two dimensions: ability and intentions. Both are adapted from the aforementioned SCM. The ability or competence dimension is related to the capability, ability,

efficiency, and intelligence of a brand. The intentions or warmth dimension is linked to the thought of a brand being friendly and helpful. Brands can be classified into one of four clusters: able/well-intentioned, unable/ill-intentioned, able/ill-intentioned, and unable/well-intentioned. Such classifications are dependent on how well or ill-intentioned brands are perceived by people, and whether they are seen as capable in carrying out their intentions.

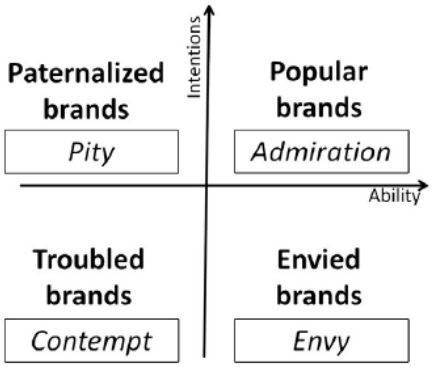


Figure 1. The BIAF (Kervyn et al., 2012)

In an experiment, Kervyn et al. (2012) manipulated several aspects related to the intentions and ability of a brand, and measured the derived warmth, competence, and emotions elicited. The results showed high-ability brands to be perceived as competent, receiving more admiration and envy in comparison to low-ability brands. Well-intended brands elicited admiration yet no pity was measured when compared to ill-intended brands. Companies with high levels of both ability and intentions were perceived as warm and competent (popular brands), which in turn evoked the feeling of admiration for the firm. Figure 1 provides an overview of the dimensions and linked emotions implemented in the study of Kervyn et al. (2012).

Other research into brand perceptions indicates that brands which are high on both competence and warmth (popular brands) receive the most intention of purchase, increased loyalty, and more recommendations (Fiske & Malone, 2013; Aaker et al., 2012; Andrei & Zait, 2014). However, data on consumers who perceive a brand as warm or competent do provide varying outcomes. Aaker et al. (2010, 2012) state that the dimension of competence elicits a higher purchase intention, whereas warmth, according to Andrei and Zait (2014), evokes a higher degree of recommendation (eWom). Investigating the brand perception role of consumers in social media, Andrei and Zait (2014) showed warmth and competence perceptions of consumers to be influenced by a company's communicative messages in and through social media, for example by using their posts on Facebook. They showed that messages focussing on achieved results and success of the company elicited costumers' competence perceptions, while the messages focussing on, for instance, social responsibility evoked warmth perceptions in the eye of the public.

Ridderbos (2015) showed that online conversations on social media could be used to gain insights into consumers brand perceptions. In order to analyse the brand perceptions in social media, Ridderbos compiled a list of 240 BIAF attributes (words). The list is based upon units of language covering warmth and competence dimensions, for example, friendly/unfriendly service, or good/bad quality. By combining such attributes (words) with company names, relevant social media data is collected from platforms such as Twitter and Facebook. This data was thereafter classified in order to combine mentions of brands with warmth and competence perceptions of consumers. As a result, Ridderbos constructed a comprehensive and transparent positioning map of online brand perceptions

regarding the Dutch financial market.

In summary, results of previous research into this study's field of focus indicate brand perceptions can be derived from social media platforms and that their influence is stronger than a mere brand evaluation. To achieve positive emotional and behavioural responses, brands need to be perceived as at least warm (moral) or competent, online and offline. It is therefore important to gain insight into what influences perceptions of consumers. The present study is extending the research into brand perceptions by examining what influences the *online* brand perceptions.

2.3 What influences (online) brand perception in social media?

Drawing on previous research by Munn (1960) and Keller (1998), factors that influence brand perceptions include the following: physical qualities, packaging, price, promotion, merchandising, and mass media (e.g. the newspaper and television). Perceptions of a brand are formed as a result of direct experience as well as by information acquired through others sources such as messages conveyed through mass media. For instance, online negative eWom of customers affects the perception consumers have of a brand (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004). Moreover, Bravo, Montaner, and Pina (2012) studied the influence of non-firm communication on the corporate images related to financial brands, such as name and appearance in news articles. They stated that the corporate image consists of functional and emotional benefits, which are similar to the competence and warmth dimensions of brand perception. Results showed that positive news also had a positive effect on the perceived image consumers have of a company.

However, there is also the chance of corporate image being affected negatively. Bennett and Kottasz (2012) discovered that public attitude toward United Kingdom (UK) banks had been negatively affected after the 2007 financial crises. Moreover, UK banks were exposed to extensive media coverage regarding the financial crisis, causing the public to obtain an even less favourable perception of the UK financial world. The financial crisis is a clear example of financial institutions violating trust. Due to this economic setback, banks have been criticized continuously in traditional media. For example, Dutch banks are also being held partly responsible for the financial crisis (Volkskrant, 2010).

These results imply that the dissemination of news about companies by mass media is able to influence brand perception. However, previous studies have not taken the influence of specific mass media into account, nor have they examined brand perceptions of consumers in the online context. This study will take an in depth look at the relationship between traditional mass media and (online) brand perceptions, using data from newspaper articles and social media to review public perception of the Dutch financial market.

2.4 Who sets the agenda in the digital age?

To examine the relation between newspapers and online brand perceptions, this study departs from agenda setting theory. Agenda setting theory states that the media are able to conduct what and how the public perceive certain items or objects (McCombs, 2006). The agenda setting theory has been widely investigated and is an important theory within media effects research. Since the study of McCombs and Shaw (1972) into the 1968 presidential election, the effects of agenda setting have been studied in more than 300 studies in countries such as the USA, Spain, Germany, Argentina, Japan, and many others.

Originally, the agenda setting theory stated that media have the power to determine important issues of the day (McCombs & Shaw, 1972). Because of the changing media landscape, many more media agendas are available to the public, and the power of traditional media is questioned (Sayre et al., 2010; Conway et al., 2015). It is possible that the new digital media still follows issues that are salient in traditional media. For example, newspapers are able to set the agenda of social media, such as blogs and Twitter, and these influence the public opinion. As a result, the power of traditional media to set the agenda is modified instead of entirely eliminated.

On the other hand, digital media such as Twitter can, in turn, set the agenda of traditional media. There is evidence that social media platforms provide a distinct agenda and acts without relying on traditional media as a gatekeeper (Metzgar & Marrugi, 2009; Neuman et al., 2014). For example, when protests took place in Egypt against Mubarak and his government in January 2011, journalists were unable to cover the story as they were banned from the country. However, through the use of social media platforms such as Facebook and Twitter, first-hand reports were made public by protesters on the ground (Michaels, 2011). According to Sayre, Bode, Shah, Wilcox and Shah (2010, p.9), "the Internet is at the center of this change, expanding the definition of news sources and news producers". News companies and journalists are adapting to these changes by to sharing and gathering (news) information on social media platforms (Waters, Tindal & Morton, 2010). Stated in a press release by Cicion (2010): "A US survey has revealed that an overwhelming majority of reporters and editors use social media sources for researching their stories as 56% say social media are important for reporting and producing the stories they wrote". Moreover, the boundaries between amateur and professional journalists are fading (Sayre et al., 2010; Meraz, 2011). The ascent of mobile connectivity via smart phones gives people the opportunity to share news anytime and anywhere (Pentina, Tarafdar, 2014; Mayer & Cornfield, 2008; Kwak et al., 2010).

As a result of these developments, scholars have asked whether there is a reciprocal relationship between mass media and social media (Sayre, Bode, Shah, Wilcox & Shah, 2010). Groshek and Groshek (2013) argue for the need to examine social media data to understand the influence of traditional media on social media and vice-versa. Few studies have examined the relationship between Twitter and traditional media in the context of political discussions (Conway et al., 2015; Groshek & Groshek, 2013). Central to the research of Conway et al. (2015) was the question

whether social media content bypasses, follows, or attracts the attention of traditional media. Previous research on intermedia agenda setting theory focused on the effect of traditional media on social media. Intermedia agenda setting can be defined as how media content influences other media (McCombs & Shaw, 1976). Nowadays, this relationship could be reciprocal. Considering the fast and easy way that people can engage, share, and create content on online media, it is clear that traditional and social media agendas could intersect.

Conway, Kenski, and Wang (2015) showed that attention focussed on certain issues of political campaigns, such as energy and taxes, is correlated in newspapers and social media. Moreover, their results provide proof for the reciprocal influence of traditional media and social media. Twitter has limited to moderate influence on the news whereas the news has a stronger effect on Twitter. Related to this are the results of Kwak, Lee, Park, and Moon (2010). They compared trending topics on Twitter to CNN Headlines and Google trends that showed that the newspaper was, most of the time, leading in reporting news. However, some issues or events such as accidents were reported on Twitter earlier. In a recent study, Neuman et al. (2014) showed that social and traditional media are in general an interdependent instead of a unilateral influence. The results of the previously mentioned articles indicate that agenda setting is no longer a top-down process from media to the public but more a process of transferring issues and objects across media and the public.

Although extensive research has been carried out into the relationship between traditional and social media in the political context, not a single study examining the relationship covering the business context can be found. This was the case despite proof of agenda setting theory in offline business contexts and the increasing importance of online conversation regarding business (Pérez-Tellez, 2014; Jolly, 2001). According to Kaplan and Haenlein (2010), not many firms are comfortable in the new digital era in which consumers talk freely about their business, product, and brands. Should there be a reciprocal influence of traditional and social media in business news, as there is in the political context, it will provide valuable insights for PR professionals and marketers.

Studies have successfully shown that news covering companies has an effect on the opinion and perception of the public (Meijer & Kleinnijenhuis, 2006; Carroll, 2004; Carroll & McCombs, 2003). Carroll and McCombs (2003) were the first to argue that agenda setting theory could be easily extended to other research areas such as business communication. Fombrun and Shanley (1990) were among the first to study the impact of several aspects of media coverage on business. They proposed that media coverage significantly influences corporate reputation judgements. Their results show firm exposure in the media can have a negative influence on its reputation. However, in results from previous research based upon data from public opinion polls, it remains unclear whether there is a reciprocal influence between traditional and social media in a business context.

According to several scholars, there are two forms of agenda setting: first and second-level (McCombs & Evatt, 1995; McCombs, Lopez-Escobar, Llamas, 2000). The first-level of agenda setting concerns the prominence of an issue or object in media that increases the prominence of that object or

issue within the public opinion. Carroll (2004) reviewed several international companies and studied whether media coverage was able to influence name recognition by using a public opinion poll (the Annual Reputation Quotient). This study will use the online conversation of consumers in social media as the public agenda to investigate whether the prominence of brands in media influences the prominence of those brands within public opinion and vice versa. Attention devoted to banks in social media is operationalized as BIAF mentions, because data on the banks is related to the online brand perception dimensions of the BIAF. Therefore, it is expected that:

H1. There is a relationship between the coverage of banks in newspaper articles and the BIAF mentions of banks in social media;
H2. Coverage of banks in newspapers and the BIAF mentions of those banks in social media predict one another.

