

Hrsg. von Klaus Möller

Ramin Gamerschlag

Capital markets and voluntary disclosures on CSR and human capital: determinants and effects



Controlling und Performance Management

Hrsg. von Klaus Möller

Band 3

Capital markets and voluntary disclosures on CSR and human capital: determinants and effects

Dissertation

zur Erlangung des wirtschaftswissenschaftlichen Doktorgrades der
Wirtschaftswissenschaftlichen Fakultät der Universität Göttingen

vorgelegt von

RAMIN GAMERSCHLAG

aus Göttingen

Göttingen, 2011

Bibliografische Information der Deutschen Nationalbibliothek

Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über <http://dnb.d-nb.de> abrufbar.

1. Aufl. - Göttingen : Cuvillier, 2011
Zugl.: Göttingen, Univ., Diss., 2011

978-3-86955-698-7

Erstgutachter: Prof. Dr. KLAUS MÖLLER

Zweitgutachter: Prof. Dr. KILIAN BIZER

Tag der mündlichen Prüfung: 10. März 2011

© CUVILLIER VERLAG, Göttingen 2011

Nonnenstieg 8, 37075 Göttingen

Telefon: 0551-54724-0

Telefax: 0551-54724-21

www.cuvillier.de

Alle Rechte vorbehalten. Ohne ausdrückliche Genehmigung des Verlages ist es nicht gestattet, das Buch oder Teile daraus auf fotomechanischem Weg (Fotokopie, Mikrokopie) zu vervielfältigen.

1. Auflage, 2011

Gedruckt auf säurefreiem Papier

978-3-86955-698-7

Vorwort des Herausgebers

Die externe Unternehmensberichterstattung ist wichtig für das Funktionieren von Kapitalmärkten. Sie dient in erster Linie der Verringerung von Informationsasymmetrien, die sowohl zwischen unternehmensinternen und –externen Parteien, als auch zwischen verschiedenen externen Gruppen existieren. In den vergangenen Jahren kann eine stetige Zunahme insbesondere der freiwilligen Unternehmensberichterstattung registriert werden. Dies schließt sowohl die Veröffentlichung von Informationen über Aspekte der unternehmerischen Nachhaltigkeit („Corporate Social Responsibility“, CSR) als auch die Berichterstattung über die Humanressourcen des Unternehmens („Human Capital“) ein.

Die vorliegende Arbeit beschäftigt sich mit eben jenen beiden Aspekten der freiwilligen Unternehmensberichterstattung. Dafür untersucht RAMIN GAMERSCHLAG im Rahmen von vier unabhängigen Kapiteln sowohl die Bestimmungsgrößen der Berichterstattung als auch deren Implikationen für den Kapitalmarkt, insbesondere für den Aktienkurs der informationsbereitstellenden Unternehmen. Das Erkenntnisinteresse der Arbeit lässt sich in vier forschungsleitenden Fragestellungen zusammenfassen, die im Rahmen der jeweiligen Kapitel als Hypothesen vorliegen:

1. Was sind die Bestimmungsgrößen der freiwilligen Berichterstattung von Unternehmen für Nachhaltigkeitsaspekte?
2. Was sind die Implikationen der Veröffentlichung von Informationen über Nachhaltigkeit für den Kapitalmarkt, insbesondere für den Aktienkurs des betreffenden Unternehmens?
3. Wie ist die interne und externe Wirkungsweise einer Berichterstattung über Human Capital auf den finanziellen Unternehmenserfolg und wie sind die zugrunde liegenden Ursache-Wirkungs-Beziehungen?
4. Was sind die Implikationen einer Berichterstattung über Human Capital für den Kapitalmarkt, insbesondere für den Aktienkurs des betreffenden Unternehmens?

Aufgrund der unterschiedlichen Fragestellungen der einzelnen Kapitel ist eine vergleichsweise breite Betrachtung der Berichterstattung über CSR und Human Capital möglich. Die Bearbeitung der Thematik erfolgt in Abhängigkeit des betrachteten Kapitels entweder empirisch oder theoretisch-konzeptionell. Im Rahmen der empirischen Analysen findet mit der stichwortbasierten Inhaltsanalyse ein anerkanntes Verfahren zur Forschung im Bereich der Unternehmensberichterstattung Anwendung. Zudem sind die großzahligen Datensätze hervorzuheben, die mehr als 80.000 Seiten an Unternehmensberichten berücksichtigen.

Die Arbeit liefert fundierte Erkenntnisse und ist insbesondere für den wissenschaftlichen Leser von Interesse. Auch dem praxisorientierten Leser erschließen sich wichtige Einblicke in die freiwillige Unternehmensberichterstattung sowie deren Implikationen für den Kapitalmarkt. Ich wünsche ihr eine gute Verbreitung in beiden Feldern!

St. Gallen, im Mai 2011

Univ.-Prof. Dr. *Klaus Möller*

Danksagung

Diese Arbeit wurde im März 2011 von der Wirtschaftswissenschaftlichen Fakultät der GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN als Dissertation angenommen. Sie entstand während meiner Tätigkeit als wissenschaftlicher Mitarbeiter an der Professur für Controlling dieser Universität. Mein Dank gilt allen Personen, die mich bei der Erstellung dieser Arbeit unterstützt und dadurch zu ihrer erfolgreichen Annahme beigetragen haben.

An erster Stelle gilt mein Dank meinem Erstprüfer Univ.-Prof. Dr. KLAUS MÖLLER von der UNIVERSITÄT ST. GALLEN. Ihm danke ich für die tatkräftige Unterstützung bei der Erstellung meiner Dissertation sowie für das in mich gesetzte Vertrauen während der vergangenen Jahre. Meinem Zweitprüfer Univ.-Prof. Dr. KILIAN BIZER sowie meinem Dritprüfer Univ.-Prof. Dr. MARKUS HITZ, beide von der GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN, gebührt ebenfalls Dank für die Übernahme des Zweitgutachtens sowie für die Abnahme meiner Doktorprüfung und die damit verbundenen Arbeiten.

Allen meinen Kollegen von der Professur für Controlling der GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN danke ich für ihre Unterstützung sowie für die schöne gemeinsame Zeit. Einzelne an dieser Stelle hervor zu heben würde dem Teamgeist nicht gerecht, den ich in den vergangenen zweieinhalb Jahren dort erlebt habe.

Ferner danke ich Dr. FRANK VERBEETEN von der ROTTERDAM SCHOOL OF MANAGEMENT für die konstruktiven gemeinsamen Arbeiten an zweien der in dieser Dissertation abgedruckten Beiträge. Darüber hinaus danke ich Univ.-Prof. Dr. GERARD MERTENS sowie allen Mitarbeitern und Kollegen des Department of Accounting and Control der ROTTERDAM SCHOOL OF MANAGEMENT für die freundliche und herzliche Aufnahme während meiner Zeit in Rotterdam im Jahr 2009.

Besonders bedanken möchte ich mich bei meinen Eltern sowie bei meiner gesamten Familie, durch deren Unterstützung meine Ausbildung und somit auch dieser Schritt überhaupt erst ermöglicht wurden. Des Weiteren danke ich allen meinen Freunden für die mentale Unterstützung und für den Ausgleich, den sie mir stets gegeben haben. Schließlich danke ich meiner Lebensgefährtin Dr. SABINE MARIA TOSO für die kontinuierliche Unterstützung während des gesamten Entstehungsprozesses dieser Arbeit.

Göttingen, im Mai 2011

Ramin Gamerschlag

Management Summary

Corporate disclosures are crucial for the functioning of efficient capital markets. They reduce information asymmetries between internal and external parties as well as between informed and uninformed investors. The thesis at hand focuses on voluntary disclosures with regard to CSR and human capital issues, their determinants and their implications for the capital market. The thesis consists of four independent papers:

Determinants of voluntary CSR disclosure (Chapter II)

ABSTRACT Currently, companies spend a great deal of effort on corporate social responsibility (CSR) disclosures. CSR disclosure relates to the provision of information on companies' environmental and social performance. From an economic perspective, companies might disclose this information to avoid or decrease potential political costs. We construct a CSR disclosure index based on the *Global Reporting Initiative* (GRI) guidelines. Using content analysis, we analyze 130 listed German companies' CSR disclosures to investigate the determinants of these voluntary disclosure activities. Our results show that, consistent with the political cost theory, German companies' disclosures of all CSR issues are affected by their visibility, shareholder structure, and relationship with their US stakeholders. In addition, higher profitability is associated with more environmental disclosures. Finally, size and industry membership affect the amount of CSR disclosure.

The value-relevance of CSR information (Chapter III)

ABSTRACT CSR disclosure relates to the provision of information on companies' environmental and social performance. Even if those disclosures might be directed to stakeholders others than (potential) owners of the firm, however, they may also be relevant for equity investors. Based on Global Reporting Initiative (GRI) guidelines, we analyze the amount of CSR disclosures of 130 listed German companies by means of content analysis. Thus, we try to identify the value-relevance of CSR information. Our results show that CSR information is value-relevant. In particular, the provision of special reports with CSR information as well as disclosure of information on social issues is value-relevant as they are positively connected to firm value. On the other hand, environmental disclosures negatively affect the companies' valuation, but, however, have a positive effect on changes in firm value.

The positive effects of human capital reporting (Chapter IV)

ABSTRACT In our knowledge-based economy, successful companies' most important assets are intangible – such as their human capital. However, few companies provide their stakeholders with detailed information about this resource, as they do not adequately assess the value of such reporting. Nevertheless, against the background of the corporate social responsibility discussion, providing human capital information is becoming increasingly important as a key driver of corporate reputation. Human capital reporting (HCR) can also be regarded as an instrument that may affect company financial performance and ultimately increase shareholder value. Against this background, we develop a theoretical model that illustrates the transformation of the intangible factors of HCR into tangible outcomes. Consequently, the model considers the various cause-and-effect relationships between HCR and company financial performance. As with a strategy map, three dimensions with a specific number of different intangible factors should be taken into consideration. Ultimately, the model reveals the benefits of HCR.

The value-relevance of human capital information (Chapter V)

ABSTRACT Human capital can be regarded as one of the most important organizational resources, and thus, as a key factor behind the competitiveness of organizations. But companies disclose only limited information about this resource. However, investors might be interested in human capital information for evaluating the economic constitution of the disclosing company. That is, human capital information can be assumed as being value-relevant. Based on previous studies, I construct a human capital disclosure index for extracting human capital information from corporate reports by means of content analysis. Subsequently, I analyze the amount and content of human capital disclosures of 130 listed German companies over four years. By applying established valuation models, I try to identify the value-relevance of human capital information. My results show that human capital information is value-relevant, especially information with regard to qualification and competence issues. However, the disclosed information does not affect changes in market value. Consequently, human capital information is value-relevant but not timely.

Content

Chapter I: Introduction	1
1. Research focus: The role of disclosures in capital markets.....	2
2. Methodology: Content analysis in corporate disclosure research	5
3. Summary: content of this thesis	6
4. Conclusion and implications	11
Chapter II: Determinants of voluntary CSR disclosure	15
1. Introduction.....	16
2. Theory and hypotheses development	17
2.1. Theoretical perspectives on CSR disclosure	17
2.2. Hypotheses development.....	19
2.3. Control variables	22
3. Design of the study and methodology.....	23
3.1. Sample construction	23
3.2. Identification of keywords.....	23
3.3. Medium of analysis (communication channel).....	24
3.4. Dependent variables: CSR disclosure	25
3.5. Independent variables: Determinants and control variables	25
3.6. Regression analysis	26
4. Results and discussion	27
4.1. Descriptive statistics and correlations	27
4.2. Regression analysis	29
5. Summary and conclusion	32
Chapter III: The value-relevance of CSR information	35
1. Introduction.....	36
2. Literature review and hypotheses.....	37
2.1. CSR and CSR disclosure.....	37
2.2. Value-relevance of CSR information	38
3. Design of the study and methodology.....	40
3.1. Sample construction	40
3.2. Identification of keywords.....	41
3.3. Medium of analysis (communication channel).....	42
3.4. Applied valuation models.....	42

4.	Results and discussion	45
4.1.	Descriptive statistics and correlations	45
4.2.	Regression analyses: value-relevance of CSR information	47
5.	Conclusion and Outlook.....	50
Chapter IV: The positive effects of human capital reporting.....		53
1.	Introduction.....	54
2.	Internal effects and the benefits of HCR.....	55
2.1.	Workforce-related factors.....	57
2.2.	Company-internal factors.....	58
2.3.	Company-external factors	59
2.4.	Summary – the positive effects of HCR.....	61
3.	Conclusions and hypotheses	61
Chapter V: The value-relevance of human capital information		65
1.	Introduction.....	66
2.	Theory and hypothesis development.....	67
2.1.	Human capital and the resource based view of the firm.....	67
2.2.	Value-relevance of information.....	69
2.3.	Human capital disclosure and value-relevance of the provided information.....	69
3.	Design of the study and methodology.....	71
3.1.	Sample construction	71
3.2.	Identification of keywords.....	72
3.3.	Value-relevance: applied valuation models.....	73
3.4.	Dependent variables	74
3.5.	Independent and control variables.....	74
4.	Results and discussion	76
4.1.	Descriptive statistics and correlations	76
4.2.	Regression analysis: value-relevance of human capital information.....	78
5.	Conclusion and outlook.....	81
Appendix		83
References		92

List of Figures

Figure 1: Financial and information flows (HEALY and PALEPU 2001).....	4
Figure 2: Determinants of CSR disclosure.....	7
Figure 3: Effects of CSR disclosure.....	8
Figure 4: Human capital reporting: causes and effects.....	9
Figure 5: Effects of human capital disclosure.....	11
Figure 6: Descriptive results of the content analysis (CSR).....	28
Figure 7: Cause-and-effect model of human capital.....	56
Figure 8: Effects and benefits of increased workforce capabilities.....	57
Figure 9: Effects and benefits of an increased innovation ability.....	59
Figure 10: Effects and benefits of an increased attractiveness and reputation.....	60
Figure 11: Cause-and-effect model of reporting on human capital (full model).....	61
Figure 12: Descriptive results of the content analysis (human capital).....	76
Figure 13: Number of published CSR reports (separate reports).....	86
Figure 14: Average number of pages in analyzed reports (over all reports).....	86
Figure 15: Average number of hits for each CSR-category (all companies).....	87
Figure 16: Development of social and environmental disclosures (all companies).....	87
Figure 17: Provided CSR information per report page (all indexes).....	88
Figure 18: Provided CSR information per report page and index.....	88
Figure 19: Provided CSR information by industry.....	89
Figure 20: Average number of pages in annual reports.....	89
Figure 21: Average number of hits for each human capital-category (all companies).....	90
Figure 22: Provided human capital information per report page (all indexes).....	90
Figure 23: Provided human capital information per report page and index.....	91
Figure 24: Provided human capital information by industry.....	91

List of Tables

Table 1: Keywords for the content analysis derived from the <i>GRI</i> framework.....	24
Table 2: Source of data	26
Table 3: Descriptive statistics after truncation at the 2.5 level.....	27
Table 4: Correlations – CSR disclosure, independent and control variables.....	29
Table 5: Regression analysis – determinants of CSR disclosure.....	30
Table 6: Keywords for the content analysis derived from the <i>GRI</i> framework.....	42
Table 7: Source of data	45
Table 8: Descriptive statistics after truncation at the 2.5 level.....	45
Table 9: Correlations – dependent and independent variables	46
Table 10: Regression analysis – value-relevance of CSR information	48
Table 11: Keywords for the content analysis derived from previous studies.....	72
Table 12: Source of data	75
Table 13: Descriptive statistics after truncation at the 2.5 level.....	76
Table 14: Correlations – dependent and independent variables	77
Table 15: Regression analysis – value-relevance of human capital information.....	79
Table 16: Industry classifications according to <i>Deutsche Boerse</i> (2010).....	84

List of abbreviations

AUTOM	Automobile manufacturers
BASIC	Basic resources
BVE/S	Book value of equity per share
CHEMI	Chemicals
CSR	Corporate social responsibility
CSRDISC	Corporate social responsibility disclosure
CONST	Construction
CONSU	Consumer
CSRR	Provision of separate corporate social responsibility report
CSRTOT	Total corporate social responsibility disclosure index
CSRENV	Environmental disclosure index
CSRSOC	Social disclosure index
DAX	Deutscher Aktien Index
DCSRDISC	Change in corporate social responsibility disclosure
DCSRTOT	Change in total corporate social responsibility disclosure index
DCSRENV	Change in environmental disclosure index
DCSRSOC	Change in social disclosure index
DHCRDISC	Change in human capital disclosure index
DHCRMC	Change in disclosure index on motivation and commitment issues
DHCRPS	Change in disclosure index on personnel issues
DHCRQC	Change in disclosure index on qualification and competence issues
DHCRTOT	Change in total human capital disclosure index
DIV/S	Dividend per share
DNI/S	Change in net income per share
DRS	Deutscher Rechnungslegungsstandard
FINAN	Financial services
FOODB	Food and beverage
GRI	Global Reporting Initiative
H	Hypothesis
HCR	Human capital reporting
HCRDISC	Human capital disclosure index
HCRMC	Disclosure index on motivation and commitment issues
HCRPS	Disclosure index on personnel issues
HCRQC	Disclosure index on qualification and competence issues
HCRTOT	Total human capital disclosure index
IND	Industry
INDUS	Industrial
INSUR	Insurance
KPI	Key Performance Indicator
logEMPL	Logarithm of the number of employees
logTA	Logarithm of the amount of total assets
MDAX	Mid Cap DAX
NI/S	Net income per share
PHARM	Pharma

PRIME	Prime standard
Prob.	Probability
RET	Return
RETAI	Retail
ROIC	Return on invested capital
SDAX	Small Cap DAX
Sig.	Significance
SOFTW	Software
SP	Share price
TECHN	Technology
TELEC	Telecommunication
TOTASSETS	Total assets
TRANS	Transportation and logistics
UTILI	Utilities
VIF	Variance inflation factor
YR	Year

Chapter I: Introduction

1. Research focus: The role of disclosures in capital markets

The thesis at hand focuses on voluntary disclosures with regard to Corporate Social Responsibility (CSR) and human capital issues as well as on these disclosures' implications for the capital markets.¹ Specifically, the disclosures' determinants as well as their impact on firm value will be the focus of four independent papers, presented in *Chapters II - V*. Hence, this thesis contributes to the discussion about voluntary corporate disclosures with focus on CSR and human capital by helping to identify the reasons and motivations behind those reporting activities, their implications for the capital market as well as their underlying cause-and-effect relations.

Following the traditional view of neo-classical theory, overall economic benefit is maximized when all economic entities are questing for their own maximum profits (ARROW and DEBREU 1954). Since companies are viewed as instruments of the shareholders who own them, their main (and only) objective can be found in creating shareholder value by maximizing the market value of the owners' equity (COPELAND et al. 1994, FRIEDMAN 1962 and 1970, JENSEN 2001, RAPPAPORT 1998). The shareholder value approach is justified by the fact that shareholders are regarded as residual owners. They bear the full economic risk of all corporate activities while other stakeholders are protected by contractual relationships (RAPPAPORT 1998).²

Shareholder value theory implies that management and owner structures are separated from each other: Shareholders (principles) authorize managers (agents) for managing the firms they provide with equity. Hence, both parties operate in an agency relationship (JENSEN and MECKLING 1976). Usually, shareholders are not part of their companies' management board and do not have access to relevant information in the same way as management. As a result, information as well as agency problems might occur (HEALY and PALEPU 2001):

First, the information (or "lemons") problem arises since management has better information about the company's economic constitution than investors. If investors – due to missing information – cannot distinguish between "good" and "bad" investment objects, they value both at an average level. Therefore, they rationally undervalue good firms and overvalue bad firms relative to the available information. This can potentially lead to a misallocation of financial resources, and ultimately, to

¹ CSR refers to a company's social responsibility which goes beyond the requirements of law. It can be divided into an environmental, a social as well as an (long-term) economic perspective (see *Chapters II and III*).

Human capital refers to the achievement potential of the companies' workforce. Specifically, it considers the workforces' qualification, motivation, and commitment (see *Chapters IV and V*).

² Shareholders are entitled only to what is left after employees, suppliers, creditors, and everyone else with legitimate claims are paid their due. If any of these groups go unpaid, shareholders get nothing. In conclusion, if shareholders are winning in the sense that the leftover, residual portion is growing, it can be assumed that everyone else is winning too (ROSS et al. 2008). Against this background, a lot of different conceptions with regard to value-based management are available (e.g. COPELAND et al. 1994, RAPPAPORT 1998, STEWART 1999a).

a breakdown in the functioning of the capital market (AKERLOF 1970, HEALY and PALEPU 2001).

Second, agency problems occur when managers act in a way which is not in the investors' / shareholders' interests. Since shareholders (principles) cannot completely monitor managers' (agents') actions, managers can use the provided equity for making decisions that are harmful to shareholders' interests. The results are agency costs,³ transaction costs as well as possible market inefficiencies (COASE 1937, EISENHARDT 1989, HEALY and PALEPU 2001).

Despite other activities, corporate disclosures are a way to solve the information as well as the agency problem by providing investors with the required information. Specifically, disclosures increase its addressees' level of information by reducing information asymmetries between internal and external parties as well as between informed and uninformed investors (DIAMOND and VERRECCHIA 1991, KIM and VERRECCHIA 1994, HEALY et al. 1999). Accordingly, for firms with high levels of disclosure, investors can be relatively confident that any stock transaction occurs at a "fair price" since all available information should be reflected in firm value (HEALY and PALEPU 2001).

Therefore, corporate disclosures are critical for the functioning of efficient capital markets since share prices are assumed to reflect all publicly available information (FAMA et al. 1969, FAMA 1970 and 1991). By providing investors with the demanded information, information asymmetries, agency as well as transaction costs are reduced while the allocation of (financial) resources is improved (BOTOSAN 1997, BOTOSAN and PLUMLEE 2002, HEALY and PALEPU 2001, LAMBERT et al. 2007).⁴ Thus, according to HEALY and PALEPU (2001), capital markets are characterized by a flow of capital from savers to firms attended by a reversed flow of information from firms to savers. Both flows can be facilitated by financial or information intermediaries (see the chart in Figure 1).

In recent years, a considerable increase in voluntary disclosures has been noted, for example with regard to sustainability issues (e.g. GELB and STRAWSER 2001, GRAY et al. 2001). Today, companies spend a great deal of effort and money on such voluntary disclosures. Based on the theories developed by MODIGLIANI and MILLER (1958), three main goals or motivations for (financial) accounting choices can be identified (FIELDS et al. 2001, HOLTHAUSEN and LEFTWICH 1983, WATTS and ZIMMERMAN 1986): contracting, asset pricing, and influencing external parties. Two

³ According to JENSEN and MECKLING (1976), agency costs consist of monitoring costs, bonding costs as well as a residual loss.

⁴ Listed companies specifically face significant financial disclosure requirements. These requirements vary, depending on the stock exchange / the country where companies are listed.

However, it has to be mentioned that, with complete and perfect markets, there would be no substantive role for corporate disclosures (WATTS and ZIMMERMANN 1979 and 1986, HOLTHAUSEN and LEFTWICH 1983).

of them – influencing external parties and asset pricing – might be appropriate for explaining voluntary disclosure choices:

First, influencing external parties other than actual or potential owners of the firm can be considered as a central motivation for voluntary disclosures (FIELDS et al. 2001). That is, by disclosing information on various items, managers intend to influence the decisions of stakeholders (or at least their attitudes) and to avoid potential regulations – sometimes referred to as political or societal costs (FIELDS et al. 2001, WATTS and ZIMMERMANN 1978). This theory suggests that managers disclose information in order to influence an outcome beneficial for the firm, and thus, to finally increase shareholders' wealth (FIELDS et al. 2001).

Second, the asset pricing category of disclosure choice literature is driven by information asymmetries which might arise when markets do not perfectly aggregate individually held information (FIELDS et al. 2001). In short it says that managers have an incentive for providing voluntary disclosures since firms with high levels of disclosure – and hence low information risks – are likely to have lower costs of capital than firms with low disclosure level and high information risks (BOTOSAN 1997, BOTOSAN and PLUMLEE 2002, HEALY and PALEPU 2001, LAMBERT et al. 2007, SENGUPTA 1998).

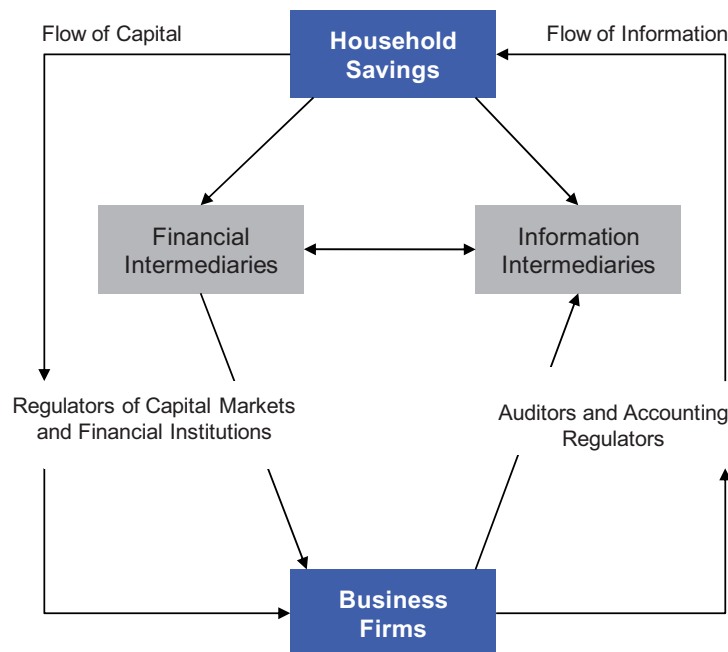


Figure 1: Financial and information flows (HEALY and PALEPU 2001)

The thesis at hand consists of four independent chapters: In *Chapter II*, the reasons why companies “voluntarily” disclose information on their social and environmental performance will be analyzed. In other words, voluntary disclosures’ determinants will be identified by focusing on CSR (or sustainability) disclosures. In *Chapter III*, the implications of these CSR disclosures on the capital market will be considered. Specifically the disclosures’ impact on market value will be verified by testing whether the disclosed information is value-relevant, and thus, reflected in share

price. In *Chapter IV*, a theoretical model will be developed which shows the cause-and-effect relationship between human capital reporting and the companies' financial outcome. Finally, in *Chapter V*, I analyze if voluntarily provided information on the companies' human capital is value-relevant, and thus, has an association with equity market values.

The next sections of this chapter are structured as follows: In *Section 2 (Methodology)* I give a brief overview over the methodology (word-based content analysis) being applied for extracting the disclosed information from corporate reports. *Section 3 (Summary)* contains a short summary of all four chapters included in this thesis. *Section 4 (Conclusion and implications)* presents a short conclusion of the main findings and their implications in the field of voluntary disclosure and accounting choices as well as in the area of management accounting research.

2. Methodology: Content analysis in corporate disclosure research

In the context of this thesis, I am interested in the information (message) transmitted by corporate reports (communication channel) and provided by the sample companies (source) to their stakeholders (receiver; see SHANNON and WEAVER 1998). Similar to previous studies, I use content analysis to quantify the amount of CSR or human capital information in the reports. Content analysis is one of the classical procedures for analyzing textual material. It is an objective, systematic and quantitative description of communication content (KRIPPENDORFF 2004, NEUENDORF 2002). In this thesis, I apply a so-called "third party approach" in which content analysis is carried out by someone who is neither a provider (source) nor a receiver of the report (GRÜNING 2007).

Content analysis is a method of codifying written text into various groups or categories on the basis of selected criteria. It assumes that frequency is an indication of the subject matter's importance (ABDOLMOHAMMADI 2005, GUTHRIE et al. 2004, KRIPPENDORFF 2004). Its objective lies in generating a numerically based summary of a chosen message set (KRIPPENDORFF 2004, NEUENDORF 2002). Previous literature suggests that content analysis provides valid results for corporate reporting research, thus allowing the researcher to evaluate the extent of various items' disclosure (e.g. DEEGAN and GORDON 1996, DÉJEAN and MARTINEZ 2009, GRAY et al. 1995a and 1995b, GUTHRIE et al. 2004, GUTHRIE and FARNETI 2008, GUTHRIE and PARKER 1989, HACKSTON and MILNE 1996).

A key issue in content analysis is the unit of analysis. A unit is an identifiable component of a communication through which variables are measured (HOLSTI 1969, KRIPPENDORFF 2004, NEUENDORF 2002). Depending on the unit of analysis, there are several ways of applying content analysis, for instance, by counting words, sentences or sections, or by reading the whole text (NEUENDORF 2002). Another possibility is

to use advanced software packages to extract information from reports (e.g. CHEN and BOUVAIN 2009, TATE et al. 2010).

I decided to use words as the unit of analysis because the coder is not required to provide subjective judgment. Furthermore, searching for specific terms in the text can be regarded as the most reliable form of content analysis: it always yields the same results in repeated trials, as it can be easily replicated (ABDOLMOHAMMADI 2005, KRIPPENDORFF 2004, NEUENDORF 2002). I used the PDF reader's word count function after manually checking its validity.

3. Summary: content of this thesis

Against the background of voluntary disclosures, four independent papers will be presented in this thesis with regard to the provision of corporate social responsibility and human capital information. In the next sections, a short summary of these four papers will be given together with a brief description of the theoretical background and their main findings.

Chapter II: Determinants of voluntary CSR disclosure

In *Chapter II*, together with KLAUS MÖLLER and FRANK VERBEETEN I focus on the reasons for companies voluntarily disclosing information on their corporate social responsibility (CSR). We rely on the political cost theory (WATTS and ZIMMERMAN 1978) to argue that companies report on CSR for economic reasons: they try to reduce their political costs by providing information on their social and environmental performance.

Due to firm-specific characteristics, companies have to deal with more or less powerful stakeholders and thus face different levels of political and societal costs. By voluntarily disclosing information on their social and environmental performance, companies try to reduce these costs. Consequently, we argue that CSR disclosure is determined by a number of such firm-specific determinants. We identify a number of variables which might act as proxies for high political and societal costs: Company visibility, profitability, shareholder structure and the company's relationship to its US stakeholders. Furthermore, we suppose firm size as well as industry membership to affect voluntary CSR disclosures.

