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ORIGINAL ARTICLE

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The impact of corporate identity on corporate social responsibility disclosure

Anne Michaels* and Michael Grüning

Abstract

Corporate social responsibility (CSR) is of increasing importance for the long-term success of corporations. Extending existing literature this paper explores corporate identity as important determinant for CSR disclosure. The relationship was examined based on 498 German companies that provided English language CSR reports and responded to a company survey measuring CSR-oriented corporate identity. CSR disclosure has been analyzed with an automated content analysis technique using artificial intelligence. Results indicate that value chain and future-oriented dimensions, which were more pronounced in mature CSR concepts, foster CSR disclosure, while introversive corporate identity dimensions that were strong in low level CSR concepts hinder the release of CSR information. The paper shows that a tradition of social responsibility and values results into a low perceived need for legitimacy and outwards communication. The findings support the view that a combination of voluntary disclosure theory and legitimacy theory is necessary to explain the drivers and constraints of CSR disclosure.

Keywords: CSR disclosure, Corporate identity, Content analysis, Survey, CSR determinants

Introduction

Within the last two decades, CSR disclosure by firms motivated an increasing number of research studies examining the motivation of this disclosure. Findings support that CSR disclosure is value relevant (Clarkson et al. 2013; Plumlee et al. 2015), increases earnings quality (Francis et al. 2008), analyst forecast accuracy (Dhaliwal et al. 2012) and firm level cost of capital (Michaels and Grüning 2017).

Firms also use CSR disclosure to differentiate from competitors and as a marketing tool (Porter and Kramer 2006). Empirical evidence suggests that the integration of CSR in corporate strategy might establish a competitive advantage (Carroll and Shabana 2010). Although firms may attempt to implement real CSR concepts, there is a tendency of “greenwashing” (Laufer 2014). In line with the missing causal link between CSR performance and CSR disclosure stakeholders mainly regard the latter as not trustworthy (Newell and Goldsmith 2001). Volkswagen’s “Diesel Dupe” is a contemporary example. CSR disclosure credibility increases if aligned with corporate strategy (McWilliams and Siegel 2001). While

quite some research examined internal determinants to support the strategic integration of CSR (e.g. Engert et al. 2016; Lozano 2013, 2015) only a few studies focussed on the internal aspects facilitating CSR disclosure. Prior research outlined a scheme to connect corporate identity and CSR (Otubanjo 2013). The “identity-revealing nature of CSR activities” is crucial in building a long-term sustainable corporate image (Du et al. 2010, p. 17) and a successful CSR strategy (Heikkurinen and Ketola 2012) but has been rarely addressed in the literature. Nevertheless, identity-based values and attributes as well as their communication are considered key factors for entrepreneurial success (He and Balmer 2007). Therefore, this paper examines if the degree of CSR-orientation in corporate identity is an important managerial driver of CSR disclosure. Results show that corporate identity significantly influences CSR disclosure even though they reveal an ambiguous pattern. Whereas the corporate identity dimensions “strategic integration” and “CSR application” facilitate, “employee integration” and “attitude awareness” inhibit CSR disclosure. CSR disclosure is objectively measured using an artificial intelligence based narrative analysis of CSR reports from 2013/14. CSR-oriented corporate identity is extracted from a company survey. Whereas the total sample consists of 498

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companies, the intersecting sample (providing data for all main variables) consists of 108 German companies. The paper contributes to existing literature by revealing insights on so far unobserved determinants of CSR disclosure. It supports that managerial activities can shape internal drivers of CSR disclosure to obtain related financial benefits. Moreover, the paper provides quantitative data to the state of the art of corporate identity profiles and CSR disclosure of German firms.

The paper is structured as follows. The next section reviews the existing literature and develops the hypotheses. In the third section research design, sample selection and variable measurement are described. Section four provides the results. The final section concludes.

Related research and hypothesis development

CSR disclosure

Numerous theoretical frameworks have been used to understand CSR as a relevant real world phenomenon. Clarkson et al. (2008) categorizes CSR accounting research into three broad fields of interest; (i) value relevance of CSR disclosure; (ii) determinants and constraints regarding the disclosure of CSR information; and (iii) the relationship between CSR performance and CSR disclosure. Whereas this study relates to the second group, findings from the third support the hypotheses development.

As a particular type of voluntary non-financial disclosure, CSR disclosure is believed to reduce information asymmetry between managers and investors (Dhaliwal et al. 2011). Voluntary disclosure theory suggests that voluntary disclosure is used by well performing companies to differentiate from low performers in order to avoid an adverse selection problem (Verrecchia 1983). High CSR performers disclose more CSR information as they expect to benefit on financial markets (Reverte 2012). In contrast, low performers disclose less in order to prevent negative effects due to capital market participants expecting a financial risk (Dhaliwal et al. 2011).

Nevertheless, prior studies revealed that CSR disclosure in particular is somewhat different from other types of non-financial information (Guidry and Patten 2012). There was much evidence of a severe mismatch between claims made in CSR disclosure and the implementation of CSR programs (Baumann-Pauly et al. 2013). Therefore legitimacy theory contrastingly argues that CSR low performers disclose more CSR information to legitimate themselves (Cho et al. 2012, p. 21). In this view, public pressure from the social and political environment is regarded as the main determinant of CSR disclosure (Cho and Patten 2007). While empirical findings support political cost (Reverte 2012) and increasing stakeholder pressure (Young and Marais 2012) to affect CSR disclosure, evidence of a causal connection between CSR

performance and CSR disclosure is mixed (Plumlee et al. 2015). Only a few studies empirically explore this relationship with a limited focus on ecological disclosure (Cho et al. 2012). As a result, some research assumes a complementary relationship between both theoretical concepts; whereas voluntary disclosure theory explains the volume of CSR disclosure, legitimacy theory elucidates patterns in the disclosure (Clarkson et al. 2008).

