

## Determinants of Web-based CSR Disclosure in the Food Industry

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### ABSTRACT

*Purpose* – Web-based CSR disclosure provides a variety of advantages for firms. Determining factors for web-based CSR disclosure have been analyzed in several papers. However, only limited research has been conducted on both, the food industry and small and mid-sized enterprises. This paper is one contribution to fill this gap as we investigate web-based CSR communication of food processors including SME.

*Design/methodology/approach* – We analyzed corporate communication on the websites of 71 food producers from North Rhine-Westphalia, Germany using dictionary-based content analysis. Based on an ordered logit model the relationship between CSR communication and size, profitability, indebtedness and closeness to market was estimated. Economic data were obtained from the commercial database DAFNE.

*Findings* – Our results reveal that larger firms provide relatively more CSR information than smaller firms. There was no significant relationship between CSR disclosure and profitability or indebtedness of a company and an ambiguous relationship with regard to the determinant ‘closeness to market’. Regarding the different areas of communication we found that social compared to environmental aspects were underrepresented.

*Practical implications* – Social aspects of CSR could be used for differentiation in the market. Furthermore, as smaller firms provide relatively less information on CSR it might be worthwhile to analyze the central impediments for CSR communication for those companies.

*Originality/Value* – This paper contributes to the ongoing discussion about firms’ CSR communication. From a convenience sample of 71 food processing firms, including SME, it provides insight regarding the determinants for CSR disclosure on firms’ websites. With the focus on the food industry and the inclusion of SME we contribute with our study to two under-researched areas

*Keywords:* Corporate Social Responsibility; Online Communication; Dictionary Based Content Analysis; Food Industry

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## 1 Introduction

Awareness of social responsibility is on the rise. Firms have to cope with stakeholders' and especially customers' expectations. Numerous studies have shown that for consumers and for society, social, ethical and ecological behavior of food processors is of increasing relevance (Hartmann et al., 2013). Thus, communicating an organizations' social responsibility is becoming crucial for firms in the food industry.

The internet is one important channel for corporate social responsibility (CSR) communication. Stakeholders, including customers, activists or potential employees use corporate websites to obtain information about a firm's social commitment. The use of a corporate website allows reaching these stakeholders without informational mediators, like journalists (Carroll, 2011). Compared to paper based reports, web-based communication reduces marginal costs of information and increases accessibility and timeliness (Iodhia, 2012; Orens et al., 2010) and thus has been increasingly used by companies. Hence, it is not surprising that web-based CSR disclosure has also attracted versatile attention in the scientific literature. In his review article, Fifka (2011) identified 186 empirical research papers examining the determinants of CSR reporting. More recently Golob et al. (2013) summarized the results of 90 empirical papers and Hahn and Kühnen (2013) reviewed the findings of 178 conceptual papers in this field.

Results of previous studies show that whether and to what extent a firm communicates CSR online is determined by the firms' size, profitability, public awareness, industry and the country the firm is located in (Amran et al., 2013; Orens et al., 2010; Lattemann et al., 2009; Morhardt, 2009; Tagesson et al., 2009; Brammer and Pavelin, 2008; Haddock-Fraser and Fraser, 2008; Wanderley et al., 2008). Although size has been shown as an important determinant in most papers, only a few studies have taken small and medium enterprises (SME) into account (Fifka and Drabble, 2012; Morhardt, 2009). Instead, most authors focus on multinational, stock listed enterprises (MNE). Furthermore, so far very little research has focused on the food industry in this context. Examples of the few papers dealing with the food industry are Haddock (2005) and Cuganesan et al. (2010). As the food industry is dominated by SME, research gaps regarding studies on SME and on the food sector are closely intertwined. Our study aims to fill these gaps by analyzing CSR communication on corporate websites of 71 food producers of different size. About half of the enterprises in our sample qualify as SME.

## 2 Literature background and determinants

CSR is a highly diverse topic. A plethora of definitions and connected concepts exist, which are partly overlapping, partly conflicting (Dahlsrud, 2008). For example, Beare et al. (2013) mentioned that CSR and corporate sustainability have converged into synonyms in recent literature. Dahlsrud (2008) concludes that business' challenge is not to find a scientific definition of CSR, but to understand what customers and other stakeholders associate with responsible firm conduct. According to the conclusion of Dahlsrud (2008) we rely on the CSR definition of ISO 26000 (ISO 2010)\*. This definition has been derived in a multi-stakeholder dialogue and thus can be seen as a common understanding of CSR (Hahn, 2013).