We use a self-constructed coding framework which is based on the guidelines provided by the *Global Reporting Initiative* (GRI) for extracting the disclosed CSR information from German companies' corporate reports by means of word-based content analysis. In doing so, we account for the most important communication channels with regard to CSR information, as, for example, annual reports and CSR reports. Subsequently, we compile four disclosure indexes which are used as

dependent variables in regression analysis, while disclosure's assumed determinants are used as independent variables.

Our results show that CSR disclosure is positively associated with the companies' visibility (see Figure 2). Profitability is associated with more environmental disclosures but not with social disclosures, while shareholder structure determines all aspects of voluntary CSR disclosures: the more dispersed the company's shareholder structure, the more the company discloses information on its social and environmental performance. The companies' relationship to US stakeholders also affects CSR disclosures since companies tend to disclose more information if they deal with stakeholders from the US. Furthermore, our results provide evidence for a significant systematic variation across industries regarding their propensity to make CSR disclosures. In particular, companies from so-called "polluting sectors" provide more information on environmental and social issues. Finally, firm size affects CSR disclosures: The bigger a company, the more information it discloses on its social responsibility (see Figure 2).

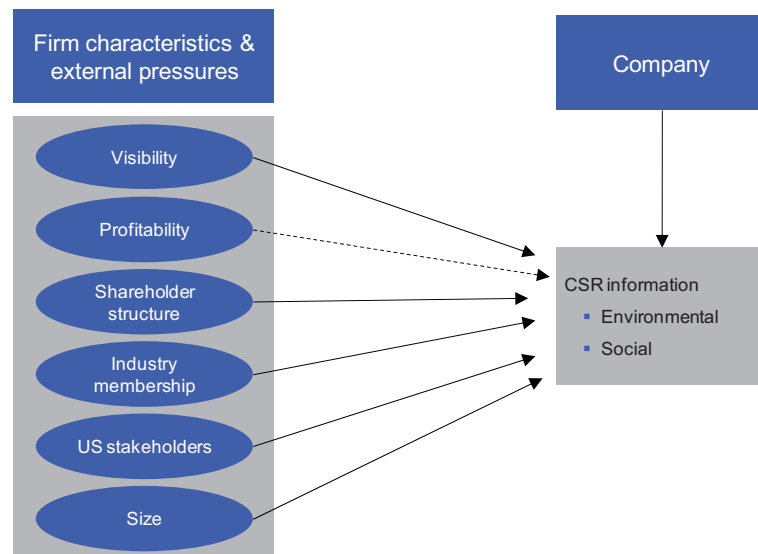


Figure 2: Determinants of CSR disclosure

Our results are consistent with political cost theory, from which we derive our hypotheses. That is, firms appear to disclose CSR information to reduce the likelihood as well as the impact of stakeholders' reactions that may negatively affect the firm's value. Failure to remove information asymmetries regarding CSR issues thus might result in stakeholder reactions that can reduce the firm's value.

Chapter III: Value-relevance of CSR information

In co-authorship with KLAUS MÖLLER and FRANK VERBEETEN, in this chapter I try to identify whether CSR information voluntarily provided by German companies is reflected in firm value, and if so, which specific information is value-relevant.

Even if CSR disclosures are primarily directed to stakeholders others than (potential) owners of the firm, the disclosed information might also be important for equity investors if it is relevant and reliable. Investors might be interested in this information: First, it may provide information on long-term corporate financial performance; second, it may function as a kind of risk management; third, investors might act in an ethical way, and thus, are interested in the disclosed information. Consequently, CSR information might be reflected in firm-value, or, in other words, can be assumed as being value-relevant.

We use a self-constructed coding framework which is based on the guidelines provided by the *Global Reporting Initiative* (GRI) for extracting the disclosed CSR information from German companies' corporate reports by means of word-based content analysis. In doing so, we account for the most important communication channels with regard to CSR information, as, for example, annual reports and CSR reports. By applying two established valuation models, we try to identify the value-relevance of the provided CSR information by using a hand-collected data set consisting of the 130 largest listed German companies.

Our results are in line with our hypotheses: CSR information is value-relevant while the value-relevance of CSR information differs (see Figure 3). Especially the provision of separate CSR reports is positively valued by the capital market. Social information is also positively associated with firm value as well as with changes in firm value. However, we found a negative relationship between the provision of environmental information and market value but a positive association between environmental information and changes in share price.

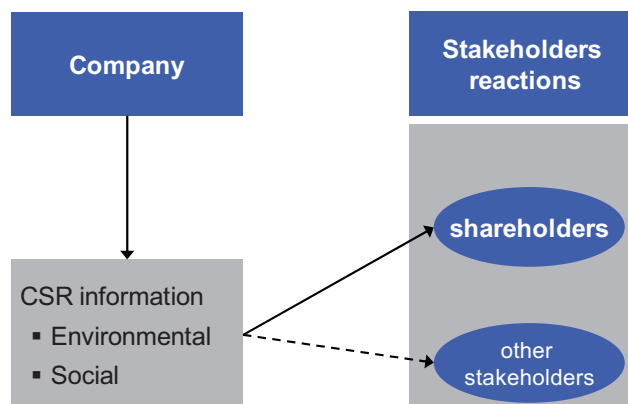


Figure 3: Effects of CSR disclosure

The results of our study support the assumption that CSR disclosures increase their receivers' level of information by reducing information asymmetries between equity

investors (principles) and management (agents) regarding the disclosed CSR issues. Therefore, investors are assumed to factor the disclosed information into decisions whether or not to buy or to sell the corresponding firm's stocks. Thus, from investors' perspective, disclosures might provide insights into the companies' assets or liabilities respectively, depending on the information's nature.

Chapter IV: The positive effects of human capital reporting

In *Chapter IV*, together with KLAUS MÖLLER I develop a theoretical model for visualizing the cause-and-effect relationships of human capital reporting as well as its impact on firm value. Since human capital can be regarded as one of the companies' most important resources, related disclosures might be crucial for internal and external parties. Nevertheless, most companies do not provide meaningful information on this resource.

For highlighting the benefits which might arise from such human capital disclosures, we develop a theoretical model which links a company's human capital with its financial performance. The model assumes a positive relationship between workforce-related factors such as workforce capability or workforce motivation, and company financial performance (see Figure 4). Due to various cause-and-effect relationships, these workforce-related factors positively influence company-internal and company-external factors, which can finally lead to stronger financial performance.

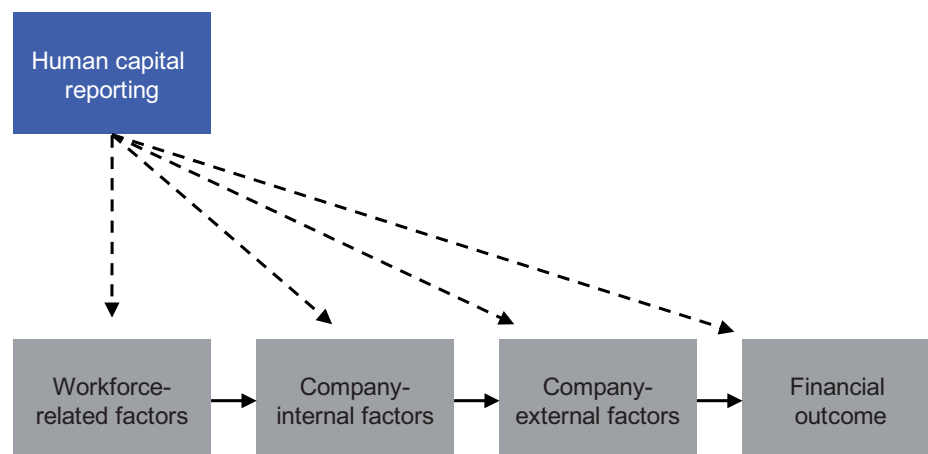


Figure 4: Human capital reporting: causes and effects

The model seeks to show possible positive effects of human capital reporting on financial performance since we assume that such reporting can be used to influence the factors on all of these levels by improving transparency as well as the company's control of its objectives (see again Figure 4). Hence, the benefits of human capital reporting can be directly derived from these workforce-related, internal and external factors by improving them. Therefore, we identify the positive effects which might arise from comprehensive human capital reporting, as, for example,

- increased workforce qualification and motivation,
- enhanced innovation ability and operational performance,
- increased attractiveness and reputation of the company,
- improved financial outcome.

Finally, we derive five hypotheses from our cause-and-effect model which may form the basis for subsequent studies. For example, we expect a positive relationship between human capital disclosures and workforce's capabilities, motivation and commitment, and between human capital disclosures and financial performance measures. In *Chapter V*, I refer to one of these hypotheses (H5) by examining the value-relevance of human capital information.

Chapter V: Value-relevance of human capital information

In *Chapter V*, I focus on the value-relevance of human capital information. That is, I empirically determine whether human capital information voluntarily provided through corporate annual reports is valued by the capital market, and thus, is reflected in the companies' market value.

In recent literature, human capital is mentioned as an important driver behind long-term corporate success. Often, it is referred to as an organization's most important resource. Although companies tend to provide detailed information about their physical and financial assets, most of them do not disclose meaningful information about the value of their human capital. Since information on the companies' workforce is only available to a limited extent, for investors it is not possible to clearly become aware of these companies' value-adding potential. The results are information asymmetries and potential agency as well as transaction costs.

Human capital disclosures can be used to reduce these information asymmetries by providing investors with the demanded information. Since investors are assumed to incorporate the available information in their investment decisions, proactively disclosed human capital information should be reflected in share price, and thus, can be regarded as being value-relevant (see Figure 5).

By means of word-based content analysis, I extract the disclosed human capital information from German companies' reports. I use a self-constructed coding framework which is based on the one provided by ABDOLMOHAMMADI (2005). I focus on corporate annual reports since annual reports can be regarded as the most important instrument for communications between companies and the capital market. By applying two established valuation models, I try to identify the value-relevance of the provided human capital information by using a hand-collected data set consisting of the 130 largest listed German companies.

My results show that human capital information positively affects share price since equity investors incorporate the provided human capital information in their long

term investment decisions. Especially information on qualification / competence issues is positively reflected in firm value. However, my results do not provide any evidence that human capital information causes changes in firm value. That is, human capital information is value-relevant, but not timely.

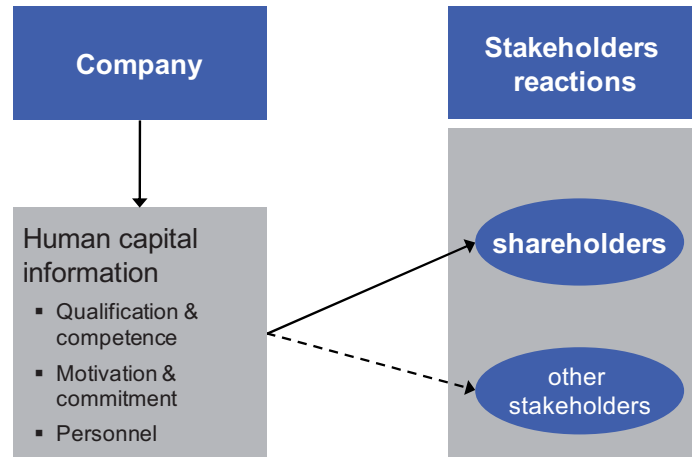


Figure 5: Effects of human capital disclosure

My results support the assumption that investors use human capital information for their investment decisions. Moreover, they regard human capital as an asset and not as a liability – at least in the long-term. In the short-term horizon, other information, for example financial information or macroeconomic developments, might be more relevant for the capital market for evaluating traded stocks (since no influence of human capital information on changes in share price can be detected). This is in line with the assumption that human capital does not directly affect corporate financial performance but takes effect through (long-term) cause-and-effect relations (see *Chapter IV*).

4. Conclusion and implications

The role of disclosures in capital markets can be found in the reduction of information asymmetries arising between shareholders and management as well as between informed and uninformed investors. Accounting theory suggests that voluntary disclosures might be driven by somewhat different (or more extensive) intentions as, for example, ‘influencing external parties’ or ‘asset pricing’ (FIELDS et al. 2001). The thesis at hand contributes to these economic theories dealing with voluntary corporate disclosures, specifically with regard to CSR and human capital issues. As a conclusion of the four papers presented in this thesis, the following three key statements can be made:

First, my thesis provides evidence on voluntary disclosures’ determinants (*Chapter II*). Although only CSR disclosures have been considered, it can be assumed that other disclosures might also be affected by the identified determinants. Especially industry memberships as well as firm size are likely to influence more aspects of

voluntary disclosures than only environmental or social issues. But also the companies' ownership structures, the media attention they receive as well as their relationship to stakeholders from foreign countries seem to influence their willingness to provide additional information. Since I assume that companies disclose information on CSR-related issues for reducing potential political costs, my findings extend the theory surrounding the 'influencing external parties' category of voluntary disclosure choices identified by FIELDS et al. (2001). Therefore, it can be stated that

1. *voluntary disclosures with regard to CSR issues are not more than merely a company's response to external constraints.*

Second, this thesis provides new insights into voluntary disclosures' implications for the capital market. With respect to the disclosure of CSR (*Chapter III*) and human capital information (*Chapter V*), substantial impacts of the provided information on the companies' market value can be identified. Especially information on social issues and information on the workforces' qualification and competence significantly affect equity investors' investment decisions. They regard these disclosures as additional information on the companies' assets, and thus, regard it as relevant and reliable. These findings extend the discussion about the 'asset pricing' category of voluntary disclosure choices mentioned by FIELDS et al. (2001). Hence, it can be stated that

2. *companies solely need to provide positive information on social and human capital issues if they want to improve their valuation at the capital market.*

Third, this thesis introduces a conceptual model that can be used to identify the positive effects which might arise from voluntary information provision on human capital (*Chapter IV*). It describes how a company can improve its financial performance by help of such reporting activities. Since the model visualizes the underlying cause-and-effect relations of human capital and its related disclosures, it can form the basis for performance management systems and instruments which focus on this resource. Therefore, it can be stated that, by identifying these human capital-related levers of control,

3. *companies might be able to improve their human capital as well as – ultimately – their financial outcome by internally and externally reporting on this resource.*

This thesis contributes to literature and theory in two main areas: In the field of accounting research, my thesis extends the discussion about voluntary disclosure choices (FIELDS et al. 2001). First, voluntary disclosures – at least disclosures on CSR and human capital issues – help to reduce information asymmetries which arise when individually held information is not perfectly aggregated by capital market participants. My results support this assumption with regard to the 'asset pricing' category since firms with high disclosure levels seem to have lower costs of capital as their shares are – on average – higher valued by the capital market. Second, by

providing CSR information, companies try to influence the decisions of external stakeholders and to avoid potential regulations by politicians or harmful actions by other pressure groups ('influencing external parties' category mentioned by FIELDS et al. 2001). Thus, my findings support both views on voluntary disclosure choices.

In the field of management accounting research, this thesis helps to identify the relevant information voluntary disclosures have to provide to its addressees for reducing information asymmetries between internal and external parties as well as between informed and uninformed investors. Hence, information which has been identified as being value-relevant, such as information on the workforces' qualification and competence, is likely to reduce information asymmetries and to lower costs of capital, thus enabling an improved allocation of financial resources. The explanation for this information's relevance is given by the cause-and-effect model introduced in *Chapter IV*. Furthermore, this thesis helps to identify relevant stakeholder groups, especially with regard to CSR issues. The identification of CSR disclosures' determinants allows inferences to the corresponding stakeholder groups and their specific concerns such as the consideration of environmental or human rights issues in the companies' value-adding processes. Internal performance measurement and management systems as well as external reporting instruments have to be adjusted to these stakeholders' concerns, which have to be represented by corresponding key performance indicators (KPIs).

Finally, this thesis contributes to practice in at least four ways: First, my thesis contributes to the discussion on corporate social responsibility by helping to discover what it really is: a company's response to specific external constraints. Although assuming that companies are aware of their social responsibility and thus disclosing CSR information is a (nice and) desirable estimation, however, it seems to be rather unlikely. By looking at companies in practice it seems to be more likely that they disclose CSR information solely due to economic considerations. Second, companies should be aware that voluntary disclosures – especially with regard to social and human capital issues – can be used to increase firm value since this information will be positively valued by capital market participants. Therefore, companies should make use of such voluntary disclosures, and thus creating 'additional' shareholder value. However, they should also be aware that there is a 'grain of truth' in the disclosed information. Otherwise it would appear as not authentic, and thus harmful for the company. Third, my thesis helps to understand the underlying effects of human capital reporting, and thus enables designing performance management systems with focus on human capital. Finally, and consistent with previous literature, my results show that the amount of voluntary disclosure is increasing (see also Figure 13 - Figure 24 in the appendix). This should especially be recognized and considered by investors as well as by companies with low disclosure levels, such as companies from the financial services and media industries. Perhaps, companies from these sectors have to rethink and adjust their disclosure behavior to this new 'state-of-the-art'.

Chapter II: Determinants of voluntary CSR disclosure⁵

⁵ This chapter has been written together with KLAUS MÖLLER (*Professor for Performance Management/Controlling, Institute of Accounting, Control and Auditing, University of St. Gallen, Switzerland*) and FRANK VERBEETEN (*Rotterdam School of Management, Department of Accounting and Control, Erasmus University Rotterdam, The Netherlands*). The chapter has been published in the *Review of Managerial Science* with open access at *Springerlink.com* (please cite as: GAMERSCHLAG, R., MÖLLER, K., VERBEETEN, F. (2010), Determinants of voluntary CSR disclosure: empirical evidence from Germany, in: *Review of Managerial Science*, doi: 10.1007/s11846-010-0052-3).

1. Introduction

Corporate social responsibility (CSR) refers to a company's voluntary contribution to sustainable development which goes beyond legal requirements. During the last years, we have seen an increase in CSR (media) campaigns and in corresponding disclosure activities. Today, large companies specifically spend a great deal of effort and money on disclosing information on their social and environmental performance.

From an economic perspective, companies should only undertake actions that reduce costs or enhance benefits; that is, only disclosures that reduce costs or increase revenues are desirable. We argue that due to firm-specific characteristics, companies have to deal with either more or less powerful stakeholders and thus face different levels of political and societal costs. By voluntarily disclosing information on their social and environmental performance, companies try to reduce these costs. Consequently, we argue that CSR disclosure is determined by a number of such firm-specific determinants acting as proxies for political and societal costs. In this chapter, we try to identify the determinants that induce companies to disclose CSR information.⁶

To test our hypotheses, we construct a CSR disclosure index based on the *Global Reporting Initiative* (GRI) guidelines. The GRI provides a framework of the societal and environmental issues that should be disclosed in corporate reports. We use a hand-collected set of specific CSR data (extracted from the reports by means of content analysis), as well as 130 listed German companies' underlying firm-specific characteristics (470 firm-year observations). Our results are mostly consistent with our hypotheses: a company's visibility, its shareholder structure, and its relationship with US stakeholders affect CSR disclosure. In addition, profitability affects environmental disclosure, a specific category within the CSR disclosures.

Our study contributes to a greater understanding of the variation in companies' CSR disclosures. First, we provide evidence of CSR disclosures in Germany, which is an interesting setting as companies are not required to disclose CSR information. Therefore, the provision of CSR information is voluntary and not bound by regulation. Other European countries (e.g., the UK, France, and the Netherlands) have more specific guidelines or requirements for the provision of CSR information (KOLK et al. 2001). These differences in regulatory environments may have affected the results of previous studies focusing on a European level (e.g. KOLK 2005, KOLK et al. 2001, MAIGNAN and RALSTON 2002, MEEK et al. 1995).

Furthermore, while former studies have often focused on either annual reports (CORMIER and GORDON 2001) or on specific CSR reports (TATE et al. 2010), we focus on the various reports that companies could use to disclose CSR information. This includes the annual report (which is mandatory), but also voluntary CSR

⁶ Note that we only focus on disclosures, not on a company's overall CSR performance. Companies' social and/or environmental performances may be bad, but they make abundant CSR disclosures.

reports, as well as other specific reports (e.g., environmental, social, and human capital reports). Additionally, prior studies have often not considered all aspects of CSR, but have focused on either environmental or social disclosures (BEWLEY and LI 2000, DEEGAN and GORDON 1996, DÉJEAN and MARTINEZ 2009, HUANG and KUNG 2010, LYNCH 2009). Those studies that take both perspectives into consideration (e.g. GUTHRIE and FARNETI 2008) have mostly applied one-dimensional measures (e.g. the number of pages with CSR information in relation to the total number of report pages). Such measures don't account for the different CSR facets. In this study, we consider both CSR disclosure dimensions by dividing the provided information into an environmental and a social perspective, as well as an overall measure for CSR disclosure. Finally, we extend the set of CSR disclosure determinants by including factors like the shareholder structure, the company's visibility, its industry membership, and its relationship with its US stakeholders.

The chapter is structured as follows: in the next section, we will review the relevant theory and derive the hypotheses to be tested. Section 3 contains the study design and the methodology. Section 4 presents our results together with a discussion and interpretation of these. The study concludes with a summary, a description of its limitations, and an outlook on further research.

2. Theory and hypotheses development

2.1. Theoretical perspectives on CSR disclosure

Corporate Social Responsibility (CSR) can be defined as a company's voluntary contribution to sustainable development which goes beyond legal requirements (BOWEN 1953, CARROLL 1999 and 2006, CRANE and MATTEN 2007, DE BAKKER et al. 2005). Under the current⁷ "profit-maximizing CSR perspective," firms have to consider the social and environmental costs and benefits to maximize their value (BOWEN 1953, CALLENS and TYTECA 1999, DRUCKER 1984, GLADWIN et al. 1995, MCWILLIAMS and SIEGEL 2001). That is, companies are assumed to be socially responsible because they anticipate benefiting from these actions. Examples of such benefits might include the ability to charge a premium price for its output or the use of CSR to recruit and retain high quality workers. These benefits are presumed to

⁷ Historically, economists have developed two contrary approaches to CSR. On the one hand, there is neo-classical economics' traditional perspective: a company's main objective is to maximize the shareholder value. Hence, companies should only undertake actions which either increase profits or decrease costs, while adhering to all legal principles and protecting its integrity (FRIEDMAN 1962 and 2007, HUSTED and SALZAR 2006, RAPPAPORT 1998). The neo-classical economics' traditional perspective has mostly disparaged CSR (AUPPERLE et al. 1985, FRIEDMAN 2007). On the other hand, the stakeholder approach constitutes the theoretical basis of most arguments supporting CSR. It argues that companies should try to fulfill all stakeholders' demands, which – at least in the long term – results in higher economic profits (DONALDSON and PRESTON 1995, FREEMAN 1984, FROOMAN 1999).

offset the higher costs associated with CSR, since resources must be allocated to allow the firm to achieve a higher CSR status (SIEGEL and VITALIANO 2007).

The growing CSR awareness is also reflected in the increasing number of CSR and sustainability reports, as well as in the provision of CSR-related information (e.g. through advertising; GRAY et al. 2001, KOLK 2005). CSR disclosure can be defined as the information that a company discloses about its environmental impact and its relationship with its stakeholders by means of relevant communication channels (CAMPBELL 2004, GRAY et al. 2001).

Many different theoretical attempts have been made to explain why companies voluntarily disclose CSR information (DOWLING and PFEFFER 1975, GRAY et al. 1995a, GUTHRIE and PARKER 1989, PATTEN 1991). We rely on political cost theory to develop our hypotheses. The political cost theory suggests that managers are concerned with political considerations, including preventing explicit or implicit taxes, or other regulatory actions (HEALY and PALEPU 2001, JENSEN and MECKLING 1978, WATTS and ZIMMERMAN 1978). In addition to politicians, non-governmental interest groups and other stakeholders increasingly try to influence companies' actions to favor their specific interests. They thus have the power to affect wealth transfers between the company and other stakeholders. Our assumption is that by disclosing information on their social and environmental performance, firms want to minimize the (potential) costs arising from the interaction between the firm and its natural and societal environment – referred to as political or societal costs (FIELDS et al. 2001).

Companies can employ a number of methods to reduce the likelihood of adverse political or societal actions and the resulting costs (WATTS and ZIMMERMANN 1978). One of them is to disclose CSR information, as this allows the firm to generate moral capital that, for example, can temper punitive sanctions in the case of a negative event (BLACCONIERE and PATTEN 1994, GODFREY 2005). Empirical evidence seems to confirm this notion. For instance, LYON and MAXWELL (2006 and 2007) find that firms with poor reputations disclose fully, while firms with excellent reputations disclose nothing, as they gain little by disclosing successes since they are expected to succeed.

We argue that – due to their specific characteristics – companies face different intensities of external pressures as a function of their stakeholders' particular levels of power, legitimacy, and urgency (AGLE et al. 1999, MITCHELL et al. 1997). Consequently, companies deal with different political costs and benefits. Therefore, we argue that the answer to the question why firms disclose CSR information is quite simple: because it is in their (economic) interest. A company is hypothesized to engage in CSR if it anticipates that the benefits will be greater than the costs (SIEGEL and VITALIANO 2007), and any decision to voluntarily disclose information on CSR issues results from these trade-offs between the expected costs and benefits (DYE 1985, VERRECCHIA 1983).

Different firm-specific characteristics act as a proxy for the degree of stakeholder pressure that companies face. We argue that these firm characteristics determine whether CSR disclosure occurs or not.⁸ Other attempts to explain voluntary CSR disclosures have also suggested that firm characteristics are important determinants of disclosure activities (CORMIER and GORDON 2001, MEEK et al. 1995). Empirical studies have used a wide range of measures that, for example, include industry membership, the number of shareholders, and press coverage (MILNE 2002). We utilize a broader range of factors which, in previous (theoretical) literature, has been identified as potential determinants of voluntary disclosure decisions: company visibility, profitability, the shareholder structure, and the company's relationship with its US stakeholders. In addition, we control for the effects of industry membership and firm size. On the basis of these determinants, we develop four hypotheses, which will form the foundation of our further analysis in the following sections.

2.2. Hypotheses development

Company visibility

Some companies are more visible to the public than others. Their degree of visibility depends, amongst others, on the quantity of their (business) press coverage. Companies constantly in the media spotlight are especially susceptible to political actions, since they attract more attention from stakeholders than less visible companies (DEEGAN and CARROL 1993, POWELL 1991). These stakeholders (including pressure groups) are interested in these companies' activities and try to influence them. Consequently, visible companies are more affected by social constraints and pressures than companies which are less visible to the public (BELKAOUI and KARPIK 1989, BRAMMER and MILLINGTON 2006, HOLTHAUSEN and LEFTWICH 1983). That is, they are potentially subject to higher political or societal costs as a result of their exposed position in the public. Thus, highly visible companies are assumed to disclose more CSR-related information to reduce potential political costs than less visible companies (BELKAOUI and KARPIK 1989). Based on previous reasoning, we assert that

H1: *CSR disclosure is positively associated with company visibility.*

Profitability

Profitable firms could face higher social constraints and public exposure than less profitable firms (HOLTHAUSEN and LEFTWICH 1983, WATTS and ZIMMERMANN 1978 and 1990). They are more affected by potential political costs, especially if they

⁸ Firm size, for instance, has often been mentioned as a central indicator of the amount of political or societal costs but was found to act as a proxy for more than just political costs (BALL and FOSTER 1982, MILNE 2002).

appear “overly” profitable (FIELDS et al. 2001, HAN and WANG 1998). As a result, profitable companies may have to explain that they operate within the (explicit or implicit) norms of society, as they will find it costly to be associated with actions that breach society’s expectations (ISLAM and DEEGAN 2010). Therefore, profitable companies could be more interested in explaining – via CSR disclosure – how they “produce” their profitability than less profitable companies (BEWLEY and LI 2000). In addition, profits provide managers with resources from which the costs of disclosures are funded (BRAMMER and PAVELIN 2006).⁹ On the basis of the previous arguments, we propose that

H2: *CSR disclosure is positively associated with profitability.*

Shareholder structure

The potential for conflicts between owners (principals) and managers (agents) is greater in companies where shares are widely distributed rather than in more closely held companies. The reason is twofold: when ownership is dispersed, shareholders have little direct authority over managers and must therefore monitor their activities (BRAMMER and PAVELIN 2006); in addition, communication between relevant parties is hindered (FAMA and JENSEN 1983). Consequently, voluntary disclosures are likely to be greater in widely held firms, allowing the principals to effectively monitor that their economic interests are optimized, while agents can signal that they act in the owners’ best interests (CHAU and GRAY 2002, FAMA and JENSEN 1983). Moreover, companies with few big shareholders (e.g., family-owned firms) have little motivation to disclose information, especially in excess of mandatory requirements, because the demand for public disclosure is relatively weak (CHAU and GRAY 2002). Furthermore, large shareholders normally obtain information in other ways than through company reports. They often have direct access to the management board, which results in lower information asymmetry between them and the managers (CHEN et al. 2008). On the other hand, disclosure activities are usually directed at a large, dispersed group of relatively small shareholders. Finally, public accountability may become more important, because there is a greater trend towards widely dispersed companies held by the public at large (GHAZALI 2007). A higher level of public accountability may necessitate additional involvement in social or community activities and, hence, disclosure of these activities. This suggests that companies with a big group of small shareholders are likely to provide more CSR-related information in their reports to reduce the potential political costs. Based on the previous review, we posit that

⁹ Alternatively, profitability could also indicate that the company might not care about social and environmental aspects. In other words, the company’s profitability is achieved through the exploitation of its workforce or the environment. This could lead to profitable companies disclosing less information on their “CSR performance” than less profitable companies. However, it is unlikely that this argument is viable in the long run.

H3: *CSR disclosure is positively associated with more dispersed share ownership structures.*

Relationship with US stakeholders

Societies have developed different political, financial, and cultural systems reflecting their institutions, ethics, and social relations (WHITLEY 1999). That is, stakeholder identities and interests vary cross-nationally. Accordingly, political costs are likely to vary across nations, given that they reflect cultural and social norms (MEEK et al. 1995). MATTEN and MOON (2008) argue that in liberal market economies, for example in the US, disclosure of CSR activities is more common than in Scandinavian and Continental European countries. For instance, in the US there is greater scope for corporate discretion, since government is less powerful than in most European countries and European governments have generally been more engaged in economic and social activities (LIJPHART 1984, MATTEN and MOON 2008). Consequently, the US system leaves more incentives and opportunities for companies to assume comparatively explicit responsibility.