As a consequence, prior research explores the individual determinants of CSR disclosure in greater details (Hahn and Kühnen 2013) and distinguished internal and external factors (Fifka 2013). The economic system, national culture, stakeholder orientation and company visibility, etc. are regarded as external factors. Companies in state-led market economies are found to report in a more aggregated way about CSR policies and provide more information on business behavior, labor concerns and environmental issues than companies in liberal market economies (Young and Marais 2012). In the context of national culture, companies in countries with a pronounced long-term orientation are considered to disclose more CSR information (Once and Almagtome 2014). Stakeholder orientation also positively influences CSR disclosure (Van der Laan Smith et al. 2005). Finally, company visibility is found to be an important driver of CSR disclosure (Gamerschlag et al. 2010). Industry affiliation, firm size, financial performance and capital market orientation are regarded internal determinants of CSR disclosure. Previous studies show that companies in CSR-sensitive industries like chemicals, mining or energy disclose more CSR information (Shnayder et al. 2016; Young and Marais 2012). In addition, CSR disclosure is considered to improve with increasing firm size (Wickert et al. 2016), financial performance (Haniffa and Cooke 2005) and capital market orientation (Heitzman et al. 2010).

The relevance of corporate identity for CSR disclosure

Further, more abstract internal CSR disclosure determinants received little attention so far but might help to understand how voluntary disclosure theory and legitimacy theory explain CSR disclosure. Du et al. (2010, p. 11) argue that a perceived “CSR fit” is an important internal factor driving the credibility of CSR disclosure. This fit relates to a perceived match between disclosed CSR information and corporate identity (Hristache et al. 2013). Corporate identity is derived from shared values and beliefs (Van Riel and Fombrun 2007) and comprises what is central, enduring and distinctive about the company (Albert and Whetten 1985). Corporate identity attributes can be detected by observing a company’s strategy, behavior, rules, and structure (Melewar and Karaosmanoglu 2006). Desirable characteristics of corporate identity are a high quality mentality, supreme products, financial

stability, an excellent working environment, as well as a sensitivity for CSR aspects (Einwiller and Will 2002).

He and Balmer (2013) connect an effective corporate identity management with an improved corporate image in the short term and a better corporate reputation in the long term. Corporate image relates to the perception of expressed corporate identity (Margulies 1977). Not the information content of a message but what receivers perceive is relevant for establishing an corporate image (Boulding 1956). Balmer & Greyser (2006, p. 735) refer to corporate image as “various outbound communications channels deployed by organizations to communicate with customers and other constituencies”. This view allows managerial activities to significantly affect both, corporate identity and image (Gioia et al. 2000). Corporate image is regarded as a direct consequence of corporate identity that the firm can control comprehensively (Balmer and Greyser 2003). Accordingly, CSR disclosure is regarded a major determinant of corporate image. Hopwood (2009, p. 437) suggest that companies defend with CSR disclosure by “providing a new face to the outside world while protecting the inner workings of the organization from external view”. Simultaneously, public scandals uncover unethical corporate activities (Brennan et al. 2013). Consistently, Michaels and Grüning (2016a) find that increased CSR disclosure has a positive impact corporate reputation.

Altogether, prior research revealed an interdependency between corporate identity and corporate strategy (He and Balmer 2013). In this context, Otubanjo (2013) as well as Venturelli et al. (2017) acknowledge the importance of this connection for CSR concepts. Heikkurinen & Ketola (2012, p. 332ff) suggest an “awareness approach” for the integration of CSR into corporate strategy. Here, CSR is part of the firm’s ethical, political and intrinsic convictions and a lack of credibility may never exist. Choosing CSR initiatives that address the entire organization as well as all dimensions of CSR is crucial in this context (Lozano 2012). Various views exist on the relationship between CSR performance and CSR disclosure. The adoption of CSR practices and values may lead to differentiating characteristics in the market (Porter and Kramer 2006). Following this business case approach companies align their CSR activities to create a competitive advantage that may increase profits or create additionally value added (Michaels and Grüning 2016b). Alternatively, the resource-based view of CSR suggests that companies engage in CSR in order to create positive internal and external benefits that enable a “more efficient use of resources” (Branco and Rodrigues 2006, p. 120). Both view call for an internal strategic adoption of CSR principles. Critics argue that these purely economic approaches endanger the moral foundations of CSR and inhibit its proper implementation (Nijhof and Jeurissen 2010).