The second-level of agenda setting focuses on how specific attributes of objects or issues are presented (Carroll, 2004). Kiousis et al. (2007) describes an attribute as a property, characteristic, or the quality of an object. Both scholars indicate traditional media are able to influence what people talk about and influence the way the audience talks about objects. Therefore, second-level agenda setting will provide insights on the influence of news issues in the public opinion. There are two forms of second-level agenda setting: affective and cognitive or substantive (McCombs & Evatt, 1995; McCombs, Lopez-Escobar, Lamas, 2000). The affective dimension is related to the feeling expressed about an object. Substantive or cognitive, both are used to refer to this dimension, concentrate on specified aspects or issues related to an object in a news article. According to Carroll (2004), the cognitive dimension allows scholars to classify large amounts of news text into common themes. The classification of news articles in themes such as environmental issues or workplace environment can provide insights into which themes are main topics of agendas. Meijer and Kleinnijenhuis (2006) show that news concerning a certain issue in relation to an organization, in effect stimulate the prominence of that issue on the public agenda. For instance, they mention that when many news articles appeared about Shell in relation to the environment, this ensured that the environmental issues were what firstly came to mind in the public when thinking of Shell.

In general, scholars argue that there are five aspects used by an individual to evaluate the reputation of a company (Fombrun & Van Riel, 2003, 2007; Carrol, 2004). These include the following: workplace environment; financial performance; products and services; leadership and vision, and social and environmental responsibility. Given that Fiske and Malone (2013) state that financial brands are violating the trust of consumers, and that newspaper articles often describe such violations prominently during the economic crisis that started in 2007, the present study adds a sixth element: moral issues. Moral issues cover the range of main issues, such as Libor Fraud in relation to the Dutch society and its financial market. In order to determine whether perceptions of consumers are

related to this study's six aspects of focus, it will classify newspaper articles into six themes. As a result, the following research question has been formulated:

RQ1. Are the six reputation dimensions as assessed in the newspaper coverage of banks able to predict the BIAF mentions of banks in social media?

The aforementioned hypotheses and research question are all related to the total amount of attention devoted to the BIAF mentions of banks on social media. The following hypothesis is related to specific brand perception dimensions. Scholars use agenda setting theory to determine whether media coverage on objects affects the sentiment expressed in the public's description of those objects (Carroll, 2004). For instance, Fombrun and Shanley (1990) indicate that media coverage is able to influence the feeling of the public on a certain issue or object. In the present paper, the BIAF dimensions serve as a framework to classify the online conversations according to positive and/or negative sentiments. The warm, competent, and moral brand perceptions of consumers are allocated as positive sentiments, whereas the antonyms, cold, incompetent, and immoral are labelled as negative sentiments. The BIAF dimensions provide valuable insight into perceptions of consumers regarding brands, as well as the sentiment related to brands. Hence, it is expected that:

H3. The coverage of banks within newspaper articles is related to and predicts the specific BIAF mentions of those banks in social media.

To further clarify this relationship between traditional and social media for the Dutch banking sector, each brand will be examined separately.

RQ2. Is there a reciprocal influence per coverage of specific banks in newspaper articles and the BIAF mentions of these banks in social media?

3. Research method

The goal of the current paper is to study the relationship between mentions of banks in newspaper articles and online brand perceptions of consumers. To analyse online brand perceptions of consumers, it was necessary to apply a brand-positioning model, such as the BIAF, to the social media data of consumers. Underlined, a company that generates brand insights from the voice of the customer compiled a dataset that consisted of online messages about four primary banks classified according to the brand perception dimensions of the BIAF available for this thesis. Ridderbos (2015) was the first to use online consumer messages to deduce brand perceptions of the BIAF. The research process to gain data was accomplished in several steps. All the relevant online social media data needed to be collected from the internet. In online messages, consumers spontaneously wrote about a brand. People might describe their perception with words, such as competent, knowledgeable, intelligent, or good quality, in combination with a brand name. Ridderbos (2015) selected ten words, defined as main attributes that embody the warmth and competence dimension. Based on the ten main attributes (words), she made a list of 240 synonyms that were related to the brand perception dimensions of warmth and competence. In Radian6, a social media monitoring and analysis platform, filters were built that consisted of brand names in combination with the synonyms. The filters were used to collect the online relevant messages from social media. Eventually, the data was transferred into a database in which it was classified according to brand and the BIAF attributes. This resulted in a dataset that was classified according to the brand names and the related perceptions.

3.1 Pre-test

The method of Ridderbos (2015) indicates that the five main attributes per dimension are of crucial importance for deducing the online brand perceptions. All the 240 BIAF synonyms are based on the ten main attributes (words). To examine the relationship between newspaper content and online brand perceptions of consumers, there needs to be certainty that the online messages are correctly classified as warm or competent. Therefore, in a pre-test of the main study, the main attributes that represent the dimensions of warmth, competence and morality from Ridderbos (2015) were validated. The study was conducted in the form of an online survey and the data was analysed with a repeated measures ANOVA. In this way, it was determined whether the words that operated as attributes and synonyms in the text mining method of the main study were indeed perceived as relating to the main dimensions of warmth, competence, and morality. The following hypotheses were tested:

H1. The relationship between a group of main attributes and their related dimension is stronger when compared to the other dimensions;
H2. The relationship between main attributes and their related dimension is stronger when compared to the other dimensions.

Participants and design

In total, 186 respondents participated in the pre-test (response rate 46%). The participants were recruited through social media such as Facebook, LinkedIn, and Twitter. Social media were selected because this is an important factor in the main study. Two respondents were eliminated because they responded in exactly the same manner to each question. Of the participants, 55% were female and the age ranged from twenty years to 65 years or older: 20-24 years (38,6%), 25-29 years (29,3%), and 55-59 (8,2%). Most respondents had an education level of HBO (45,7%), followed by WO Master (20,7%), and WO Bachelor (15,2%). Most participants were studying (35,3%) or working more than twenty hours a week (39,7%).

The aim of the pre-test was to investigate which main attribute is matched to one of the three dimensions. The main attributes were randomly presented and were analysed with a repeated measures ANOVA in a 3 (Words) X 3 (Word group: warm, competent, moral) X 3 (Dimension: warmth, competence, morality) design. The independent variable word is a control variable. The independent variable group is a cluster of main attributes which is described in the operationalization phase. The dependent variable dimension is defined as the degree to which a word relates to morality, competence, and warmth.

Procedure

The study was conducted online. Initially, participants were presented with a short introduction about the aim of the study and an explanation was provided on the dimensions morality, warmth, and competence. For each attribute, they needed to indicate to what degree that attribute fitted the brand perception dimensions by answering the following question: "A company is described as *helpful*. To what extent is this word related to the warmth, competence, or morality dimension?" At the end of the study, all participants responded to four demographic items and were debriefed on the purpose of the study. The survey can be seen in Appendix I.

Operationalization

In the attribute selection phase, a list of attributes was generated from previous research on the dimensions of warmth, competence, and morality (Ridderbos, 2015; Fiske et al., 2012; Goodwin et al., 2012; Brambilla et al., 2011). It was important to ensure that the attributes were selected from each of the warmth, competence, and morality dimensions used in previous research to increase reliability of the text mining method. Fiske et al. (2012) and Ridderbos (2015) provide ten attributes which serve as a base for the dimensions of warmth and competence. For the morality dimension, other papers were used. Brambilla et al. (2011) utilize the following characteristics for measuring morality: honest, sincere, ethical, reliable, and respectful. In a second study by Brambilla et al. (2011), the morality characteristics were specified as righteous, honest, and reliable because those were similar to the ones used in a study of Leach et al. (2007). Based upon aforementioned studies, the current research adopted the following positive attributes with their antonyms:

- warmth: (un)friendly, (un)helpful and bad or good service;
- morality: (un)reliable, honest or dishonest and (un)righteous;
- competence: (un)professional, efficient or inefficient, (un)intelligent and bad or good quality.

Similar to the study of Goodwin et al. (2012), the main attributes were evaluated on their relevance to a dimension. The measurement phase existed of two independent and a dependent variable. The independent variable *word* is defined as the ten main attributes and the independent variable *word group* were the main attributes merged into three groups. The warm word group contained the main attributes: 'friendly', 'good service', and 'helpful'. The competent word group was represented by 'professional', 'intelligent,' and 'efficient'[1]. The last word group, moral, consisted of 'righteous', 'honest', and 'reliable'. This principle was the same for the negative groups and dimensions; however, the negative main attributes were used. The dependent variable *dimension* was the attribute score on the three dimensions: morality, competence, and warmth.

The data (N = 184) was structured to treat each individual word with their score on the dimension as a dependent measure. Questions related to negative and positive main attributes were answered by different participants and, therefore, analysed separately. All measures were assessed with a 7-point Likert-scale (1 = *'says nothing at all'* and 7 = *'says a lot'*).

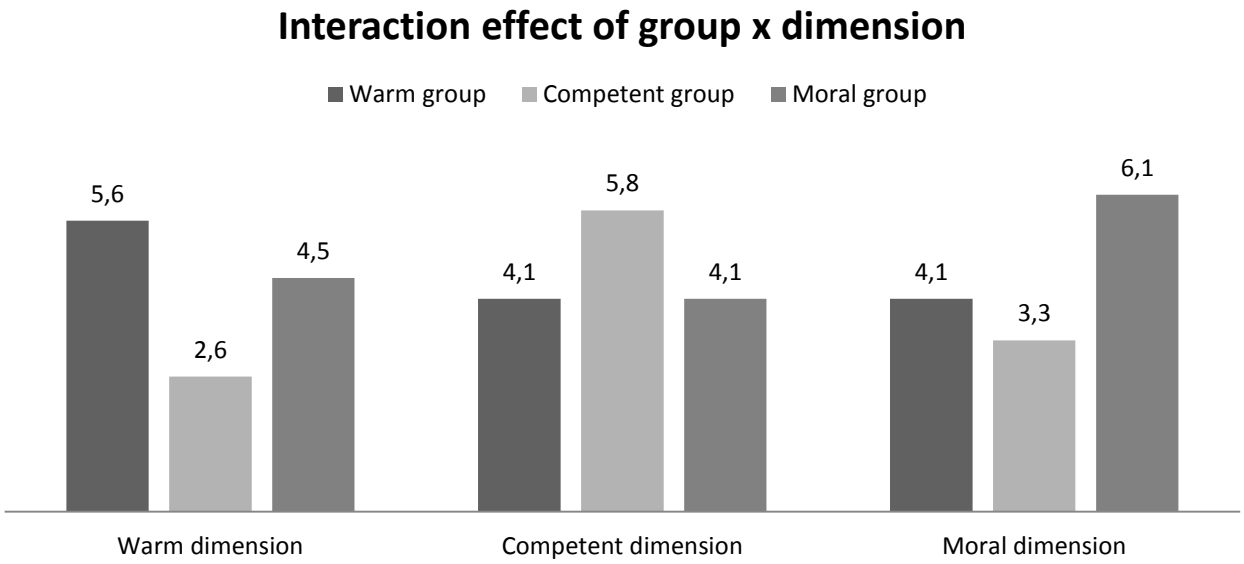
Results of pre-test

A factorial repeated-measures ANOVA was conducted to examine the relationship between word groups and dimensions. As hypothesis one states, the group of main attributes related to their dimension will be evaluated differently compared to the other dimensions. For the positive main attributes, Mauchly's test indicates that the assumption of sphericity has only been violated for the interaction effect of group and dimension, X^2 (9) = 62.39, $p < .01$. Therefore, degrees of freedom were corrected using Huynh-Feldt estimates of sphericity (ε = .78). There was a significant main effect of word, $F(2, 180) = 5.29$, $p < .01$, indicating that each attribute was rated significantly different. There was also a significant main effect of group, $F(2, 180) = 124.41$, $p < .0$, indicating that each group was rated significantly different. Finally, there was a significant main effect of dimension, $F(2, 180) = 16.41$, $p < .01$, indicating that each dimension was evaluated different. Hypothesis one was tested in the interaction of word group and dimension. The interaction was highly significant, $F(4, 360) = 242.53$, $p < .01$. This indicates that the ratings on a dimension were significantly different depending on a group of main attributes. To break down this interaction, post hoc tests with Bonferroni corrections were performed comparing each group to each dimension. The analysis showed that each group scored significantly different on their related dimensions compared to the other dimensions. In order to provide a clear picture of the relation between word group and dimension, figure 2 was added. The first bar indicates that the warm group (M = 5.6) scores significantly different on the warmth

[1] Because of the fact that repeated measures require equal groups sizes, it was decided to exclude the fourth main attribute of competence for hypothesis one. The group with the best results is presented.