Against this background, MATTEN and MOON (2008) mention explicit CSR in the US and implicit CSR in Europe. Explicit CSR refers to corporate policies that convey responsibility for certain societal interests; this responsibility normally consists of companies' voluntary programs and strategies that combine social and business value, and address issues perceived as part of the company's social responsibility. Implicit CSR, on the other hand, refers to companies' role within the wider formal and informal institutions to address society's interests and concerns. Implicit CSR normally consists of values, norms, and rules that result in companies being (mandatorily and customarily) required to address stakeholder issues and that define corporate actors' appropriate obligations in collective rather than individual terms. MATTEN and MOON (2008) argue that US corporations tend to provide more CSR information, as this provides them with the opportunity to distinguish themselves from their competitors. Such an explicit CSR disclosure is the result of a corporation's deliberate, voluntary, and often strategic decision. On the other hand, Continental European firms operate in an environment in which CSR is not seen as a voluntary and deliberate corporate decision but as a reaction to, or a reflection of, a corporation's institutional environment (MATTEN and MOON 2008).

Differences in the CSR environment are likely to affect voluntary CSR disclosures, since, at the very least, cultural aspects influence the issues which companies select as worthy of disclosure (KOLK et al. 2001, LANGLOIS and SCHLEGELMILCH 1990, MATTEN and MOON 2008). Specifically, we argue that organizational practices (in our case, voluntary CSR disclosures) change when companies start operating and financing (part of) their organization in a different institutional environment (MATTEN and MOON 2008). Empirical evidence supports this notion; for example, BANCEL and MITTOO (2001) find that European companies disclose more information when they are cross-listed on a US stock exchange, suggesting that

disclosure levels change when companies move into different institutional environments. Since CSR disclosures tend to be more pervasive in the US,¹⁰ we hypothesize that companies provide more CSR information when they deal with US stakeholders:

H4: *CSR disclosure is positively associated with a company's relationship with its US stakeholders.*

2.3. Control variables

Stakeholder pressures, as well as the resulting political costs are influenced by the industry to which a company belongs (BRAMMER and MILLINGTON 2006, VERRECCHIA 1983). For instance, companies with a high environmental impact receive more attention from environmental lobby groups; these groups try to influence politicians and the general public to impose costs on those firms with poor environmental performance. Consequently, these firms have more incentives to disclose CSR information in general and environmental information in particular to reduce the impending costs (DEEGAN and GORDON 1996). For instance, chemical companies are likely to be more sensitive about disclosures to the public than companies in most other industries (MEEK et al. 1995). Previous literature confirms that industry membership is associated with corporate disclosures (COWEN et al. 1987, DEEGAN and GORDON 1996, HOLDER-WEBB et al. 2008, MEEK et al. 1995, OVERFELT et al. 2010, PATTEN 1991). Consequently, we use industry membership as a control variable.

Firm size is our second control variable. Large firms tend to be more visible to the public and tend to be subject to greater political and regulatory pressures from external interest groups (GODFREY et al. 2009, MEEK et al. 1995, ROBERTS 1992, WATTS and ZIMMERMANN 1978, 1986 and 1990). To reduce these (potential) political costs, large firms disclose more information to demonstrate that their actions are legitimate and consistent with good corporate citizenship (BRAMMER and PAVELIN 2006). Furthermore, larger organizations are more likely to use formal channels of communication (e.g., annual reports or other corporate documentation) to disseminate CSR information (BRAMMER and PAVELIN 2006). Previous empirical studies confirm the association between firm size and the level of CSR disclosures (e.g. CHO et al. 2009, CORMIER and GORDON 2001, COWEN et al. 1987, DEEGAN and GORDON 1996, DOWLING and PFEFFER 1975, GRAY et al. 1995a, HOLDER-WEBB et

¹⁰ Note that there are also considerable differences with regard to the required disclosures across European countries. For example, in the Netherlands, more than 200 firms with a significant environmental impact are required to publish environmental reports. This legal obligation strongly influences disclosure levels, since the relevant companies disclose much more CSR information than their counterparts (KOLK et al. 2001). However, firms in our sample are not required to disclose information; therefore, we expect that those with a US listing will tend to provide more CSR information to comply with customary US disclosure patterns.

al. 2008, MEEK et al. 1995, PATTEN 1991, ROBERTS 1992). Finally, we use year dummies to control for time effects.

3. Design of the study and methodology

3.1. Sample construction

Our analysis focuses on Germany for two reasons: comparability (i.e. exclusion of institutional differences between countries) and the voluntary disclosure environment. As pointed out earlier, CSR and, thus, CSR disclosure differ between countries (MATTEN and MOON 2008, VAN DER LAAN-SMITH et al. 2005). To generate a homogenous dataset, we decided to concentrate on corporations with an identical political and societal background – thus on companies from the same country. We chose Germany as it has no official regulation on how to report on social and environmental aspects. Therefore, CSR disclosure is completely voluntary.

We focus on the German DAX, MDAX, and SDAX. These three indexes include the 130 largest listed German companies. Our sample focuses on the index composition as at the end of 2008. We consider four reporting periods¹¹ between 2005 and 2008; this results in 520 firm-year observations. We only consider reports provided in English (all companies in the sample provide their reports in English as well as in German). Since some companies' reports are not available for all the years (for instance, if a company entered one of the indices after 2006), our sample was reduced by 35 observations. Furthermore, we lost 15 observations due to other missing information, for example, on the shareholder structure. Our final dataset consists of a total of 470 firm-year observations.

3.2. Identification of keywords

As pointed out in *Chapter I*, we used word-based content analysis to quantify the amount of CSR information in the reports. In line with previous research (GUTHRIE et al. 2008, GUTHRIE AND FARNETI 2008, HOLDER-WEBB et al. 2008), we derived the keywords for our content analysis from the framework of the GLOBAL REPORTING INITIATIVE (*GRI*). Although it is not free from criticism, the *GRI* is regarded as the most relevant institution in the context of CSR disclosure (MONEVA et al. 2006) and is often referred to as the global standard. Owing to the voluntary nature of the guidelines, organizations have the flexibility to decide what information to disclose. The *GRI* guidelines cover all aspects of CSR, as they consider an economic, environmental, and a social perspective. Since companies are obliged to disclose

¹¹ The SDAX's composition changes very frequently, as companies continuously enter or leave the index. Considering more than four reporting periods in our analysis would therefore have disproportionately shortened the number of observations in the sample.

financial and, thus, economic information, we only incorporate the environmental and social perspectives in our coding framework.

The *GRI* guidelines provide indicators of all three CSR perspectives. These indicators can be split into core indicators and additional ones. Core indicators are of interest to most stakeholders, and are therefore relevant for most companies, while additional indicators are only of interest to some stakeholders and companies (GRI 2010). We derived the keywords for our analysis from the core indicators by defining one or more keywords for every indicator, thus considering the singular and plural forms (“equal opportunity” / “equal opportunities”), as well as British and American English (“labour” / “labor”). By having derived the keywords from a well-grounded framework like the *GRI* guidelines, we improve the results’ validity, as the guidelines can be assumed to reflect CSR’s “real meaning.” As shown in Table 1, we finally obtain a total number of 32 keywords.

Keywords	
Environmental	Social
Recycled	Employment
Energy consumption	Employee turnover
Biodiversity	Collective bargaining
Emissions	Collective agreements
Effluents	Occupational health
Waste	Occupational safety
Spills	Training
Environmental impacts	Diversity
	Equal opportunities
	Human rights
	Discrimination
	Freedom of association
	Child labor
	Forced labor
	Compulsory labor
	Community
	Corruption
	Public policy
	Compliance
	Fines
	Sanctions
	Product responsibility
	Customer health
	Customer safety

Table 1: Keywords for the content analysis derived from the *GRI* framework

3.3. Medium of analysis (communication channel)

We focus on reports provided proactively on the companies’ website. In general, there are different ways of disclosing information on CSR. First, companies may integrate CSR-related aspects into their annual/financial reports by enhancing these reports. Second, companies may provide special/separate CSR or sustainability reports (in addition to their annual reports). Companies may also provide information on CSR-related issues through various corporate reports, for example, through separate financial, environmental, social, and human capital reports. Finally, companies may use other media, for example, press releases, to disclose CSR-related information. In this analysis, we concentrate on the first three possibilities, thus taking the most important communication channels for CSR disclosure into account.

3.4. Dependent variables: CSR disclosure

Our first variable of interest is whether companies provide a separate CSR report (denoted CSRR), as it can be assumed that companies disclose more CSR information if they provide special CSR reports. CSRR is a dummy variable that indicates whether or not a separate CSR report is provided in the corresponding year ('1' indicates a separate report, '0' otherwise). We derived the other three variables from the reports provided by the sample companies. We compiled three variables extracted from the provided reports¹² by using content analysis based on the defined keywords:

$$CSRTOT = CSRENV + CSRSOC$$

where CSRTOT is the total quantity of CSR disclosure, CSRENV is the amount of environmental disclosure, and CSRSOC the amount of social disclosure (i.e. the total number of keywords found in the analyzed reports). The three variables are identified for each of the companies by a summary of all the relevant reports' results in a specific year. For example: if a company provides an annual as well as a CSR report in a year, we summarize the content analysis results for both reports to achieve the total disclosure indexes for each company. Thus, the indexes reflect the number of hits when searching for all keywords in each category.

3.5. Independent variables: Determinants and control variables

Company visibility (VISIBILITY) is closely related to the media attention a company receives. We measure visibility by counting the number of hits when searching for the companies' names¹³ on the *Handelsblatt* newspaper's website (HANDELSBLATT 2009). The *Handelsblatt* is the most important German newspaper in terms of business press with the highest impact due to its national coverage and its importance for investment communities.¹⁴

Profitability is measured by the ratio "return on invested capital" (ROIC) provided by THOMSON ONE BANKER (2009).¹⁵ We use the freefloat in percentage of common shares (FREEFLOAT) as a measure for the companies' dispersion regarding its share ownership structure. This information was taken from the website of DEUTSCHE

¹² In total, we analyzed 592 documents with a total of 88,469 report pages.

¹³ We used the companies' names as provided on the DEUTSCHE BOERSE AG website (DEUTSCHE BOERSE 2010).

¹⁴ To validate the VISIBILITY measure, we repeated the previously described analysis in respect of the *Financial Times Deutschland* and the *Wall Street Journal*. The correlation analysis indicates that the three visibility measures are closely correlated, adding to our measure's validity.

¹⁵ According to THOMSON ONE BANKER (2010), ROIC is calculated as follows: $ROIC = (\text{Net Income before Preferred Dividends} + \text{Interest Expense on Debt} - \text{Interest Capitalized}) / ((\text{Last Year's Total Capital} + \text{Last Year's Short Term Debt} \& \text{ Current Portion of Long Term Debt}) + (\text{Current Year's Total Capital} + \text{Current Year's Short Term Debt} \& \text{ Current Portion of Long Term Debt})/2) * 100$.

BOERSE (2010). We use the listing at a US stock exchange as an indicator of the companies' relationship with their US stakeholders¹⁶; a '1' indicates that the corresponding company is listed at a US stock exchange and '0' that it is not (USLISTED). We obtained this information from the companies' websites or by directly contacting the relevant company.

We used the classification provided by DEUTSCHE BOERSE (2010) to classify the sample companies into 18 industries (see Table 16 in the Appendix); dummy variables are used to distinguish between industries. We employ two measures for the companies' size, as we expect them to affect the disclosure activities in the different CSR categories: the number of employees (EMPLOYEES) and the amount of total assets (TOTASSETS). The number of employees in each year and company is available on the DEUTSCHE BOERSE AG website (DEUTSCHE BOERSE 2010); We assume that this measure is likely to be associated with social disclosures. The amount of total assets is available from THOMSON ONE BANKER (2009); as total assets may be a proxy for environmental impact, it is likely that this measure is associated with environmental disclosures.¹⁷ Table 2 offers a summary of the data sources, the dependent and independent variables, and abbreviations.

Variable	Measure		Source
	Abbreviation	Explanation	
Provision of separate CSR reports	CSRR	Provided reports (1 / 0), dependent	Downloaded from the companies website
Total disclosure index	CSRTOT	Content analysis, dependent	Provided reports
Environmental disclosure index	CSRENV	Content analysis, dependent	Provided reports
Social disclosure index	CSRSOC	Content analysis, dependent	Provided reports
Industry classification		1 / 0, independent	DEUTSCHE BOERSE (www.boerse-frankfurt.com)
Company's size	EMPLOYEES	Number of employees, independent	DEUTSCHE BOERSE (www.boerse-frankfurt.com)
	TOTASSETS	Total assets, independent	Thomson One Banker
Visibility	VISIBILITY	Hits when searching for the company's name, independent	HANDELSBLATT (www.handelsblatt.com)
Profitability	ROIC	Return on invested capital, independent	Thomson One Banker (http://banker.thomsonib.com/)
Shareholder structure	FREEFLOAT	Freefloat in percentage of shares, independent	DEUTSCHE BOERSE (www.boerse-frankfurt.com)
Relationship to US stakeholders	USLISTED	Listing at US stock exchange (1 / 0), independent	From the companies' websites

Table 2: Source of data

3.6. Regression analysis

We use a Probit estimation for models that have CSRR as a dependent variable. This provides a consistent estimation of the probability that the binary dependent variable will have a value of one (i.e. that the firm provides a CSR report) contingent upon the independent variables. We use ordinary least squares regressions for models that have CSR disclosure levels as dependent variables (CSRTOT, CSRENV and CSRSOC). We estimate our models as described below:

$$CSRR = f(VISIBILITY; ROIC; FREEFLOAT; USLISTING; IND; SIZE; YR)$$

¹⁶ Alternatively, we could have used sales in the US as a proxy. We decided to use US stock listing as the literature (e.g., BANCEL and MITTOO 2001) suggests that foreign listings are key for increasing visibility, prestige and image in other markets, for growth of the shareholder base / appeal to foreign investors, and for implementing a global strategy. Thus, we consider the US listing as a proxy for US stakeholders' involvement.

¹⁷ Companies with high total assets are generally from the manufacturing and energy supplying industry.

respectively

$$\text{CSRDISC} = f(\text{VISIBILITY}; \text{ROIC}; \text{FREEFLOAT}; \text{USLISTING}; \text{IND}; \text{SIZE}; \text{YR})$$

where CSRR is a CSR report variable ('1' if the company produces a CSR report, '0' otherwise); CSRDISC is a CSR disclosure index extracted by means of content analysis (for respectively CSRTOT, total amount of disclosure; CSRENV, total amount of environmental disclosures; and CSRSOC, total amount of social disclosures); VISIBILITY is the Number of hits found for the companies' names at *www.handelsblatt.com*; ROIC represents profitability measured by return on invested capital; FREEFLOAT measures the shareholder structure by percentage of common shares in the freefloat; USLISTING is a measure for the companies' relationship with US stakeholders (measured by means of the US listing, yes or no); IND represent industry dummies for 18 industries respectively ('BANKS' is the benchmark); SIZE means firm size, measured by the number of employees or by the amount of total assets respectively; YR represents year dummies for 2007-2009 respectively (2006 is the benchmark).

4. Results and discussion

4.1. Descriptive statistics and correlations

Table 3 indicates that the dispersion of most variables is on an acceptable level. To reduce skewness and kurtosis, we take the log of the variables EMPLOYEES and TOTASSETS (labeled 'logEMPL' and 'logTA').

	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
CSRTOT	484	9	637	129	148.57	1.95	0.11	3.13	0.22
CSRENV	484	0	271	59	68.93	1.59	0.11	1.82	0.22
CSRSOC	484	5	376	68	85.87	2.24	0.11	4.37	0.22
VISIBILITY	484	42	57916	7317	15708.19	2.60	0.11	5.24	0.22
ROIC	482	-13.21	40.62	10.49	9.98	0.58	0.11	1.62	0.22
FREEFLOAT	476	0.05	1	0.65	0.27	-0.24	0.11	-1.06	0.22
TOTASSETS (Scale = 1 Mio.)	483	178.21	262215	24706.36	57202.00	2.99	0.11	8.31	0.22
logTA	483	2.25	5.42	3.53	0.85	0.64	0.11	-0.45	0.22
EMPLOYEES	484	46	324875	36580	69008.17	2.93	0.11	8.40	0.22
logEMPL	484	1.66	5.51	3.89	0.88	-0.40	0.11	-0.02	0.22
Valid N	470								

Table 3: Descriptive statistics after truncation at the 2.5 level

The results of our content analysis show that the amount of CSR disclosure is increasing over time (see Figure 6). The number of CSR reports that the companies in our sample provide (CSRR) increased from 14 in 2006 to 26 in 2009. The total disclosure index (CSRTOT) increased from 10,050 hits in 2006 to more than 21,650 hits in 2009.¹⁸ This development is displayed in Figure 6, which also divides the total disclosure index into social and environmental disclosures.¹⁹ Our findings are

¹⁸ Over the same period, the average number of pages in the analyzed reports increased from 160 in 2006 to 204 in 2009 (per company-year observation).

¹⁹ For more descriptive results of the content analysis see Figure 13 - Figure 19 in the appendix.

consistent with most other studies on CSR disclosure (e.g. GRAY et al. 2001, KOLK 2005, MATTEN and MOON 2008). They suggest that (German) companies are increasingly becoming aware of CSR disclosures' positive effects on their political costs.

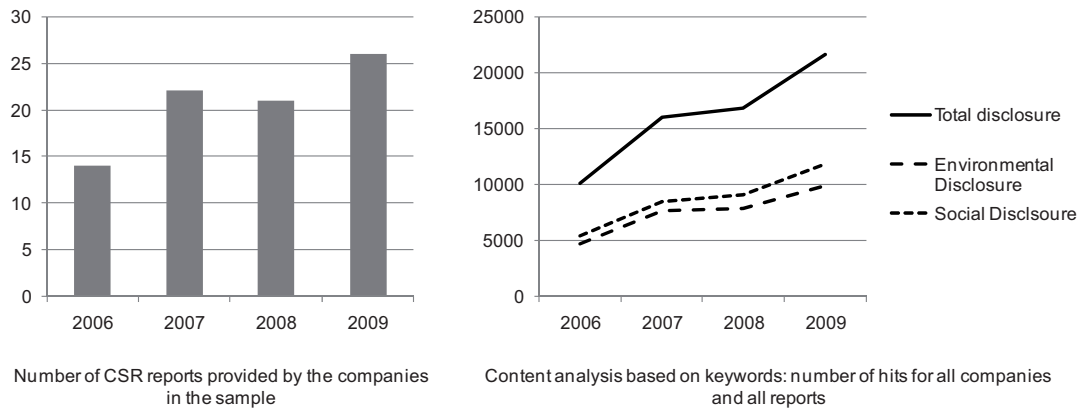


Figure 6: Descriptive results of the content analysis (CSR)

Table 4 shows the Pearson correlations for the disclosure indexes, the independent variables, and the control variables. The correlations between the independent variables provide no indication of multicollinearity, as no bivariate correlation exceeds the value of 0.9 (CHENG et al. 2007, FARRAR and GLAUBER 1967, HAIR et al. 2010, PENG and BEAMISH 2008, ROBERTS 1992)²⁰.

With the exception of the profitability measure, the correlation matrix reveals a positive interrelation between all the disclosure indices and the independent variables, which is consistent with our hypotheses. Firm size is also associated with all the disclosure indices. Furthermore, the Pearson correlations reveal strong industry effects, as companies from “polluting industries” (e.g. CHEMI, UTILI, and AUTOM) disclose a great deal of CSR information.

²⁰ However, in order to ensure that there is no multicollinearity, we performed an additional test by calculating the variance inflation factor (VIF) for all the variables where the bivariate correlations exceed the value of 0.5. The results indicate that all VIF factors are well below the tolerance values of 10, indicating that multicollinearity is not an issue in our analyses (HAIR et al. 2010, ROBERTS 1992).

		CSRR	CSRTOT	CSRENV	CSRSOC	VISIBILITY	ROIC	FREEFLOAT	USLISTED	logEMPL	logTA
CSRR	Pearson Correlation	1									
	Sig. (2-tailed)										
CSRTOT	Pearson Correlation	.768**	1								
	Sig. (2-tailed)	.000									
CSRENV	Pearson Correlation	.644**	.907**	1							
	Sig. (2-tailed)	.000	.000								
CSRSOC	Pearson Correlation	.770**	.932**	.707**	1						
	Sig. (2-tailed)	.000	.000	.000							
VISIBILITY	Pearson Correlation	.166**	.054	-.057	.147**	1					
	Sig. (2-tailed)	.000	.234	.211	.001						
ROIC	Pearson Correlation	-.030	-.004	.042	-.044	-.196**	1				
	Sig. (2-tailed)	.518	.937	.360	.331	.000					
FREEFLOAT	Pearson Correlation	.217**	.195**	.144**	.206**	.116*	-.089	1			
	Sig. (2-tailed)	.000	.000	.002	.000	.011	.052				
USLISTED	Pearson Correlation	.320**	.281**	.154**	.359**	.168**	-.097*	.099*	1		
	Sig. (2-tailed)	.000	.000	.001	.000	.000	.034	.030			
logEMPL	Pearson Correlation	.454**	.544**	.463**	.556**	-.022	-.097*	.142**	.365**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	.622	.033	.002	.000		
logTA	Pearson Correlation	.499**	.510**	.365**	.578**	.348**	-.225**	.152**	.475**	.723**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.001	.000	.000	
AUTOM	Pearson Correlation	.075	.184**	.222**	.127**	-.046	-.056	-.082	.171**	.235**	.139**
	Sig. (2-tailed)	.099	.000	.000	.005	.316	.220	.074	.000	.000	.002
BANKS	Pearson Correlation	.069	.018	-.080	.100*	.383**	-.149**	-.000	.105**	.081	.360**
	Sig. (2-tailed)	.129	.688	.079	.028	.000	.001	.993	.021	.076	.000
BASIC	Pearson Correlation	-.033	.014	.045	-.039	-.066	.148**	-.037	-.048	-.017	-.047
	Sig. (2-tailed)	.474	.762	.323	.391	.145	.001	.422	.296	.704	.299
CHEMI	Pearson Correlation	.100*	.234**	.334**	.138**	-.123**	.135**	.148**	-.100**	.047	-.007
	Sig. (2-tailed)	.028	.000	.000	.002	.007	.003	.001	.028	.301	.872
CONSU	Pearson Correlation	.128**	.070	-.013	.112*	-.085	.087	-.115*	-.076	-.012	-.129**
	Sig. (2-tailed)	.005	.122	.780	.014	.061	.058	.012	.095	.785	.005
CONSTR	Pearson Correlation	.049	.117**	.202**	.022	-.083	-.026	-.032	-.063	.115*	.043
	Sig. (2-tailed)	.280	.010	.000	.627	.069	.561	.482	.166	.011	.347
FINAN	Pearson Correlation	-.163**	-.262**	-.295**	-.209**	.279**	-.033	.041	-.123**	-.561**	-.150**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.465	.372	.007	.000	.001
FOODB	Pearson Correlation	-.004	-.017	.020	-.043	-.041	-.069	-.103*	-.028	.040	.039
	Sig. (2-tailed)	.362	.714	.655	.344	.374	.132	.025	.532	.384	.395
INDUS	Pearson Correlation	-.123**	-.094*	-.048	-.112*	-.221**	.066	.001	-.113*	.014	-.199**
	Sig. (2-tailed)	.007	.040	.288	.014	.000	.149	.829	.013	.754	.000
INSUR	Pearson Correlation	.104*	-.036	-.046	-.021	-.008	-.059	.105*	.324**	.087	.294**
	Sig. (2-tailed)	.023	.435	.313	.645	.864	.197	.022	.000	.056	.000
MEDIA	Pearson Correlation	-.104*	-.147**	-.168**	-.113*	.074	-.066	-.104*	-.071	-.179**	-.140**
	Sig. (2-tailed)	.022	.001	.000	.013	.105	.149	.023	.117	.000	.002
PHARM	Pearson Correlation	-.071	-.044	-.052	-.028	-.108*	-.031	.228**	.040	.085	-.032
	Sig. (2-tailed)	.116	.333	.249	.536	.017	.500	.000	.378	.063	.484
RETAI	Pearson Correlation	-.026	-.099*	-.140**	-.053	-.072	.017	-.145**	-.080	.083	-.052
	Sig. (2-tailed)	.568	.029	.002	.240	.115	.703	.001	.078	.069	.250
SOFTW	Pearson Correlation	.019	.004	-.059	.056	-.015	.166**	.016	.292**	.076	.053
	Sig. (2-tailed)	.676	.935	.199	.222	.749	.000	.728	.000	.095	.248
TECHN	Pearson Correlation	-.036	-.030	-.049	-.011	-.003	-.133**	.102*	.253**	.065	.039
	Sig. (2-tailed)	.430	.506	.278	.810	.941	.003	.025	.000	.151	.391
TELEC	Pearson Correlation	.080	.102*	.040	.144**	.294**	-.048	.012	.292**	.154**	.166**
	Sig. (2-tailed)	.080	.025	.381	.002	.000	.297	.795	.000	.000	.000
TRANS	Pearson Correlation	.065	.029	.005	.053	.141**	-.079	-.100*	-.080	.094*	.082
	Sig. (2-tailed)	.154	.518	.908	.247	.002	.082	.029	.078	.038	.070
UTILI	Pearson Correlation	.188**	.228**	.245**	.197**	-.015	-.016	.021	.147**	.121**	.198**
	Sig. (2-tailed)	.000	.000	.000	.000	.734	.723	.642	.001	.008	.000

*significant at the .05 level

**significant at the .01 level

Table 4: Correlations – CSR disclosure, independent and control variables

4.2. Regression analysis

While the descriptives and correlation analysis provide some insights into the average level and the univariate relations between the variables, we are interested in their joint effects. We applied regression analysis to estimate these effects, using the disclosure indices as the dependent variables. Table 5 presents our main results.

The results in Table 5 are mostly in line with our hypotheses. Consistent with H1 is that the companies' visibility is positively associated with CSR disclosure ($p < 0.10$ for all dependent variables). Our second hypothesis is only partially confirmed: profitability is associated with more environmental disclosures ($p < 0.10$), but this doesn't affect the total or social disclosures ($p > 0.10$). H3 is confirmed by our results: the shareholder structure determines CSR disclosures. Thus, the higher the percentage of freefloat, the more a company discloses information on its social and environmental performance. Finally, a company's relationship with US stakeholders (H4) affects all the disclosure indices ($p < 0.10$): companies apparently adjust their

disclosure practices when they operate in distinctively different business environments.

	Hypotheses (expected effect)	(A)		(B)		(C)		(D)		(E)	
		CSRR Coefficient	Prob.	CSRTOT Coefficient	Prob.	CSRENV (1) Coefficient	Prob.	CSRENV (2) Coefficient	Prob.	CSRSOC Coefficient	Prob.
Constant		-14.84 ***		***		***		***		***	
VISIBILITY	H1 (+)	.00 **		.09 *		.09 **		.03		.08 *	
ROIC	H2 (+)	.035		.054		.06 *		.08 **		.04	
FREEFLOAT	H3 (+)	2.22 ***		.13 ***		.08 **		.09 **		.14 ***	
USLISTED	H4 (+)	1.46 **		.22 ***		.12 **		.09 **		.28 ***	
logEMPL	(+)	2.19 ***		.45 ***		.31 ***				.52 ***	
logTA	(+)							.36 ***			
AUTOM		.136		.13 **		.31 ***		.44 ***		-.03	
BASIC		.835		.08 *		.17 ***		.23 ***		-.02	
CHEMI		1.59		.29 ***		.51 ***		.63 ***		.10	
CONSU		3.23 **		.18 ***		.19 ***		.31 ***		.14 **	
CONSTR		1.30		.16 ***		.33 ***		.42 ***		-.02	
FINAN		-.398		.10		.14 *		.19 **		.06	
FOODB		-17.356		.02		.10 **		.13 ***		-.04	
INDUS		.345		.10		.30 ***		.52 ***		-.07	
INSUR		.542		-.10 **		.01		.00		-.17 ***	
MEDIA		-16.60		.04		.07		.16 ***		.00	
PHARM		-1.10		-.02		.10		.22 ***		-.11 *	
RETAI		.369		-.01		.05		.17 ***		-.05	
SOFTW		-1.36		-.07 *		-.06		-.01		-.08 *	
TECHN		-21.15		-.10 ***		-.05		.00		-.13 ***	
TELEC		-3.34 **		-.03		.00		.05		-.05	
TRANS		.27		.09		.17 ***		.28 ***		.02	
UTILI		2.08		.19 ***		.30 ***		.33 ***		.08 *	
YR07		.85		.12 ***		.12 ***		.11 ***		.11 ***	
YR08		.57		.12 ***		.13 ***		.11 ***		.11 ***	
YR09		1.26 **		.22 ***		.19 ***		.18 ***		.21 ***	
Nagelkerke R-squared		.58									
Chi-squared (Prob.)		204.16 (***)									
Adjusted R-squared				.48		.48		.50		.47	
F-value (Prob.)				18.05 (***)		18.36 (***)		19.58 (***)		17.97 (***)	
N		473		472		472		472		472	

* significant at the .1 level

** significant at the .05 level

*** significant at the .01 level

Column (A) contains the results of the logistic regression using CSRR (provision of separate CSR report, yes or no) as the dependent variable. Column (B) shows the results of the regression analysis with the total disclosure (CSRTOT) as the dependent variable. Columns (C) and (D) contain the results of the regression analysis for the environmental disclosure index with two different measures for firm size: (C) uses the number of employees (logEMPL) while (D) uses the amount of total assets (logTA) as measures for size. Column (E) illustrates the results for the equation using the social disclosure index as the dependent variable.