Baumgarth and Binckebanck (2011) note that the establishment of a CSR-oriented corporate identity and culture are preconditions to achieve a reliable and trustworthy image and reputation. Both are highly affected by CSR disclosure (Guidry and Patten 2012). Consequently, the integration of CSR into the corporate identity is crucial for a successful CSR concept (McShane and Cunningham 2011). Managers utilize corporate identity to give organizational members “some sense of purpose” that motivates them to achieve common goals (Cornelissen 2002, p. 266). Corporate identity management enables the ability to express individuality, to manifest differentiating attributes, to set and express strategy as well as to communicate effectively (Balmer 2001). In most cases the alignment of corporate identity towards CSR requires the adoption of new values and beliefs as well as the definition of a new strategy and vision (Heikkurinen and Ketola 2012). Furthermore, the adoption of CSR principles requires most companies to revise or establish processes and structures (Hristache et al. 2013). Accordingly, Lozano et al. (2016) found a strong reciprocal relationship for organisational change management and CSR disclosure.

Credibility is an important issue for CSR disclosure (Lock and Seele 2016). Inconsistencies between the current status of CSR implementation and its communication have severe destructive consequences (Baumann-Pauly et al. 2013, p. 701). Hence, if companies face difficulties in creating credibility for their CSR programs, those companies that dispose over high conformance would use it to create credibility through increased CSR disclosure. Accordingly, CSR-oriented corporate identity is an important internal determinant of CSR disclosure and the following hypothesis is formulated:

H1: A high level of CSR-oriented corporate identity is positively associated with the level of CSR disclosure.

Sample, variable definition, and methodology

Sample selection

The analysis is based on 498 listed and non-listed German companies. Due to the history of an advanced social welfare system German companies likely assume a distinctive social responsibility (Chen and Bouvain 2009). Germany is also known to have an extraordinarily high number of “hidden champions” (Simon 2012). These companies are often family-owned and characterized by a high social responsibility (Spiegel and Block 2013, p. 12). Capital market sustainability ratings support the view that German companies have an outstanding sustainability performance, beating comparable US, France and Austria firms (Sustainalytics 2012).

In line with other empirical CSR studies (e.g. Fatma et al. 2016; Huang et al. 2014; Liu et al. 2014) a

convenience sampling has been applied (Table 1). Companies are selected based on (i) two German image and sustainability rankings (172); (ii) a list of the German ministry of environment containing firms that publish CSR reports (266); and (iii) randomly chosen companies of the prime and general standard of the Frankfurt Stock Exchange (60). Altogether, 327 of the 498 firms (66.6%) English language CSR reports (stand-alone CSR reports, integrated corporate reports or website information) could be collected from corporate websites or the GRI reporting database for reporting year 2013/2014. The latent construct of CSR-oriented corporate identity is measured using a company survey. 226 (45.4%) of the 498 sample companies replied of which 149 (29.9%) firms provide usable answers. In total, the intersecting sample of firms for which we could obtain CSR disclosure as well as usable answers from the company survey consists of 108 companies.

AIMD

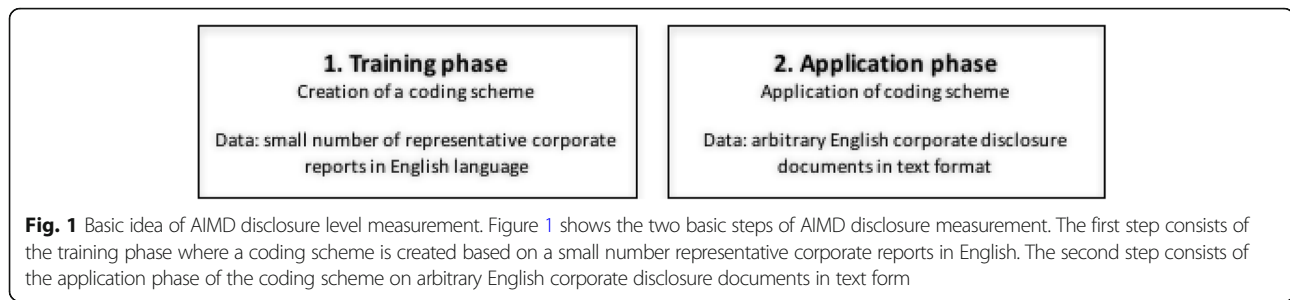
The dependent CSR disclosure variable is measured using automated content analysis deviated from Artificial Intelligence Measurement of Disclosure (AIMD) (Grüning 2011). AIMD measures the extent to which text documents refer to specified topics. Different to ordinary word count approaches, AIMD is able to partly consider the context of information, including thesaurus and syntax (Grüning 2011). In a first step (training phase) a coding scheme must be developed to identify

certain topics in text documents. In a second step (application phase) the topics of large quantities of texts can be classified using this coding scheme. Figure 1 summarizes the basic procedure. The coding scheme consists of semantic units (N-grams) that are “connotative categorical equivalents” for a specified type of information (Grüning 2011, p. 510), i.e. refer to the same topic. Using various dictionaries N-grams are automatically standardized and the resulting AIMD coding scheme is almost not affected by grammar and orthography of the underlying texts.