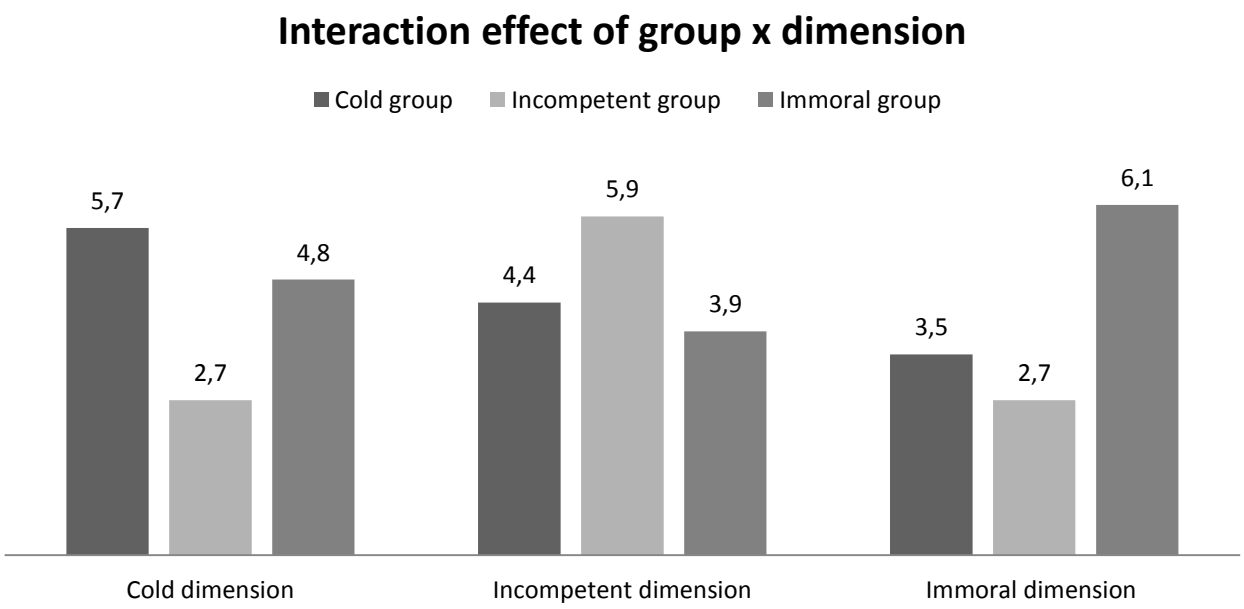
dimension compared to the competent (*M* = 2.6) and moral (*M* = 4.5) group. This pattern was also applicable for the other groups and their related dimension.

Figure 2. Interaction effect of group and dimension for positive main attributes



For the negative main attributes, Mauchly's test indicates that the assumption of sphericity has been violated for group, X^2 (2) = 20.69, p < .01 and the interaction effect of group and dimension, X^2 (9) = 109.61, p < .01. Therefore the degrees of freedom were corrected using Huynh-Feldt and Greenhouse-Geiser estimates of sphericity (ε = .83 for the main effect of group and ε =.60 for the interaction effect). There was a significant main effect of word, $F(2, 179{,}56) = 3.13$, $p < .05$, group, $F(2, 184) = 81.11$, $p < .01$ and dimension, $F(2, 184) = 26.62$, $p < .01$. The relation between the group of negative main attributes and the dimension needed to be investigated with the interaction of group and dimension. The interaction was highly significant, $F(4, 226.90) = 193.76$, $p < .01$. This indicates that the ratings on a dimension were significantly different depending on a group of main attributes. To break down this interaction, post hoc tests with Bonferroni corrections were performed comparing each group to each dimension. The analysis showed that the each group scored significantly different on their related dimensions compared to the other dimensions. In order to provide a clear picture of the relation between group and dimension, figure 3 was added. Again, the first bar indicates that the cold group (*M* = 5.7) scores significantly different on the cold dimension compared to the competent (*M* = 2.7) and moral (*M* = 4.8) group.

Figure 3. Interaction effect of group and dimension for negative main attributes



After confirming hypothesis one, a follow up, one-way repeated-measures analysis was conducted regarding hypothesis two. This hypothesis states that the attributes related to a dimension is evaluated differently compared to the other dimensions. The results of these analyses are shown in Appendix II. In summary, the results support hypothesis one. For hypothesis two, eight out of nine main attributes are supported; only the main attribute 'good service' was not evaluated significantly different.

The results of the pre-test indicated that all word groups represent the related dimension, as expected. Moreover, only the main attribute 'good service' did not represent the expected dimension. This could be explained by the fact that 'good service' was interpretable in several ways; for instance, the deliverance of professional service or the deliverance of a friendly and helpful service. In social media, the latter interpretation predominated. Therefore, this attribute was not eliminated for the main study. To conclude, the pre-test provided support for the attributes which Ridderbos (2015) used for deducing the online brand perceptions. Therefore, the present study used the social media dataset from Underlined to examine the relationship between newspapers and online brand perceptions. Moreover, the moral attributes were correctly ascribed to the morality dimension, therefore the morality dimension was included in the main study.

3.2. Main study

To test the (intermedia) agenda setting relationship, research data was drawn from two sources: social media and newspapers. Articles from primary Dutch newspapers and social media data on four banks related to the adjusted BIAF dimensions were analysed for mentions in the period between 1 January 2013 and 30 September 2014. Computer-assisted content analysis and time series analysis were used to analyse this relationship between social and traditional media. In this section, the strategy for collecting and analysing the social media and newspaper data is described.

Social media dataset

Social media data related to the adjusted BIAF dimensions in the period between 1 January 2013 and 30 September 2014 was collected on the following financial brands ING, Rabobank, ABN Amro, and SNS. Since Underlined made a dataset for this thesis available, the period is chosen because of practical reasons. The four primary banks were chosen in an effort to gain insights into the Dutch banking sector. The social media dataset (N = 56358) consisted of social media mentions of the brands that contained words related to three brand perception dimensions (Kervyn et al., 2012). Thus they are not a representation of the whole social media conversation about banks.

As described in the theoretical outline, the morality dimension will be added in the present study. The morality dimension consisted, as shown in the pre-test, of three main attributes: reliability, honesty, and righteous. However the moral attribute 'righteous' was not yet included in the dataset of Underlined. Therefore, the social media data related to the righteous attribute was collected in the same manner as Ridderbos (2015) did for the other attributes.

The data collection for the 'righteous' attribute

The present study relied on the *searching method* of text mining (Ridderbos, 2015) to analyse and collect the social media data for the 'righteous' attribute. This method started with searching pre-determined words that were used in the online conversation. Searching for pre-determined words was accomplished through selecting the relevant synonyms of the 'righteous' attribute by using online thesauruses and the previous research of Goodwin et al. (2012). After testing fifty synonyms in the online conversation, 21 synonyms were selected based on relevance and volume. The synonyms served as a basis for collecting the data. Radian6 is a social media monitoring and analysis platform in which conversations about brands can be tracked across various online channels such as Twitter, Facebook and blogs (Radian6, 2015), and was used to collect the social media data. Filters were built in Radian6, which are combinations of a brand name and a synonym (Ridderbos, 2015). By using proximity, which limited the space between two or more searched keywords within an online conversation, it was possible to minimize off-topic posts (Radian6, 2015a). Ridderbos (2015) showed that the proximity of a maximum of twenty words between the keywords resulted in the most relevant messages. An example message that illustrates the combination of brand with perception attribute is as follows: "@Rabobank makes eleven million profit and reduces on customer service, you should be

proud of yourself. Greedy vultures!". This message was classified as an immoral perception, because of the immoral synonym, greedy vultures, with the brand, Rabobank.

After collecting the relevant social media data for the main attribute 'righteous', a manual check of a hundred randomly negative and positive messages was needed to verify whether the combination of brand name and perception attribute were correctly deduced and classified (table 1 and 2). Each message needed to contain a brand name in combination with a correct perception attribute. By combining computer- and human-assisted data collecting and coding of the online conversations, the trustworthiness of the results were improved and could be replicated.

Table 1. Manual check of the main attribute righteous of the moral dimension (positive sentiment)

Sentiment	Hits	Percentage
Negative	26	26%
Positive	17	17%
Neutral	15	15%
Noise	43	43%

Note: sample of one hundred moral (righteous) messages (*N=100)*

The positive attributes in combination with the brands were in 17% of the cases correctly labelled. Automatic content analysis does not take into account the context in which a word is used while the meaning of pre-determined words with brands may vary depending on the context. Positive words such as 'moral' were used sarcastically. An example of this is the following message "My fd column about the ethic *kuch* consciousness of the ING". Psychological research revealed that financial companies are violating the expected trust and are thus perceived as immoral (Malone & Fiske, 2013). This may explain the predominantly sarcastic tone of voice. When sarcasm was used in all the messages of the moral perception, it was possible to add the positive side of righteous to the negative side. However, only 26 cases were labelled as negative. As a result, the positive words of the moral attribute 'righteous' were excluded in the analysis.

Table 2. Manual check of the main attribute unrighteous of the immoral dimension (negative sentiment)

Sentiment	Hits	Percentage
Negative	83	83%
Positive	3	3%
Neutral	7	7%
Noise	7	7%

Note: sample of hundred immoral (unrighteous) messages (*N=100)*

The negative attributes in combination with the brands were in 83% of the cases correctly labelled and are thus reliable. To further improve the reliability of the social media data of the unrighteous attribute, some final adjustments were made. During the manual check, messages were annotated and screened for noise and common errors. An example of common noise was an author named 'Ing__ro' which contains 'ING' and was therefore collected by Radian6 as the brand ING. To eliminate such noise from the immoral dimension, a noise-filter in SAS Guide and SQL was set up which eventually excluded two hundred messages with unrelated subjects regarding, for instance, vacancies. Eventually, all relevant social media data was classified in a database according to brand name and the perception attribute.

Newspaper dataset

AmCAT, a software of the Free University of Amsterdam, was used to gather all newspaper data related to the four financial brands. Only the primary Dutch newspapers were selected based upon their relevance: 'De Volkskrant', 'NRC', 'Financieele Dagblad (FD)', 'Trouw', 'De Telegraaf', and 'Algemene Dagblad (AD)'. In the end, 14945 articles that mentioned at least one of the four brands were downloaded. It was necessary to verify whether the articles were a relevant hit by checking whether the articles did indeed focus on a brand or were a random hit. A sample of fifty articles per brand was manually checked for noise. The results indicated that irrelevant articles were present depending on the length of an article. From the two hundred articles with a length of a hundred words or more and two or more mentions of a brand, only 4% were irrelevant. On the other hand, articles that mentioned a brand only once within an article with more than four hundred words became irrelevant (see appendix II). This is because the articles were often unrelated to the brand. In total, 10328 relevant articles were included in the dataset.