Legend: CSRR = CSR report available; CSRTOT = total amount of disclosure; CSRENV = total amount of environmental disclosures; CSRSOC = total amount of social disclosures; VISIBILITY = number of hits found for the companies' name at www.handelsblatt.com; ROIC = profitability measured by return on invested capital; FREEFLOAT = shareholder structure by percentage of common shares in the freefloat; USLISTED = relationship with US stakeholders measured by means of the US listing; logEMPL = size, measured by the number of employees; logTA = size, measured by total assets; AUTOM = industry dummy (automobile manufacturers); BASIC = industry dummy (basic resources); CHEMI = industry dummy (chemicals); CONSU = industry dummy (consumer); CONSTR = industry dummy (construction); FINAN = industry dummy (financial services); FOODB = industry dummy (food & beverage); INDUS = industry dummy (industrial); INSUR = industry dummy (insurance); MEDIA = industry dummy (media); PHARM = industry dummy (pharma); RETAI = industry dummy (retail); SOFTW = industry dummy (software); TECHN = industry dummy (technology); TELEC = industry dummy (telecommunication); TRANS = industry dummy (transportation & logistics); UTILI = industry dummy (utilities); YR07-YR09 = year dummies for 2007-2009;

Table 5: Regression analysis – determinants of CSR disclosure

Consistent with some earlier work (e.g. BRAMMER and PAVELIN 2006, ROBERTS 1992), our models provide evidence of a significant systematic variation across industries regarding their propensity to make CSR disclosures. In particular, we find that companies from so-called “polluting sectors” provide more information on environmental issues (such as the automobile, basic resources, chemical, construction, transportation/logistics industries; all $p < 0.10$). These companies have a long tradition of (and experience with) CSR campaigns, as they have been confronted with powerful stakeholders from the environmental movement since the early 1980s. Accordingly, they proactively disclose much information on their environmental performance to reduce the possible political costs arising from their despised activities (DEEGAN and GORDON 1996, MEEK et al. 1995).

Companies from the consumer industry and the energy supplying industries disclose more information on all CSR aspects. As consumer industry companies normally have an exposed public position (most of them sell their goods to end consumers), they have strong incentives to reduce their political costs through CSR disclosures. Companies from energy supplying industries may face all kinds of external pressure groups as a result of the nuclear power debate in Germany; this may have pressured them to disclose more CSR information.

Companies in the service sector (such as insurance, software, and the technology industry) generally tend to disclose less CSR information ($p < 0.10$). While this is understandable given their lower environmental impact, it is rather surprising that companies in these industries also provide less information on social issues, if one considers that their employees are likely to be a key asset. One reason for this apparent lack of disclosure may be that the keywords we used relate to issues that are more salient in production industries (e.g., occupational health and safety, product responsibility).

The results also show that a company's size (specifically, the number of employees) affects CSR disclosures ($p < 0.10$). In addition, the amount of total assets ($\log TA$) affects environmental disclosure. This finding may be due to industry effects, since, in general, companies with high total assets belong to polluting industries.

Our findings are mostly consistent with certain earlier works on environmental disclosures in other countries (e.g. CHEN and BOUVAIN 2009, BRAMMER and PAVELIN 2006) and on executive pay disclosures in Germany (e.g. CHIZEMA 2008). In addition, our results are also largely consistent with our hypotheses derived from political cost theory, which suggests that companies disclose information to reduce potential regulation and taxation (WATTS and ZIMMERMANN 1978). However, our findings also suggest that environmental and social disclosures are driven by somewhat different stakeholder groups as reflected in different firm characteristics. For example, firms in "polluting sectors" tend to have relatively high levels of environmental disclosure, but similar levels of social disclosure. This may reflect pressures from different stakeholder groups: firms in "polluting sectors" may be monitored by environmental groups, while firms in consumer sectors may be more closely monitored by consumer groups. Similarly, firm profitability is associated with higher environmental disclosures but not with social disclosures. This may be due to historical developments: companies in "polluting industries" have been confronted with powerful stakeholders for a long time, while Western consumers only seem to have been concerned with labor practices since the latter part of the 1990s (ISLAM and DEEGAN 2010). Longitudinal studies may provide more insight into these issues.

5. Summary and conclusion

Economists have for long tried to determine the reasons for companies voluntarily disclosing information on environmental and social aspects. We rely on the political cost theory (WATTS and ZIMMERMANN 1978) to argue that companies report on CSR for economic reasons: they try to reduce their political costs by providing information on their social responsibility (FIELDS et al. 2001). Even though some researchers argue that the political cost hypothesis does not fully and satisfactorily explain the reasons for voluntary (CSR) disclosure (MILNE 2002), we believe that its assumption provides at least some explanation for companies voluntarily disclosing CSR information.

We identify a number of firm-specific factors which are likely to act as proxies for political costs and, as such, are likely to be related to a company's willingness to voluntarily disclose CSR information. On the basis of the *GRI* framework's core indicators, we apply content analysis to detect the amount and content of CSR information provided by the 130 largest listed companies in Germany.

Our results show that CSR disclosure is positively associated with higher company visibility, a more dispersed shareholder ownership structure, and US cross-listing (a proxy for US stakeholders' interest in the company). Profitability only affects CSR disclosure's environmental dimension. Furthermore, our results show that CSR disclosure is affected by industry membership and firm size: companies from "polluting industries" tend to have a higher level of environmental disclosures. Finally, big companies disclose more than small companies.

These results are mostly consistent with the political cost theory, from which we derive our hypotheses. That is, firms appear to disclose CSR information to reduce the potential impact of additional regulation, taxes, and other activities that may negatively affect the firm's value. Failure to remove information asymmetries (i.e. lower disclosure) may result in more occupational safety regulations, higher anti-pollution taxes, and consumer boycotts that may reduce the firm's value.

Our results also suggest that there are some differences in the disclosure dimensions: environmental disclosures appear to be driven by somewhat different firm characteristics than social disclosures. A potential reason is that these factors relate to different stakeholder groups; for example, environmental stakeholder groups may emphasize environmental disclosure while consumer groups may emphasize labor practices. Over time, societal expectations regarding what is considered "appropriate behavior" may evolve; consequently, CSR disclosures may also evolve over time as different stakeholder groups gain or lose power. One avenue that further research could explore is different stakeholder groups' rise and fall, and the disclosure practices of companies responding to these dynamics in their stakeholder environment.

As with all empirical studies, this study is subject to limitations. First of all, the industry classification is open to criticism, as some industries are represented by only three or fewer companies. Second, since only one country is researched, the cultural aspects can't be generalized. Third, content analysis also has its limitations: using keywords as units of analysis may be an inappropriate methodology, as these words are detached from their textual background. While we account for unusual scores in some reports, our results may have been affected by our methodology. Finally, deriving the keywords for the content analysis from the *GRI* guidelines is not free of risk, as the guidelines might not capture all of the relevant CSR aspects (MONEVA et al. 2006).

Despite these limitations, we believe that our results provide interesting insights into the determinants of CSR disclosure. In addition to the limitations mentioned previously, there are other opportunities in the field of CSR disclosure. For example, a broader set of variables that can act as proxies for other stakeholder groups could be considered as possible determinants of CSR disclosure. On the other hand, the receivers of information have to be integrated into the research in order to analyze the linkage between neo-classical theory and CSR disclosure. That is, the effects of the disclosed information on the companies' stakeholders, in general, and their shareholders, in particular, need to be examined.

Chapter III:

The value-relevance of CSR information²¹

²¹ This chapter has been written together with KLAUS MÖLLER (*Professor for Performance Management/Controlling, Institute of Accounting, Control and Auditing, University of St. Gallen, Switzerland*) and FRANK VERBEETEN (*Rotterdam School of Management, Department of Accounting and Control, Erasmus University Rotterdam, The Netherlands*).

1. Introduction

Corporate social responsibility (CSR) refers to a company's voluntary contribution to sustainable development which goes beyond legal requirements. During the last decade, several papers (e.g. GELB and STRAWSER 2001, GRAY et al. 2001) have documented an increase in CSR (media) campaigns and in corresponding reporting activities. Today, (large) companies spend a great deal of effort and money on disclosing information on their social and environmental performance. Even if these reporting activities are primarily directed to stakeholders others than (potential) owners of the firm, for various reasons the disclosed information might also be of interest for equity investors. Efficient capital market theory suggests that investors will use all relevant information when making their decisions on whether to buy or sell a company's shares. Consequently, the disclosed CSR information should be reflected in the companies' share price²² (FAMA 1970 and 1991, FAMA et al. 1969).

An empirical question is whether the provided CSR information is relevant for equity investors, and if so, which information is 'value-relevant'. That is, CSR information may address the information needs of other stakeholders in the company (suppliers, unions) rather than the needs of shareholders; in that case, CSR information may be irrelevant to stock prices. CSR information might also provide information on liabilities of the company (for example with regard to environmental damages). On the contrary, CSR information may also inform investors about the unique capabilities of the companies' workforce or about their cost effective environmental management practices; in that case, CSR information provides information on the assets of the company. Finally, CSR disclosures may be considered as unreliable since management has considerable freedom in what sort of CSR information they disclose (and this information tends to be unaudited). As a result, investors may consider this information unreliable and do not include it in the stock price. Depending on the perceived reliability and relevance of the disclosed information, stock prices may be affected by CSR disclosures.

The purpose of this paper is to analyze whether CSR information voluntarily disclosed by German companies is valued by the capital markets, and if so, which specific information is value-relevant. We construct a CSR disclosure index based on the *Global Reporting Initiative (GRI)* guidelines and extracted from the reports by means of content analysis. We interpret this disclosure index as 'other information' that can be included in standard valuation models, and then test whether this information is value-relevant. Our results are consistent with our hypotheses: Providing special reports with CSR information has a positive association with share price. Additionally, social disclosures are also positively reflected in firm value. On the other hand, environmental reporting negatively influences firm value – but it is

²² Please note that we use the terms „share price“, „firm value“ and „company value“ interchangeably .

positively related to changes in share price. Consequently, CSR information is value-relevant while the value-relevance of CSR information categories differs.

Our study contributes to a greater understanding of CSR disclosures' implications on the capital markets, especially with regard to market value.²³ First, we provide evidence on CSR-disclosures in Germany. Germany is an interesting setting as companies are not required to disclose CSR information. Therefore, the provision of CSR information is voluntary and free of regulation. In other European countries, there are more demands regarding the provision of CSR information. Moreover, in some countries there exist certain requirements regarding CSR disclosure, e.g. in the UK, France, or in the Netherlands. These differences in regulatory environments may have affected the results from previous studies that have focused on a European level. Furthermore, former studies have often focused solely on annual reports (e.g. ANDERSON and FRANKLE 1980, MURRAY et al. 2006). We focus on a broader set of reports that could provide CSR information. This includes the annual report (which is mandatory), but also voluntary CSR reports, as well as other specific reports in the CSR area (e.g., environmental, social, and human capital reports). Additionally, former studies have often not considered all aspects of CSR, but have focused on either environmental or social disclosures (e.g. CORMIER and MAGNAN 2007, DÉJEAN and MARTINEZ 2009, GUPTA and GOLDAR 2004, SHANE and SPICER 1983). As a result, such studies may suffer from omitted variable bias as our analysis suggests that CSR-disclosures in different areas are interrelated. Those studies taking both perspectives into consideration have mostly applied one-dimensional measures (for example the number of pages with CSR information in relation to the total number of pages; e.g. ANDERSON and FRANKLE 1980, MURRAY et al. 2006). Such measures do not account for the different facets of CSR. In our study, we consider both dimensions of CSR disclosure by dividing the provided CSR information in an environmental as well as in a social component.

This chapter is structured as follows: in the next section, we will review the relevant theory and derive the hypotheses to be tested in our study. Section 3 contains the study design and the methodology. Section 4 presents our results together with a discussion and interpretation of these. The study concludes with a summary, a description of its limitations and an outlook on further research.

2. Literature review and hypotheses

2.1. CSR and CSR disclosure

Corporate Social Responsibility (CSR) describes a company's voluntary contribution to sustainable development which goes beyond the requirements of law (e.g.

²³ Note that we only focus on disclosures, not on a company's overall CSR performance. Companies may have bad social and/or environmental performance but abundant CSR disclosures.

CARROLL 1999, CRANE and MATTEN 2007, DE BAKKER et al. 2005). Some economists argue that this behavior might result in higher economic profits (DYLLICK and HOCKERTS 2002, EPSTEIN and ROY 2001, MACKAY et al. 2007, PORTER and KRAMER 2006, WADDOCK and GRAVES 1997). Other authors (e.g. FRIEDMAN 1962, LEVITT 1970) argue that, from an economic perspective, CSR should not be a company's basic objective: Companies should only act in a socially responsible way if the related activities lead to increased economic profits. Any activities which are not oriented toward this objective are assumed to undermine the company's efficiency and to prevent it from fulfilling its chief responsibility (FRIEDMAN 1962, LEVITT 1970).

Nonetheless, in recent years, a growing awareness of firms in terms of their social responsibility is becoming apparent (GRAY et al. 2001). This is also reflected in the increasing number of provided CSR and sustainability reports (GELB and STRAWSER 2001). CSR reporting can be defined as the information voluntarily disclosed by a company about its environmental impact and about the relationship to its stakeholders by using corresponding communication channels (ANDERSON and FRANKLE 1980, GRAY et al. 2001). Stakeholders' perception regarding a company's CSR performance depends, amongst others, on the degree to which the company is providing information about CSR related issues. Thus, reporting can be significantly important to inform stakeholders credibly about the company's social and environmental performance (MAIGNAN and FERRELL 2004). Moreover, CSR disclosures can be used to influence external stakeholders and their attitudes in a specific way which could be beneficial for the disclosing company (FIELDS et al. 2001).

2.2. Value-relevance of CSR information

In general, information is defined as being value-relevant if it has a predicted association with equity market values (BARTH et al. 2001). Hence, value-relevance research examines the association between the amount of provided information and firm values. In line with efficient capital market theory, it is assumed that share prices reflect investors' consensus beliefs (BALL and BROWN 1968, BARTH et al. 2001). In recent literature, research on capital markets supports a "semi-strong" form of market efficiency. That is, prices, on average, are assumed to reflect all publicly available information (BEAVER 1981, FAMA 1970 and 1991, FAMA et al. 1969). Therefore, investors will use the disclosed CSR information if it is relevant and reliable.

Information is relevant if it provides additional insights into the companies' assets or liabilities. Following stakeholder theory, CSR disclosures are primarily directed to stakeholders others than shareholders. Nevertheless, the disclosed information may also be (value-) relevant for equity investors: It increases their level of information

by reducing information asymmetries regarding CSR related issues (DIAMOND and VERRECCHIA 1991, EISENHARDT 1989, HEALY and PALEPU 2001, KIM and VERRECCHIA 1994). Thus, investors factor the disclosed information and their presumed consequences into decisions whether or not to buy or to sell the corresponding firm's stocks (MACKEY et al. 2007). In at least three areas, information asymmetries between management and investors are reduced by these disclosures. In other words, investors may be interested in the disclosed information for at least three reasons:

- CSR performance (and thus CSR disclosures) may provide an indication for the company's long-term financial performance (DYLLICK and HOCKERTS 2002, EPSTEIN and ROY 2001, PORTER and KRAMER 2006, WADDOCK and GRAVES 1997). Thus, CSR performance can be regarded as an organizational asset and should be positively associated with firm value.²⁴ This can be assumed in particular with regard to social issues as success is mainly caused by the companies' workforce (GODFREY 2005). A large body of empirical and conceptual literature endorses this view (e.g. MARGOLIS and WALSH 2003, MCGUIRE et al. 1988, ORLITZKY et al. 2003, RUSSO and FOUTS 1997, SPICER 1978).
- CSR can function as a kind of risk management (ARAS and CROWTHER 2009, GODFREY 2005). By increasing the company's image and reputation, it can generate insurance-like moral capital among communities and stakeholders. Based on the company's perceived social and environmental performance, this moral capital can temper penalizing reactions in the case of negative events (BLACCONIERE and PATTEN 1994, GODFREY 2005, GODFREY et al. 2009). Investors might be interested in this information: on the one hand it provides insights into the companies' risk environment (liability); on the other hand, it provides insights into the way these risks are managed (asset). Consequently, the disclosed information can be positively or negatively associated with firm value - depending on the information's nature.
- Some investors might consider ethical convictions when making their investment decisions (CONSOLANDI et al. 2009, MACKEY et al. 2007, RIVOLI 1995). Accordingly, environmental as well as social disclosures might offer an important source of direct input to these 'ethical' investors' decisions (MURRAY et al. 2006, OWEN 1990). Since these investors regard CSR performance as an asset, the disclosed information should be positively reflected in share price.

However, as no official regulation is available on how to report on CSR issues, management has considerable freedom to decide what information they disclose.

²⁴ This argumentation is usually based on stakeholder theory as every stakeholder is assumed to contribute to the company's success in a particular way. Therefore, companies should conform to their stakeholders' expectations for improving their long-term corporate financial performance (DONALDSON and PRESTON 1995, FREEMAN 1984, FROOMAN 1999).

Therefore, companies can use CSR information for window dressing purposes since CSR information is disclosed unaudited. Thus, investors may consider the provided information as unreliable which, in turn, may not be part of the companies' stock price.

2.3. Hypotheses

Investors use CSR information if this information is relevant and reliable. To be value-relevant CSR disclosures have to provide additional and reliable information on the companies' assets or liabilities, for example on long-term financial performance, on the companies' risk environment / management or on ethical aspects. Conversely, the provided CSR information is value-relevant if it is reflected in firm value (BALL and BROWN 1968, BARTH et al. 2001). Based on this reasoning, we assert that:

H1: *CSR information is value-relevant to investors.*

CSR information in general can positively as well as negatively influence firm value, depending on the information's nature. However, the content of information might be different: while social information might be closely related to aspects of the companies' workforce, mainly it may provide information on the companies' assets. Environmental information, on the other hand, might be more closely related to the companies' liabilities, as, for example, environmental impacts or harmful influences from environmental pressure groups. In consequence, we suppose that

H2: *The value-relevance of CSR information categories differs.*

3. Design of the study and methodology

3.1. Sample construction

Our analysis focuses on Germany for two reasons: comparability (i.e. exclusion of institutional differences) and the voluntary disclosure environment. Since CSR can be assumed to differ among countries (MATTEN and MOON 2008, VAN DER LAAN-SMITH et al. 2005), we concentrate on companies with an identical political and societal background for generating a homogenous dataset. Consequently, we focus on companies from one and the same country. We chose Germany as it has no official regulation on how to report on social and environmental aspects.²⁵ Therefore, CSR reporting is completely voluntary.

²⁵ Since most of our sample companies operate in more countries than just in Germany, we applied an additional analysis by controlling for the companies' interaction with stakeholders / shareholders from other countries. We used cross-listing on foreign stock exchanges as a proxy for these interactions. The outcome reveals no significant impact of these interactions on our results.

We focus on the German DAX, MDAX, and SDAX. These three indexes include the 130 largest listed German companies. Our sample focuses on the index composition as at the end of 2008. We consider four reporting periods²⁶ between 2005 and 2008. Only reports provided in English have been considered (all companies in the sample provide their reports in English as well as in German). Since some companies' reports are not available for all the years (for instance, if a company entered one of the indices after 2006), our sample has been reduced by 36 observations. Furthermore, we lost 114 observations due to other missing information (for example, for some industries' companies net income is not available at THOMSON ONE BANKER (2009)). Our final data set consists of a total of 370 firm-year observations.

3.2. Identification of keywords

As pointed out in *Chapter I*, we used word-based content analysis to quantify the amount of CSR information in the reports. In line with previous research (GUTHRIE and FARNETI 2008, HOLDER-WEBB et al. 2008), we derived the keywords for our content analysis from the framework of the *Global Reporting Initiative* (GRI). Although it is not free from criticism, the GRI is regarded as the most relevant institution in the context of CSR disclosure (MONEVA et al. 2006) and is often referred to as the global standard. Owing to the voluntary nature of the guidelines, organizations have the flexibility to decide what information to disclose. The GRI guidelines cover all aspects of CSR, as they consider an economic, environmental, and a social perspective. Since companies are obliged to disclose financial, and thus, economic information, we only incorporate the environmental and social perspectives in our coding framework.

The GRI guidelines provide indicators of all three CSR perspectives. These indicators can be split into core indicators and additional ones. Core indicators are of interest to most stakeholders, and consequently are relevant for most companies, while additional indicators are only of interest to some stakeholders and companies (GRI 2010). We derived the keywords for our analysis from the core indicators by defining one or more keywords for every indicator, thus considering the singular and plural forms ("equal opportunity" / "equal opportunities"), as well as British and American English ("labour" / "labor"). By having derived the keywords from a well-grounded framework like the *GRI* guidelines, we improve the results' validity, as the guidelines can be assumed to reflect CSR's "real meaning". As shown in Table 6, we finally obtain a total number of 32 keywords.

²⁶ The composition of the SDAX changes particularly frequently, as companies continuously enter or leave the index. Therefore, considering more than four reporting periods in our analysis would have disproportionately shortened the number of observations in the sample.

Keywords	
Environmental	Social
Recycled	Employment
Energy consumption	Employee turnover
Biodiversity	Collective bargaining
Emissions	Collective agreements
Effluents	Occupational health
Waste	Occupational safety
Spills	Training
Environmental impacts	Diversity
	Equal opportunities
	Human rights
	Discrimination
	Freedom of association
	Child labor
	Forced labor
	Compulsory labor
	Community
	Corruption
	Public policy
	Compliance
	Fines
	Sanctions
	Product responsibility
	Customer health
	Customer safety

Table 6: Keywords for the content analysis derived from the *GRI* framework

3.3. Medium of analysis (communication channel)

We focus on reports provided proactively on the companies' websites. In general, there are different ways of disclosing information on CSR. First, companies may integrate CSR-related aspects into their annual / financial reports by enhancing these reports. Second, companies may provide special / separate CSR or sustainability reports (in addition to their annual reports). Companies may also provide information on CSR-related issues through various corporate reports, for example through separate financial, environmental, social, and human capital reports. Finally, companies may use other media, for example press releases, to disclose CSR-related information. In our analysis, we concentrate on the first three possibilities, thus taking the most important communication channels for CSR disclosure into account.

3.4. Applied valuation models

Value-relevance studies use various valuation models to structure their tests. Typically, equity market values are used as the valuation benchmark to assess how well particular accounting amounts reflect information used by investors (BARTH et al. 2001). In line with previous studies (e.g. BARTH et al. 1998, LIANG and YAO 2005, KALLAPUR and KWAN 2004) we employ a model that is based on OHLSON (1995) and its subsequent refinements (FELTHAM and OHLSON 1995 and 1996, OHLSON 1995 and 1999). The model is based on the assumption that company's value equals book value of equity plus a linear function of current abnormal earnings and the scalar variable representing other information (BARTH et al. 2001, OHLSON

1995). This model examines price or firm value levels by identifying how well particular accounting amounts are reflected in firm value (BARTH et al. 2001). We employ the model in the following way:

$$SP = f(\text{BVE/S; NI/S; CSRDISC; YR; IND}),$$

where SP is the share price (of common shares), BVE/S is the book value of equity per share, NI/S is the net income per share and CSRDISC is a CSR disclosure index which can be interpreted as the ‘other information’ contained in the model. YR and IND stand for year and industry dummies respectively.

An alternative approach to assessing value-relevance lies in examining changes in share price. This return-based approach determines what causes changes in firm value over a specific period of time (BARTH et al. 2001). In line with previous literature (e.g. BARTH et al. 1998 and 2001) we apply the following model:

$$RET = f(\text{NI/S; DNI/S; DCSRDISC; YR; IND}),$$

where RET is the return per share, DNI/S is the change in net income per share and DCSRDISC is the change in the CSR disclosure index. NI/S, YR and IND are as previously defined.

3.5. Incorporated variables

Dependent variables

As for the price levels model we use share price (SP) as the dependent variable in the regression. We take the closing price from the last day of the quarter in which all analyzed reports of the corresponding company have been published. We obtained the information from THOMSON ONE BANKER (2009).

As for the return-based analysis we use return per share (RET) as the dependent variable. RET is calculated as:

$$RET = ([SP_t - SP_{t-1}] + \text{DIV/S}) / SP_{t-1}$$

where SP_t is the closing price from the last day of the quarter in which all analyzed reports of the corresponding company have been published. SP_{t-1} is the closing price from the last day of the previous quarter. We obtained the information from THOMSON ONE BANKER (2009). DIV/S is the corresponding company’s dividend payment per share in the previous year. This information is available on the website of DEUTSCHE BOERSE (2010).

Independent variables

We use the book value of equity per share (BVE/S) as well as net income per share (NI/S) for the independent variables needed for applying the price levels model. We calculate these two variables since book value of equity, net income, as well as the number of shares outstanding are available at THOMSON ONE BANKER (2009). Change in net income per share (DNI/S) is defined as net income per share minus net income per share of the previous year.

As for the CSR disclosure index (CSRDISC) we are interested in the CSR information transmitted by corporate reports.²⁷ Our first variable of interest is whether companies provide a separate CSR report (denoted CSRR), as it can be assumed that companies disclose more CSR information if they provide special CSR reports. CSRR is a dummy variable that indicates whether or not a separate CSR report is provided in the corresponding year ('1' indicates a separate report and '0' otherwise).

We derive the other three variables from the reports provided by the sample companies. We compile three variables extracted from the provided reports²⁸ by using content analysis based on the defined keywords:

$$\text{CSRTOT} = \text{CSRENV} + \text{CSRSOC}$$

CSRTOT is the total quantity of CSR disclosure, CSRENV is the amount of environmental disclosure, while CSRSOC is the amount of social disclosure (total number of keywords found in the analyzed reports). All three variables are identified for each of the companies and each single year by summarizing the results extracted from the reports provided in the corresponding year. For example: if a company provides an annual as well as a CSR report in a year, we summarize the content analyses results of both reports to achieve each company and year's total disclosure indexes. The indexes reflect the number of hits when searching for all keywords in each category.

Shareholders do not only evaluate the total amount of CSR disclosures but also take other disclosures of the corresponding company into account. To generate the indexes, we control for these other disclosures by dividing the number of hits by the analyzed reports' number of pages. Thus, we obtained relative indexes indicating the number of hits per page in the corresponding category.

Change in total disclosure (DCSRTOT) is defined as CSRTOT minus CSRTOT of the previous year. Change in environmental (DCSRENV) and social (DCRSOC) disclosures are correspondingly defined.

²⁷ In the regression, CSRDISC is replaced by the CSR disclosure variables introduced subsequently.

²⁸ In total, we analyzed 592 documents with a total of 88,469 report pages.

Control variables

We used the classification provided by DEUTSCHE BOERSE (2010) to classify the sample companies into 18 industries (see Table 16 in the appendix). We applied dummy variables to distinguish between these industries. Finally, we used year dummies to control for possible time effects. Table 7 offers a summary of the data sources, the dependent and independent variables, and abbreviations.

Variable	Measure		Source
	Abbreviation	Explanation	
Share price	SP	Share price at the end of the reporting period (quarter), dependent	Thomson One Banker (http://banker.thomsonib.com/)
Return per share	RET	Return per share (incl. dividend payments), dependent	Thomson One Banker (http://banker.thomsonib.com/), calculated
Book value of equity per share	BVE/S	Book value of equity per share, independent	Thomson One Banker (http://banker.thomsonib.com/), calculated
Net income per share	NI/S	Net income per share, independent	Thomson One Banker (http://banker.thomsonib.com/), calculated
Change in net income per share	DNI/S	Net income per share minus net income per share in the previous year, independent	Thomson One Banker (http://banker.thomsonib.com/), calculated
Provision of separate CSR reports	CSRR	Provided reports (1 / 0), independent	Downloaded from the companies website
Total disclosure index	CSRTOT	Extracted from the reports by means of content analysis, independent	Provided reports
Environmental disclosure index	CSRENV	Extracted from the reports by means of content analysis, independent	Provided reports
Social disclosure index	CSRSOC	Extracted from the reports by means of content analysis, independent	Provided reports
Change in total disclosures	DCSRTOT	CSRTOT minus CSRTOT of the previous year	Provided reports, calculated
Change in environmental disclosures	DCSRENV	CSRENV minus CSRENV of the previous year	Provided reports, calculated
Change in social disclosures	DCSRSOC	CSRSOC minus CSRSOC of the previous year	Provided reports, calculated
Industry classification		1 / 0, independent	DEUTSCHE BOERSE (www.boerse-frankfurt.com)
Year dummies		1 / 0, independent	

Table 7: Source of data

4. Results and discussion

4.1. Descriptive statistics and correlations

Table 8 shows the descriptive statistics after truncation at the 2.5 level. The table indicates that the dispersion of most variables is on an acceptable level.

Panel A

	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
SP	478	2.68	134.40	34.94	30.84	1.68	.11	2.53	.22
BVE/S	470	2.06	77.89	18.93	16.90	1.92	.11	3.68	.23
NI/S	371	-2.46	21.64	3.48	4.53	2.33	.13	6.22	.25
CSRR	484	0	1	.17	.38	1.75	.11	1.06	.22
CSRTOT	484	.07	2.27	.61	.51	1.59	.11	2.14	.22
CSRENV	484	.00	1.09	.29	.28	1.19	.11	.68	.22
CSRSOC	484	.04	1.20	.31	.27	1.78	.11	2.76	.22
Valid N	370								

Panel B

	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
RET	477	-.46	.49	.03	.22	-.08	.11	-.24	.22
NI/S	371	-2.46	21.64	3.48	4.53	2.33	.13	6.22	.25
DNI/S	252	-12.01	6.68	-.17	3.03	-1.77	.15	6.38	.31
DCSRTOT	356	-.91	1.55	.09	.41	1.38	.13	4.60	.26
DCSRENV	356	-.47	.75	.04	.21	1.17	.13	3.58	.26
DCSRSOC	356	-.51	.70	.04	.20	0.92	.13	3.70	.26
Valid N	239								

Table 8: Descriptive statistics after truncation at the 2.5 level

Table 9 shows the Pearson correlations for the dependent as well as the independent variables. The correlations between the independent variables provide no indication of multicollinearity since no variable exceeds the value of 0.9 (HAIR et al. 2010, PENG and BEAMISH 2008).²⁹

Panel A

		SP	BVE/S	NI/S	CSRR	CSRTOT	CSRENV	CSRSOC
SP	Pearson Correlation	1						
	Sig. (2-tailed)							
BVE/S	Pearson Correlation	.682**	1					
	Sig. (2-tailed)	.000						
NI/S	Pearson Correlation	.575**	.783**	1				
	Sig. (2-tailed)	.000	.000					
CSRR	Pearson Correlation	.251**	.273**	.096	1			
	Sig. (2-tailed)	.000	.000	.064				
CSRTOT	Pearson Correlation	.158**	.168**	.106*	.667**	1		
	Sig. (2-tailed)	.001	.000	.041	.000			
CSRENV	Pearson Correlation	.090	.113*	.095	.451**	.870**	1	
	Sig. (2-tailed)	.049	.014	.068	.000	.000		
CSRSOC	Pearson Correlation	.190**	.184**	.088	.731**	.854**	.520**	1
	Sig. (2-tailed)	.000	.000	.089	.000	.000	.000	

*. Significant at the .05 level
**. Significant at the .01 level

Panel B

		RET	NI/S	DNI/S	DCSRTOT	DCSRENV	DCSRSOC
RET	Pearson Correlation	1					
	Sig. (2-tailed)						
NI/S	Pearson Correlation	.076	1				
	Sig. (2-tailed)	.142					
DNI/S	Pearson Correlation	.092	.293**	1			
	Sig. (2-tailed)	.146	.000				
DCSRTOT	Pearson Correlation	.153**	.068	-.052	1		
	Sig. (2-tailed)	.004	.241	.420			
DCSRENV	Pearson Correlation	.139**	.089	-.035	.938**	1	
	Sig. (2-tailed)	.009	.127	.594	.000		
DCSRSOC	Pearson Correlation	.121*	.019	-.054	.893**	.712**	1
	Sig. (2-tailed)	.022	.742	.407	.000	.000	

*. Significant at the .05 level
**. Significant at the .01 level

Table 9: Correlations – dependent and independent variables

Panel A reveals a strong positive relationship between share price (SP), book value of equity per share (BVE/S) and net income per share (NI/S). Furthermore, a positive relationship between share price and the disclosure indexes – except of the environmental disclosures (CSRENV) – can be detected. This endorses our assumption that CSR information, or at least ‘some’ CSR information, might be value-relevant. Furthermore, the disclosure indexes are correlated to each other.³⁰

²⁹ The variables DCSRTOT and DCSRENV are not used as independent variables in the same regression.