Although the coding scheme can be generated manually, in this paper a fully automated approach is used because of superior objectivity. In line with linguistic practice (Archer 2009, p. 2) N-grams appearing frequently in the CSR reports and not frequently in the annual reports (excluding CSR related chapters that are removed manually) are regarded as typical for CSR reporting. More specifically, for 29 firms from the German DAX and MDAX CSR annual reports (except of CSR chapters) for 2014 are enumerated into N-grams of up to three consecutive words (excluding stopwords). All N-grams that occur in x annual reports (except of CSR chapters) and y CSR reports are collected separately. Lists with $y > x$ are potentially indicative for CSR reporting. An AIMD content analysis is performed using each of the $841 = 29 \cdot 29$ N-gram lists. The one that best replicates the CSR content analysis of Gamerschlag et al. (2010) is finally chosen. The N-gram list that includes all

Table 1 Sample Distribution

	1		2		3		4	
	No. of companies	in %	No. of CSR reports	in %	No. of CSR surveys	in %	No. of companies with report + survey	in %
	Initial sample						Full sample	
Panel A: Distribution by Industry								
Industry								
Banks and Insurance	30	6.02	18	5.50	14	9.40	9	8.33
Chemicals, rubber, plastics, non-metallic products	60	12.05	50	15.29	16	10.74	16	14.81
Food, beverages, tobacco	52	10.44	35	10.70	11	7.38	7	6.48
Gas, water, electricity, construction	30	6.02	19	5.81	10	6.71	8	7.41
Machinery, equipment, furniture, recycling	105	21.08	88	26.91	26	17.45	25	23.15
Other services	107	21.49	51	15.60	38	25.50	21	19.44
Post, telecommunications, transport, publishing	37	7.43	26	7.95	12	8.05	10	9.26
Wholesale & retail trade	77	15.46	40	12.23	22	14.77	12	11.11
Total	498	100.00	327	100.00	149	100.00	108	100.00
Panel B: Distribution by Stock market activity								
Stock market activity								
Listed	139	27.91	109	33.33	46	30.87	41	37.96
Not listed	359	72.09	218	66.67	103	69.13	67	62.04
Total	498	100.00	327	100.00	149	100.00	108	100.00



N-grams appearing in 15 of the 29 CSR reports but in only seven of the annual reports (except of CSR chapters) establishes the final coding scheme (see Table 2). While for many of the N-grams the relation to CSR is straight, some likely remain as artefacts because the coding scheme has been established empirically. Those are not removed manually to preserve objectivity of the content analysis. Altogether, the correlation coefficient of the AIMD results and the frequency counts of Gamerschlag et al. (2010) is 0.76 ($p = 0.00$).

To obtain the CSR disclosure measure for the sample reports AIMD frequencies are determined using this coding scheme in the application phase. A higher AIMD frequency represents a higher level of CSR disclosure.¹

Company survey

In order to characterize CSR-oriented corporate identity comprehensively, eight dimensions of interest are derived from prior literature on CSR and surveys measuring general corporate identity (Sackmann 2006): (i) People orientation (McShane and Cunningham 2011); (ii) Leadership (Strand 2014); (iii) Innovation (Fischer and Sawczyn 2013); (iv) Work related issues (Collier and Esteban 2007); (v) Stakeholder orientation (Brennan et al. 2013); (vi) Communication (Du et al. 2010); (vii) value orientation (Bondy et al. 2012); and (viii) Strategy/vision (Heikkurinen and Ketola 2012). For each dimension relevant items are generated in the survey. Following Martins (2007), the survey is structured in a three-pillar-order (see Table 3) where the items of one dimension are not in a subsequent order. The advantage of this three-fold approach is that all identity levels (artifacts, values and underlying assumptions) are captured. Whereas artifacts are predominantly included in the beginning section, values, beliefs and underlying assumptions are mainly recorded within the other two parts. Think-aloud-protocols (Ericsson 2006) and verbal probing (Willis 2006) are applied to ensure the validity of the questionnaire. The questionnaire was sent out in spring 2015 with reminders after about 2 months. Data collection finished after approximately 4 months. Construct validity of the company survey are evaluated

using exploratory factor analysis. An average Cronbach's alpha of 0.96 demonstrates the reliability of the survey items. The average Kaiser-Meyer-Olkin criterion is 0.91 and indicates a "marvelous" sampling adequacy. Based on a screw test, exploratory factor analysis establishes four major factors that comprise CSR-oriented corporate identity which are (i) strategic integration; (ii) CSR application; (iii) employee integration; and (iv) attitude awareness. All factors have an Eigenvalue above 1. Strategic integration refers to the relevance of CSR in a company's strategic planning process and its market positioning. CSR application is related to CSR activities and artefacts. The dimension employee integration reflects the relevance in assuming social responsibility. Attitude awareness indicates the degree of corporate awareness about CSR-related values and principles. The retrieved factors are consistent with related literature (e.g. He and Balmer 2007; Melewar and Karaosmanoglu 2006). Statistical model fit indicators are in line with standard recommendations (Unterreitmeier 2004). The four factors are used as independent variables in the regression model.

Empirical model

To test H1, the relationship between CSR-oriented corporate identity and CSR disclosure is examined. The following multivariate regression analysis model that controls for various other determinants of CSR disclosure is applied:

$$\begin{aligned} DISCLOSURE = & \beta_0 + \beta_1 STRATEGY \\ & + \beta_2 APPLICATION \\ & + \beta_3 EMPLOYEE \\ & + \beta_4 AWARENESS \\ & + \beta_5 \log SIZE + \beta_6 INDUSTRY \\ & + \beta_7 \log PROF \\ & + \beta_8 INCORPORATION \\ & + \beta_9 LISTED \\ & + \beta_{10} STANDALONE \\ & + \beta_{11} GRI + \varepsilon \end{aligned} \quad (1)$$

The dependent variable *DISCLOSURE* is an AIMD N-gram-count based disclosure score. The main independent variables are the four factor variables that