Current research on determinants of CSR disclosure analyzes financial reports, CSR reports, integrated reports as well as corporate websites. In this section we will only refer to results of empirical papers which take corporate websites into account. A broader overview encompassing also papers about financial and nonfinancial disclosure can be found in the literature reviews of Hahn and Kühnen (2013), Golob et al. (2013), Fifka (2011) as well as in the literature section of Morhardt (2009).

### 2.1 Size

Size seems to be an important determinant of online CSR disclosure. Larger firms are more visible and thus face more pressure to engage in and communicate CSR (González-Benito and González-Benito, 2006). Tagesson et al. (2009) showed that larger firms (measured in revenues or number of employees) are more likely to communicate CSR on their website and communicate CSR more intensively. Similar results were obtained by Amran et al. (2013), Orens et al. (2010), Lattemann et al. (2009), Brammer and Pavelin (2008), Haddock-Fraser and Fraser (2008) and for the food industry by Haddock (2005). Also Morhardt (2009)

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\* According to ISO 26000 (ISO, 2010) CSR is defined as: '... the responsibility of an organization for the impacts of its decisions and activities on society and the environment, through transparent and ethical behaviour that contributes to sustainable development, including health and welfare of society, takes into account expectations of stakeholders, is in compliance with applicable law and consistent with international norms of behaviour and is integrated throughout and practiced in an organization's relationships'.

showed for smaller MNE that size (measured as log revenues) explains a large proportion of overall variance in CSR communication (only data for US firms available). However, regarding very large firms (> 9 bio. US-\$), Morhardt's (2009) results indicate that size has no (Europe, Asia) or very limited (USA) influence on CSR disclosure.

Most previous studies focus on multinational listed companies. Although size has been shown as an important determinant in these contributions only a few studies have taken SME into account (Fifka and Drabble, 2012; Morhardt, 2009). Nevertheless based on the results of previous investigations we arrive at hypothesis 1:

*H1: Web-based CSR disclosure increases with size of the firm.*

## **2.2 Profitability and leverage ratio**

Whether CSR communication depends on firms' profitability remains a controversial issue. Tagesson et al. (2009) showed that profitability (measured as ROE and ROA) increases likelihood and intensity of online CSR disclosure. Differently, Brammer and Pavelin (2008) could not find a significant relation between profitability and environmental communication. From a theoretical point of view it could be argued that slack resources and thus the financial ability of firms are relevant – if not necessary – for firms' investments in CSR and CSR disclosure (Hartmann, 2011). Thus, we state our second hypothesis:

*H2: Web-based CSR disclosure increases with profitability of the firm.*

Orens et al. (2010) showed that communicating responsible firm conduct can reduce the cost of capital. Thus, to improve access to equity or debt capital indebted firms might be assumed to be more active in CSR communication. However, a relationship between leverage ratio and CSR communication could not be confirmed by Orens et al. (2010). Regarding environmental initiatives or audits, no significant relationships could be discovered between the level of debt and CSR disclosure (Brammer and Pavelin, 2008). Brammer and Pavelin (2008) even found the tendency that more indebted firms are even less likely to communicate on their environmental policy. Indebted firms likely lack the financial resources to engage in CSR and CSR disclosure (see above). We thus assume:

*H3: Web-based CSR disclosure decreases with indebtedness of the firm.*

## **2.3 Closeness to Market and Industry**

According to Wanderley et al. (2008) there exists a general dependency between a firm's CSR disclosure and the sector the firm is affiliated with. Tagesson et al. (2009) shows that ethical aspects are communicated more often by consumer goods producers. The findings of Morhardt (2009) show that companies in environmental and social sensitive industries (e. g. chemical industry) are more active in online CSR communication. It is unclear whether this effect exists at the industry level or at the level of the single firm. The results of Brammer and Pavelin (2008) indicate that the extent to which an individual firm faces bad environmental publicity is not important for its CSR disclosure. These findings are in contrast to the ones of Orens et al. (2010), Haddock-Fraser and Fraser (2008) and Haddock (2005). They showed that firms which face negative environmental publicity report more environmental information.