Operationalization and coding of the Reputation Quotient attributes

As described in the theoretical outline, the Reputation Quotient attributes were used in order to determine what causes the online perceptions of consumers. Six attributes of the Reputation Quotient (RQ), by which the public judge companies, are used (Fombrun & Van Riel, 2003, 2007; Carrol, 2004). These attributes are workplace environment, financial performance, products and services, leadership and vision, social and environmental responsibility, and moral issues. The next step was to develop a list of keywords that represented each attribute. Appendix IV provides an overview of keywords applied as search strings in AmCAT to collect the data about the attributes. The list was partially derived from the study of Carroll (2004), the pre-study, and from the content of news articles. Subsequently, the list was checked by running a frequency of the words. Finally, a validity and reliability check of each attribute was conducted by manually controlling fifty articles for precision (which verifies whether the words of an attribute are correct hits) and recall (which measures whether all words that are related to that attribute are indeed found) (Atteveldt, Ruigrok, Takens & Jacobi, 2014). By combining computer- and human-assisted data collection and coding of the newspaper

articles, the trustworthiness of the results were improved and could be replicated. The results in table 3 indicate that most attributes had a reliable precision and recall.

Table 3. Validity and reliability check of each attribute by manually controlling fifty hits for precision and recall

	Precision	Recall
Workplace environment	.74	.95
Financial performance	.90	.90
Leadership and vision	.92	.96
Social & environmental responsibility	.74	.86
Products and services	.50	.70
Moral issues	.96	.80
N	300	300

Note: sample of 300 newspaper articles, 50 per attribute.

Notable is the lack of precision of products and services. This attribute contained several words, such as expensive or safe, that served as a noun. To improve the precision of this attribute, those words were eliminated or used as adjectives by adding a noun such as products or services. Eventually, the relevant articles for each attribute were collected from AmCAT by using automatic content analysis.

Analysis

After collecting data, both datasets were transported to SPSS to test correlations and to conduct time series analysis. Time series are a set of observations measured at regular intervals (days). Therefore, the relationship between values of one day and prior days (lags) can be examined. The present study used time series in order to study the relationship between traditional and social media in a financial business context. To test this relationship, the attention devoted to banks in newspapers and social media was operationalised as mentions of banks in both datasets. Importantly, social media mentions are defined as BIAF mentions of banks in social media because the social media data only consisted of user-generated content that is related to the brand perception attributes.

To support the first three hypotheses and research question one, the mentions of banks were pooled to gain robust insights about the whole banking sector. As is common in pooled time series analysis, all variables were standardized. To answer research question two, the mentions for specific banks were investigated separately. For the social media and newspaper data, the unit of analyses was all content concerning the banking sector or the banks published on a given day. Kwak et al (2010) showed that, on average, trending topics on Google and Twitter varied respectively 95% and 72% of the time each day. Due to the fact that social media moves from one topic to another each day, the analysis of day-level provided the most valuable insights.

4. Results

The fourth section presents the findings of the research, focusing on the four key themes: descriptive analysis, chronology of the data, and correlation- and time series analyses.

4.1 Descriptive analysis

Table 4 provides the descriptive results of the attention devoted to banks in newspapers in total and per attribute. The number of mentions is the sum of each hit for a search term. For instance, all the banks are mentioned 39989 times in total with an average of 15.97 (*SD* = 28.80) mentions a day. ING is clearly the most mentioned brand with 12236 hits compared to the other brands. For the whole banking sector, the financial performance (*M* = 18.06, *SD* = 25.70) received the most attention per day. In contrast to what was expected, there were a low number of mentions on moral issues which are the issues related to banks in the Dutch society.

Furthermore, table 5 gives an overview of the descriptive results of mentions in social media. Similarly, as in newspaper articles, ING gains the most attention in social media as brand. Notable are the results indicating that SNS received the least mentions in social media compared to the other brands. Moreover, the BIAF dimension competence (*M* = 3.05, *SD* = 8.55) and incompetence (*M* = 3.85, *SD* = 20.06) are mostly related to the banking sector per day compared to other dimensions. As expected, negative sides of the dimensions score higher with incompetence (*M* = 3.05, *SD* = 8.55) and cold (*M* = 2.80, *SD* = 7.80) compared to their antonyms (competent and warm). The moral dimension shows the reverse pattern. Moral mentions score higher than immoral mentions. An explanation for this could be that the moral dimension is not correctly coded.

Table 4. Descriptive statistics per brand for newspaper mentions and the Reputation Quotient (RQ) attributes hits

		Financial performance	Leadership & Vision	Social & environmental responsibility	Products & services	Workplace environment	Moral issues	Mentions in newspaper
Rabobank	*M (SD)*	14.39 (16.14)	5.43 (8.00)	2.24 (3.96)	2.42 (3.95)	5.46 (10.71)	2.28 (4.51)	14.42 (17.03)
	Mentions	9180	3463	1432	1542	3482	1457	9201
	N	638	638	638	638	638	638	638
ING	*M (SD)*	22.98 (24.71)	6.19 (8.02)	1.51 (2.61)	2.54 (3.93)	5.92 (10.59)	2.58 (4.39)	19.18 (24.76)
	Mentions	14663	3951	963	1622	3778	1648	12236
	N	638	638	638	638	638	638	638
ABN Amro	*M (SD)*	17.50 (24.45)	5.7 (8.42)	1.67 (3.22)	2.21 (3.78)	5.24 (10.00)	1.97 (3.74)	13.00 (16.57)
	Mentions	11060	3626	1053	1401	3314	1245	8216
	N	632	632	632	632	632	632	632
SNS	*M (SD)*	17.31 (34.20)	4.50 (10.33)	1.30 (3.08)	1.24 (2.70)	3.43 (9.73)	1.96 (4.91)	17.34 (46.97)
	Mentions	10320	2683	772	738	2044	1171	10336
	N	596	596	596	596	596	596	596
Total	*M (SD)*	18.06 (25.70)	5.48 (8.73)	1.69 (3.28)	2.12 (3.67)	5.04 (10.31	2.20 (4.40)	15.97 (28.80)
	Mentions	45223	13723	4220	5303	12618	5521	39989
	N	2504	2504	2504	2504	2504	2504	2504

Note: the banks were identified by automatic content analysis through the name of the brand. The mentions are the sum of hits per search term.

Table 5. Descriptive statistics per brand for social media mentions and the brand perception dimensions hits

		Cold	Warm	Incompetent	Competent	Immoral	Moral	BIAF Mentions in social media
Rabobank	*M (SD)*	3.50 (8.22)	1.75 (2.73)	4.75 (15.89)	3.23 (3.55)	2.47 (5.97)	2.38 (5.76)	22.00 (29.27)
	Mentions	2235	1117	3032	2062	1573	1517	14016
	N	638	638	638	638	638	638	638
ING	*M (SD)*	4.17 (10.15)	1.96 (6.16)	6.98 (35.06)	4.70 (13.80)	2.98 (8.74)	3.69 (20.15)	30.12(103.03)
	Mentions	2658	1251	4451	3001	1901	2357	19214
	N	638	638	638	638	638	638	638
ABN Amro	*M (SD)*	2.22 (3.49)	1.27 (1.70)	2.00 (3.35)	2.66 (3.11)	1.19 (6.14)	2.08 (11.92)	14.24 (20.87)
	Mentions	1406	804	1264	1678	750	1315	9001
	N	632	632	632	632	632	632	632
SNS	*M (SD)*	1.20 (7.40)	.68 (4.13)	1.49 (8.64)	1.52 (8.64)	1.09 (8.42)	2.15 (17.38)	9.10 (54.65)
	Mentions	718	405	889	908	648	1283	5422
	N	596	596	596	596	596	596	596
Total	*M (SD)*	2.80 (7.80)	1.43 (4.07)	3.85 (20.06)	3.05 (8.55)	1.95 (7.45)	2.58 (14.83)	19.03 (61.66)
	Mentions	7017	3577	9636	7649	4872	6472	47653
	N	2504	2504	2504	2504	2504	2504	2504

Note: the banks were identified by automatic content analysis through the name of the brand. The mentions are the sum of hits per search term.

4.2 Chronology for banks

Data analysis was conducted to gain insights into whether attention to banks in both traditional and social media vary over time. Figure 4 and 5 present how data varies over time. The main issues for each brand within the period from 1 January 2013 to 30 September 2014 are described below.

Rabobank

The blue lines presented in figure 4 and 5 illustrate the attention directed to Rabobank. It starts with the first peak in social media around April 2013. Due to a technical failure, consumers could not make online payments. Because this affected the consumer directly, it received much attention in social media. In June and July 2013, the main topics in the newspapers were related to Rabobank's cyclist team and the resignation of their CEO, Moerland. On the other hand, the bonus issues and technical failures gained more attention in social media. From September until December 2013, there is a notable peak in both media. This can be explained by the involvement in the Libor fraud. In January 2014, there was another peak in social media as well as in newspaper data. Especially the mentions in social media increased. During this period, the news announced that Rabobank had the most technical failures in 2013. Moreover, Rabobank was a main topic in social media and in the news on 27 January 2014 because of their job dismissal announcement. Until June 2014, the attention devoted to Rabobank decreased. Around June and July, the mentions of Rabobank increased in social media because of the announcement on the salary raises and bonuses of their CEOs. Moreover, the increase in mentions of Rabobank in social media could be explained by a technical failure in their online payment system.

ING

The green lines presented in figure 4 and 5 illustrate the attention directed to ING. Since ING was related to the nationalisation or state bank issue, the mentions increased when SNS was nationalised in February 2013. The most notable peak in the social media timeline starts in March and continues until May 2013. ING was mentioned extensively because there were several technical failures in their online banking systems. Eventually it became clear that these failures were part of a cyber-attack. As a result, the attention in newspapers also increased. Moreover, ING media attention was related to news of salaries and bonuses of their CEOs. In June and December 2013, a small increase in social media mentions were again related to technical failures. Due to a misinterpretation about private data of their consumers, ING gained a further attention in both media in March 2014. This concern escalated and became a widely publicised issue about ING selling (private) data of their customers. The matter remained in the news for several months.