Table 2 Coding scheme (121 codes)

academic	education training	ilo organization
academy	emission energy	important stakeholder
analysis materiality	emission reduction	information sustainability
animal	emission scope	initiative support
apprentice	employee germany	intercultural
association freedom	employee health	international labor
assurance report	employee make	international labor organization
balance life	employee need	issue sustainability
balance life work	employee new	labor organization
bargain	employee opportunity	labor standard
bargain collective	energy include	lighting
biodiversity	energy resource	man woman
business travel	energy saving	management safety
carbon disclosure	energy water	management sustainability
carbon footprint	engagement stakeholder	management waste
carbon reduce	environment impact	mentor
chain management supply	environmental issue	ngos
charitable	environmental performance	occupational safety
child labor	environmental reduce	offer program
combustion	environmental responsibility	organization s
community local	environmental social standard	pollution
compact global principle	equal opportunity	process procurement
condition working	gas greenhouse reduce	product responsibility
consumption electricity	ghg	program support
consumption energy reduce	global principle	project social
consumption resource	governmental non	project support
consumption water	governmental non organization	rate turnover
convention	governmental organization	recycle
country employee	greenhouse reduce	recycling
course training	grus initiative	reduce use
development professional	grus initiative reporting	relate work
dialog stakeholder	hazardous	renewable use
discrimination	hazardous waste	report sustainability

Table 2 Coding scheme (121 codes) (Continued)

disposal waste	help program	reuse
donate	hiring	social standard
drinking	hour work	sponsorship
drinking water	hour working	square
eco	illness	strategy sustainability
economic environmental	ilo	use water
economic environmental social	ilo labor organization	volunteer
		waste water

Words as parts of N-grams are order alphabetically and stemmed to their root

constitute CSR-oriented corporate identity. The variable *strategic integration*, *STRATEGY*, comprises many future-oriented survey items concerning mission, vision and targets as well as the role of CSR for strategic positioning. The variable *CSR application*, *APPLICATION*, joins all items related to CSR activities. As a third factor, the variable *employee integration*, *EMPLOYEE*, captures items covering how good CSR is implemented as a participative organizational concept. The last variable *approach awareness*, *AWARENESS*, covers how important CSR-related values are for a company.

Following prior empirical work, the model controls for the effects of structural company characteristics that impact the level of CSR disclosure (Fifka 2013). Data is retrieved from the Orbis database. Prior empirical findings documented that *firm size* is significantly related to CSR disclosure because larger companies are exposed to increased external stakeholder pressures (Guidry and Patten 2012) or larger companies benefit from an economy of scale regarding organizational cost for CSR (Baumann-Pauly et al. 2013). In this paper, *logSIZE* is alternatively proxied as the natural logarithm of the number of employees or the logarithm of annual sales. Because of structurally identical results only the results of the former are tabulated and results of the robustness analysis using the latter are not reported.

Prior research suggests *industry affiliation*, *INDUSTRY*, is an important control variable because companies in particular industries are exposed to higher public pressure (Jackson and Apostolakou 2010) and regulation

Table 3 Questionnaire Structure

Section	Explanation
1 - Types and organization of CSR	Section 1 aims to capture the existing forms of CSR in the company and their organization and anchoring in directives.
2 - Application of CSR	Section 2 is intended to cover how the company uses CSR, what objectives it pursues.
3 - Cultural anchor	Section 3 is to identify the values and levels at which CSR is anchored in the company.

of CSR issues, such as environmental protection, may vary between industries (Fischer and Sawczyn 2013).

Profitability is included as a control variable although the relationship between CSR disclosure and profitability is inconclusive (McWilliams et al. 2006). However, the resource based view suggests that financially high performing companies dedicate more resources to CSR activities and therefore increase their CSR disclosure (Russo and Fouts 1997). The natural logarithm of sales per employee (*logPROF*) proxies for the economic potential of profitability because of data availability considerations. Robustness test (not reported) indicate structural identical results for other proxies (natural logarithm of earnings before tax; of return on assets; of return on sales) that are constrained by data availability.

In addition, controls for the effect of disclosure regulation with the variables *legal form* and *stock market activity* are implemented. Prior research revealed the interaction of mandatory and voluntary disclosure to affect the disclosure level (Dye 1990). Hence, companies which are subject to larger mandatory disclosure release more voluntary information. Therefore, the indicator *STOCKCOMPANY* is included to control for this effect. Similarly, the indicator *LISTED* controls for *stock market activities* as listed companies are regarded to have higher voluntary CSR disclosure levels (Adhikari and Tondkar 1992) because of their multi-investor ownership structure (Rouf 2011).

Furthermore, it we control for the effects of different *CSR reporting types*. These types, such as standalone reports, integrated reporting or website information may vary in volume, structure and content (Dhaliwal et al. 2011). Cho et al. (2015) found that firms with standalone CSR reports significantly disclose more CSR information. Therefore, *STANDALONE* is included as an

additional control. Moreover, the model controls for the effects of the *application of reporting guidelines* of the GRI. Empirical findings support that the adoption of international reporting standards such as GRI leads to increased harmonization and transparency in cross-country comparisons as well as to higher levels of CSR disclosure (Fortanier et al. 2011; Nikolaeva and Bicho 2011). Accordingly, the indicator *GRI* is included in the analysis. Table 4 offers a summary of all variables, abbreviations and data sources.