In addition to inter-industry variance Morhardt (2009) also reports a substantial intra-industry variance in CSR disclosure. Cuganesan et al. (2010) analyzed the CSR communication of 19 large food producers. They did not find a significant variance between the different sectors of the food industry, but a large variance within each sector. However, due to the small sample-size the results have to be handled with caution.

Haddock-Fraser et al. (2010) showed that companies selling their goods directly to consumers (Close-to-Market companies: C2M) communicate more on environmental aspects than contract manufacturers (B2B). Similar results were obtained by Haddock (2005), Haddock-Fraser et al. (2010), Morhardt (2009) and in the case-studies of Bolivar (2009). Tang and Li (2009) found that C2M firms are more active in communicating their societal engagement like support for education or sponsorship. Amran et al. (2013) do not confirm in their study the positive effect of C2M on CSR disclosure but show that brand named firms communicate more on CSR. Brand as well as C2M increases visibility and thus pressure to 'do good and talk about it'.

To exclude inter-industry effects we focus in our analysis on websites of food-processors. Regarding intra-industry effects of CSR disclosure we propose:

*H4: Web-based CSR disclosure is higher for firms engaged in C2M subsectors compared to non C2M.*

## **2.4 Country-of-origin**

The amount of CSR disclosure seems to depend on the country of origin (Gill et al., 2008; Hsieh, 2012; Lattemann et al., 2009; Morhardt, 2009; Wanderley et al., 2008). Also content differs between

countries. For example Gill et al. (2008) showed significant differences in the CSR topics communicated by American, European and Asian companies. To exclude country-of-origin effects we only included firms from the German state North Rhine- Westphalia in our sample.

### 3 Methodology and Data

We analyzed the websites of 71 food processors in North Rhine-Westphalia, Germany. The sample has to be characterized as a convenience sample. Firm size measured in net revenues varied between 0.5 Mio. € and 2.124.8 Mio. € (mean=142.0 Mio €; sd=291.7 Mio. €). 32 out of the 71 firms qualified as SME. Profitability measured as Return-on-Equity (ROE) varied between -291.73 and 513.84 (mean=33.50; sd=99.58).

The food industry is dominated by small and mid-sized enterprises with highly fluctuating and often incompletely published economic data. Thus we used averages over the years 2009 and 2012 and only included firms with valid figures for at least two of those four years. Information was obtained from a commercial database (DAFNE). More recent data was not available at the time of our research.

All websites were harvested in spring 2013 using the software AutoMap 3.0.10.18. Of those webpages that were identical to more than 80% only one was used. For the analysis we used dictionary based content analysis. This method uses predefined dictionaries to code texts automatically. A dictionary consists of categories and the respective concepts. The frequencies of the concepts occurring in the text are summed up within each category. This method has previously been used by Gill et al. (2008), Pollach (2013) and Pollach et al. (2009) to analyze CSR communication.

$$freq_{category} = \frac{\sum \text{concepts in category}}{\sum \text{all words}}$$

As suggested by Pollach (2013) and Sommer et al. (2013) we developed the concepts of the dictionary inductively out of the analyzed websites. In doing so, we minimized the risk of missing important concepts. The categories were developed according to the seven core subjects of ISO 26000 (ISO 2010; see also table 1). A total of 5416 words (concepts) were allocated to these seven categories and relative frequencies of the words in each category were counted by AutoMap. The seven categories and examples of the respective codes can be found in Table 1.

**Table 1.**  
Categories used in the coding of web-based CSR disclosure

<b>Category (according to ISO, 2010)</b>	<b>Example (created inductively out of the websites)</b>
1 Organizational governance	Ethics, commitment, sustainable
2 Human rights	Asylum, child work, human rights
3 Labor practices	ILO, shift work, minimum wage
4 The environment	GHG, logistics, waste
5 Fair operating practices	Fairtrade, direct import, bribery
6 Consumer issues	QM, vitamins, allergies
7 Community involvement and development	Charity, sponsor, volunteer