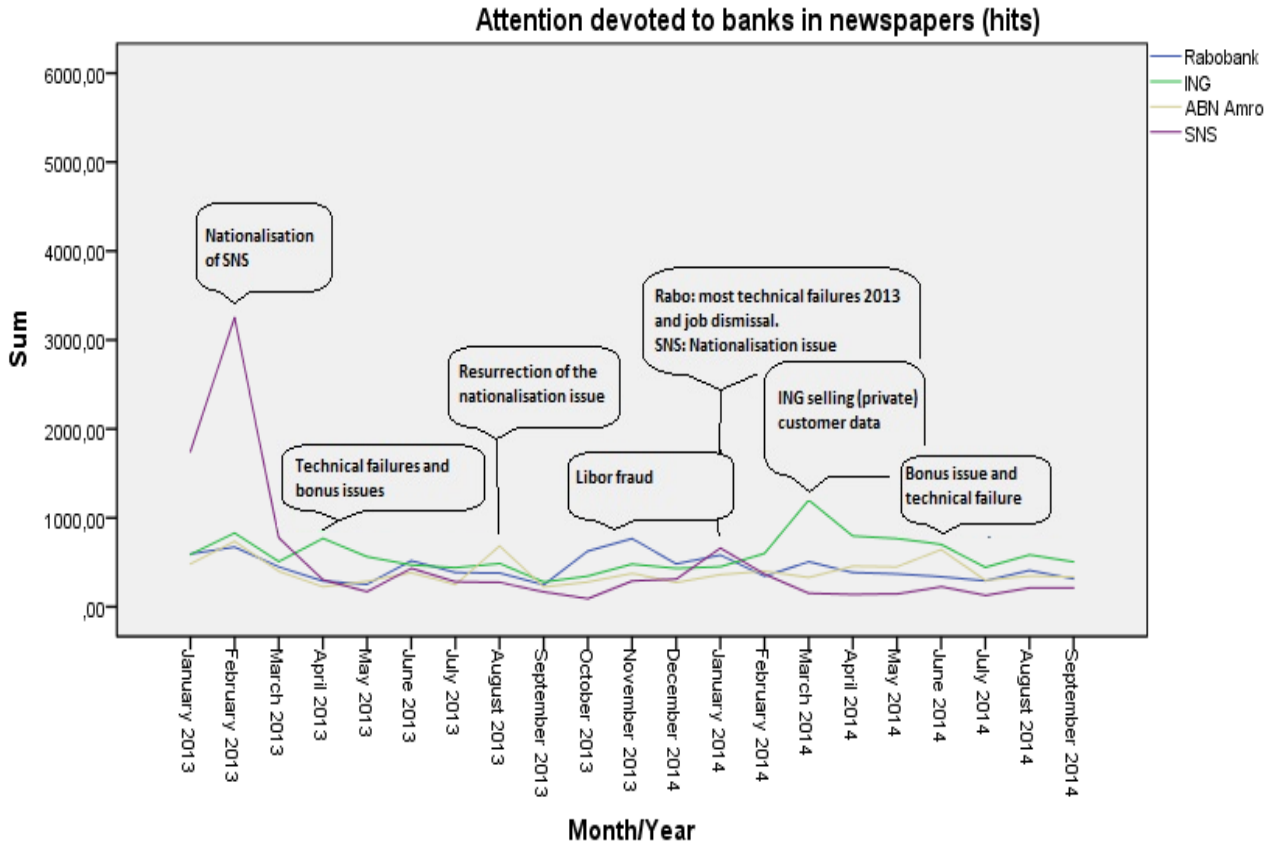
ABN Amro

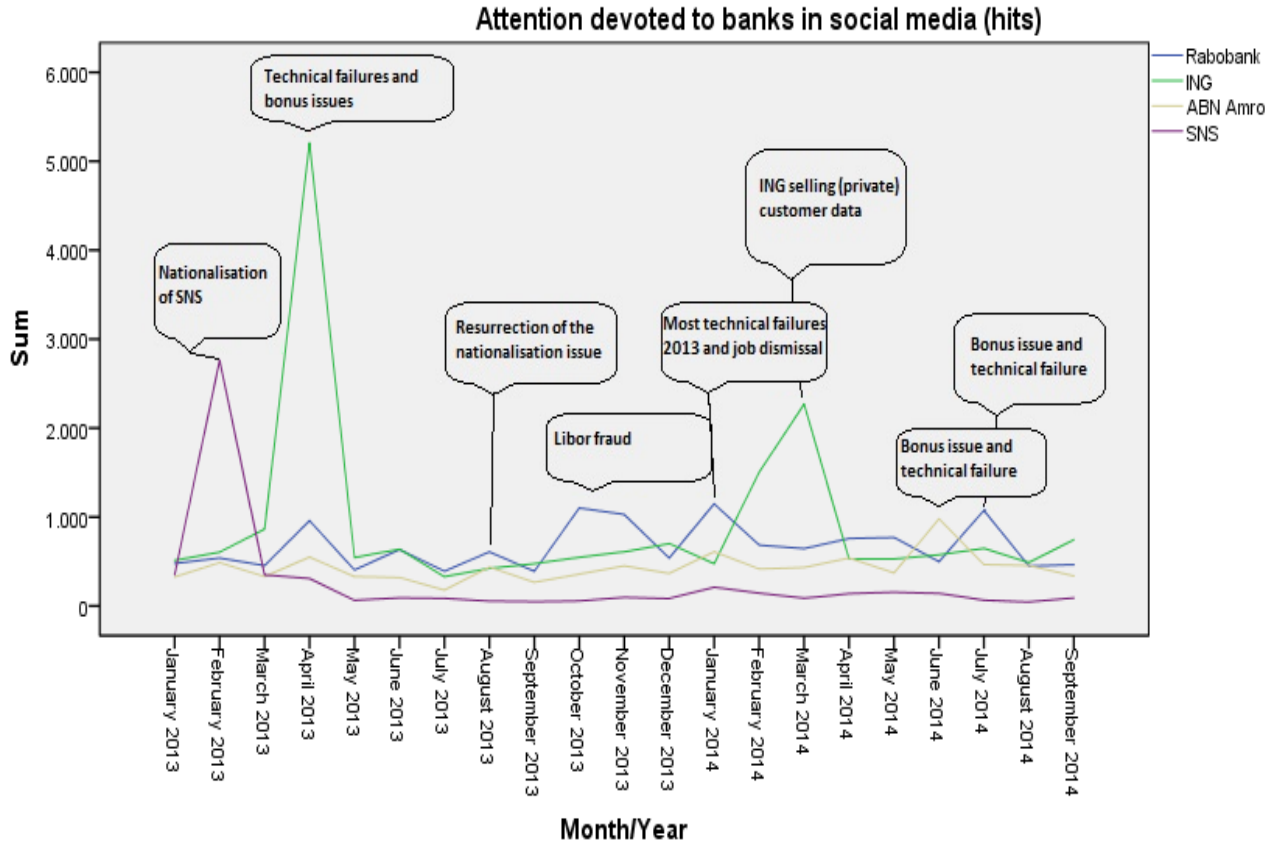
The yellow lines presented in figure 4 and 5 illustrate the attention directed to ABN Amro. Similar to ING, ABN Amro attracted some attention in both media in February 2013. They are also associated with the state bank issue. In March and April 2013, their mentions in social media increased because of technical failures. From the beginning of June 2013, the attention devoted to ABN Amro in newspapers and social media increased. An explanation for this is the reoccurrence of the matter of nationalisation. Moreover, ABN Amro announced the abolition of the bonuses in November 2013. Notable is that all banks are associated with this issue because of the overall increase of attention during this period. In January 2014, there is small peak in social media that is associated with a technical failure in their internet banking system. Finally, there is a notable peak from the end of May until July 2014 in both media. This begins at the announcement of CEO bonus increases. The attention directed to ING continued to increase during July due to the top one hundred employees receiving a salary raise while the company retrenched on other aspects such as customer service. In addition, there was a technical failure.

SNS

The purple lines presented in figure 4 and 5 illustrate the attention directed to SNS. The first peak in both figures is related to SNS (February 2013). This peak is initiated by the introduction of SNS as a state bank (SNS nationalisation). Because of the state support, all other banks associated with this issue (ING and ABN Amro) also attracted extra attention in newspaper articles in February 2013. The other small peaks related to SNS, such as in June 2013 and January are related to renewed attention on the state bank issue.

Figure 4 & 5. Chronology for the four banks in the newspapers and social media





4.3 Relationship between traditional media and social media in a business context

Before investigating the relationship between traditional and social media over time, the partial correlations were examined to ascertain whether there are contemporaneous relationships. Table 6 shows the results of the partial correlations for mentions of banks in newspapers and social media which were corrected for autocorrelation and day of the week. The results indicate that there is a significant positive relationship between attention devoted to banks in newspapers and BIAF mentions in social media about these banks. However, the effects are weak (r = .22). Remarkably, the attention devoted to banks in newspapers is most strongly related to the immoral perceptions (r = .29), as expected. Moreover, the RQ (Reputation Quotient) attributes, moral issues, and financial performance are clearly most strongly related to the BIAF mentions of banks in social media and the brand perception dimensions.

In summary, the partial correlation in table 6 indicates that there is correlation between the attention devoted to banks in newspapers and attention devoted to banks in social media. This provides support for hypothesis one, which argued that the relationship between mentions of banks in newspapers and social media is reciprocal.

Table 6. Partial correlations for newspapers, attributes, social media, and brand perception dimensions

	Total BIAF mentions in social media	Cold	Warm	Incompetent	Competent	Immoral	Moral
Total mentions in newspapers	.22***	.20***	.20***	.10***	.22***	.29***	.23***
Financial performance	.14***	.14***	.12***	.05**	.14***	.21***	.15***
Leadership & vision	.13***	.12***	.14***	.06**	.13***	.19***	.13***
Social & environmental responsibility	.08***	.09***	.10***	.03	.08***	.10***	.14***
Product & service	.09***	.06**	.11***	.06**	.09***	.07**	.09***
Workplace environment	.06**	.05**	.06**	.02	.05*	.10***	.05**
Moral issues	.13***	.14***	.16***	.05*	.14***	.18***	.15***
N	2500	2500	2500	2500	2500	2500	2500

Note: *: $p < .05$; **: $p < .01$; *** $p < .001$

To further examine the reciprocal relationship between attention devoted to banks in traditional and social media, time series analyses were conducted. The mentions of banks are pooled to gain robust insights about the entire banking sector. The following tables in this section provide results on the effects of the lagged independent variable (t-1) and the dependent variable, controlled for autocorrelation and day of the week. The lag is held consistent at one because this showed the strongest effects and correlations.

Hypothesis two states that mentions in newspapers predict BIAF mentions of banks in social media and that BIAF mentions in social media predict mentions in newspapers. The results in table 7 show that social media influence newspapers (β = .34) more strongly than other way around (β = .09).

Both effects are significant however weak. The effect of social media on newspapers explains the significant amount of residual variance after the control factors (day of the week and autocorrelation) have been taken into account (R^2 = .11 for step 2, p < .01). Overall, the model explained 35% of the variance in attention for banks in social media. Moreover, both variables are significantly predicted by their own autocorrelation. For instance, the total mentions in newspapers with the time lag of the day before (t-1) predict the total mentions in newspapers. In sum, the results support hypothesis one and two and therefore indicate that the reciprocal influence between traditional and social media over time is present.

Table 7. Significant beta's for the reciprocal effect of mentions in newspaper and social media with the time lag of the day before (t-1)

	Total BIAF mentions in social media	Total mentions in newspapers
	β (*r*)	β (*r*)
Total mentions in newspapers (t-1)	.09*** (.44)	.42*** (.38)
Total BIAF mentions in social media (t-1)	.29*** (.31)	.34*** (.44)
R^2	.11	.35

Note: *: p < .05; **: p < .01; *** p <.001

To find support for hypothesis three, table 8 is reviewed. Hypothesis three argues that mentions of banks in newspapers predict online brand perceptions of consumers about those banks in social media. Table 8 shows the effect of mentions in newspapers on the online brand perception dimensions. Although beta coefficients are not very strong, all effects are significant, thus offering support for hypothesis three. It is clear that the attention to banks in newspapers predicts the morality dimension most consistently (moral: β = .10, p < .001 and immoral: β = .10, p < .001). When examining the separate perceptions, the attention directed to banks in newspapers predicts the warm perception most strongly (β = .19, p < .001). In summary, the results suggest that news about banks in newspapers influences brand perception to a certain degree. Especially news articles about banks is related to the moral dimensions, which is in line with the literature (Fiske & Malone, 2013), therefore offering support for hypothesis three. The second-level agenda setting is thus applicable in the context of traditional and social media.