Results and discussion

Descriptive statistics

Table 5 summarizes descriptive statistics for all continuous variables included in Eq. (1). All nominal and dichotomous variables are omitted. Variables *STRATEGY*, *APPLICATION*, *EMPLOYEE*, *AWARENESS* are factor values comprising CSR-oriented corporate identity. They result from the exploratory factor analysis of survey items described in “Company survey” section. The item variables are standardized before exploratory factor analysis. Therefore, the factor values have a mean close to 0 and a SD close to 1.

Table 6 shows the Pearson correlation of CSR disclosure (*DISCLOSURE*), all independent variables and the control variables without industry affiliation (*INDUSTRY*). The correlation coefficients between the independent variables do not indicate the presence of multicollinearity as the highest value is 0.655 (Farrar and Glauber 1967). In line, the variance inflation factors (mean of 1.57) also do not reveal multicollinearity.

Consistent with the hypothesis, at least two independent variables, *STRATEGY* and *APPLICATION*, show a

Table 4 Data sources

Variable	Measure		Source
	Abbreviation	Explanation	
CSR disclosure	DISCLOSURE	CSR disclosure score measured by AIMD	From company websites
Strategic integration	STRATEGY	Degree of strategic integration of CSR	Company survey
CSR application	APPLICATION	Degree of CSR application	Company survey
Employee integration	EMPLOYEE	Degree of employee integration	Company survey
Approach awareness	AWARENESS	Degree of approach awareness	Company survey
Company size	logSIZE	Logarithm of number of employees	Orbis database
Industry affiliation	INDUSTRY	Industry classification	Orbis database
Profitability	logPROF	Logarithm of sales per employee	Orbis database
Legal form	INCORPORATION	Indicator for limited company on shares	Orbis database
Stock market activity	LISTED	Indicator for listed companies	Orbis database
Reporting type	STANDALONE	Indicator for standalone reporting	Own assessment
Application of GRI guidelines	GRI	Indicator for application of GRI guidelines	Company survey

Table 5 Descriptive Statistics

Variable	Number	Mean	Std. Dev.	Min	Max
DISCLOSURE	327	314.09	402.23	0.00	2905.00
STRATEGY	149	0.01	0.95	−2.96	1.90
APPLICATION	149	0.01	0.95	−3.17	2.31
EMPLOYEE	149	−0.01	0.97	−3.28	1.82
AWARENESS	149	0.00	0.95	−4.40	1.37
logSIZE	481	7.72	2.38	0.00	13.29
logPROF	459	5.81	1.34	−1.47	14.29

Only continuous variables included in Eq. (1) are shown. All nominal and dichotomous variables are omitted
Variables STRATEGY, APPLICATION, EMPLOYEE and AWARENESS are factor values comprising CSR-oriented corporate identity
They result from an exploratory factor analysis (EFA) of survey items relevant for the measurement of CSR-oriented corporate identity
The item variables have been standardized before EFA. Therefore, the factor values have a mean near to 0 and a SD close to 1
See Table 4 for variable explanations

significant positive correlation. The variables *EMPLOYEE* and *AWARENESS* indicate a weak negative correlation. Furthermore, a significant positive relationship between *logPROF* and *DISCLOSURE* as well as between *GRI* and *DISCLOSURE* and *STANDALONE* and *DISCLOSURE* is found according to the expectations. However, the results do not reveal a strong positive relationship between company size and CSR disclosure which was reported by other researchers (Baumann-Pauly et al. 2013). Stand-alone reports correlate significantly positive with CSR disclosure.

Additionally, there is a significant negative correlation between *INCORPORATION* and *LISTED* and strategic integration. Furthermore, profitability is significantly negatively correlated with CSR application. These findings contradict with earlier empirical findings suggesting that higher public pressures generate superior CSR performance (Fischer and Sawczyn 2013).

Regression results

The hypothesis predicts a positive relationship between CSR-oriented corporate identity and CSR disclosure. Standardized regression coefficients (beta) and significance levels (p) for Equation (6) are reported in Table 7. The robustness of the models is ensured by subsequently adding the control variables (Models 1–8) for the same sample ($N = 108$). The explained variance (R^2) increases from 10.4% in Model 1 to 43.1% in Model 8. The coefficient estimates of the control variables are generally consistent with the correlation analysis in Table 6. The issuance of standalone CSR reports ($\text{beta}_{\text{STANDALONE}} = +0.327^{***}$) and the application of GRI reporting guidelines ($\text{beta}_{\text{GRI}} = +0.331^{***}$) in particular indicate a highly significant positive association. Firm size (*logSIZE*) and profitability (*logPROF*) had significant positive effects in Models 4–6. However, the final model (Model 8) does not show a significant relationship. There are no significant effects on CSR disclosure for stock companies (*STOCKCOMPANY*) or for companies that are listed on the Frankfurt Stock Exchange (*LISTED*). This results are contradictory to prior empirical findings for corporate disclosure in general (Healy and Palepu 2001). Different to prior research (Gamerschlag et al. 2010), a Wald test for joint significance of the control variable *INDUSTRY* (not tabulated) reveal no significant effect.