### 4 Results

For each category, correlations (Somers' d, Spearman's rho) were calculated between CSR communication (relative frequency of coded words in the category) and total revenues (REV), natural logarithm of total revenues (ln(REV)) as well as number of employees (all: size-effect), return on equity (ROE) and return on assets (ROA; both: profitability effects) as well as leverage ratio (LR). The results with respect to the correlations between CSR disclosure on the one hand and ln(REV)<sup>†</sup> and ROE, respectively, on the other

<sup>†</sup> The correlations are similar for total revenues, however as ln(REV) was needed for the regression model only the correlation between CSR disclosure and ln(REV) are shown in Table 2.

hand are depicted in Table 2. Ln(REV) and ROE showed to represent size and profitability best. † Leverage ratio correlated only significantly with category 4 (the environment; Somers' d=.0129\*\*, Spearman's rho=n.s.).

The low correlation coefficients for the different variables are not surprising. For example Orens et al. (2010) found a correlation (Pearson) of .351 (p<.001) between size (logarithm of total assets) and CSR communication. The correlations between size and social disclosure published by Tagesson et al. (2009) were .399 (p<.001; number of employees) and .487 (p<.001; revenues), respectively and the ones between profitability and disclosure were .273 (p<.001; ROE) and .171 (p<.05; ROA), respectively.

**Table 2.**  
Correlations between firms' web-based CSR disclosure and firm size/firm profitability

Category	Ln(REV)			ROE		
	N	Somers' d	Spearman's rho	N	Somers' d	Spearman's rho
<b>1 Organizational governance</b>	71	.161**	.256**	68	-.010	-.016
<b>2 Human rights</b>	71	.099*	.212*	68	.163***	.340***
<b>3 Labor practices</b>	71	.232***	.349***	68	.030	.027
<b>4 The environment</b>	71	.099	.153	68	.015	.007
<b>5 Fair operating practices</b>	71	.150**	.220*	68	.153**	.230*
<b>6 Consumer issues</b>	71	.200**	.297**	68	.025	.041
<b>7 Community involvement and development</b>	71	.147*	.241**	68	.129	.185

Note: \*, \*\*, \*\*\*: significance at the 90%, 95% and 99% level.

Sub-sectors of the food industry were classified as C2M branches or not by an international group of ten experienced agricultural economists. Differences in CSR communication between C2M firms and not-C2M firms were analyzed using Mann-Whitney-U-Tests. C2M firms revealed significantly higher values (p<0.01) only regarding the category fair operating practices.

To test our hypotheses ordered logistic regression models were estimated. Quartiles of the relative frequency of coded words in the respective category were used as the dependent variable<sup>§</sup>. Brant tests showed that proportional odds assumption could not be rejected (Kleinbaum et al., 2010). As independent variables we included size measured as natural logarithm of total revenues (Ln(REV)), profitability measured as ROE, leverage ratio (LR) to measure indebtedness and C2M as a dummy variable. The results of the regression model are depicted in Table 3.

Consistent with hypothesis H1 size has a significant and positive influence on online CSR disclosure in most categories. Closeness to Market has a positive impact only on disclosure about fair operating practices. Thus a clear answer on hypothesis H4 cannot be given. Interestingly neither profitability nor indebtedness significantly influences CSR disclosure. Thus hypotheses H2 and H3 have to be rejected. Category 2 and 4 showed no significant dependency on any of the used variables.

**Table 3.**  
Ordered logit models: Determinants of firms' web-based CSR disclosure

	Cat. 1	Cat. 2	Cat. 3	Cat. 4	Cat. 5	Cat. 6	Cat. 7
Ln(REV)	.225**	n.a.	.292**	n.s.	.219*	.312**	n.s.
ROE	n.s.	n.a.	n.s.	n.s.	n.s.	n.s.	n.s.
LR	n.s.	n.a.	n.s.	n.s.	n.s.	n.s.	n.s.
C2M	n.s.	n.a.	n.s.	n.s.	1.369***	n.s.	n.s.
Pseudo R <sup>2</sup>	.065	n.a.	.089	n.a.	.164	.094	n/a

Note: Category 2 could not be analyzed due to the low number of firms communicating in it;

\*, \*\*, \*\*\*: significance at the 90%, 95% and 99% level; n.s.: not significant on at least 90% level.