Table 8. Significant betas for the effect of newspaper with the time lag of the day before (t-1) on the brand perception dimensions

	Cold	Warm	Incompetent	Competent	Immoral	Moral
	β (*r*)	β (*r*)	β (*r*)	β (*r*)	β (*r*)	β (*r*)
Autocorrelation	.08** (.18)	.20*** (.31)	.28*** (.29)	.12*** (.21)	.19*** (.29)	.19*** (.24)
Total mentions in newspapers (t-1)	.09** (.11)	.19*** (.23)	.04** (.07)	.11*** (.13)	.10*** (.15)	.10*** (.17)
N	2500	2500	2500	2500	2500	2500

Note: *: p < .05; **: p < .01; *** p <.001

Moving to the exploratory research questions, the results in table 6 suggest that the RQ attributes are correlated with the mentions of banks in social media and to some of the brand perception dimensions. To answer research question one that questions whether there is a reciprocal influence of RQ attributes in newspapers and mentions of banks in social media, a time series analysis is conducted. Table 9 shows that only four RQ attributes, financial performance, leadership and vision, workplace environment, and moral issues predict some of the brand perception dimensions. The effects of the RQ attributes are all very weak to weak. In particular, financial performance predicts warm perceptions (β = .13, p < .001) and competent perceptions (β = .07, p < .01). Moreover, leadership and vision (β = -.11, p < .01) and workplace environment (β = .05, p < .05) predict moral perceptions. Notable are the predictions of moral issues on the dimension of morality: immoral (β = .07, p < .01) and moral (β = .09, p < .01). As in line with the expectations, moral issues in the Dutch banking sector influence the moral perceptions of consumers.

On the other hand, table 10 shows that all the attributes are predicted by the mentions of banks in social media. This indicates that the influence of social media on those attributes is much stronger than the other way around. Particularly, leadership and vision (β = .17, p < .01) and moral issues (β = .17, p < .001) are predicted more strongly than the other attributes. This strong influence of social media on the moral issues was expected. The social media conversation is in many cases related to the banks' unethical behaviour and the discussion about the salaries and bonuses of the CEOs, which are both moral issues according to the classification.

To answer the last research question, whether mentions of a bank in newspapers are related to the mentions of those objects in social media, the banks need to be examined separately. The results of the analysis in table 11 indicate that mentions in social media predict the mentions in newspapers for all brands. Notable is the strong effect of attention in social media on mentions in newspapers (β =.64, p < .001). When examining the reciprocal influence, the results indicate that only newspaper attention of SNS is able to predict mentions on social media (β = .21, p < .001). The strong effect of SNS could be explained by the fact that SNS received much attention in both media about their nationalisation issue.

Table 11. Significant betas for the reciprocal effect of mentions in newspapers and social media per brand with the time lag of the day before (t-1)

	Mentions of Rabobank in newspapers	Mentions of ING in newspapers	Mentions of ABN Amro in newspapers	Mentions of SNS in newspapers / social media
	β (*r*)	β (*r*)	β (*r*)	β (*r*)
BIAF Mentions in social media per brand (t-1)	.29*** (.38)	.35*** (.41)	.27*** (.34)	.63*** (.71)
Mentions in newspapers per brand (t-1)	-	-	-	.21*** (.29)
N	637	637	631	595

Note: *: p < .05; **: p < .01; *** p <.001

Table 9. Significant beta's for the effect of RQ attributes in newspapers with the time lag of the day before (t-1) on social media and brand perception dimensions

	Total BIAF mentions in social media	Cold	Warm	Incompetent	Competent	Immoral	Moral
	β (*r*)	β (*r*)	β (*r*)	β (*r*)	β (*r*)	β (*r*)	β (*r*)
Financial performance (t-1)	-	-	.13*** (.15)	-	.07** (.07)	-	-
Leadership & vision (t-1)	-	-	-	-	-	-	-.11** (.04)
Social & environmental responsibility (t-1)	-	-	-	-	-	-	-
Products & services (t-1)	-	-	-	-	-	-	-
Workplace environment (t-1)	-	-	-	-	-	-	.05* (.08)
Moral issues(t-1)	-	-	-	-	-	.07** (.12)	.09** (.12)
N	2500	2500	2500	2500	2500	2500	2500

Note: *: $p < .05$; **: $p < .01$; *** $p < .001$

Table 10. Significant beta's for the effect of social media with the time lag of the day before (t-1) on newspaper and RQ attributes in newspapers

	Total mentions in newspapers	Financial performance	Leadership & vision	Social & environmental responsibility	Products & services	Workplace environment	Moral issues
	β (*r*)	β (*r*)	β (*r*)	β (*r*)	β (*r*)	β (*r*)	β (*r*)
Autocorrelation	.30*** (.38)	.46*** (.35)	-	.17*** (.17)	.09**** (.08)	.18*** (.21)	.36*** (.36)
Total BIAF mentions in social media (t-1)	.34*** (.44)	.12*** (.22)	.17** (.25)	.13*** (.19)	.13*** (.17)	.12*** (.17)	.17*** (.25)
N	2500	2500	2500	2500	2500	2500	2500

Note: *: $p < .05$; **: $p < .01$; *** $p < .001$

5. Conclusion and discussion

The information-sharing era on social media encourages consumers to share their opinions about companies and products. By assessing how consumers communicate about brands and products, companies are able to gain insight into the online brand perceptions of consumers. The present study aimed to shed light on the question whether and to what extent there is a reciprocal relationship between the mass media (i.e. newspapers) and social media (i.e. brand perceptions) in a business context. Specifically, the (intermedia) agenda setting theory has been examined in regards to a financial business context. The results of time series analyses with social media and newspaper data provided theoretical and practical insights. The findings and implications are discussed below.

The first main finding was that newspaper reports about Dutch banks and the BIAF mentions about Dutch banks in social media influenced each other. BIAF mentions about banks in social media influenced mentions of those banks in newspapers, more so than the other way around. The presence of contemporaneous relationships and time lags suggest that (intermedia) agenda setting is applicable in an online business context. Thus, the hypothesis suggesting that prominence of leading Dutch banks in one media leads to an increased prominence in the other media is supported. It is worth noting that mentions of banks on social media in this study are always related to brand perception dimensions. Online mentions of banks unrelated to the BIAF attributes were excluded. Therefore, in effect, this study does not give a full representation of attention given to banks in social media. This may have influenced the results by underestimating the effects between traditional and social media.

Nevertheless, this study's findings provide support by showing the presence of a symbiotic relationship in a financial business context. Social media content thus bypasses, follows, and attracts the attention of traditional media. The reciprocal relationship between attention devoted to banks in newspaper articles and BIAF mentions of banks in social media are similar to previous agenda-setting studies about political campaigns (Conway et al., 2015; Groshek & Groshek, 2010). Moreover, the results are in line with research examining the relationship between social and traditional media (Neuman et al., 2014; Kwak et al., 2010). It was unclear whether the reciprocal relationship between traditional and social media in a financial business context existed. This study contributes to the existing line of research by finding data supporting these effects in a financial business context. The study of Conway et al. (2015) shows that traditional media still have the power to set the agenda of social media. This trend will likely persist to a certain degree. The results of the present study are in line with this trend. Attention devoted to banks in newspaper articles predicts the BIAF mentions of banks in social media. On the other hand, attention devoted to banks in social media predicts newspapers content stronger than the other way around. This supports earlier evidence of social media providing a distinct agenda by circulating (new) information. Social media acts without relying on traditional media as a gatekeeper (Metzgar & Marrugi, 2009). A recent survey indicated that the internet serves as a second medium in terms of news platforms (Pew Research, 2010). The internet is

thus a major source of producing and gaining news information. The ascent of mobile connectivity via smart phones gives people the opportunity to share news anytime. An illustration of this is the technical failures of banks as conversed about among consumers online before it was mentioned in the traditional media. In line with these examples are the findings of Kwak et al. (2010), who show that a substantial number of tweets were about news and thus concluded that Twitter could be perceived as a news media. According to Waters et al. (2010), journalists use social media to collect information and ideas for their work. The results of the present study highlights this trend of social media as a news outlet, yet also shows that newspapers still affect social media and thereby public opinion.

To further clarify the effects of traditional media on social media, the online brand perception dimensions of the adjusted Brand as Intentional Framework (Kervyn et al., 2012) were included in the analyses. Certain studies have shown that media coverage does affect the agenda of the public opinion with regards to business (Carroll, 2003; Deephouse, 2000; Fombrun & Shanley, 1990; Meijer & Kleinnijenhuis, 2006). However, those results were based upon data from public opinion polls such as the Annual Reputation Quotient, and therefore only offer support for relations between traditional media and public opinions as assessed through survey studies. Data for this study existed of newspaper articles *and* social media conversations. First, the cohesion between attention devoted to banks in newspapers and the online brand perception of these banks was established. Time series analysis with the online brand perception dimensions showed that media coverage of banks in newspapers predicts brand perceptions of consumers in social media. Therefore, this study supports previous research that indicated the probability of mass media's influence on brand perception (Keller, 1998; Bravo et al., 2012). It is clear that this study provides several new insights about the relationship between traditional and online brand perceptions since social media conversations provide real-time insights about behaviour and opinions of consumers, rather than self-reports about certain aspects of a company. On the other hand, the challenges in using social media to gain insights into brand perceptions of consumers is the prerequisite of well-structured data.

The findings of this study showing that newspapers are able to set the agenda of the public and affect perceptions provide valuable insights for marketers and public relations professionals. Brands could, for instance, influence the media by managing the relations with media outlets and sending press releases about certain topics (Kiousis et al., 2007; Kiousis, Mitrook, Wu & Seltzer, 2006; Kim & Kiousis, 2012). Kiousis et al. (2007) show that there is a positive relationship between the tone of substantive attributes, such as financial performance of a company in public relations material, and media coverage about that company. Moreover, Kim and Kiousis (2012) provide evidence of the influence of corporate blogs messages on the corporate reputation and consumer engagement. Ultimately, the aforementioned results of this study can aid firms to adjust their strategic use of traditional and social media and positively influence brand perceptions of stakeholders. Positive effects on the consumer perceptions can have many advantages, such as increasing loyalty, positive (electronic) word of mouth, or even a higher purchase intention (Fiske &Malone, 2013; Aaker,

Garbinsky & Vohs, 2012; Andrei & Zait, 2014).

Due to the classification of the online brand perceptions, the present study also provides valuable insights about which perceptions are related to mass media. Results indicate that media coverage about banks predicts brand perceptions of these banks. Attention devoted to banks in newspapers is most strongly related to the morality dimension, which consists of moral and immoral perceptions. As described in the chronology of chapter 4.2, much attention devoted to banks in newspaper articles addresses issues related to morality. According to Fiske and Malone (2013), financial institutes violate the expected trust, which can in turn be perceived as immoral by consumers. Results of the present study show that attention devoted to banks in newspapers predicts the moral and immoral perceptions of consumers equally. An explanation for this finding may be the incorrectly coded main attributes 'reliable' and 'honest' of the morality dimension. The manual check in chapter 3.2, of the main attribute 'righteous' of the morality dimension, shows that a large amount of the online conversation regarding financial brands is sarcastic. Thus, there is a possibility that online conversations of consumers classified as honest and reliable are not intended to be positive messages. One of the challenges of using social media data to gain insights into, for instance, the perception of consumers, is the diversity within the online conversation, given that it may result in inconsistent data. Although computer- and human-assisted data collecting and coding is used, the presence of so-called noise can affect data validity and thereby results.