In line with the prediction, a significant positive impact of strategic integration ($\text{beta}_{\text{STRATEGY}} = +0.165^{**}$) and CSR application ($\text{beta}_{\text{APPLICATION}} = +0.167^{**}$) on CSR disclosure is found. Inconsistently with the hypothesis, employee integration ($\text{beta}_{\text{EMPLOYEE}} = -0.167^{***}$) and attitude awareness ($\text{beta}_{\text{AWARENESS}} = -0.153^*$) are significantly negatively associated with CSR disclosure. These results are considered robust as estimates for *STRATEGY*, *APPLICATION*, *EMPLOYEE*, *AWARENESS* do not structurally differ between models. Notably, in

Table 6 Pearson Correlations

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
DISCLOSURE	(1)	1										
STRATEGY	(2)	.193*	1									
APPLICATION	(3)	.180*	.038	1								
EMPLOYEE	(4)	−.118	.035	.012	1							
AWARENESS	(5)	−.111	.052	.028	.007	1						
logSIZE	(6)	.059	−.081	.008	.119	−.030	1					
logPROF	(7)	.179*	−.037	−.240*	−.079	−.048	−.354*	1				
INCORPORATION	(8)	.004	−.218*	−.081	.067	−.143*	.360*	−.070	1			
LISTED	(9)	.017	−.175*	−.099	−.024	−.021	.323*	−.069	.661*	1		
STANDALONE	(10)	.367*	.073	.126	.026	.132	−.014	.018	−.110*	−.114*	1	
GRI	(11)	.440*	.265*	.057	.05	.133	.126	.118	.030	.048	.227*	1

A correlation coefficient with asterisk indicated that the correlation is statistically significant at the 10% level

See Table 4 for variable explanations

Table 7 Regression Results

Dependent Variable = DISCLOSURE	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	beta	beta	beta	beta	beta	beta	beta	beta
STRATEGY	.220***	.215***	.257***	.261***	.283***	.281***	.256***	.165**
APPLICATION	.188**	.182**	.178**	.224**	.223**	.225**	.200**	.167**
EMPLOYEE	-.123	-.13	-.152*	-.134	-.143*	-.140*	-.166**	-.167***
AWARENESS	-.116	-.106	-.110	-.105	-.090	-.092	-.114	-.153*
logSIZE		.207*	.192*	.238*	.201*	.194	.220**	.147
logPROF				.197*	.190*	.180*	.118	.063
INCORPORATION					.110	.070	.053	.072
LISTED						.061	.107	.082
STANDALONE							.385***	.327***
GRI								.331***
INDUSTRY	No	No	Yes	Yes	Yes	Yes	Yes	Yes
R ²	10%	15%	17%	20%	21%	21%	35%	43%
N	108	108	108	108	108	108	108	108

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

This table presents the regression results using DISCLOSURE as dependent variable

Model 1 shows the regression results of dependent (DISCLOSURE) and independent variables (STRATEGY, APPLICATION, EMPLOYEE, AWARENESS) without any control variables

In Model 2–8, we subsequently add control variables. We use robust standard errors over all models as heteroscedasticity is present. Model 8 contains the final regression See Table 4 for variable explanations

the final model (Model 8) all independent variables indicate roughly the same power of association. Therefore, the association of corporate identity and CSR disclosure is regarded to vary between the various aspects of corporate identity. In particular, those corporate identity dimensions which are more closely related to the value chain and future-oriented targets stimulate an increasing CSR disclosure compared to corporate identity dimensions with an introversive focus. Thus, the findings explicitly support neither voluntary disclosure theory nor legitimacy theory to explain the determinants of CSR disclosure. They rather indicate that CSR disclosure is different from other types of disclosure, as already proposed by Guidry and Patten (2012). In summary H1 is only confirmed partly.

To better understand the ambivalent effects of various corporate identity characteristics, four informal interviews with corporate CSR experts who participated in the survey have been conducted.² The exploratory interviews provide some interesting thoughts about the results and could help in refining the hypotheses to stipulate further confirmative research. The findings from the interviews have not been used in evaluating the logical value of the hypotheses. The experts' feedback suggests that the diverging impacts of corporate identity dimensions might depend on the development stage of a CSR concept in companies. The level of corporate identity dimensions is expected to change according to the implementation status of CSR. Whereas *attitude awareness* and *employee integration* are more pronounced in

an early phase of implementation, *CSR application* and *strategic integration* become more important with the maturity of the concept. In line with voluntary disclosure theory, CSR disclosure is expected to grow with the evolution of the concept. The results could indicate that the hard attributes of corporate identity, such as CSR artefacts and the relevance of CSR in the strategic planning process, promote CSR disclosure. This interpretation is corroborated by prior findings which suggest that strategic planning is also considered an important reason for CSR disclosure (Pérez and Rodríguez del Bosque 2011). According to the CSR experts, CSR disclosure has a target setting function and will only be provided once a CSR program becomes more precise. In line, the GRI considers CSR disclosure to be a milestone within the continuous improvement of CSR programs (Brown et al. 2009). The CSR experts also state that *attitude awareness* and *employee integration* have been relevant dimensions in their companies for a longer period of time than it has been common to adopt "fancy" CSR programs and disclose CSR information. As a consequence, these issues may remain stable over time and may not contribute to the variance of CSR disclosure content. Similarly, previous research reveals that companies with a long-standing social personality tend to invest less in CSR communication (Baumann-Pauly et al. 2013). As such, results may also suggest that less CSR disclosure does neither indicate if companies do not dispose over any CSR characteristics in their corporate identity nor to what extent these characteristics are existent. It can be

suspected that companies with strong CSR values employ other means to create transparency and to appear trustworthy.