However, in order to ensure that there is no multicollinearity, we performed an additional test by calculating the variance inflation factor (VIF) for all the independent variables where the bivariate correlations exceed the value of 0.5. The results indicate that all VIF factors are well below the tolerance values of 10, indicating that multicollinearity is not an issue in our analyses (HAIR et al. 2010, ROBERTS 1992).

³⁰ An additional (manual) analysis reveals that nearly all disclosed information is related to positive aspects of CSR. Thus, companies tend to provide only beneficial information on their social and environmental performance. Nothing, or at least little is said, for example, on negative environmental impacts or on poor “human rights performance”.

This means that companies usually disclose information on all aspects of CSR – if they decide to provide information on either social or environmental aspects. Finally, and in line with our assumption is the finding that the provision of separate CSR reports (CSRR) affects the amount of CSR information a company provides since CSRR is positively connected to all other disclosure indexes.

Panel B shows a positive relationship between return per share (RET) and changes in CSR disclosures (DCSRTOT, DCSRENV and DCSRSOC). This may be an indicator that changes in disclosures might have an influence on changes in the companies' value. Furthermore, net income per share (NI/S) as well as changes in net income per share (DNI/S) are positively correlated to each other. Finally, changes in disclosure indexes are highly correlated. This also supports our findings from Panel A.

4.2. Regression analyses: value-relevance of CSR information

Table 10 presents the results of the regression analyses. As for the price-levels analyses (columns A, B and C), share price (SP) is regarded as a linear function of book value of equity per share (BVE/S), net income per share (NI/S) and the defined CSR disclosure proxies. Furthermore, year dummies (2006 is benchmark) as well as industry dummies (INDUS is benchmark) are considered in the regression. In line with the applied price-levels model, a strong connection between SP and BVE/S as well as with NI/S can be detected. Furthermore, the analysis reveals strong year effects (YR08 and YR09). Significant industry effects can only be detected for TRANS.

Column A reveals that the provision of separate CSR reports is positively associated with share price (CSRR in column A). This means that investors incorporate the provision of CSR reports in their investment decisions as they seem to prefer companies which provide separate CSR reports. Since the results of the correlation matrix suggest that CSRR is positively associated with the other disclosure indexes, a positive relation between share price and the total disclosure index (CSRTOT) can also be assumed. However, this assumption is not confirmed by our results since CSRTOT is not significantly reflected in share price (column B).

The explanation for this inconsistency is given in column C: Social disclosure (CSRSOC) is positively reflected in SP while environmental disclosure (CSRENV) is negatively assessed by the capital markets.³¹ In summary, these information categories seem to neutralize each other since no significant relationship between SP and CSRTOT can be identified. These results support our assumption that the value-relevance of CSR information categories may differ.

³¹ Certainly, environmental information is value-relevant, but it negatively influences firm value.

As for the return-based analyses (columns D, E, F and G) we analyze whether returns per share (RET) are affected by the provision of CSR information. Thus, we interpret returns per share as a function of net income per share (NI/S), change in net income per share (DNI/S) and changes in the provided CSR information. Furthermore, year dummies (2008 is benchmark) as well as industry dummies (INDUS is benchmark) are considered in the regression.

Column	(A)	(B)	(C)	(D)	(E)	(F)	(G)
Dependent variable	SP	SP	SP	RET	RET	RET	RET
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
	***	***	***	**	**	*	**
	Prob.	Prob.	Prob.	Prob.	Prob.	Prob.	Prob.
Constant							
BVE/S	.510 ***	.521 ***	.486 ***		.032	.033	.032
NI/S	.195 ***	.190 ***	.205 ***	.031	.040	.035	.041
DNI/S				.041			
CSRR	.074 *						
CSRTOT		.052					
CSRENV			-.122 **				
DCSRSOC			.162 ***	.127 *			
DCSRTOT							
DCSRENV							
DCSRSOC					.037	.097 #	.112 *
YR07	.007	.002	.006	.317 ***	.087	.323 ***	.322 ***
YR08	-.146 ***	-.150 ***	-.149 ***		.062	.061	.063
YR09	-.320 ***	-.325 ***	-.327 ***	.060	-.020	-.314	-.017
AUTOM	-.049	-.052	-.038	-.022	.064	.058	.067
BASIC	-.087	-.088	-.077 **	.059	.040	.040	.044
CHEMI	.025	.024	.041	.043	.019	-.025	-.017
CONSU	.015	.024	-.006	-.023	.155 **	.154 **	.161 **
CONSTR	-.027	-.032	.002	-.149 **	-.057	-.061	-.055
FINAN	-.050	-.041	-.068	-.057	.008	.007	.008
FOODB	-.039	-.043	-.027	.007	.044	-.048	-.044
MEDIA	.011	.014	-.011	-.045	-.070	-.068	-.070
PHARM	.008	.006	-.008	-.074	-.074	-.078	-.073
RETAI	-.047	-.041	-.068 *	-.072	-.073	-.070	-.073
SOFTW	.033	.037	.008	-.023	.023	.031	.022
TELEC	-.046	-.041	-.065 *	-.058	-.057	-.059	-.055
TRANS	-.128 ***	-.124 ***	-.140 ***	-.058	-.006	-.010	-.005
UTILI	.015	.024	.022	-.007			
Adjusted R-squared	.52	.51	.53	.10	.10	.10	.10
F-value (Prob.)	20.59 (***)	20.34 (***)	20.38 (***)	2.44 (***)	2.28 (***)	2.35 (***)	2.40 (***)
N	368	368	368	237	237	237	237

significant at the .15 level
* significant at the .1 level
** significant at the .05 level
*** significant at the .01 level

Column (A) contains the results of the regression using SP as the dependent variable and CSRR (provision of separate CSR report, yes or no) as an independent variable. Column (B) shows the results of the regression using SP as the dependent variable and the total disclosure index (CSRTOT) as an independent variable. Column (C) contains the results of the regression using SP as the dependent variable and the environmental (CSRENV) as well as the social disclosure indexes (DCSRSOC) as an independent variable. Column (D) illustrates the results of the regression using RET as the dependent variable and the change in total disclosures (DCSRTOT) as an independent variable. Column (E) contains the results of the regression using RET as the dependent variable and the changes in environmental (DCSRENV) as well as social (DCSRSOC) disclosures as independent variables. Column (F) shows the results using RET as the dependent variable and the change in environmental disclosures (DCSRENV) as an independent variable. Column (G) illustrates the results of the regression using RET as the dependent and the change in social disclosures (DCSRSOC) as an independent variable.

Legend: SP = share price; RET = return per share; BVE/S = book value of equity per share; NI/S = net income per share; DNI/S = change in net income per share; CSRR = CSR report available; CSRTOT = total amount of disclosure; CSRENV = amount of environmental disclosures; DCSRSOC = amount of social disclosures; DCSRTOT = change in the amount of disclosure; DCSRENV = change in the amount of environmental disclosure; DCSRSOC = change in the amount of social disclosure; YR07-YR09 = year dummies for 2007-2009; AUTOM = industry dummy (automobile manufacturers); BASIC = industry dummy (basic resources); CHEMI = industry dummy (chemicals); CONSU = industry dummy (consumer); CONSTR = industry dummy (construction); FINAN = industry dummy (financial services); FOODB = industry dummy (food & beverage); MEDIA = industry dummy (media); PHARM = industry dummy (pharma); RETAI = industry dummy (retail); SOFTW = industry dummy (software); TELEC = industry dummy (telecommunication); TRANS = industry dummy (transportation & logistics); UTILI = industry dummy (utilities).

Table 10: Regression analysis – value-relevance of CSR information

The regression presented in column D shows that CSR disclosure (DCSRTOT) has a positive impact on returns per share. This effect is almost as strong as the identified industry effects (e.g. CONSTR). That is, CSR disclosures are not only reflected in a

firm's market value: Providing CSR information can also lead to changes in firm value. However, contrary to the price-levels analyses are the findings that both environmental (DCSRENV, column F) as well as social disclosures (DCSRSOC, column G) are positively associated with changes in firm value.³²

Our analyses' results confirm H1 in all aspects; CSR information is value-relevant for equity investors since the provided information is reflected in share price (price levels) as well as in changes of firm value (returns). That is, equity investors incorporate CSR information in their investment decisions.

H2 is also confirmed by our studies' results even if there is still need for some further explanations, particularly for the different evaluations of environmental information. In the price levels analysis, capital markets might interpret environmental disclosures as information on the companies' liabilities since disclosures are negatively associated with firm value. These findings go along with some earlier work (e.g. BOUSLAH et al. 2010); companies that disclose much information on their environmental performance (or on their environmental impacts) are assumed to operate in highly sensitive surroundings, and thus face an enormous risk potential which negatively influences their valuation. Nevertheless, in the return analysis, the disclosed environmental information is positively valued by the market since it is positively associated with changes in share price. Proactively disclosing information on environmental issues might be interpreted by the market as the companies' handling with external pressures, and hence, as a kind of risk management. Thus, it is regarded as an organizational asset which positively influences firm value.

However, less surprising is the overall positive valuation of the provided social information. That is, in the price-levels as well as in the return-based analysis social information is positively associated with firm value. This might be due to information on the companies' workforce which is comprised in social disclosures (GODFREY 2005). Against the background of the resource-based view, the companies' workforce is viewed as an important resource in competition (CHADWICK and DABU 2009, WRIGHT et al. 1994), and thus can be regarded as an organizational asset. Consequently, investors are interested in the information a company provides about this resource and positively consider this information in their buy-and-sell decisions.

³² However, note that the regression analysis shown in column E reveals no significant influence of neither environmental nor social disclosures on returns per share. This might be due to the fact that changes in environmental and social disclosures in general are highly interrelated (see also the Pearson Correlations illustrated in Panel B of Table 9). Consequently, we analyzed both indexes separately in the regressions as shown in columns F and G.

5. Conclusion and Outlook

Companies increasingly disclose information on their social and environmental performance. Even if the provided information may be directed to stakeholders other than shareholders, it might also be relevant for the capital markets since it reduces information asymmetries between company-internal and external parties. Therefore, equity investors may be interested in the disclosed environmental and social information if it is relevant and reliable (that is, it provides additional insights into the companies' assets and liabilities).

In line with previous research we applied valuation models for determining the value-relevance of CSR information. Based on the core indicators of the GRI framework, we used content analysis to detect the amount and content of CSR reports provided by the 130 largest listed companies in Germany. In total, we analyzed more than 88,000 pages of corporate reports by generating four disclosure indexes for CSR reporting. By help of two established valuation models, we detected the provided CSR information's impact on firm value.

Overall, our results indicate that CSR information is value-relevant but its impact depends on the provided information. The provision of separate CSR reports is positively associated with share price. Additionally, disclosing social information is also positively associated with firm value. This might be due to information on the companies' workforce which is included in the social disclosure perspective. Furthermore, we found a negative relationship between the provision of environmental information and firm value in our price-levels analysis. Thus, capital markets may regard information on environmental aspects as information on the companies' liabilities. However, in our return-based analysis, environmental information is positively associated with changes in firm value. An explanation could be that disclosures provide insights into the companies' dealing with external pressures and, hence, in the companies' risk management system (which, in turn, is regarded as an asset in short-term valuation decisions).

As with all empirical studies, there are several limitations to this research. First of all, the industry classification is open to criticism as some industries are represented by only three or fewer companies. Furthermore, since some measures (especially net income per share) were not available for three industries, our sample was shortened by these industries which might have biased our results. Further limitations arise from the way content analysis has been applied. Using keywords as units of analysis may be an inappropriate methodology, as words are detached from their textual background. Additionally, deriving the keywords for the content analysis from the *GRI* guidelines is not free of risk, as the guidelines might not capture all of the relevant CSR aspects (MONEVA et al. 2006). Finally, the cultural aspects cannot be generalized since only one country was researched.

Despite these limitations, we believe that our results provide interesting insights into the value-relevance of CSR disclosure. However, additional research should investigate the role of environmental disclosures in more detail for identifying the factors which might influence share price and changes in share price. Disclosures on labor or human capital aspects have also to be considered in more detail, since there seems to be a substantial value potential from investors' perspective. Further research might also address the question whether there exists some kind of optimum in the provision of CSR information. Since some economists (e.g. SCHALTEGGER and SYNNESTVEDT 2002) suppose an optimum in the relationship between CSR and economic performance, the same implications could also exist for the provision of CSR information. Finally, CSR disclosure and its effects on all its addressees have to be examined, since reporting activities might primarily be directed to other stakeholders than only shareholders. Solely considering capital market implications might not be enough for identifying the opportunities which can arise from such voluntary disclosures.

Chapter IV:

The positive effects of human capital reporting³³

³³ This chapter has been written together with KLAUS MÖLLER (*Professor for Performance Management/Controlling, Institute of Accounting, Control and Auditing, University of St. Gallen, Switzerland*). The chapter has been accepted for publication in the *Corporate Reputation Review* (please cite as: GAMERSCHLAG, R., MÖLLER, K. (forthcoming), The positive effects of human capital reporting, in: *Corporate Reputation Review*).

1. Introduction

Human capital can be considered the most important driving force behind innovation creation (BONTIS 1998, LEV 2001, ZINGALES 2000). Thus, it is a key factor for sustainable competitive advantage (HUSELID 1995, PFEFFER 1994, PRAHALAD and HAMEL 1990, WRIGHT et al. 1994). Furthermore, human capital is often mentioned as a company's most important resource (e.g. GUENTHER and BEYER 2003, SVEIBY 2001). Hence, human capital is highlighted by the strategic management approach, against the background of the resource-based view (BARNEY 1991, GRANT 1996, PENROSE 1959, PRAHALAD and HAMEL 1990).

Human capital can be defined as a company's achievement potential with regard to its workforce, its labor capacity, and its workforce capabilities. It includes the knowledge and capabilities of the company's workforce as well as its motivation to make use of those qualities (e.g. BECKER 1983, SCHULTZ 1961). Accordingly, human capital reporting (HCR) can be defined as a company's reporting system, which provides information about its workforce's knowledge, capabilities, and motivation. Comprehensive reporting enables the recipients of such information to gain better insights into human capital potentials and properties. Hence, it becomes easier to assess the company's market position and to accurately evaluate its value creation potential (KAPLAN and NORTON 2004a, LEV 2001). This can increase the company's attractiveness and reputation.

Literature and practice offer a great many different concepts for measuring intangibles in general and human capital in particular (e.g. ANDRIESSEN 2004, BONTIS et al. 1999, EDVINSSON and MALONE 1997, FITZ-ENZ 2000, LEV 2001, NEELY et al. 2002, ROOS et al. 2004, STEWART 1999b, SVEIBY 2007 and 1997). Indicator-based and value-added approaches are often mentioned, specifically the balanced scorecard (KAPLAN and NORTON 1992 and 1996), the strategy map (KAPLAN and NORTON 2004a and 2004b), and the economic value-added (STERN et al. 1996, STEWART 1999a). However, there has to date been no consistent understanding of reporting on intangibles or on human capital (WYATT et al. 2004).

Although companies tend to provide members of the public with detailed information about their investments in tangible and financial assets, most of them neglect to provide meaningful information about the value of their workforce (e.g. LEV 2001 and 2004, STEWART 1999b). External reporting focuses almost entirely on financial data, while intangible values like human capital are not adequately considered (LEV 2001). Thus, a large portion of a company's resources does not appear on the balance sheet (ROSS et al 2008). One reason for neglecting to provide such information is that the potential profit from intangible resources might not be visible (MARR 2006 and STEWART 1999b). Nevertheless, future financial success is primarily based on such intangible values (LEV 2001 and 2004, SPENDER and GRANT 1996, STEWART 1999b, TEECE 1998): in a knowledge-based society, intangible values like human, structural, and relational capital are the key drivers of sustainable competitiveness of companies

and economies. Especially innovations are primarily achieved by investments in intangibles. When these innovations are commercially successful, they are transformed into cash flows and increase corporate value. Hence, intangibles can be regarded as claims to future values (LEV 2001). Consequently, the non-provision of information about intangible resources can lead to a discrepancy between companies' valuation by external parties and their real economic situations. HCR can be used to reduce this gap (LEV 2001).

Furthermore, HCR can contribute to a company's reputation since reporting on human aspects is associated with other corporate social activities and social disclosures. Against the background of the corporate social responsibility (CSR) debate, a company's relationship with its employees is gaining importance and is increasingly watched by members of the public. Since reporting shows how a disclosing company deals with its employees, HCR is able to improve corporate image and reputation through targeted communication with key stakeholders – for example, customers, investors, employees, and prospective employees. Additionally, (satisfied) employees might act as multipliers, and thus, can positively influence corporate reputation.

Nevertheless, few companies provide members of the public with meaningful information about their workforce. Highlighting the benefits of reporting activities could therefore help comprehensive HCR implementation. In this chapter, the advantages of this will be highlighted, which should advance the discussion of HCR. Ultimately, there should be clarity about HCR benefits from the perspectives of both reporting companies and stakeholders.

2. Internal effects and the benefits of HCR

To highlight the benefits of HCR, there must be clarity about the underlying cause-and-effect relationships. Visualizing these relationships can help one understand how intangible factors – such as human capital – are transformed into tangible results (KAPLAN and NORTON 2004a and 2004b, MARR 2006, MARR et al. 2004). Subsequently, it should be possible to derive the benefits of HCR. Against this background, we developed a theoretical model comprising a section of a company's value-adding process that focuses on human capital. Similar to a strategy map (KAPLAN and NORTON 2004a and 2004b), the model has a cause-and-effect system that links a company's human capital with its financial performance, while taking three factor levels into consideration (see Figure 7).

It should be noted that the model also considers the indirect relationships between the different factor levels as well as possible back couplings (MÖLLER 2009) and direct cost effects, in the sense of a direct cost reduction.

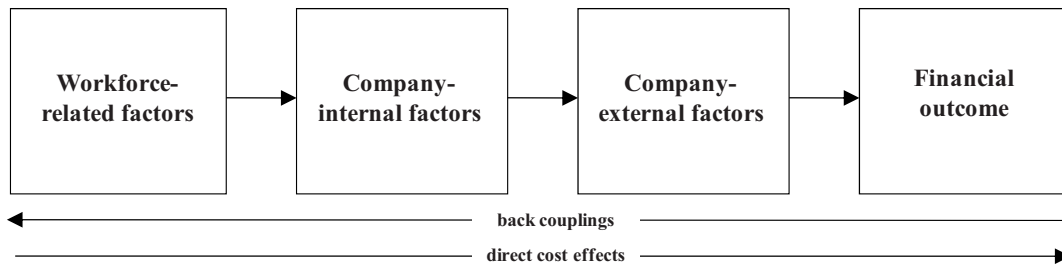


Figure 7: Cause-and-effect model of human capital

The relationships, back couplings, and effects comprise:

1. Workforce-related factors (human capital). These include the workforce's capabilities as well as its motivation and commitment. Hence, it is possible to equate workforce-related factors with a company's human capital. Furthermore, it is clear that all of these factors are interconnected, because they continuously influence one another (GUENTHER and NEUMANN 2005). Workforce-related factors thus directly influence company-internal factors.
2. Company-internal factors (structural capital). These include a company's performance, its innovation ability as well as its corporate culture. These factors describe the company's internal processes and can be regarded as its core competencies, which competitors find difficult to imitate. These internal factors mostly result from workforce abilities and constitute one of the most important drivers in competition (PRAHALAD and HAMEL 1990). Consequently, these competencies are often called the 'personality of the company' (DRUCKER 1995). The internal factors therefore directly influence the company-external factors.
3. Company-external factors (relational capital). These are parameters outside the company that are relevant to a company's success. They are reflected in a company's attractiveness and reputation as well as in the level of need satisfaction of service provision, thus concerning particular stakeholders. These external factors have a direct influence on the company's market value. They can be regarded as the link between a company and its environment, and enable sustained value creation. Thus, the company-external factors are directly reflected in the financial outcome.

The financial outcome can be regarded as a company's output quantity. In this context, either financial performance or shareholder value represents this financial outcome. Within the value-based view, financial performance is the company's main goal (RAPPAPORT 1998). Financial outcome can, however, be influenced by increased revenues or decreased costs. All the above-mentioned factors have a direct or indirect influence on financial performance, either through an increase in returns or a decrease in costs.

HCR can be used to positively influence the factors on all of these levels by improving transparency as well as a company's control of its objectives. Since the availability of crucial information is the main requirement for making well-founded

decisions, HCR can improve the quality of managers' decision-making. Consequently, the benefits of HCR can be directly derived from these workforce-related, internal factors, and external factors by improving them. Furthermore, it is possible to identify additional HCR benefits between the different factor levels. Finally, HCR can positively influence a company's financial performance. In the following three sections, the cause-and-effect relationships between the three factor levels and the specific benefits of reporting activities will be examined.

2.1. Workforce-related factors

Workforce-related factors can be divided into workforce motivation, workforce capability, and workforce commitment, which include the resulting workforce loyalty. All these factors are directly influenced by the two effects of HCR: transparency and controllability. Improving these factors can be regarded as the direct benefits of HCR.

Increase in workforce capabilities: Workforce capabilities include individual employees' competence and qualifications and result from their education and experience. By training its staff, a company can influence and improve their capabilities. By using HCR, a company can further improve its workforce's capabilities due to the increased transparency, improved controllability (EDVINSSON and MALONE 1997), enhanced workforce motivation, and improved workforce commitment that it provides. Against this background, the influences shown in Figure 8 come into effect. The results that can be derived from improved workforce capabilities are revealed in an increase in job performance (BARTEL 1994, GUENTHER and NEUMANN 2005, HUSELID 1995) as well as in an increase in the company's knowledge base (owing to training activities, the employees' accumulated knowledge improves), which is positively reflected in the internal factors.

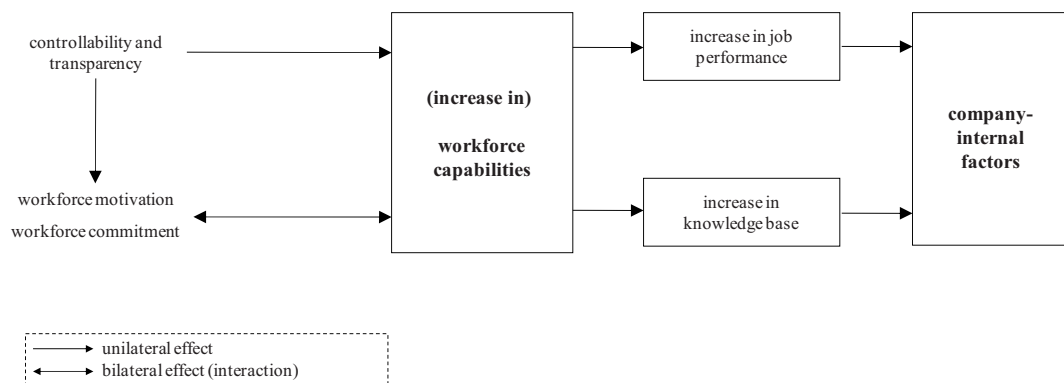


Figure 8: Effects and benefits of increased workforce capabilities

Increase in workforce motivation: Workforce motivation examines individual employee willingness to perform to the company's objectives. Together with workforce capability, workforce motivation is highly significant for a company. In

addition, by means of HCR, a company can improve workforce motivation by increasing company transparency (the decisions and structures become more transparent, which positively influences motivation), workforce capability, and commitment (ATKINSON et al. 1997). The results of improved workforce motivation are an increase in job performance (BECKER 1983, HUSELID 1995), a decrease in absenteeism, and improved knowledge-sharing as a result of improved communication between employees (BONTIS and FITZ-ENZ 2002). These effects directly influence the company-internal factors.

Increase in workforce commitment: Workforce commitment can be described as the employees' emotional allegiance or their identification with their employer. It is based on their acceptance of the company's goals and values. Workforce commitment normally leads to employees being highly loyal to their employer. Consequently, it is possible to regard workforce commitment and loyalty as one entity (MOWDAY et al. 1982). Workforce commitment is directly influenced by transparency and controllability as well as by workforce motivation. The results that can be derived from enhanced workforce commitment are a decrease in turnover costs (fewer employees leave the company), an improved company knowledge base (knowledge doesn't leave the company as it does when employees continue to leave), improved performance (RIKETTA 2002, SIDERS et al. 2001) and, finally, an increase in customer loyalty (the 'one face to the customer' does not often leave the company).

2.2. Company-internal factors

The internal factors include operational performance, innovation ability, and organisational culture. These factors are directly influenced by transparency and controllability (enabling targeted intervention) as well as by workforce-related factors. Improvement in the internal factors can be considered indirect benefits of HCR.

Increase in innovation ability: This is a company's ability to continuously create innovations to protect or create future competitive advantages and cash flows. From this long-term perspective, competitiveness results from a company's ability to create new knowledge and integrate it into new products (JOHNSON 2002, NONAKA 2007). Hence, a company's innovation ability can be equated with either its sustainability or its survivability. Furthermore, a company's innovation ability is wholly dependent on its workforce's capability and motivation. Through the various benefits that can be derived from workforce-related factors, HCR positively influences innovation ability. The expected results of HCR are revealed in improved products, improvement in the product and process development as well as in the entire company's improved sustainability. Figure 9 summarizes the effects and benefits of enhanced innovation ability.

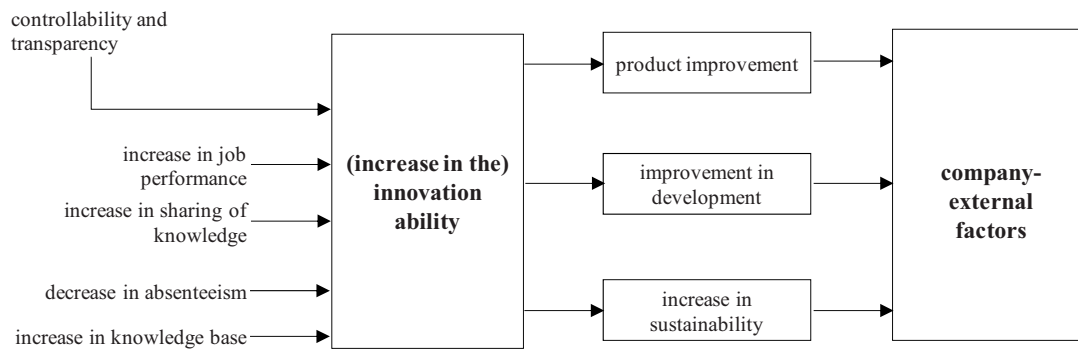


Figure 9: Effects and benefits of an increased innovation ability

Increase in operational performance: In this context, operational performance can be regarded as the processes' current capability to create competitive advantages. From this short-term perspective, the company's competitiveness results from the existing products' price-performance ratio (PRAHALAD and HAMEL 1990). Hence, it is important to focus on the efficiency of operational sequences as an outcome of workforce-related factors. HCR can improve the operational performance by, for example, allocating human resources more effectively within a company (PETTY and GUTHRIE 2000). The results of HCR that can be derived from improved operational performance are improved product quality, lower process costs, and a reduction in the required processing time.

Improvement in organisational culture: The organisational culture includes all the values and cultural norms within the company. A good organisational culture can influence company members' actions in a positive way. Organisational culture can also be positively influenced by well-directed internal communication and enhanced transparency – a core element of a pleasant organisational culture. Increased motivation and commitment of the company's workforce can also lead to an improved work atmosphere. The benefit of an improved organisational culture (internal perspective) is an improved image and reputation of the company as a whole (external perspective), which has a direct influence on the external factors. Furthermore, an improved organisational culture retroactively affects workforce-related factors like workforce motivation (NEELY et al. 2002, PFEFFER 1998) and commitment (ATKINSON et al. 1997) by acting as a multiplier.

2.3. Company-external factors

The external factors consist of a company's attractiveness and reputation as well as the degree to which specific stakeholders' need satisfactions are met. The external factors are directly influenced by transparency and controllability. They are indirectly influenced by workforce-related factors and directly influenced by company-internal factors. An improvement in the external factors can therefore also be regarded as indirect benefits of HCR.

Increase in company attractiveness and reputation: This refers to a company's attractiveness and reputation to specific external stakeholders. According to the stakeholder approach, the company can be viewed as an instrument to satisfy different stakeholder group needs (BERMAN et al. 1999, DONALDSON and PRESTON 1995, FREEMAN 1984, FROOMAN 1999, MITCHELL et al. 1997, ROBERTS 1992). In other words, each group of stakeholders evaluate the company according to their specific needs (which can be associated with the company's objective, actions, and/or outcomes). The results of HCR that can be derived from a company's improved attractiveness and reputation are the simplified acquisition of new customers, suppliers, investors, employees, and new cooperation partners, as well as facilitating the obtaining of subsidies (see Figure 10). Consequently, an increase in the company's attractiveness and reputation has a direct effect on financial performance.