In addition to the theoretical contribution on which dimension is most strongly predicted by the mass media, the results also offer support for a more sophisticated relationship between traditional and social media. As described earlier, there are two forms of second-level agenda setting: affective and cognitive or substantive (McCombs & Evatt, 1995; McCombs et al., 2000). The affective elements are an assessment of sentiment expressed about, for instance, financial brands and products. Because of the classification of online conversations as the BIAF dimensions, results of the analysis can be approached as sentiment expressed about brands. The warm, competent, and moral perceptions are allocated as positive sentiments, whereas their antonyms – cold, incompetent, and immoral – are labelled as negative sentiments. This study explored the way in which attention devoted to banks in newspaper articles predicts brand perceptions of consumers about Dutch banks. In general, attention devoted to banks in newspapers is more strongly related to positive perceptions. These results are contradictory to those of Fombrun and Shanley (1990), who found that firm exposure in the media had a negative influence on the reputation. They used a survey as a research tool instead of social media data, which may explain the contradictory results. Again, classifying the online conversation of the consumer as an online brand perception may affect the reliability of the results. An originally negative message, which consists of for example sarcasm, may be classified as a positive perception because automatic content analysis cannot recognize the context in which a positive word is used.

In addition, second-level agenda setting is further examined by implementing Reputation Quotient (RQ) attributes (Fombrun & Van Riel, 2003, 2007). Earlier research has shown that the

amount of media coverage devoted to the attributes executive performance and workplace environment influenced the public, as these were the most thought-about topics (Carroll, 2004). The present study questioned whether there is a reciprocal influence of RQ attributes of banks in newspapers and BIAF mentions of these banks in social media. The results indicate that BIAF mentions in social media influence the RQ attributes. However, only some of the RQ attributes predict the online brand perception dimensions.

Finally, this study shows that by assessing how consumers communicate about financial brands or products, companies are able to gain insights into the online brand perceptions of consumers (Pérez-Tellez, Cardiff, Rosso & Pinto, 2014). By monitoring social media, it is possible for companies to reflect on what is going on in real-time public debates, instead of gathering information from consumers through surveys. Through insights provided by social media monitoring, companies can adjust their content marketing strategies and influence consumer perceptions positively.

5.1 Limitations and further research

The reader should bear in mind that this research has its limitations. Because it used automatic content analyses to collect social media data and newspaper data, it is possible that the data contains noise, which can be described as irrelevant data or incorrect classified data. Unfortunately, noise is inherent to the use of collecting data with an automatic content analysis. However, to counteract noise, several noise filters were built and data was manually checked to check reliability. In addition, a pre-test ensure that the main attributes and synonyms were related to brand perception dimensions and thereby decreased the likelihood of incorrect classified perceptions.

A second limitation is that, due to time series analyses and the possible influence of other media or experience of consumers, uncertainty about the direct influence of the mass media on the brand perception dimensions can arise. Besides the influence of the mass media, research indicates that brand perception of consumers is also affected by, for instance, consumers' own experiences and the price of products (Munn, 1960; Keller 1998). Because the brand perceptions are deduced from social media, such experiences or aspects can also have influenced online brand perceptions. Conway et al. (2015) and Sayre et al., (2010) state that time series analyses suggests a non-random relationship. The relationship may still be influenced by missing factors not included in this study. As Carroll (2005, p. 9) argues, "it is a paradigm within the media research tradition that the media's power to influence is neither limited nor direct, but indirect instead".

A final limitation is that the definition of attention directed to banks on social media is limited to the mentions of banks in social media related to the brand perception dimensions. This means that, for example, online messages without the combination of brands and the pre-determined perception words are excluded. As a result, the present study does not represent the total online attention directed to Dutch banks. This may have affect results about the relationship between attention directed to banks in newspapers and social media. However, results offer first-hand support for the reciprocal relation in

a financial business context. Further research should collect all data related to those banks in social media to gain more specific insights about the reciprocal relationship. By further examining this relationship, it may be possible to measure stronger (intermedia) agenda setting effects in a business context. Moreover, it is possible to extend the research of the intermedia agenda setting in a business context by studying whether a relationship is also present in other markets, such as the travel or telecom market. If those findings reflect the results of the current study, it will provide further proof of (intermedia) agenda setting within the business context.

This study uses the Reputation Quotient attributes to assess whether they are related and are able to predict brand perceptions dimensions of the BIAF. To further verify agenda setting in an online business context, research could examine the relationship between newspaper articles and social media content by using *one* model to classify data. Previous research showed that the relationship between specified issues and attributes in traditional media and the awareness of those issues within the public mind exists (Kiousis et al., 2007; Meijer & Kleinnijenhuis, 2006). Moreover, Conway et al. (2015) show that there is a reciprocal relationship between traditional and social media for certain issues regarding political campaigning. However, the influence of specified issues or attributes within newspaper articles and social media content are not yet investigated in a business context. By using one model to classify both newspaper and social media data, it is possible that effects measured will show more cohesion between traditional and social media. The attributes of Reputation Quotient of Fombrun and Van Riel (2003; 2007) can serve as a model to further examine the relationship between social and traditional media. Ridderbos (2015), with her search method of text mining presented in this study, offers a procedure applicable for gathering data on the Reputation Quotient attributes in both media. As a result, it is possible to compare attention devoted to those issues in newspaper articles and in social media content. By assessing whether there is a reciprocal relationship between substantive attributes (issues) in traditional and social media, research into (intermedia) agenda setting can be extended.

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Appendix I – Example of the survey

The surveys differ in the representation of the positive and negative attributes. The example provided below shows the outline of the survey with two positive attributes example questions.

Beste deelnemer,

Hartelijk dank voor uw deelname aan dit onderzoek. Het totale onderzoek neemt ongeveer 5 tot 10 minuten in beslag.

Dit onderzoek van de Vrije Universiteit Amsterdam heeft als onderwerp hoe mensen bedrijven waarnemen en beoordelen. Mensen beoordelen bedrijven vaak op drie dimensies: warm vs. koud, competent vs. incompetent, en moreel vs. immoreel. In dit onderzoek staan alleen de **positieve** beoordelingen centraal:

Mensen beoordelen een bedrijf als **warm** (vs. koud) wanneer ze denken dat het bedrijf het beste voor heeft met klanten, bijvoorbeeld omdat het bedrijf als vriendelijk en bereidwillig wordt ervaren.

Mensen beoordelen een bedrijf als **competent** (vs. incompetent) wanneer ze het bedrijf zien als **kundig** en in staat om afspraken na te komen.

Mensen zien een bedrijf als **moreel** (vs. immoreel) wanneer ze zien dat een bedrijf zich op een **eerlijke** manier gedraagt en **rechtvaardig** handelt (bijvoorbeeld richting klanten, het milieu en de maatschappij).

In deze studie wordt gekeken hoe deze drie dimensies gemeten kunnen worden aan de hand van woorden. Hiervoor zijn ongeveer 20 woorden geselecteerd. Wij willen van u vragen aan te geven in hoeverre u denkt dat deze woorden iets zeggen over of een bedrijf warm, competent, moreel.

Bijvoorbeeld: neem het woord VRIENDELIJK. U zou kunnen denken dat het woord VRIENDELIJK veel zegt over de vraag of een bedrijf **warm** is omdat vriendelijk zijn laat zien dat het bedrijf het beste voor heeft met klanten. Het woord zegt wat minder over de vraag of een bedrijf in staat is om afspraken na te komen (**incompetent**). Ook heeft onvriendelijkheid niet per se te maken met oneerlijk gedrag van een bedrijf (**immoreel**). U zou de vragenlijst dan als volgt kunnen invullen.

1 = zegt helemaal niets
2 = zegt niets
3 = zegt weinig
4 = neutraal
5 = zegt wat
6 = zegt veel
7 = zegt erg veel

	1	2	3	4	5	6	7
Warm	O	O	O	O	O	O	●
Competent	O	●	O	O	O	O	O
Moreel	O	O	●	O	O	O	O

Dit is een voorbeeld en het is mogelijk dat uw mening hiervan afwijkt. Het gaat in dit onderzoek juist om uw **persoonlijke mening**, geen enkel antwoord is goed of fout. Alle antwoorden worden strikt anoniem behandeld. Individuele antwoorden worden niet gerapporteerd.

Op deze en de volgende pagina kunt u de twintig woorden beoordelen. Vervolgens dient u nog vier algemene vragen te beantwoorden waarna het onderzoek is afgerond.

Mensen beoordelen een bedrijf als **warm** (vs. koud) wanneer ze denken dat het bedrijf **het beste voor heeft met klanten**, bijvoorbeeld omdat het bedrijf als vriendelijk en bereidwillig wordt ervaren.

Mensen beoordelen een bedrijf als **competent** (vs. incompetent) wanneer ze het bedrijf zien als **kundig** en in staat om afspraken na te komen.

Mensen zien een bedrijf als **moreel** (vs. immoreel) wanneer ze zien dat een bedrijf zich op een **eerlijke** manier gedraagt en **rechtvaardig** handelt (bijvoorbeeld richting klanten, het milieu en de maatschappij).

1. Een bedrijf wordt als "ONBEHULPZAAM" omschreven. In hoeverre zegt dit woord iets over of een bedrijf warm, competent, of moreel is?
1=zegt helemaal niets, 7 = zegt erg veel

Dimensie	Zegt helemaal niets						Zegt erg veel
	1	2	3	4	5	6	7
Warm:	O	O	O	O	O	O	O
Competent:	O	O	O	O	O	O	O
Moreel:	O	O	O	O	O	O	O

2. Een bedrijf wordt als "ONBETROUWBAAR" omschreven. In hoeverre zegt dit woord iets over of een bedrijf warm, competent, of moreel is?
1=zegt helemaal niets, 7 = zegt erg veel

Dimensie	Zegt helemaal niets						Zegt erg veel
	1	2	3	4	5	6	7
Warm:	O	O	O	O	O	O	O
Competent:	O	O	O	O	O	O	O
Moreel:	O	O	O	O	O	O	O

Op deze pagina beoordeelt u de laatste tien woorden. Vervolgens dient u nog vier algemene vragen te beantwoorden waarna het onderzoek is afgerond.

Mensen beoordelen een bedrijf als **warm** (vs. koud) wanneer ze denken dat het bedrijf het beste voor heeft met klanten, bijvoorbeeld omdat het bedrijf als vriendelijk en bereidwillig wordt ervaren.

Mensen beoordelen een bedrijf als **competent** (vs. incompetent) wanneer ze het bedrijf zien als **kundig** en in staat om afspraken na te komen.

Mensen zien een bedrijf als **moreel** (vs. immoreel) wanneer ze zien dat een bedrijf zich op een **eerlijke** manier gedraagt en **rechtvaardig** handelt (bijvoorbeeld richting klanten, het milieu en de maatschappij).

Demografische gegevens

Tot slot willen wij graag nog enkele achtergrondgegevens van u weten.

Wat is uw geslacht?
Man
Vrouw

Wat is uw leeftijd?
Jonger dan 20
20-24
25-29
..
65 jaar of ouder

Wat is uw hoogst genoten opleidingsniveau?
Lager of basisonderwijs
Lager beroepsonderwijs (VMBO/MAVO/VBO)
Hoger voortgezet onderwijs (HAVO/VWO)
Middelbaar beroepsonderwijs (MBO)
Hoger beroepsonderwijs (HBO)
Bachelor wetenschappelijk onderwijs (WO)
Master wetenschappelijk onderwijs (WO)
Anders

Wat is uw hoofdbezigheid?
Betaalde arbeid (20 uur of meer per week)
Betaalde arbeid (minder dan 20 uur per week)
Werkzoekend
Huisvrouw / Huisman
Onbetaalde arbeid / Vrijwilligerswerk
Gepensioneerd
Studerend
Ondernemer

Bedankt voor uw deelname aan het onderzoek.