The regression results are regarded robust as the effects of the main variables remain stable over different models. Various other models that include a proxy for CSR performance are tested as well (not tabulated). Prior research uses CSR performance proxies from databases such as MSCI KLD or Bloomberg (Cho et al. 2013; Nelling and Webb 2008). For 41 firms environmental, social and governance performance indicators (total greenhouse gas emissions, employee turnover and board meeting attendance) could be obtained from Bloomberg. The results do not reveal a significant effect of CSR performance of CSR disclosure. Due to the low sample size, CO₂ emissions reported in the CSR reports are used as alternative measure in line with prior literature (Clarkson et al. 2008, p. 308). The analysis based on a sample of 77 firms results (not tabulated) reveal again no significant effect of (this very narrow) CSR performance on CSR disclosure.

Conclusion and future research

Today, CSR information is a major component of companies' corporate disclosure. It is considered to mirror companies' CSR performance as a response to increasing stakeholder requirements and legitimate business operations. The growing interest in sustainability topics has also motivated many researchers to examine CSR disclosure. Prior research revealed a number of internal and external influential factors along with a number of benefits that companies gain from compiling and publishing CSR information.

The aim of this research study is to extend the knowledge of so far unobserved internal determinants of CSR disclosure. In summary, the results of this study suggest three major findings. First, characteristics of corporate identity are related to the development stage of a firm's CSR concept. Corporate identity dimensions that indicate a mature CSR concept are positively associated with companies' CSR disclosure. Firms that remain in an early phase of CSR development or that have a superficial CSR model disclose significantly less CSR information. This finding is in line with voluntary disclosure theory. Second, introversive corporate identity dimensions are more pronounced in a firm with low level CSR engagement. Value chain and future-oriented dimensions are more pronounced in a firm with high level CSR engagement. Third, the perceived need for legitimacy influences the degree of a firm's CSR disclosure. Companies that historically possess a corporate identity of strong *attitude awareness* and *employee integration* report less CSR information because they do not detect the need for legitimacy. Concerned companies consider aspects of

these corporate identity dimensions to be ordinary business conduct. This finding is in line with legitimacy theory. It will be necessary to further investigate why these companies have this perception; they may use other means and channels to create a trustful relationship with their stakeholders.

In conclusion, the results of this study support the claim that a combination of voluntary disclosure theory and legitimacy theories (Clarkson et al. 2008) is necessary to explain the drivers and constraints of CSR disclosure as well as the relationship between CSR disclosure and CSR performance.

The empirical analysis contributes to CSR disclosure literature by examining further potential determinants and consequences of CSR disclosure, which have received little attention so far. To the authors' best knowledge, this study is the first that empirically examines the relationship between corporate identity and CSR disclosure. It extends the scope of research of what is known about firm's internal determinants of CSR disclosure. The discovery of corporate identity dimensions with ambiguous effects on CSR disclosure supports the growing field of researchers that state a complementary relationship between voluntary disclosure theory and legitimacy theory to explain CSR disclosure. Additionally, the findings underline the results from prior research (e.g. Dhaliwal et al. 2014) by demonstrating that the reporting framework has a substantial impact on the level of CSR disclosure: Companies that issue standalone CSR reports and apply the GRI guidelines achieve a significantly higher disclosure level. Other determinants like the legal form and stock market activity appear to be less important than expected.

From a methodological point of view, this is the first time that artificial intelligence is applied to the measurement of CSR disclosure. The study provides quantitative data on the state of the art of CSR disclosure of German firms. In addition, it develops a survey-based measurement tool to determine the degree of CSR orientation in firms' corporate identities and provides quantitative data on the current corporate identity profiles of German firms.

Limitations of the empirical work arose from potential conceptual and methodological shortcomings. With regard to the research question, it is possible that additional factors that have a direct, moderating or mediating impact on the theoretical constructs are not captured appropriately. Specifically, corporate identity is an abstract construct that is difficult to capture. Even though the corporate identity dimensions are based on an extensive literature review, they are potentially biased or incomplete. From a technical point of view, it is recognized that the cross-sectional design that was chosen because of research economic considerations severely limits results because of the probable but

undeterminable time lag of corporate identity effects on CSR disclosure. Furthermore, the usual sampling issues of field research may limit the generalizability of results.

The findings of this study unveil a number of research paths that could be investigated in future research. Further research should examine the relationship between corporate identity and CSR disclosure on an international level or apply different measurement techniques to capture corporate identity. This may validate the findings and provide further insights into the interaction of CSR disclosure determinants derived from voluntary disclosure theory and legitimacy theory. Further research in this direction may also apply a mix of quantitative and qualitative approaches to obtain more in-depth knowledge about the interaction of CSR identity and CSR disclosure. The four exploratory interviews following the confirmatory hypotheses evaluation suggest some potential avenues for further research. Additional empirical research is also required to elaborate on the interaction between information asymmetry and trust in the context of CSR: do they have a cause-effect relationship or are they even substitutes for each other?

Endnotes

¹For a detailed explanation of AIMD refer to Grüning (2011).

²The interviews were conducted by telephone in April 2016 and took about 30–45 min. The participants work in different industries (food and beverages, machinery, chemicals, services)

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