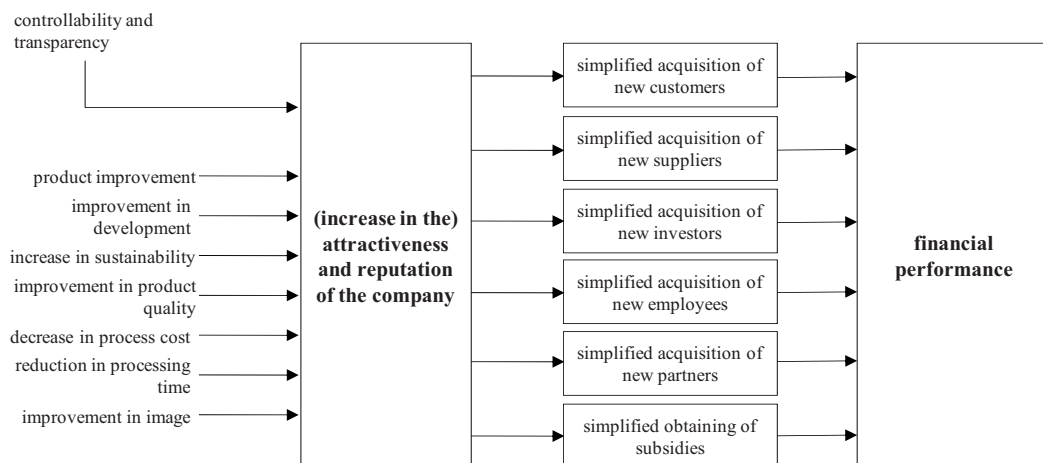


Figure 10: Effects and benefits of an increased attractiveness and reputation

Increase in the degree of need satisfaction: The degree of need satisfaction describes a company's ability to satisfy specific external stakeholder needs. HCR provides these stakeholders with better information. This helps them make better decisions with ease (LEV 2001, ROOS et al. 2004). Thus, information asymmetries, agency costs, and transaction costs are reduced (BOTOSAN 1997, EISENHARDT 1989, HEALY and PALEPU 2001, JENSEN and MECKLING 1976). HCR also takes effect indirectly through improved workforce-related factors, internal factors, and the resulting benefits. Furthermore, due to the enhanced level of need satisfaction, HCR directly affects the company's value through the benefits obtained from improved satisfaction on the part of customers, suppliers, and investors as well as from cooperation partner loyalty and the facilitation of the obtaining of subsidies. As an entity, the described factors have a direct influence on a company's financial performance.

2.4. Summary – the positive effects of HCR

By means of the developed model, it is possible to identify the benefits of HCR by taking three levels of (intangible) factors into account: workforce-related factors, company-internal factors, and company-external ones. By improving these factors, benefits can be derived from HCR. Additional HCR benefits are also identifiable between these factor levels. Finally, it is possible to verify the impact of HCR on the company’s value. Thus, from the company’s point of view, HCR’s value added lies in improving the described factors (including their results) as well as in an improved company financial performance. Figure 11 summarises the described model. It shows the three factor levels (workforce-related, company-internal, and company-external factors), the financial outcome as well as the effects of HCR (transparency and controllability). If the reporting activities can improve all of these factors, the company’s value must also increase.

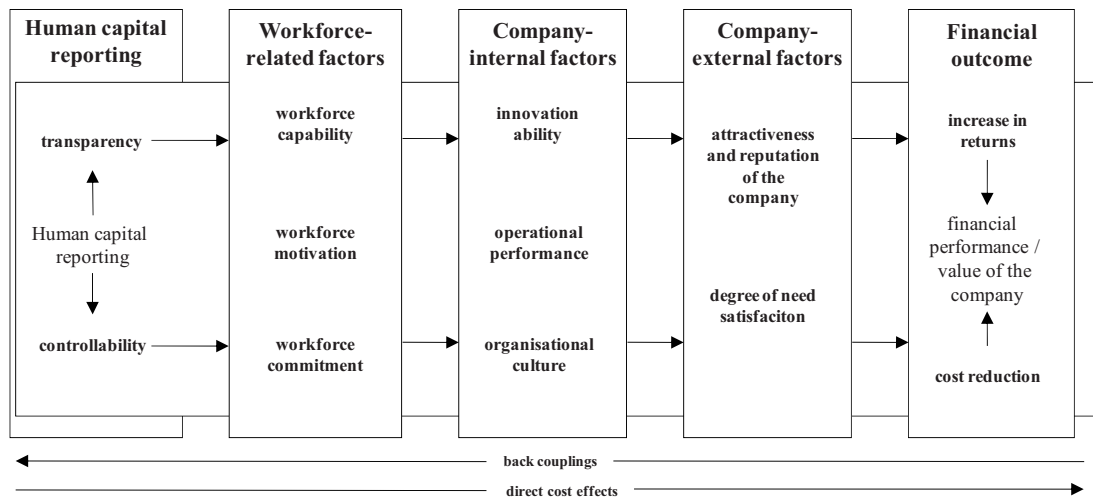


Figure 11: Cause-and-effect model of reporting on human capital (full model)

3. Conclusions and hypotheses

While companies tend to provide members of the public with detailed information about their investments in physical and financial assets, they generally fail to provide information about their most important resources – for example, their employees. This paper considers the potential benefits of HCR. It describes how a company can improve its financial performance with the help of these reporting activities. Consequently, we developed a model that shows the impact of HCR through various cause-and-effect relationships. The model assumes a positive relationship between workforce-related factors such as workforce capability or workforce motivation, and company financial performance. Due to various cause-and-effect relationships, these workforce-related factors positively influence company-internal and company-external factors, which can lead to stronger financial performance. The model seeks to show possible positive effects of HCR on financial performance. This paper’s

contribution lies in visualising these relations in an intuitive way and, therefore, in visualising all effects of human capital and HCR on the company's financial outcome. Indeed, almost all individual elements of the model have previously been scientifically considered. However, according to our knowledge, there had been no consolidation of the individual aspects with regard to HCR.

Nevertheless, this paper also offers opportunities for further research. Especially the underlying assumptions of the model must be verified in detail. These assumptions could be tested empirically. The main challenge lies in finding a way to converting the contents of HCR into measurable units that can be compared with other measures. One possible way to do this could be to apply (word-based) content analysis for extracting the amount and content of the provided information from corporate reports by focusing on various information categories (e.g. GAMERSCHLAG et al. 2010, GUTHRIE et al. 2004). Thus, this paper can be regarded as a starting point for further research by articulating hypotheses that can be tested in the future.

Since it can be assumed that – due to the voluntary nature of such disclosures – companies only provide human capital information if this information is “good”, we posit that

H1: *there is a positive relationship between the disclosure of human capital information and workforce's capabilities, motivation, and commitment.*

These aspects could be evaluated, for example, by ongoing employee attitude surveys, the results of which could be compared with the information disclosed by the company. Based on previously defined questions, these surveys could be conducted on a monthly basis to get timely feedback. The relationship between HCR and company-internal factors should also be considered further, since:

H2: *There is a positive relationship between the disclosure of human capital information and company-internal factors, such as organisational performance or innovation ability.*

These company-internal factors could be operationalised, for example, by measures such as added value per hours worked or number of implemented suggestions per employee. With regard to company-external factors, we assert that:

H3: *There is a positive relationship between the disclosure of human capital information and*

H3a: *the attractiveness and reputation of a company with regard to external stakeholders*

H3b: *the degree of external stakeholders' need satisfaction.*

Depending on the specific stakeholder group, different measures could be used to verify these hypotheses. With regard to possible employees, for example, the number

of (speculative) job applications could be compared with the disclosed human capital information.

If all the identified cause-and-effect relationships are proved, there must be a positive correlation between the provided human capital information and financial performance measures (e.g., revenues, turnover, sales, or profit ratios such as return on investment). Thus, we posit that:

H4: *There is a positive relationship between the disclosure of human capital information and financial performance measures.*

Since investors are interested in their companies' (future) financial performance, there should also be a positive correlation between the disclosed human capital information and the capital market company valuation – for example, represented by share price or market capitalization. Consequently, we assert that:

H5: *There is a positive relationship between the disclosure of human capital information and the capital market valuation of a company's shares.*

This hypothesis can be verified by using publicly available capital market data. Against this background, the provided human capital information (for example extracted from corporate reports by means of content analysis) can be compared with the company's capital market performance by applying various valuation models (see BARTH et al. 2001). Furthermore, the value-relevance of specific human capital information from the perspective of investors can be evaluated.

The practical implications of this paper can be found in the detailed analysis of the internal benefits that can arise from comprehensive HCR. With the help of the model, it is easier to identify HCR's value-added by understanding the underlying effects. Thus, specific benefits of reporting can be identified and practical conclusions can be derived. Finally, the model serves as a basis for designing instruments for strategic performance management, with a focus on human capital. The different dimensions of the model can be operationalised by defining key performance indicators (KPIs), which can verify a company's performance.

This paper's contribution to literature and theory lies in advancing the indicator-based approaches of strategic performance management of the described intangible factors and their interrelationships. Furthermore, this paper identifies the relevant information that HCR must provide its recipients. This is possible by identifying the most important cause-and-effect relationships of HCR. The specific indicators that can deliver this information are also visualised in the form of different identified factors with the help of the developed model.

Chapter V:

The value-relevance of human capital information³⁴

³⁴ This chapter has been written in single authorship.

1. Introduction

In our knowledge-based economy, successful companies' most important assets are intangible (e.g. EDVINSSON and MALONE 1997, LEV 2001, STEWART 1999b). Especially an organization's human capital can be regarded as a valuable resource and as a key factor behind sustainable competitive advantages (HUSELID 1995, PFEFFER 1994, PRAHALAD and HAMEL 1990, WRIGHT et al. 1994 and 2001). However, until today, companies only disclose limited information on this resource. The results are information asymmetries between internal and external parties, agency and transaction costs as well as possible market inefficiencies (HEALY and PALEPU 2001). One reason for this neglect in providing decision-relevant information may be the missing or incomplete legal regulations in the field of human capital disclosures. Consequently, for investors – amongst others – it is not possible to clearly become aware of their investment objects' value-adding potential since information on crucial resources is not available (LEV and ZAROWIN 1999).

Nevertheless, it can be assumed that human capital information is used for investors' valuation and investment decisions if this information is relevant and reliable (that is, it provides additional insights into the firm's assets or liabilities): efficient capital market theory suggests that share prices³⁵ always reflect all public available information (FAMA 1970 and 1991, FAMA et al. 1969). Therefore, investors are assumed to factor the available information and the presumed consequences into decisions whether or not to buy or to sell the corresponding firm's stocks (ACLAND 1976, LEV 2001, WYATT 2008). That is, human capital information can be expected as being "value-relevant".

Value-relevance of intangible assets disclosures in general and human capital disclosures in particular have been in focus of several previous studies. Most of them have focused on intangible assets in general, and thus also considered information on the companies' structural and relational capital (e.g. ABDOLMOHAMMADI 2005, BARTH et al. 2001, CANIBANO et al. 2000, HOLTHAUSEN and WATTS 2001, LEV 2001, MAINES et al. 2002 and 2003, WYATT 2008). Consequently, these studies at best marginally considered the value-relevance of human capital information. Those studies explicitly focusing on human capital disclosure only considered very special aspects of such disclosures, for example employee stock option costs or information on managerial skills. That is, according to my knowledge, until yet no study explicitly evaluated the value-relevance of overall (nonfinancial) human capital information provided in corporate annual reports.

The purpose of this paper is to empirically analyze if human capital information voluntarily disclosed by German companies is valued by the capital markets, and if so, which specific information is value-relevant. I construct a human capital disclosure index based on previous studies and extracted from the reports by means

³⁵ Please note that I use the terms „share price“, „firm value“ and „company value“ interchangeably since differences are only a question of scaling.

of content analysis. Subsequently, I use established valuation models to identify the value-relevance of the disclosed human capital information. In other words, I analyze whether human capital information is reflected in share price. Furthermore, I analyze whether the disclosed human capital information leads to (short term) changes in share price.

My results show that human capital information is value-relevant for equity investors. Especially information with regard to qualification and competence issues is positively associated with firm value. However, disclosure of human capital information does not cause any changes in share price in the analyzed time frame. Hence, human capital information is value-relevant but not timely.

My study contributes to a greater understanding of human capital disclosure and its' implications for the capital markets. First, it contributes to the role of (voluntary) disclosures in capital markets since the provision of human capital information helps to reduce information asymmetries arising between the firm and its shareholders as well as between different groups of investors. By receiving the demanded human capital information, investors can better evaluate the economic constitution of the disclosing company (HEALY and PALEPU 2001, LEUZ and VERRECCHIA 2000). Second, it contributes to human capital theories by helping to localize human capital's primary components. The positive valuation of qualification and competence issues is in line with human capital theories which mostly focus on these issues (see BLAUG 1976). Finally, my study helps to identify the relevant information such disclosures have to provide to its addressees for reducing potential information asymmetries (HEALY and PALEPU 2001). This, for example, could be of interest to standard setters when defining how and what information companies should disclose on human capital issues.

The chapter is structured as follows: in the next section, I will review the relevant theory and derive the hypotheses to be tested in the study. Section 3 contains the study design and the methodology. Section 4 presents my results together with a discussion and interpretation of these. The study concludes with a summary, a description of its limitations and an outlook on further research.

2. Theory and hypothesis development

2.1. Human capital and the resource based view of the firm

Within the strategy literature, the discussion of what contributes to corporate success has moved away from external positioning in the industry (e.g. PORTER 1998) towards an acknowledgement that competitive advantages are mostly ascribed to the availability of organizational resources (BARNEY 1991, PENROSE 1959, WERNERFELT 1984, WRIGHT et al. 1994 and 2001). These resources are held by the company and are bundled together in a unique and dynamic way. They constitute the main drivers

behind corporate success if they are rare, hard to imitate, nonsubstitutable, and if they reside within the organization (BARNEY 1991).

In the industrial age, competitive advantages usually have been based on physical and financial resources. Since these resources are increasingly easy to imitate, they are rapidly becoming commodities, yielding at best an average return on investment (LEV 2001).

Today, future organizational success is mostly based on intangible values (EDVINSSON and MALONE 1997, LEV 2001, SPENDER and GRANT 1996, STEWART 1999b, SVEIBY 1997, TEECE 1998). According to LEV (2001), intangibles are claims to future benefits that do not have a physical or financial embodiment. Basically, these intangible values consist of an organization's structural, relational as well as of its human capital (EDVINSSON and MALONE 1997). While structural capital relates to internal structures and processes, relational capital considers the organizations relationship to external stakeholders. Human capital refers to the organization's achievement potential with regard to its workforce. It constitutes the other intangible values' lynchpin, as they cannot create value in its absence.

Human capital includes the employees' accumulated qualifications and competencies as well as their motivation to make use of it (capability and willingness to perform; see BECKER 1964, SCHULTZ 1961). A long time ago, human capital theories have recognized the overall importance of the human factor, as the early works of SMITH (1776), MINCER (1958), SCHULTZ (1961), and BECKER (1964) show. In short, these theories propose that economies, organizations and/or individuals can improve their performance, efficiency, and remunerations by investments in education (BLAUG 1976). Moreover, human capital theories as well as economic theory argue that sustainable economic growth and competitiveness solely depend on the creation of innovations, and thus, finally on human capital (BARRO 2001, BONTIS 1998, MANKIW et al. 1992, SOLOW 1956, ZINGALES 2000).

Correspondingly, against the background of human capital theories and the resource based view of the firm, human capital must be regarded as a central factor behind the competitiveness of organizations since it is one of the organization's most valuable resources (CHADWICK and DABU 2009, HUSELID 1995, PFEFFER 1994, PRAHALAD and HAMEL 1990, SNELL et al. 1996, WRIGHT et al. 1994 and 2001).³⁶ Therefore, human capital's relevance for most companies' overall corporate performance might increasingly be recognized by capital market participants.

³⁶ According to this, a "knowledge based view" as well as the "core-competence" approach have emerged which specify the debate of the resource based view with regard to human capital (see GRANT 1996, NONAKA and TAKEUCHI 1995, POLANYI 1958, SPENDER 1994; SPENDER and GRANT 1996, SVEIBY 1997). Thus, employees can no longer be considered as a cost to be minimized (the view taken in the industrial era) but have to be seen as a resource being nurtured and optimized: firm value creation results from treating employees as an asset; solely considering employees as a cost factor or trying to make profits through labor exploitation probably result in value extraction – at least in the long run (ABHAYAWANSA and ABEYSEKERA 2008).

2.2. Value-relevance of information

Efficient capital market theory suggests that investors use all relevant information when making their decisions on whether to buy or to sell a company's shares (BEAVER 1981, FAMA 1970 and 1991, FAMA et al. 1969). That is, traded values always reflect all available information about the corresponding firm. In recent literature, research on capital markets supports a "semi-strong" form of market efficiency as share prices, on average, are assumed to reflect all publicly available information (BEAVER 1981, FAMA 1970 and 1991, FAMA et al. 1969).

In general, information is defined as being value-relevant if it has a predicted association with equity market values (BARTH et al. 2001). That is, the information is used by investors for making their investment decisions. Value-relevant information thus directly influences the firm's market value. Hence, value-relevance research examines the association between the provided information and equity market values by assuming that these values reflect investors' consensus beliefs (BALL and BROWN 1968, BARTH et al. 2001).

2.3. Human capital disclosure and value-relevance of the provided information

Human capital disclosure can be regarded as the information voluntarily provided by a company about its workforce's knowledge, capabilities, and motivation by using corresponding communication channels. Although companies tend to disclose detailed information about their investments in physical and financial assets, most of them neglect to provide meaningful information about the value of their human capital. External reporting focuses almost entirely on financial data, while intangible resources like human capital are not adequately considered (CANIBANO et al. 2000, GUIMON 2005, LEV 2001 and 2004, LEV and ZAROWIN 1999, STEWART 1999b, STOLOWY and JENY-CAZAVAN 2001). Furthermore, since a company does not own its human capital, it cannot be activated as an asset. Therefore, a large portion of a company's resources does not appear on the balance sheet (LEV 2001, STEWART 1999b, ROSS et al. 2008). Several groups have thus called for greater disclosure of information about human capital and other intangible resources (e.g. MAINES et al. 2002 and 2003).

Since information on the companies' workforce is only available to a limited extent, for investors it is not possible to clearly become aware of these companies' value-adding potential (LEV and ZAROWIN 1999). Referring to the information as well as the agency problem (HEALY and PALEPU 2001), this leads to information asymmetries which can create costs by introducing adverse selection into transactions between buyers and sellers of firm shares (LEUZ and VERRECCHIA 2000). Consequently, the non-provision of information about human capital can lead to a discrepancy between companies' valuation by external parties and their real economic situations (HEALY and PALEPU 2001). The results are potential agency and

transaction costs, a misallocation of resources as well as possible (capital) market inefficiencies (AKERLOF 1970, COASE 1937, EISENHARDT 1989, JENSEN and MECKLING 1976, LEV 2001).

Increased levels of disclosure with regard to human capital are able to reduce the possibility of arising information asymmetries (DIAMOND and VERRECCHIA 1991, LEUZ and VERRECCHIA 2000, LEV 2001); comprehensive disclosures enable the recipients of such information to gain better insights into human capital potentials and properties. Hence, it becomes easier to assess the company's market position and to accurately evaluate its value creation potential (BUKH 2003, HEALY and PALEPU 2001, LEV 2001). By receiving the demanded information, equity investors can better evaluate the economic constitution of the disclosing company (VAN DER MEER-KOOISTRA and ZIJLSTRA 2001). They use this information in making their decisions whether to invest in a company or not. Consequently, information provision leads to reduced agency and transaction costs as well as to an improved allocation of resources (BOTOSAN 1997, BOTOSAN and PLUMLEE 2001, HEALY and PALEPU 2001).

A great body of empirical literature endorses this view while touching various issues (see WYATT 2008): for example BELL et al. (2002) found that employee stock option related costs are value-relevant. BALLESTER et al. (2002) examined the proportion of US labor costs that are relevant to investors. Furthermore, ABDEL-KHALIK (2003) found that information on managerial skills for executives on the Board of Directors is value-relevant. Based on accounting measures, LAJILI and ZÉGHAL (2005 and 2006) constructed indexes of human capital productivity and efficiency and related these to stock price performance. They found that labor costs voluntarily disclosed in financial statements are potentially useful for evaluating human capital, and thus, are value-relevant. Besides that, several different studies also identified that human capital management practices are related to higher firm performance in various areas (e.g. HUSELID 1995, HUSELID et al. 1997, ICHNIOWSKI et al. 1997, WYATT 2008).

As a result of the aforementioned arguments, it can be assumed that human capital information voluntarily disclosed by companies is highly relevant for investors' valuation and investment decisions. They factor the available human capital information and the presumed consequences into decisions whether or not to buy or to sell the corresponding firm's stocks (ACLAND 1976, LEV 2001, WYATT 2008). Consequently, the disclosed human capital information should be valued by capital markets, and thus, in average should be reflected in the companies' share prices. That is, human capital information can be assumed as being value-relevant. Accordingly, I posit:

H: *Human capital information is value-relevant to the stock market.*

3. Design of the study and methodology

3.1. Sample construction

To empirically analyze the value-relevance of voluntarily provided human capital information, I focus on Germany for at least two reasons: comparability (i.e. exclusion of institutional differences) and the voluntary disclosure environment. Providing information on human capital issues is closely related to voluntary corporate social responsibility (CSR) disclosures.³⁷ Since CSR and corresponding disclosures are assumed to differ among countries (MATTEN and MOON 2008), human capital reporting might also be affected by those different institutional settings. Therefore, I decided to concentrate on corporations with an identical political and societal background for generating a homogenous dataset. Consequently, I focused on companies from one and the same country. I chose Germany because only few requirements for human capital disclosure are available.³⁸

I focus on the German *DAX*, *MDAX*, and *SDAX*. These three indexes include the 130 largest listed German companies (see DEUTSCHE BOERSE 2010). My sample focuses on the index composition as at the end of 2008. I consider four reporting periods between 2005 and 2008.³⁹ In line with previous research I concentrated on the annual report since it constitutes the most important reporting instrument between a company and the capital markets (ABDOLMOHAMMADI 2005, ABEYSEKERA 2006, GUTHRIE et al. 2004, VANDEMAELE et al. 2005). Only reports provided in English have been considered (all companies in the sample provide their annual reports in English as well as in German). Since some companies' reports were not available for all the years (for instance, if a company entered one of the indices after 2006), my sample has been shortened by 35 observations. Thus, I obtain 485 firm-year observations in total.⁴⁰ Since some information was not available for all sample companies, I lost 81 observations. For example, for some industries (banks, insurance and technology) net income was not available at THOMSON ONE BANKER (2009). Hence, I finally obtained 369 valid firm-year observations.

³⁷ Amongst other aspects, CSR also considers labor issues (for an overview see BOWEN 1953, CARROLL 1999 and 2006, CRANE and MATTEN 2007, DE BAKKER et al. 2005).

³⁸ For instance, according to *DRS 15* companies have to disclose information which might have a substantial impact on firm value or which might be relevant for the companies' future development. Thus, even if human capital is not explicitly mentioned, companies are encouraged to provide information (or at least "some" information) on their workforce's ability if it might have an impact on corporate performance.

As for CSR disclosures in general, German companies are not obliged to provide any information. Hence, such disclosures are free of regulation.

³⁹ The composition of the *SDAX* changes particularly frequently, as companies continuously enter or leave the index. Therefore, considering more than four reporting periods in my analysis would have disproportionately shortened the number of observations in the sample.

⁴⁰ On the whole, I analyzed a total of 82,000 annual report pages.

3.2. Identification of keywords

As pointed out in *Chapter I*, I use word-based content analysis to quantify the amount of human capital information in corporate annual reports. Basically, I use the framework provided by ABDOLMOHAMMADI (2005) for defining the keywords used in the analysis. As Table 11 shows, these keywords are mostly in line with the content used by other studies, which, in recent literature, are often mentioned against the background of intellectual capital disclosures in general (APRIL et al. 2003, BONTIS 2003, BOZZOLAN et al. 2003, BRENNAN 2001, BUKH et al. 2005, CORDAZZO 2007, DAVEY et al. 2009, FLÖSTRAND 2006, GARCIA-MECA 2005, GUTHRIE et al. 2009, GUTHRIE et al. 2004, GUTHRIE and PETTY 2000) and human capital disclosures in particular (ABEYSEKERA and GUTHRIE 2004, OLSSON 2001).⁴¹

Keyword	Category	Previous studies															
		Abdolmohammadi (2005)	Abeysekera and Guthrie (2004)	April et al. (2003)	Bontis (2003)	Bozzolan et al. (2003)	Brennan (2001)	Bukh et al. (2005)	Cordazzo (2007)	Davey et al. (2009)	Flöstrand (2006)	Garcia-Meca (2005)	Guthrie et al. (2009)	Guthrie et al. (2004)	Guthrie and Petty (2000)	Olsson (2001)	
brain power	Qualification / competence	x															
competence		x				x		x									
competencies		x				x		x									
education		x	x	x		x	x	x	x	x		x	x	x	x	x	x
expertise		x			x												
intangible skills		x															
intelligence		x															
know-how		x	x	x	x	x	x			x							x
knowledge		x		x	x	x	x			x			x	x	x		x
learning						x							x				
qualification				x	x			x			x						x
specialist			x														
training			x	x					x	x			x	x	x		
absence	Motivation / Commitment							x	x								
career			x					x	x		x	x					
employee retention			x														
employee satisfaction			x														
employee commitment																	
employee turnover									x								
entrepreneurial spirit				x	x			x		x				x	x		
motivation			x														
staff turnover								x			x						
diversity	Personnel					x							x				
empowerment			x														
human resource			x														
personnel			x						x								x
recruiting									x	x			x				x
recruitment									x	x			x				x

The cross indicates on which studies the corresponding keyword is based

Table 11: Keywords for the content analysis derived from previous studies

⁴¹ However, as Table 11 indicates, I finally applied a more comprehensive framework than the one provided by ABDOLMOHAMMADI (2005) by adding eleven more keywords derived from these other studies.

By deriving the keywords, singular and plural forms have been considered (“competence” / “competencies”). In line with the framework provided by ABDOLMOHAMMADI (2005) and the overall human capital literature (e.g. SCHULTZ 1961, BECKER 1964), I classified the keywords in three categories: Keywords which contain information regarding the workforce’s “qualification / competence” and regarding its’ “motivation / commitment”. Additionally (and according to ABDOLMOHAMMADI 2005), I added a perspective on “personnel” information since human resource management practices are essential for human capital’s future development (e.g. HUSELID 1995, HUSELID et al. 1997, ICHNIOWSKI et al. 1997). As shown in Table 11, I finally obtained a total number of 27 keywords.

3.3. Value-relevance: applied valuation models

Value-relevance studies use various valuation models to structure their tests. Typically, equity market values are used as the valuation benchmark to assess how well particular accounting amounts reflect information used by investors (BARTH et al. 2001). In line with previous studies (e.g. BARTH et al. 1998, BARTH and CLINCH 1998, GOODWIN and AHMED 2006, LIANG and YAO 2005, KALLAPUR and KWAN 2004, KOHLBECK and MAYHEW 2009, WYATT 2008) I employ a model that is based on OHLSON (1995) and its subsequent refinements (FELTHAM and OHLSON 1995 and 1996, OHLSON 1995 and 1999). The model is based on the assumption that a company’s value equals book value plus a linear function of current abnormal earnings and the scalar variable representing other information (BARTH et al. 2001, OHLSON 1995). This model examines price or market value levels by identifying how well particular accounting amounts are reflected in firm value (BARTH et al. 2001). Consequently, this model analyzes what is reflected in share prices. I employ the model in the following way:

$$SP = f(BVE/S; NI/S; HCRDISC; YR; IND),$$

where SP is the share price (of common shares), BVE/S is the book value of equity per share, NI/S is the net income per share and HCRDISC is a human capital disclosure index which can be interpreted as the ‘other information’ contained in the model. YR and IND stand for year and industry dummies.

An alternative approach to assessing value-relevance lies in examining changes in share price. This return-based approach determines what causes changes in firm value over a specific period of time (BARTH et al. 2001). In line with previous literature (e.g. BARTH et al. 1998 and 2001) I apply the following model:

$$RET = f(NI/S; DNI/S; DHCRDISC; YR; IND),$$

where RET is the return per share, DNI/S is the change in net income per share and DHCRDISC is the change in the human capital disclosure index. NI/S, YR and IND are as previously defined.

3.4. Dependent variables

As for the price levels model I use share price (SP) of common shares as the dependent variable in the regression. I take the closing price from the last day of the quarter in which the annual report of the corresponding company was published. This information is taken from THOMSON ONE BANKER (2009).

As for the return-based analysis, I use return per share (RET) as the dependent variable. RET is calculated as:

$$RET = ([SP_t - SP_{t-1}] + DIV/S) / SP_{t-1}$$

where SP_t is the closing price from the last day of the quarter in which the annual report of the corresponding company was published. SP_{t-1} is the closing price from the last day of the previous quarter. I obtained the information from THOMSON ONE BANKER (2009). DIV/S is the corresponding company's dividend payment per share in the previous year. This information was taken from the website of DEUTSCHE BOERSE (2010).

3.5. Independent and control variables

I use the book value of equity per share (BVE/S) as well as net income per share (NI/S) for the independent variables needed for applying the price levels model. I calculate these two variables since book value of equity, net income, as well as the number of shares outstanding are available at THOMSON ONE BANKER (2009). Change in net income per share (DNI/S) is defined as NI/S minus NI/S of the previous year.

As for the 'other information', I am interested in the human capital information provided through the sample companies' annual reports. In respect of the amount of human capital disclosure I compiled four variables extracted from the provided reports by means of content analysis based on the defined keywords:

$$HCRTOT = HCRQC + HCRMC + HCRPS$$

where HCRTOT is the total quantity of human capital disclosure; HCRQC is the amount of disclosed information with regard to "qualification / competence" issues; HCRMC is the amount of disclosed information with regard to "motivation / commitment" issues and HCRPS is the amount of provided information on "personnel" issues (total number of keywords found in the analyzed report). All variables were identified for each of the companies and each single year. Thus, the indexes reflect the number of hits when searching for all keywords in each category.