Door deel te nemen aan dit onderzoek zorgt u ervoor dat een wetenschappelijk model toepasbaar wordt gemaakt voor online media analyses. Het helpt bedrijven en instellingen inzicht te krijgen in hoe mensen hun merk waarnemen op bijvoorbeeld social media.

Mocht u nog vragen hebben over de enquête of het doel van dit onderzoek kunt u contact opnemen met Stijn Visser door te mailen naar: s3.visser@student.vu.nl.

Appendix II – follow up analysis of the pre-test

A follow up one-way repeated-measures analysis was conducted regarding hypothesis two. This hypothesis state that the attributes related to a dimension will be evaluated different compared to the other dimensions[2]. This analyses provides insight in the different dimension scores for each main attribute separately. For all three warm main attributes, Mauchly's test indicates that the assumption of sphericity has not been violated. There was a significant main effect of helpful, $F(2, 180) = 36.74$, $p < .01$, good service, $F(2, 180) = 21.23$, $p < .01$ and friendly, $F(2, 180) = 186.34$, $p < .01$. To break down this main effect, post hoc tests with Bonferroni corrections were performed comparing the scores of each dimension. The results show that words score significantly higher on their own dimension compared to the other dimensions. Contrary to expectations, the main attribute 'good service' scores significantly higher on the dimension competent compared to warm. An explanation for this could lie within the fact that there was no context represented in the survey. In earlier research of Ridderbos (2015) 'good service' fitted better to the warm dimension because of the social media context.

Table 6 shows the mean for each main attribute per dimension and the difference between the scores for the other dimensions and the dimension which it represents. An example is the word 'helpful' which is included in the warm dimension. This word has a mean of 5.84 on the dimension warm and is significantly different from the mean of the competent (w-c) and moral dimension (m-c).

Table 1. The mean scores per dimension for the main attributes of warmth and repeated measures ANOVA

Word	N	Warm (w)	Competent (c)	Moral (m)	Mean (w-c)	Se (w-c)	Mean (w-m)	Se (w-m)
Helpful	91	5,84	4,12	4,31	1,71**	0,2	1,53**	0,23
Good service	91	4,8	5,37	3,98	-0,57*	0,22	,82**	0,22
Friendly	91	6,22	2,92	3,87	3,3**	0,18	2,35**	0,18

Note: *: $p < .05$; **: $p < .01$

For the four main attributes of competence, Mauchly's test indicates that the assumption of sphericity has been violated for professional, X^2 (2) = 7.57, $p < .05$, efficient, X^2 (2) = 7,00, p < .05, intelligent, X^2 (2) = 6.51, p < .05, however not for good quality. Therefore, degrees of freedom were corrected using Huynh-Feldt ($\varepsilon = .94$ for the main effect of dimension by professional, $\varepsilon = .95$ for the main effect of dimension by efficient and $\varepsilon = .95$ for the main effect of dimension by intelligent). There was a significant main effect of professional, $F(2, 169.77) = 237.04$, $p < .01$, efficient, $F(2, 170.74) = 175.49$, $p < .01$, intelligent, $F(2, 171.57) = 148.17$, $p < .01$, and good quality, $F(2, 180) = 105.05$, $p < .01$. To break down this main effect, post hoc tests with Bonferroni corrections were performed comparing the scores of each dimension. The results show that words score significantly higher on their own dimension compared to the other dimensions. Table 7 shows the mean for each

[2] Because of length restrictions of the present paper, only the results of the positive main attributes will be described. As illustrated with hypothesis one, the results of the antonyms of the positive groups are similar which also applies for hypothesis two.

main attribute per dimension and the difference between the scores for the other dimensions and the dimension which it represents.

Table 2. The mean scores per dimension for the main attributes of competence and repeated measures ANOVA

Word	N	Warm (w)	Competent (c)	Moral (m)	Mean (c-w)	Se (c-w)	Mean (c-m)	Se (c-m)
Intelligent	91	2,69	5,56	3,59	2,87**	0,17	1,97**	0,19
Efficient	91	2,5	5,5	2,89	3,06**	0,18	2,67**	0,2
Professional	91	2,59	6,39	3,34	3,79**	0,18	3,04**	0,21
Good quality	91	3,76	5,95	3,79	2,19**	0,16	2,15**	0,19

Note: *: $p < .05$; **: $p < .01$

For the three main attributes of morality, Mauchly's test indicates that the assumption of sphericity has been violated for reliable, X^2 (2) = 7.57, $p < .05$, however not for honest and righteous. Therefore, degrees of freedom were corrected using Huynh-Feldt ($\varepsilon = .95$ for the main effect of dimension). There was a significant main effect of honest, $F(2, 180) = 127.07$, $p < .01$, righteous, $F(2, 180) = 92.58$, $p < .01$ and reliable, $F(2,170.01) = 8.61$, $p < .01$. To break down this main effect, post hoc tests with Bonferroni corrections were performed comparing the scores of each dimension. The results show that words score significantly higher on their own dimension compared to the other dimensions. Table 8 shows the mean for each main attribute per dimension and the difference between the scores for the other dimensions and the dimension which it represents.

Table 3. The mean scores per dimension for the main attributes of morality and repeated measures ANOVA

Word	N	Warm (w)	Competent (c)	Moral (m)	Mean (m-w)	Se (m-w)	Mean (m-c)	Se (m-c)
Reliable	91	5,21	5,1	5,7	0,5*	0,14	0,6*	0,14
Righteous	91	3,92	3,87	6,23	2,31**	0,18	2,36**	0,2
Honest	91	4,52	3,4	6,41	1,89**	0,17	3,01**	0,19

Note: *: $p < .05$; **: $p < .01$

Appendix III – results of manual check for the newspaper filter

Table 3. Reliability check of the articles (*N=200*)

Length	Hits per brand	Correct (1)	Incorrect (0)
>450	1	10 (5%)	37 (18,5%)
>400	1	13 (5,5%)	44 (22%)
>350	1	16 (8%)	46 (23%)
>300	1	25 (12,5%)	46 (23%)

Appendix IV – Search strings of the Reputation Quotient

Moral issues

privacy* klantgegeven* "klant gegeven*" verzekeringsfraude bankenfraude libor* woekerpolis* aandelenlease ledencertificaten rentederivaten rentederivaat rommelhypotheken rommelhypotheek "rommel hypotheken" kredietcrisis staatssteun "steun van de staat" bonus* graaier*

Product and services

producten product diensten (defect NOT (defectieve)) productfout ("product* fout*"~5) productiefout (service* NOT (servicemonteur OR servicegame OR serviceauto OR services)) (service NOT ("service tennis"~50)) "customer service" helpdesk "hoge kwaliteit" product* "nieuwe producten" "prijs kwaliteit verhoud*"~10 topmerk "laagste prijs" "top merk" "dure producten"~5 "niet betaalbaar" onbetaalbaar onbetaalbare "veilig* (product* OR dienst*)"~5 "onveilig* (product* OR dienst*)"~5 "techn* vooruitgang" "techn* vernieuw*"~5 "product* innov*"~6 consumententevredenheid "consumenten tevredenheid" "tevreden consumenten" loyaliteit "consumenten loyaliteit" "vertrouw* (product* OR dienst*)"~5 (betrouwbaar* NOT ("ontleend aan betrouwbaar"~5))

Leadership and vision

leiderschap visie leiderschapsstijl bazen baas CEO bestuursvoorzitter "raad van bestuur" directeur* topman directie leider* bedrijfstop ondernemen ondernemend "doelstelling* maatschappelijk*"~3 "plan maatschappelijk*"~3 "doel maatschappelijk*"~3 toekomstvisie* missie management middelmanagement managementbeslissing* strategie* strategisch* bestuursveranderingen bestuursverandering

Social and environmental responsibility

"maatschappelijk* verantwoord" "maatschappelijk verantwoord ondernemen" "maatschappelijk bewust ondernemen" mvo "maatschappelijke betrokkenheid" duurzaam* "duurzaam ondernemen" "duurzaam beleid" "sociale betrokkenheid" "goed* doel*" liefdadigheid filantroop filantropen filantropische filantropie sponsorship sponsor* giften (milieu NOT ("sociaal milieu"~20 OR "crim* mileu"~20)) milieuvriendelijk* milieubewust* "milieu bewust*"~6 "natuur bescherming*"~5 milieubeleid "efficiënt* bespar* energie"~10 maatschappij* "maatschappelijk beleid" moraal moralistisch* moraliteit moralist morele respect ethiek ethisch transparant transparantie onethisch "onethisch handelen" "onethisch gedrag" "niet ethisch" milieuwetgeving milieuregel* klimaatwet* "strafbaar handel*"~10 "giftige stoffen" dierenmishandeling gaswinning belastingfraude "financiële fraude" bedrog oplichter* corruptie omkopen omkoping steekpenning fraude oplichting opgelicht oplichten "mensen rechten" mensenrechten kinderarbeid "sociale

rechtvaardigheid" racisme racistisch discrimini* "non-profit organisaties" "non-profits" "non-profit" "negatieve publiciteit" "illegale handel*"~10 "illegaal handel*"~10

Financial performance

"financiële prestatie*"~5 "financiële beoordelingen"~3 "financiële resultaten"~3 koers koersstijging koerswinst "koers winst"~4 "koers daling" "dalende beurs" koersverlies "koers verlies" concurrentiepositie marktpositie concurrent*NOT (concurrentieverwerking) vijand rivaal marktleider prijsvechter failli* bankroet ondergang "economische groei"~2 "economische ontwikkeling"~2 samenwerken samenwerking samenwerkingsverband partner aandeelhouder compagnon handelsgenoot vennoot fusie* "fusie partner"~2 fuseren gefuseerd* overname overnamen overnames "bedrijf uitbreid*"~5 "bedrijf groei*"~5 aandelen aandeel beurs beurzen aandelenmarkt effectenbeurs handelsbeurs beursnotering handelscentrum belegger* winst winstgevend winststijging winstverbetering winstherstel winstgroei groei "financiële groei"~5 "stijgend resultaat"~3 "stijging resultaat"~3 "verbeter* resultaat" "groter resultaat"~3 "hoger resultaat"~3 "hoog resultaat"~3 "dalen resultaat" "daling resultaat" "lager resultaat" "laag resultaat" verlies verliezen afname reputatie investering* investeerder* globalisering mondialisering nationalisatie nationaliseren nationalisering genationaliseerd genationaliseerde

Workplace environment

werkomgeving werkplaatsomgeving banen banenverlies "banen verlies" "schrap* banen"~5 ontslag ontslagen ontslaggolf ontslaggolven ontslagronde ontslagrondes werkgever* medewerker* werknemer* medewerkster* arbeider* personeel* werkloos werkloze* bedrijfscultuur bedrijfsculturen bedrijfshiërarchie bedrijfsstructuur werknemerswinst werknemersomzet werknemersomstandigheden cao "collectieve arbeidsovereenkomst" arbeidsomstandigheden arbeidsvoorwaarden overwerk overwerken pensioenen werkmogelijkheid werkmogelijkheden "werk mogelijkheden" banencreatie banen creëren "carrière mogelijkhe*" beloningen inkomen inkomens loon lonen salaris salarissen productiviteit productief werkplaatsveiligheid "werkplaats veiligheid" herstructurering herstructuur reorganisatie herstructurering