† Correlations of number of employees and category 2: r=.225 (p<.1), d=.103 (p<.1), category 3: r=.331 (p<.01), d=.215 (p<.01), category 7: r=.239 (p<.05), d=.164 (p<.05); correlations of ROA and category 4: r= -.263 (p<.05), d=-.174 (p<.05).

§ More than 60% of the firms did not communicate human rights at all. More than 20% of the firms did not communicate labor practices, fair operating practices as well as community involvement and development at all. To be able to analyze at least the latter ones, quartiles were the smallest possible unit.

## 5 Discussion and Conclusion

We analyzed the effect of size, profitability, indebtedness and closeness to market on firms' CSR disclosure in the North Rhine-Westphalian food industry. All the variables have been found in prior research as significant determinants for CSR disclosure, however, mainly by analyzing MNE. Thus, with our study we investigated whether those factors are also of relevance in the food industry, which is dominated by SME.

According to our results size had a significant positive effect on CSR disclosure in most of the categories and thus confirms with prior research (Brammer and Pavelin, 2008; Haddock, 2005; Haddock-Fraser and Fraser, 2008; Lattemann et al., 2009; Morhardt, 2009; Orens et al., 2010; Tagesson et al., 2009). Larger firms are more visible and as a consequence have to cope with stakeholder expectations to a larger extent (González-Benito and González-Benito, 2006).

According to our findings and in contrast to most other studies (e.g. Tagesson et al., 2009; Orens et al., 2010), neither profitability nor indebtedness have a significant effect on CSR disclosure. This indicates that for the food sector slack resources might be of less relevance for firms to communicate their CSR activities. Regarding profitability there exists a controversial discussion whether profitability is a prerequisite of CSR activities and disclosure or whether the latter induces the former. To investigate this question we would need profitability data that followed the data of CSR communication. As our data provide information on CSR communication for spring 2013 and on profitability for 2011 and partly for 2012 we could not carry out such an analysis. Further research in this respect would be, however, desirable.

Surprisingly C2M has only a significant influence on CSR disclosure in the field of fair operating practices. Haddock (2005) arrived at different results for British food processors. However, her results were based upon a categorization of the single firm as C2M or Not-C2M while our results are based on a categorization of the respective subsector (4 digit NACE code). Amran et al. (2013) estimated a model including both, brand ownership and closeness to market, as explanatory variables. Differently to the bivariate tests of Haddock (2005) they found that brand ownership has a significant positive effect on CSR disclosure while C2M does not. Thus it might be that the effect observed by Haddock (2005) is not an industry but a brand effect. However, it is also possible that the classification of C2M and Not-C2M as defined in our study is too imprecise. Further research to investigate the role of brand and consumer orientation of food firms on their CSR disclosure might be fruitful, as Morhardt (2009) has shown important intra-industry variance.

In conclusion our study shows that smaller firms do not only communicate less on CSR in absolute terms, but also in relation to their overall online communication. As consumers can only reward business' responsible conduct if they know about it, CSR communication should be considered as inherent part of all CSR activities also in SME. We furthermore found that social aspects are by far underrepresented in food processors' CSR communication. 20% of all analyzed websites do not communicate on social topics like labor practices and human rights. Similar results have been reported by Sommer et al. (2013). These topics might thus be a field where food producers can differentiate themselves from competitors. Differentiation is, due to Heinen and Hartmann (2013), food processors' main driver to act social responsible. Responsible firm conduct can lead to an improved image and company success as well as consumers' willingness to pay for a product (e.g. Becker-Olsen et al., 2006; Sen and Bhattacharya, 2001). However, these positive effects can only be realized on the market, if consumers are aware of the activities taken, meaning, that firms have to credibly communicate their CSR engagement.

As Williamson et al. (2006) state, SME should not be seen as "miniature versions of large firms". Their specific characteristics shall also be reflected in SME's CSR communication. If CSR actions do not fit with the profile of the firm, their effect on customers will be very limited or even negative (Becker-Olsen et al., 2006). As SME are often acting in a local environment, they are aware of the needs of their neighborhood and can try to fill some specific local needs. Furthermore, the still rarely communicated social aspects of CSR, like labor conditions or community engagement, could be an ideal field to differentiate for smaller companies. It might be easier to find voice for SME in social aspects, compared to e. g. environmental protection. Even small achievements will be recognized by customers.

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