Since shareholders do not only evaluate the total amount of human capital disclosures but also take other disclosures of the corresponding company into account, I divided the number of hits by the analyzed reports' number of pages to control for these other disclosures.

Change in total disclosure (DHCRTOT) is defined as HCRTOT minus HCRTOT of the previous year. The sub-indexes (DHCRQC, DHCRMC and DHCRPS) are correspondingly defined.

As for the control variables I used year as well as industry dummies. I used the classification provided by DEUTSCHE BOERSE (2010) to classify the sample companies into 18 industries (see Table 16 in the Appendix). Thereafter, I applied dummy variables to distinguish between industries and years.

Table 12 offers a summary of the data sources, the dependent and independent variables, as well as their abbreviations.

Variable	Measure		Source
	Abbreviation	Explanation	
Share price	SP	Share price at the end of the reporting period (quarter), dependent	Thomson One Banker (http://banker.thomsonib.com/)
Return per share	RET	Return per share (incl. dividend payments), dependent	Thomson One Banker (http://banker.thomsonib.com/), calculated
Book value of equity per share	BVE/S	Book value of equity per share, independent	Thomson One Banker (http://banker.thomsonib.com/), calculated
Net income per share	NI/S	Net income per share, independent	Thomson One Banker (http://banker.thomsonib.com/), calculated
Total disclosure index	HCRTOT	Extracted from the reports by means of content analysis, independent	Provided reports
Disclosures on qualification and competence issues	HCRQC	Extracted from the reports by means of content analysis, independent	Provided reports
Disclosures on motivation and commitment issues	HCRMC	Extracted from the reports by means of content analysis, independent	Provided reports
Disclosures on personnel issues	HCRPS	Extracted from the reports by means of content analysis, independent	Provided reports
Change in the total disclosure index	DHCRTOT	HCRTOT minus HCRTOT of the previous year	Provided reports, calculated
Change in disclosures on qualification and competence issues	DHCRQC	HCRQC minus HCRQC of the previous year	Provided reports, calculated
Change in disclosures on motivation and commitment issues	DHCRMC	HCRMC minus HCRMC of the previous year	Provided reports, calculated
Change in disclosures on personnel issues	DHCRPS	HCRPS minus HCRPS of the previous year	Provided reports, calculated
Industry classification		1 / 0, independent	DEUTSCHE BOERSE (www.boerse-frankfurt.com)
Year dummies		1 / 0, independent	

Table 12: Source of data

4. Results and discussion

4.1. Descriptive statistics and correlations

Table 13 shows the descriptive statistics after adjusting outliers at the 2.5 level. The table indicates that the dispersion of most variables is on an acceptable level.

Panel A									
	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
SP	477	2.30	130.5	34.45	30.61	1.60	.11	2.18	.22
BVE/S	470	2.06	77.89	18.93	16.90	1.92	.11	3.68	.23
NI/S	371	-2.46	21.64	3.48	4.53	2.33	.13	6.22	.25
HCRTOT	483	.15	.99	.43	.19	.97	.11	.72	.22
HCRQC	483	.04	.65	.23	.14	1.20	.11	1.17	.22
HCRMCM	483	0	.10	.03	.02	1.15	.11	1.16	.22
HCRPS	483	.04	.35	.17	.08	.49	.11	-.38	.22
Valid N	369								

Panel B									
	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
RET	476	-.59	.80	.02	.27	.33	.11	.99	.22
NI/S	371	-2.46	21.64	3.48	4.53	2.33	.13	6.21	.25
DNI/S	252	-12.01	6.68	-.17	3.03	-1.77	.15	6.38	.31
DHCRTOT	354	-.22	.28	.01	.11	.25	.13	.11	.26
DHCRQC	354	-.15	.18	.01	.08	.15	.13	-.05	.26
DHCRMCM	354	-.05	.04	.00	.02	-.25	.13	.22	.26
DHCRPS	354	-.10	.10	.00	.05	.12	.13	-.03	.26
Valid N	237								

Table 13: Descriptive statistics after truncation at the 2.5 level

The results of my content analysis show that the amount of human capital disclosure is increasing over time. The total disclosure index (HCRTOT) increased from 7,300 hits in 2006 to more than 10,600 hits in 2009.⁴² This trend is mostly caused by an increase in disclosures on qualification and competence as well as personnel issues. Figure 12 displays these developments.⁴³

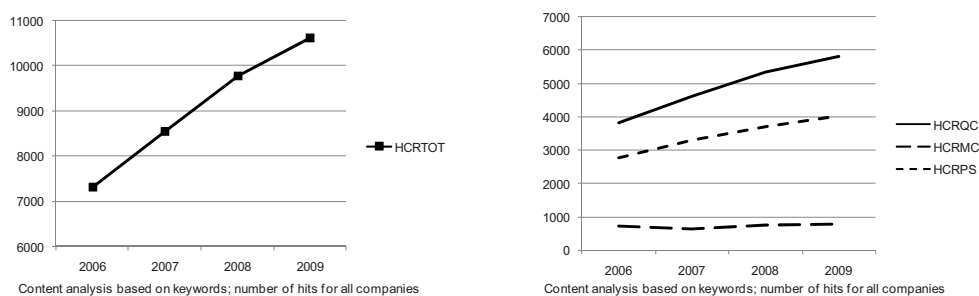


Figure 12: Descriptive results of the content analysis (human capital)

Table 14 shows the Pearson correlations for the dependent as well as the independent variables. The correlations between the independent variables provide no indication of multicollinearity since no variable exceeds the value of 0.9 (CHENG et al. 2007, FARRAR and GLAUBER 1967, HAIR et al. 2010, PENG and BEAMISH 2008, ROBERTS 1992).⁴⁴

⁴² In the same time, the average number of pages in the analyzed reports increased from 150 in 2006 to 188 pages in 2009. This is a plus of about 25%.

⁴³ For more descriptive results of the content analysis see Figure 20 - Figure 24 in the appendix.

⁴⁴ Please note that the variables HCRTOT and HCRQC are not used as independent variables in the same regression equation.

Panel A		SP	BVE/S	NI/S	HCRTOT	HCRQC	HCRMCM	HCRPS
SP	Pearson Correlation	1						
	Sig. (2-tailed)							
BVE/S	Pearson Correlation	.675**	1					
	Sig. (2-tailed)	.000						
NI/S	Pearson Correlation	.576**	.783**	1				
	Sig. (2-tailed)	.000	.000					
HCRTOT	Pearson Correlation	.084	.012	.018	1			
	Sig. (2-tailed)	.066	.794	.763				
HCRQC	Pearson Correlation	.071	.005	-.032	.900**	1		
	Sig. (2-tailed)	.122	.915	.536	.000			
HCRMCM	Pearson Correlation	.059	.006	-.035	.467**	.362**	1	
	Sig. (2-tailed)	.200	.894	.502	.000	.000		
HCRPS	Pearson Correlation	.015	-.024	.039	.656**	.307**	.182**	1
	Sig. (2-tailed)	.740	.608	.454	.000	.000	.000	

** Significant at the .01 level

Panel B		RET	NI/S	DNI/S	DHCRTOT	DHCRQC	DHCRMCM	DHCRPS
RET	Pearson Correlation	1						
	Sig. (2-tailed)							
NI/S	Pearson Correlation	.050*	1					
	Sig. (2-tailed)	.333						
DNI/S	Pearson Correlation	.157	.293**	1				
	Sig. (2-tailed)	.013	.000					
DHCRTOT	Pearson Correlation	.003	-.088	-.017	1			
	Sig. (2-tailed)	.955	.130	.795				
DHCRQC	Pearson Correlation	.037	-.058	-.028	.866**	1		
	Sig. (2-tailed)	.486	.324	.664	.000			
DHCRMCM	Pearson Correlation	.032	-.100	.007	.389**	.198**	1	
	Sig. (2-tailed)	.555	.085	.919	.000	.000		
DHCRPS	Pearson Correlation	-.036	-.071	.016	.595**	.213**	.102	1
	Sig. (2-tailed)	.500	.221	.804	.000	.000	.056	

* Significant at the .05 level

** Significant at the .01 level

Table 14: Correlations – dependent and independent variables

Panel A of Table 14 shows the correlations of the variables needed for applying the price-levels model. The matrix reveals a strong positive relationship between share price (SP), book value of equity per share (BVE/S) and net income per share (NI/S). Furthermore, the four disclosure indexes are positively correlated to each other. This means that companies usually disclose information on all three aspects of human capital if they decide to disclose human capital information. However, no significant correlation between the disclosure indexes and share price (SP) can be identified.

Panel B of Table 14 illustrates the correlations of the variables required for the return analysis. The correlation matrix indicates a positive correlation between the return (RET) measure and net income per share (NI/S). Furthermore, a positive correlation between net income per share (NI/S) and changes in net income per share (DNI/S) can be identified. Further positive correlations only exist between the disclosure indexes. Surprisingly, no correlation can be identified between change in disclosure with regard to motivation / commitment issues (DHCRMCM) and change in disclosures on personnel issues (DHCRPS). Furthermore, no significant correlation

However, in order to ensure that there is no multicollinearity, I performed an additional test by calculating the variance inflation factor (VIF) for all the independent variables where the bivariate correlations exceed the value of 0.5. The results indicate that all VIF factors are well below the tolerance values of 10, indicating that multicollinearity is not an issue in my analyses (HAIR et al. 2010, ROBERTS 1992).

between the disclosure indexes and the applied return measure (RET) can be identified.

4.2. Regression analysis: value-relevance of human capital information

Table 15 presents the results of the regression analyses. As for the price-levels analyses (columns A and B), share price (SP) is regarded as a linear function of book value of equity per share (BE/S), net income per share (NI/S) and the human capital disclosure indexes (as “other information”). Furthermore, year dummies (2006 is benchmark) as well as industry dummies (AUTOM is benchmark) are included in the regression. In line with the applied price-levels model, a strong connection between SP and BVE/S as well as with NI/S can be detected. Also, the analysis reveals strong year effects (YR08 and YR09). Significant industry effects can only be detected for TRANS (negative) and UTILI (positive).

Column A reveals a positive impact of human capital disclosures on the sample companies’ market value since the provided information is positively associated with share price (see HCRTOT in column A). For the sample companies, this connection is as strong as the detected industry effects (TRANS and UTILI) but not as strong as the (negative) year effects of 2008 and 2009. A closer look at the sub categories of the disclosed human capital information reveals that it is primarily the information on qualification / competence issues which is value-relevant, and thus positively reflected in firm value (HCRQC in column B). Information on motivation / commitment as well as on personnel issues is not regarded as relevant since it is not significantly reflected in share price.

As for the return-based analyses (columns C and D), I analyze whether returns per share (RET) are affected by the provision of human capital information. Thus, I interpret returns per share as a function of net income per share (NI/S), change in net income per share (DNI/S) and changes in the provided human capital information. Furthermore, year dummies (2007 is benchmark) as well as industry dummies (AUTOM is benchmark) are considered in the regression.

The results presented in columns C and D identify no impact of human capital disclosures on the applied return measure. Thus, changes in market value are not affected by human capital disclosures.

Overall, my hypothesis is confirmed by the studies’ results; human capital information is value-relevant for equity investors, but not timely (BARTH et al. 2001). This means that investors incorporate the provided human capital information in their long term investment decisions. These findings are consistent with the literature indicating an overall positive relationship between voluntary disclosures and market value. However, this study particularly provides evidence that investors regard

human capital as an important organizational resource. In other words: They regard information on human capital as additional information on the companies' assets.

	(A)		(B)		(C)		(D)	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Constant		**		**				
BVE/S	.505	***	.506	***				
NI/S	.208	***	.210	***	.022		.023	
DNI/S					.079		.079	
HCRTOT	.084	**						
HCRQC			.085	*				
HCRMC			.032					
HCRPS			-.024					
DHCRTOT					-.022			
DHCRQC							-.016	
DHCRMC							.034	
DHCRPS							-.045	
YR07	-.010		-.008					
YR08	-.145	***	-.146	***	-.409	***	-.424	***
YR09	-.348	***	-.348	***	-.445	***	-.450	***
BASIC	-.059		-.057		.140	*	.138	*
CHEMI	.078		.079		.092		.092	
CONSU	.065		.081		.084		.081	
CONSTR	-.020		-.013		.088		.083	
FINAN	.021		.017		.083		.081	
FOODB	-.026		-.025		.102		.100	
INDUS	.085		.084		.171		.168	
MEDIA	.057		.060		.111		.111	
PHARM	.029		.031		.025		.025	
RETAI	-.010		-.005		.050		.049	
SOFTW	.055		.054		.022		.023	
TELEC	-.022		-.018		.013		.013	
TRANS	-.088	*	-.081	*	.023		.025	
UTILI	.074	*	.073	*	.026		.022	
Adjusted R-squared	.52		.52		.11		.11	
F-value (Prob.)	20.80	(***)	18.98	(***)	2.57	(***)	2.35	(***)
N	367		367		235		235	

* significant at the .1 level

** significant at the .05 level

*** significant at the .01 level

Column (A) contains the results of the regression using SP as the dependent and HCRTOT as an independent variable. Column (B) shows the results of the regression using SP as the dependent and the (sub) disclosure indexes HCRQC, HCRMC and HCRPS as independent variables. Column (C) illustrates the results of the regression using RET as the dependent and HCRTOT as an independent variable. Column (D) illustrates the results of the regression using RET as the dependent and the (sub) disclosure indexes HCRQC, HCRMC and HCRPS as independent variables.

Legend: SP = share price; RET = return per share; BVE/S = book value of equity per share; NI/S = net income per share; DNI/S = change in net income per share; HCRTOT = total amount of disclosure; HCRQC = amount of disclosures with regard to qualification and competence issues; HCRMC = amount of disclosures with regard to motivation and commitment issues; HCRPS = amount of disclosures with regard to personnel issues; DHCRTOT = change in HCRTOT; DHCRQC = change in HCRQC; DHCRMC = change in HCRMC; DHCRPS = change in HCRPS; YR07-YR09 = year dummies for 2007-2009; BASIC = industry dummy (basic resources); CHEMI = industry dummy (chemicals); CONSU = industry dummy (consumer); CONSTR = industry dummy (construction); FINAN = industry dummy (financial services); FOODB = industry dummy (food & beverage); INDUS = industry dummy (industry); MEDIA = industry dummy (media); PHARM = industry dummy (pharma); RETAI = industry dummy (retail); SOFTW = industry dummy (software); TELEC = industry dummy (telecommunication); TRANS = industry dummy (transportation & logistics); UTILI = industry dummy (utilities);

Table 15: Regression analysis – value-relevance of human capital information

However, human capital information has no influence on changes in share prices. Thus, for such (short term) changes, other information might be more relevant for the capital markets for evaluating traded stocks. This is in line with the assumption that human capital does not directly affect corporate financial performance but takes effect through (long term) cause and effect relations (MARR et al. 2004,

GAMERSCHLAG and MÖLLER 2011). Therefore, changes in disclosure are not ‘real-time’ reflected in share price – but will be priced in the long run.

My study’s results contribute to literature and theory in at least two ways: First, the role of disclosures in capital markets. As stated earlier, providing human capital information can help to reduce information asymmetries arising between the firm and its shareholders or among potential buyers and sellers of firm shares (LEUZ and VERRECCHIA 2000). By receiving the demanded human capital information, investors can better evaluate the economic constitution of the disclosing company which influences the companies’ valuation at the capital market. Specifically, the amount of human capital information with regard to qualification / competence issues disclosed in the annual reports affects (long term) market value. These findings are in line with previous research which identified voluntary reporting activities as being crucial for the functioning of capital markets (e.g. BOTOSAN 1997, BOTOSAN and PLUMLEE 2002, HEALY and PALEPU 2001).⁴⁵ However, my findings also suggest that human capital information does not cause short time changes in share price. Financial information or macroeconomic developments might be more appropriate for explaining short term changes in firm value.

Second, this study contributes to human capital theory by helping to localize human capital’s primary components: Since investors regard information on the workforce’s qualifications and competencies as particularly relevant for their investment decisions, these issues can be assumed as being the most important drivers behind corporate success – at least with regard to the company’s human capital. This goes in line with human capital theory which generally identifies qualification as the main driver behind remunerations of individuals, organizations and societies (BLAUG 1976). It is also associated with the arguments of the knowledge-based view of the firm (GRANT 1996, SPENDER 1994, SPENDER and GRANT 1996). Thus, investors regard information on qualification and competence as an indicator for (future) corporate financial performance, and thus, as an organizational asset.

As implications for practice, there are also two main contributions identifiable: On the one hand, companies can use these findings for influencing their value – especially since these effects might be as strong as industry effects. Consequently, by providing more human capital information (particularly with regard to qualification / competence issues), a company is able to improve its valuation at the capital market. In other words: human capital disclosure can be used as an instrument for positively impacting shareholder value. This goes along with other studies’ results which identified that firms committing to increased levels of disclosure garner economically and statistically significant benefits (e.g. LAMBERT et al. 2007, LEUZ

⁴⁵ Of course it has to be mentioned that the extent to which human capital disclosures mitigate resource misallocation in the capital market depends on the degree of credibility of the disclosed information (HEALY and PALEPU 2001). But GELB and STRAWSER (2001) found that disclosures are good measures for the disclosing firm’s “real” actions, and thus, in general can be assumed as being credible information even if it is disclosed unaudited.

and VERRECCHIA 2000). Moreover, economic resources appear to be allocated to securities of those firms that disclose human capital information (ANDERSON and FRANKLE 1980).

On the other hand, the amount of disclosed human capital information is increasing over time. Especially information on qualification / competence as well as on personnel issues seems to become increasingly important. By evaluating potential investment objects, investors have to consider this development. Eventually, they have to control for the resulting valuation-effects.

5. Conclusion and outlook

Human capital can be regarded as an important driver behind long-term corporate financial performance. Often, it is referred to as an organization's most important resource. Although companies tend to provide detailed information about their physical and financial assets, most of them neglect to provide meaningful information about the value of their human capital. Since information on the companies' workforce is not available, for investors it is not possible to clearly become aware of these companies' value-adding potential. The results are information asymmetries and potential agency as well as transaction costs. Human capital disclosures can be used to reduce these information asymmetries by providing investors with the demanded information. Since investors are assumed to incorporate the available information in their investment decisions, proactively disclosed human capital information is assumed as being reflected in share price, and thus as being value-relevant.

In line with previous research I applied two established valuation models for determining the value-relevance of human capital information. Based on the framework provided by ABDOLMOHAMMADI (2005) and other previous studies, I applied content analysis to detect the amount and content of human capital information provided by the 130 largest listed companies in Germany. In total, I analyzed more than 82,000 pages of annual reports by generating four disclosure indexes. I used them for detecting the impact of provided human capital information on firm value.

My study's results show that the provision of human capital information is value-relevant, but not timely. That is, a positive association between the disclosed human capital information and share price can be identified. Especially information on qualification / competence issues has a positive impact on firm value. Thus, investors incorporate the available human capital information in their long-term investment decisions. In consequence, proactively providing information on this important organizational resource can help to reduce information asymmetries at the capital market which leads to reduced agency and transaction costs as well as to a better allocation of (financial) resources. Therefore, companies can use human capital

reporting for improving their valuation through the capital markets – particularly when they are providing information on their workforce’s qualification / competence. However, no influence of human capital disclosures on (short term) changes in firm value can be identified. Other information or developments might be more applicable for explaining such changes in share prices.

As with all empirical studies, this study is subject to limitations. First of all, the industry classification is open to criticism as some industries are represented by only three or fewer companies. Furthermore, since some measures (especially net income per share) were not available for three industries, my sample was shortened by these industries which might have biased the results. Further limitations arise from the way content analysis has been applied. Using keywords as units of analysis may be an inappropriate methodology, as words are detached from their contextual background. Additionally, deriving the keywords for the content analysis from previous studies is not free of risk, as these studies might not capture all relevant aspects of human capital (especially as most of them were applied against the background of intangibles in general). Finally, since only one country was researched, the cultural as well as regulatory aspects cannot be generalized.

Despite these limitations, I believe that my results provide interesting insights into the value-relevance of human capital information. However, additional research should consider the information content in more detail. In particular, the relevant aspects in respect of qualification and competence issues might be of significant interest since, at least in the long term, there seems to be a substantial value potential from investors’ perspective. Moreover, human capital disclosure and its effects on all its addressees have to be examined in detail, for example the effects on (potential) employees or on customers. Solely considering capital market implications might not be enough for identifying the opportunities which might arise from such disclosures.

Appendix

Table 16: Industry classifications according to *Deutsche Boerse* (2010)

Industry	Abbreviation	Company name	Membership at the end of			
			2008	2007	2006	2005
AUTOMOBILE MANUFACTURERS	AUTOM	BAY.MOTOREN WERKE AG	DAX	DAX	DAX	DAX
		CONTINENTAL AG	MDAX	DAX	DAX	DAX
		DAIMLER AG	DAX	DAX	DAX	DAX
		ELRINGKLINGER AG	SDAX	SDAX	SDAX	SDAX
		GRAMMER AG	SDAX	SDAX	SDAX	SDAX
		LEONI AG	MDAX	MDAX	MDAX	MDAX
		VOLKSWAGEN AG	DAX	DAX	DAX	DAX
BANKS	BANKS	AAREAL BANK AG	MDAX	MDAX	MDAX	MDAX
		COMMERZBANK AG	DAX	DAX	DAX	DAX
		DEUTSCHE BANK AG	DAX	DAX	DAX	DAX
		DEUTSCHE POSTBANK AG	DAX	DAX	DAX	MDAX
		HYPO REAL ESTATE HLDG	DAX	DAX	DAX	DAX
BASIC RESOURCES	BASIC	C.A.T. OIL AG	SDAX	SDAX	SDAX	
		NORDDT.AFFINERIE	MDAX	MDAX	MDAX	MDAX
		SALZGITTER AG	DAX	MDAX	MDAX	MDAX
CHEMICALS	CHEMI	ALTANA AG	MDAX	MDAX	DAX	DAX
		BASF AG	DAX	DAX	DAX	DAX
		BAYER AG	DAX	DAX	DAX	DAX
		FUCHS PETROL. AG	MDAX	SDAX	SDAX	SDAX
		H+R WASAG AG	SDAX	SDAX	SDAX	SDAX
		K+S AG	DAX	MDAX	MDAX	MDAX
		LANXESS AG	MDAX	MDAX	MDAX	MDAX
		LINDE AG	DAX	DAX	DAX	DAX
		SGL CARBON AG	MDAX	MDAX	MDAX	MDAX
		SKW STAHL-METAL.-HLDG.	SDAX	PRIME	PRIME	
		SYMRISE AG	MDAX	MDAX	PRIME	
		WACKER CHEMIE	MDAX	MDAX	MDAX	
CONSTRUCTION	CONST	BAUER AG	MDAX	SDAX	SDAX	
		BILFINGER BERGER AG	MDAX	MDAX	MDAX	MDAX
		DYCKERHOFF	SDAX	SDAX	SDAX	SDAX
		HEIDELBERGCEMENT AG	MDAX	MDAX	MDAX	MDAX
		HOCHTIEF AG	MDAX	MDAX	MDAX	MDAX
CONSUMER	CONSU	ADIDAS-SALOMON AG	DAX	DAX	DAX	DAX
		BEIERSDORF AG	DAX	MDAX	MDAX	MDAX
		ESCADA AG	SDAX	SDAX	SDAX	SDAX
		GERRY WEBER INTERNAT.	SDAX	SDAX	SDAX	SDAX
		HENKEL KGAA	DAX	DAX	DAX	DAX
		HUGO BOSS AG	MDAX	MDAX	MDAX	MDAX
		LOEWE AG	SDAX	PRIME	SDAX	SDAX
		PUMA AG	MDAX	MDAX	MDAX	MDAX
FINANCIAL SERVICES	FINAN	ALSTRIA OFFICE REIT AG	SDAX	SDAX		
		ARQUES INDUSTRIES AG	SDAX	MDAX	SDAX	SDAX
		COLON.REAL ESTATE AG	SDAX	SDAX	SDAX	
		COMDIRECT BANK AG	SDAX	SDAX	SDAX	SDAX
		DEUTSCHE BOERSE	DAX	DAX	DAX	DAX
		DEUTSCHE EUROSHOP AG	MDAX	MDAX	MDAX	MDAX
		DEUTSCHE WOHNEN AG	SDAX	SDAX	SDAX	
		DIC ASSET AG	SDAX	SDAX	SDAX	
		DT.BETEILIG. AG	SDAX	SDAX	SDAX	SDAX
		GAGFAH S.A.	MDAX	MDAX	MDAX	
		GRENKELEASING AG	SDAX	SDAX	SDAX	SDAX
		INDUS HOLDING AG	SDAX	SDAX	SDAX	SDAX
		IVG IMMOBILIEN AG	MDAX	MDAX	MDAX	MDAX
		MLP AG	MDAX	MDAX	MDAX	MDAX
		MPC MUENCH.PET.CAP.	SDAX	SDAX	SDAX	MDAX
		PATRIZIA IMMOBILIEN	SDAX	SDAX	MDAX	
		TAG TEGERNSEE IMMOB.	SDAX	SDAX	SDAX	PRIME
VIVACON AG	SDAX	SDAX	SDAX	SDAX		
FOOD + BEVERAGE	FOODB	SUEDZUCKER	MDAX	MDAX	MDAX	MDAX
INDUSTRIAL	INDUS	BAYWA AG	SDAX	SDAX	SDAX	SDAX
		CENTROTEC SUSTAINABLE	SDAX	PRIME	PRIME	SDAX
		DEMAG CRANES AG	MDAX	SDAX	SDAX	
		DEUTZ AG	SDAX	MDAX	MDAX	SDAX
		DUERR AG	SDAX	SDAX	PRIME	PRIME
		ELEXIS AG	SDAX	SDAX	SDAX	SDAX
		EUROP.AERON.DEF.+SP. EADS	MDAX	MDAX	MDAX	MDAX
		GEA GROUP AG	MDAX	MDAX	MDAX	MDAX
		GESCO AG	SDAX	PRIME	PRIME	PRIME
		GFK AG	SDAX	SDAX	SDAX	SDAX

Table 16 continued

		GILDEMEISTER AG	MDAX	MDAX	SDAX	SDAX
		HEIDELBERG.DRUCKMA.	MDAX	MDAX	MDAX	MDAX
		HOMAG GROUP AG	SDAX	SDAX		
		JUNGHEINRICH AG	SDAX	SDAX	SDAX	SDAX
		KLOECKNER + CO AG	MDAX	MDAX	SDAX	
		KLOECKNER-WERKE	SDAX	PRIME	PRIME	SDAX
		KOENIG + BAUER AG	SDAX	SDAX	SDAX	SDAX
		KRONES AG	MDAX	MDAX	MDAX	MDAX
		KUKA AG	MDAX	MDAX	MDAX	MDAX
		KWS SAAT AG	SDAX	SDAX	SDAX	
		MAN AG	DAX	DAX	DAX	DAX
		MEDION AG	SDAX	SDAX	SDAX	MDAX
		MTU AERO ENGINES	MDAX	MDAX	MDAX	MDAX
		PFLEIDERER AG	MDAX	MDAX	MDAX	MDAX
		RATIONAL AG	SDAX	SDAX	SDAX	SDAX
		RHEINMETALL AG	MDAX	MDAX	MDAX	MDAX
		SIEMENS AG	DAX	DAX	DAX	DAX
		THYSSENKRUPP AG	DAX	DAX	DAX	DAX
		TOGNUM AG	MDAX	MDAX		
		VOSSLOH AG	MDAX	MDAX	MDAX	MDAX
		WACKER CONSTR.	SDAX	SDAX		
		WINCOR NIXDORF	MDAX	MDAX	MDAX	MDAX
INSURANCE	INSUR	ALLIANZ AG	DAX	DAX	DAX	DAX
		HANN.RUECKVER. AG	MDAX	MDAX	MDAX	MDAX
		MUENCH.RUECKVERS.	DAX	DAX	DAX	DAX
MEDIA	MEDIA	A.SPRINGER AG	SDAX	SDAX	PRIME	
		CTS EVENTIM AG	SDAX	SDAX	SDAX	SDAX
		EM.SPORT MEDIA AG	SDAX	SDAX	SDAX	SDAX
		HIGHLIGHT CMNCTS	SDAX	SDAX	SDAX	SDAX
		PREMIERE NA	MDAX	MDAX	MDAX	MDAX
		PROSIEBENSAT.1	MDAX	MDAX	MDAX	MDAX
PHARMA	PHARM	BIOTEST AG	SDAX	SDAX	PRIME	PRIME
		CURANUM AG	SDAX	SDAX	SDAX	SDAX
		FRESEN.MED.CARE AG	DAX	DAX	DAX	DAX
		FRESENIUS AG	MDAX	MDAX	MDAX	MDAX
		GERRESHEIMER AG	MDAX	SDAX		
		MERCK KGAA	DAX	DAX	MDAX	MDAX
		RHOEN-KLINIKUM	MDAX	MDAX	MDAX	MDAX
		STADA ARZNEIMITT.	MDAX	MDAX	MDAX	MDAX
RETAIL	RETAI	ARCANDOR AG	MDAX	MDAX	MDAX	MDAX
		CELESIO AG	MDAX	MDAX	MDAX	MDAX
		DELTICOM AG	SDAX	PRIME	PRIME	
		DOUGLAS HOLDING	MDAX	MDAX	MDAX	MDAX
		FIELMANN AG	SDAX	SDAX	SDAX	MDAX
		METRO AG	DAX	DAX	DAX	DAX
		PRAKTIKER BAU-U.H.HLDG	MDAX	MDAX	MDAX	PRIME
		TAKKT AG	SDAX	SDAX	SDAX	SDAX
SOFTWARE	SOFTW	SAP AG	DAX	DAX	DAX	DAX
TECHNOLOGY	TECHN	INFINEON TECH. AG	DAX	DAX	DAX	DAX
TELECOMMUNICATION	TELEC	DT.TELEKOM AG	DAX	DAX	DAX	DAX
TRANSPORTATION + LOGISTICS	TRANS	AIR BERLIN PLC	SDAX	SDAX	SDAX	
		DEUTSCHE POST AG	DAX	DAX	DAX	DAX
		FRAPORT AG	MDAX	MDAX	MDAX	MDAX
		HAMBURG.HAFEN U.LOG.	MDAX	PRIME		
		LUFTHANSA AG	DAX	DAX	DAX	DAX
		SIXT AG	SDAX	SDAX	SDAX	SDAX
		TUI AG	MDAX	DAX	DAX	DAX
		VTG AG	SDAX	PRIME		
UTILITIES	UTILI	E.ON AG	DAX	DAX	DAX	DAX
		MVV ENERGIE AG.	SDAX	SDAX	SDAX	SDAX
		RWE AG	DAX	DAX	DAX	DAX

Figure 13: Number of published CSR reports (separate reports)

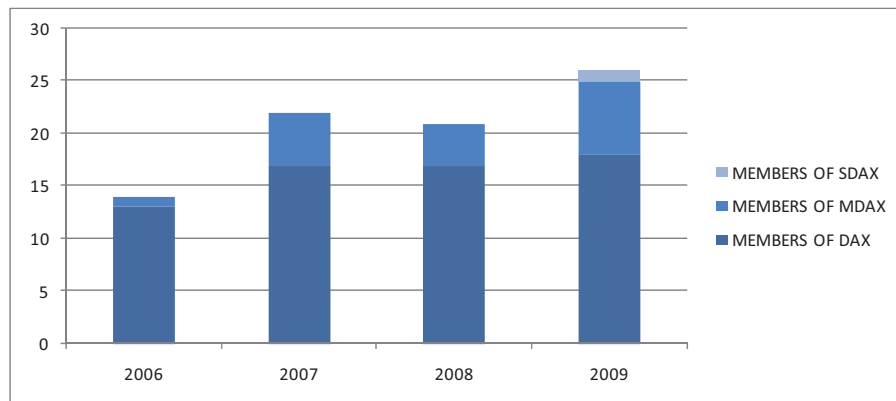


Figure 14: Average number of pages in analyzed reports (over all reports)

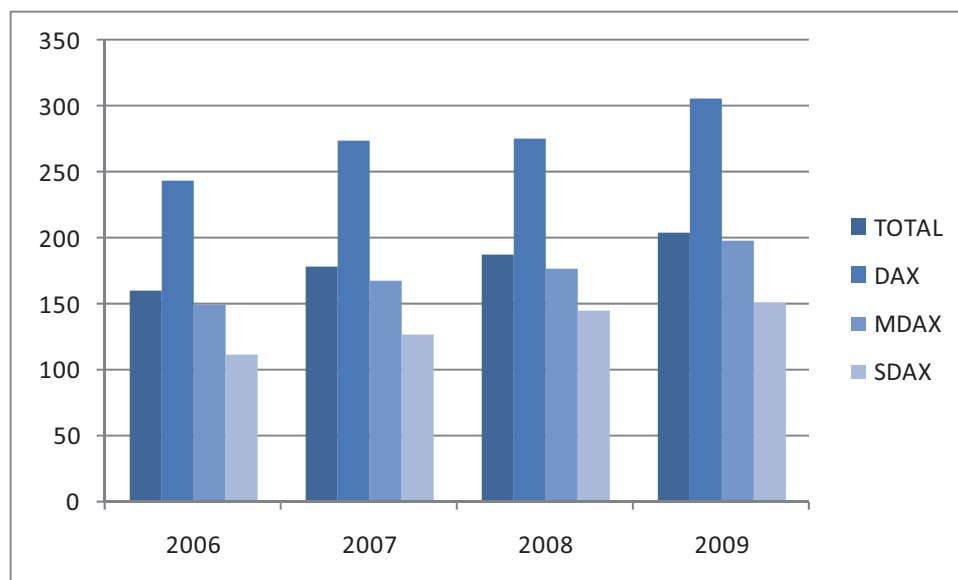
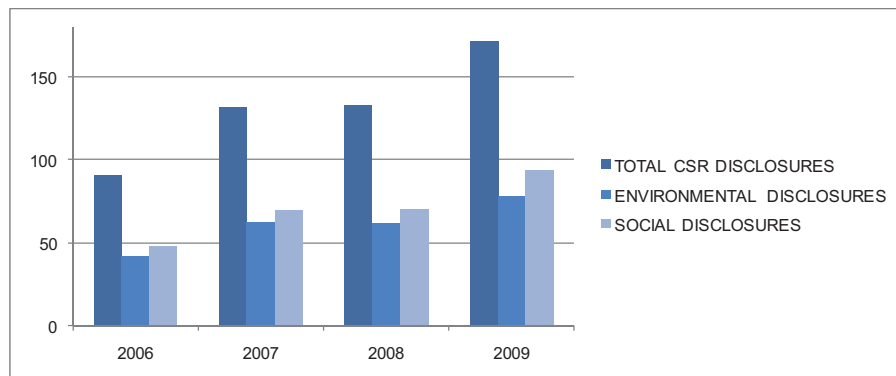
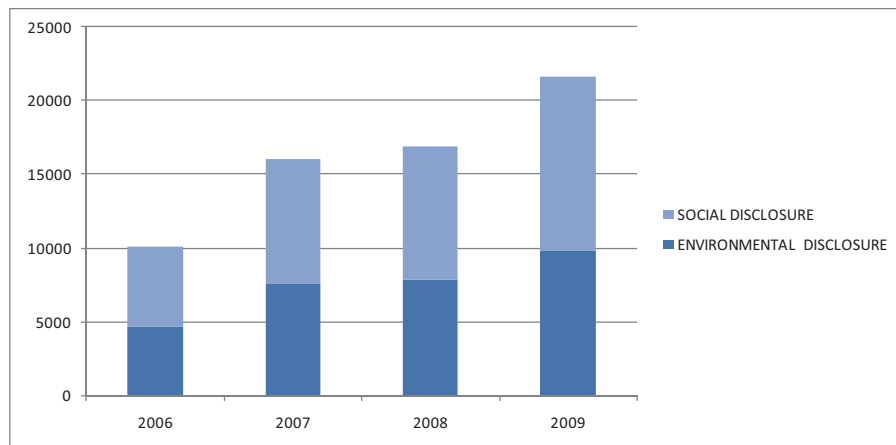
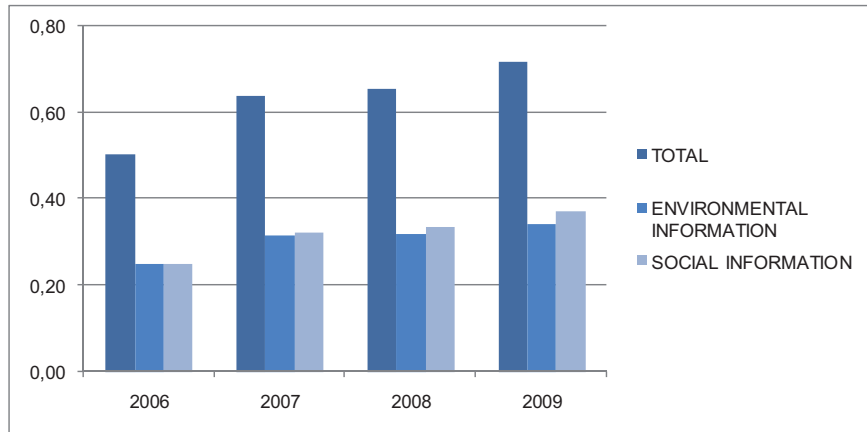
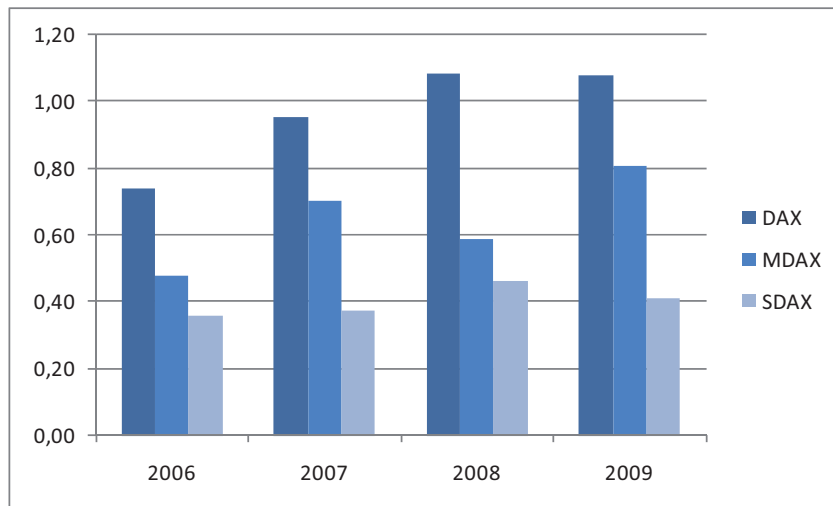


Figure 15: Average number of hits for each CSR-category (all companies)⁴⁶Figure 16: Development of social and environmental disclosures (all companies)⁴⁷

⁴⁶ Number of hits by searching for the keywords in the defined categories.

⁴⁷ Number of hits by searching for the keywords in the defined categories.

Figure 17: Provided CSR information per report page (all indexes)⁴⁸Figure 18: Provided CSR information per report page and index⁴⁹

⁴⁸ Number of hits by searching for the keywords divided by the number of analyzed report pages.

⁴⁹ Number of hits by searching for the keywords divided by the number of analyzed report pages.

Figure 19: Provided CSR information by industry⁵⁰

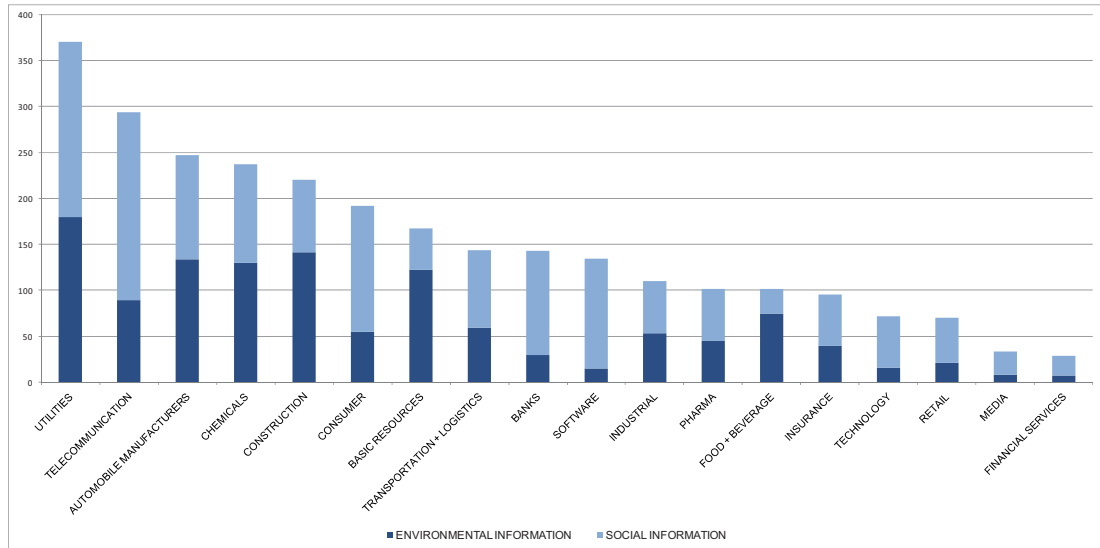
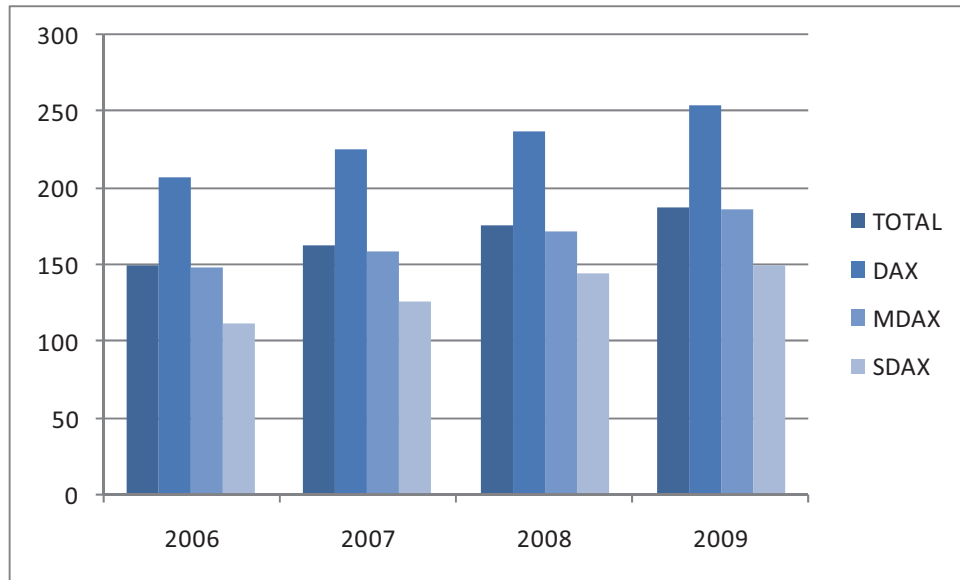


Figure 20: Average number of pages in annual reports



⁵⁰ Average number of hits per industry by searching for the keywords in the defined categories (all indexes and years).

Figure 21: Average number of hits for each human capital-category (all companies)⁵¹

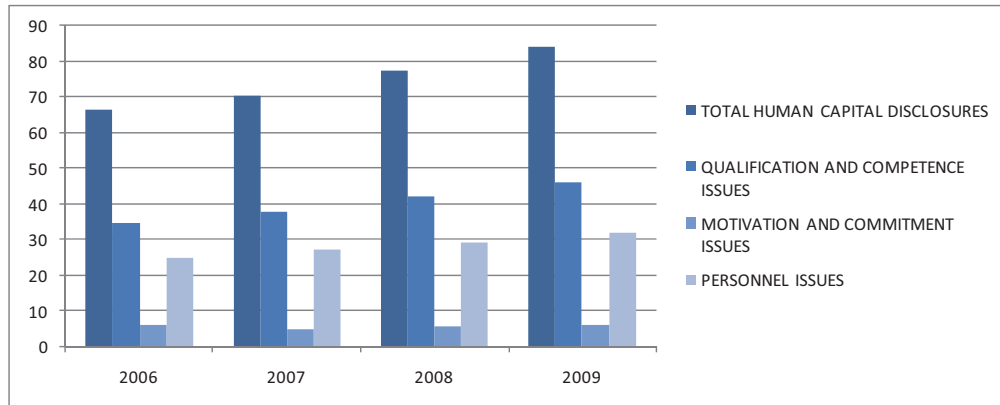
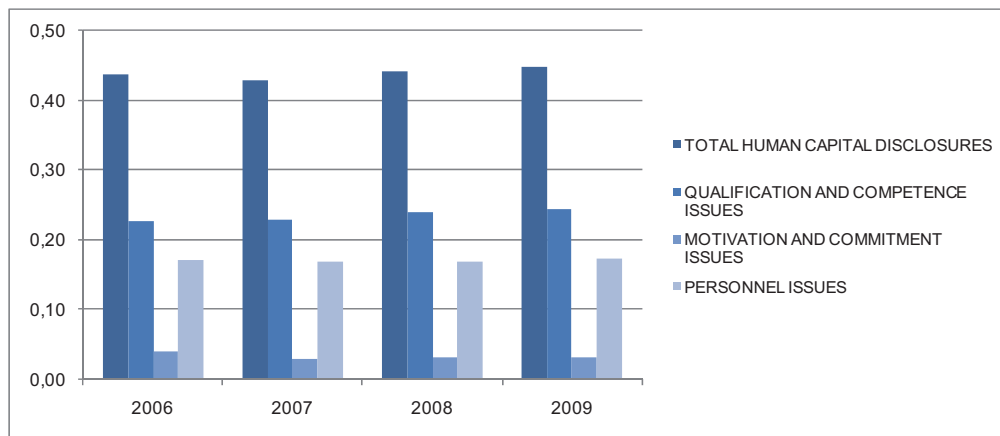


Figure 22: Provided human capital information per report page (all indexes)⁵²



⁵¹ Number of hits by searching for the keywords in the defined categories.

⁵² Number of hits by searching for the keywords divided by the number of analyzed report pages.

Figure 23: Provided human capital information per report page and index⁵³

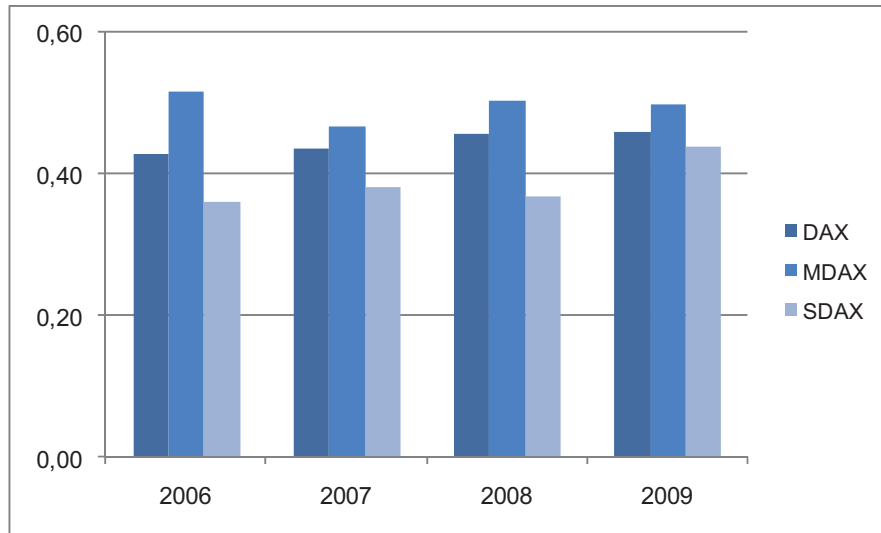
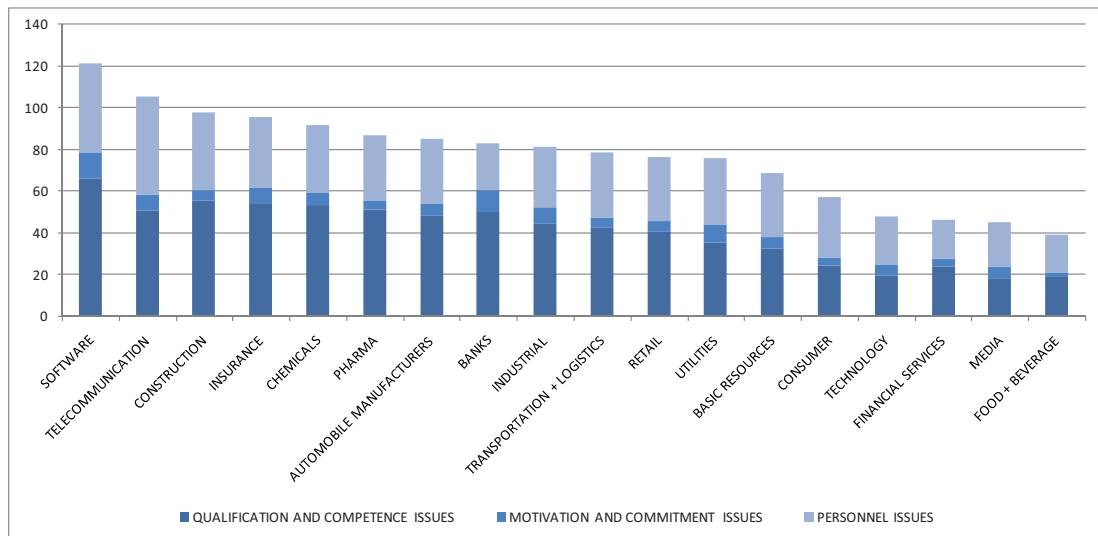


Figure 24: Provided human capital information by industry⁵⁴



⁵³ Number of hits by searching for the keywords divided by the number of analyzed report pages.

⁵⁴ Average number of hits per industry by searching for the keywords in the defined categories (all indexes and years).

References

- Abdel-Khalik, A. R. (2003), Self-sorting, incentive compensation and human-capital assets, in: *European Accounting Review* 12(4): 661 – 697
- Abdolmohammadi, M. J. (2005), Intellectual capital disclosure and market capitalisation, in: *Journal of Intellectual Capital* 6(3): 397 – 416
- Abeysekera, I. (2006), The project of intellectual capital disclosure: researching the research, in: *Journal of Intellectual Capital* 7(1): 61 – 77
- Abeysekera, I., Guthrie, J. (2004), Human capital reporting in a developing nation, in: *The British Accounting Review* 36: 251 – 268
- Abhayawansa, S., Abeysekera, I. (2008), An explanation of human capital disclosure from the resource-based perspective, in: *Journal of Human Resource Costing & Accounting* 12(1): 51 – 64
- Acland, D. (1976), The effects of behavioural indicators on investor decisions: An exploratory study, in: *Accounting, Organizations and Society* 1(2-3): 133 – 142
- Agle, B. R., Mitchell, R. K., Sonnenfeld, J. A. (1999), Who matters to CEO's? An investigation of stakeholder attributes and salience, corporate performance, and CEO values, in: *Academy of Management Journal* 42: 507 – 525
- Akerlof, G. A. (1970), The market for "lemons": quality uncertainty and the market mechanism, in: *The Quarterly Journal of Economics* 84(3): 488 – 500
- Anderson, J. C., Frankle, A. W. (1980), Voluntary Social Reporting: An Iso-Beta Portfolio Analysis, in: *Accounting Review* LV (3): 467 – 479
- Andriessen, D. (2004), *Making Sense of Intellectual Capital: Designing a Method for the Valuation of Intangibles*, Amsterdam
- April, K. A., Bosma, P., Deglon, D. A. (2003), IC measurement and reporting: establishing a practice in SA mining, in: *Journal of Intellectual Capital* 4(2): 165 – 180
- Aras, G., Crowther, D. (2009), Corporate Sustainability Reporting: A Study in Disingenuity?, in: *Journal of Business Ethics* 87(1): 279 – 288
- Arrow, K. J., Debreu, G. (1954), Existence of an Equilibrium for a Competitive Economy, in: *Econometrica* 22(3): 265 – 290
- Atkinson, A. A., Waterhouse, J. H., Wells, R. B. (1997), A Stakeholder Approach to Strategic Performance Measurement, in: *Sloan Management Review* 38(3), 25 – 37
- Aupperle, G., Carrol, A., Hatfield, J. (1985), An Empirical Examination of the Relationship between Corporate Social Responsibility and Profitability, in: *Academy of Management Journal* 22: 501 – 515
- Ball, R., Brown, P. (1968), An empirical evaluation of accounting income numbers, in: *Journal of Accounting research* 6: 159 – 178
- Ball, R. J., Foster, G. (1982), Corporate Financial Reporting: A Methodological Review of Empirical Research, in: *Journal of Accounting Research* 20: 161 – 234
- Ballester, M., Livnat, J., Sinha, N. (2002), Labor Costs and Investments in Human Capital, in: *Journal of Accounting, Auditing and Finance* 17(4): 351 – 373
- Bancel, F., Mittoo, U. R. (2001), European Managerial Perceptions of the Net Benefits of Foreign Stock Listings, in: *European Financial Management* 7(2): 213 – 236

- Barney, J. (1991), Firm Resources and Sustained Competitive Advantage, in: *Journal of Management* 17(1): 99 – 120
- Barro, R. J. (2001), Human capital and economic growth, in: *American Economic Review* 91(2): 12 – 17
- Bartel, A. P. (1994), Productivity Gains from the Implementation of Employee Training Programs, in: *Industrial Relations* 33(4), 411 – 425
- Barth, M. E., Beaver, W. H., Landsman, W. R. (2001), The relevance of the value relevance literature for financial accounting standard setting: another view, in: *Journal of Accounting and Economics* 31: 77 – 104
- Barth, M. E., Clement, M. B., Foster, G., Kasznik, R. K. (1998), Brand Values and Capital Market Valuation, in: *Review of Accounting Studies* 3: 41 – 68
- Barth, M. E., Clinch, G. (1998), Revalued Financial, Tangible, and Intangible Assets: Associations with Share Prices and Non-Market-Based Value Estimates, in: *Journal of Accounting Research* 36: 199 – 233
- Beaver, W. H. (1981), Market efficiency, in: *The Accounting Review* 56: 23 – 37
- Becker, G. S. (1964), *Human Capital. A Theoretical and Empirical Analysis, with Special Reference to Education*, New York
- Becker, G. S. (1983), *Human Capital. A Theoretical and Empirical Analysis, with Special Reference to Education*. 2nd edition, Chicago
- Belkaoui, A., Karpik, P. G. (1989), Determinants of the Corporate Decision to Disclose Social Information, in: *Accounting, Auditing and Accountability Journal* 2(1): 36 – 51
- Bell, T. B., Landsman, W. R., Miller, B. L., Yeh, S. (2002), The Valuation Implications of Employee Stock Option Accounting for Profitable Computer Software Firms, in: *Accounting Review* 77(4): 971 – 996
- Berman, S. L., Wicks, A. C., Kotha, S., Jones, T. M. (1999), Does stakeholder orientation matter? The relationship between stakeholder management models and firm financial performance, in: *Academy of Management Journal* 42(5), 488 – 506
- Bewley, K., Li, Y. (2000), Disclosure of environmental information by Canadian manufacturing companies: A voluntary disclosure perspective, in: *Advances in Environmental Accounting & Management* 1: 201 – 226
- Blacconiere, W. G., Patten, D. M. (1994), Environmental disclosures, regulatory costs, and changes in firm value, in: *Journal of Accounting and Economics* 18: 357 – 377
- Blaug, M. (1976), The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey, in: *Journal of Economic Literature* 14(3): 827 – 855
- Bontis, N. (2003), Intellectual capital disclosure in Canadian corporations, in: *Journal of Human Resource Costing & Accounting* 7(1): 9 – 20
- Bontis, N. (1998), Intellectual capital: an exploratory study that develops measures and models, in: *Management Decision* 36(2): 63 – 76
- Bontis, N., Dragonetti, N. C., Jacobsen, K., Roos, G. (1999), The Knowledge Toolbox, A Review of the Tools Available to Measure and Manage Intangible Resources, in: *European Management Journal* 17(4), 391 – 402
- Bontis, N., Fitz-enz, J. (2002), Intellectual capital ROI: a causal map of human capital antecedents and consequents, in: *Journal of Intellectual Capital* 3(3), 223 – 247

- Botosan, C. A. (1997), Disclosure Level and the Cost of Equity Capital, in: *The Accounting Review* 72(3): 323 – 349
- Botosan, C. A., Plumlee, M. A. (2002), A re-examination of disclosure level and expected cost of equity capital, in: *Journal of Accounting Research* 40(1): 21 – 40
- Bouslah, K., M'Zali, B., Turcotte, M. F., Kooli, M. (2010), The Impact of Forest Certification on Firm Financial Performance in Canada and the U.S., in: *Journal of Business Ethics* 96: 551 – 572
- Bowen, H. R. (1953), *Social Responsibilities of the Businessman*, New York
- Bozzolan, S., Favotto, F., Ricceri, F. (2003), Italian annual intellectual capital disclosure: An empirical analysis, in: *Journal of Intellectual Capital* 4(4): 543 – 558
- Brammer, S., Millington, A. (2006), Firm size, organizational visibility and corporate philanthropy: an empirical analysis, in: *Business Ethics: A European Review* 15(1): 6 – 18
- Brammer, S., Pavelin, S. (2006), Voluntary Environmental Disclosures by Large UK Companies, in: *Journal of Business Finance and Accounting* 33(7-8): 1168 – 1188
- Brennan, N. (2001), Reporting intellectual capital in annual reports: evidence from Ireland, in: *Accounting, Auditing & Accountability Journal* 14(4): 423 – 436
- Bukh, P. (2003), The Relevance of Intellectual Capital Disclosure: A Paradox?, in: *Accounting, Auditing and Accountability Journal* 16: 49 – 56
- Bukh, P. N., Nielsen, C., Gormsen, P., Mouritsen, J. (2005), Disclosure of information on intellectual capital in Danish IPO prospectuses, in: *Accounting, Auditing & Accountability Journal* 18(6): 713 – 732
- Callens, I., Tyteca, D. (1999), Towards Indicators of Sustainable Development for Firms: A Productive Efficiency Perspective, in: *Ecological Economics* 28(1): 41 – 53
- Campbell, D. (2004), A longitudinal and cross-sectional analysis of environmental disclosure in UK companies – a research note, in: *The British Accounting Review* 36: 107 – 117
- Canibano, L., Garcia-Ayuso, M., Sanchez, P. (2000), Accounting for Intangibles: A literature review, in: *Journal of Accounting Literature* 19: 102 – 130
- Carroll, A. B. (1999), Corporate Social Responsibility – Evolution of a Definitional Construct, in: *Business and Society* 38(3): 268 – 295
- Carroll, A. B. (2006), Corporate Social Responsibility: A Historical Perspective, in: Epstein, M. J., Hanson, K. O. (eds.), *The Accountable Corporation: Corporate Social Responsibility*, Westport, 3: 3 – 30
- Chadwick, C., Dabu, A. (2009), Human Resources, Human Resource Management, and the Competitive Advantage of Firms: Toward a more Comprehensive Model of Causal Linkages, in: *Organization Science* 20(1): 253 – 272
- Chau, G. K., Gray, S. J. (2002), Ownership structure and corporate voluntary disclosure in Hong Kong and Singapore, in: *The International Journal of Accounting* 27: 247 – 265
- Chen, S., Bouvain, P. (2009), Is Corporate Responsibility Converging? A Comparison of Corporate Responsibility Reporting in the USA, UK, Australia, and Germany, in: *Journal of Business Ethics* 87: 299 – 317
- Chen, S., Chen, X., Cheng, Q. (2008), Do Family Firms Provide More or Less Voluntary Disclosure?, in: *Journal of Accounting Research* 46(3): 499 – 536
- Cheng, M. M., Luekkett, P. F., Mahama, H. (2007), Effect of perceived conflict among multiple performance goals and goal difficulty on task performance, in: *Accounting and Finance* 47: 221 – 242

- Chizema, A. (2008), Institutions and Voluntary Compliance: The Disclosure of Individual Executive Pay in Germany, in: *Corporate Governance* 16(4): 359 – 374
- Cho, C. H., Roberts, R. W., Patten, D. M. (2009), The language of US corporate environmental disclosure, in: *Accounting, Organizations and Society*, doi: 10.1016/j.aos.2009.10.002
- Coase, R. H. (1937), The Nature of the Firm, in: *Economica* 4(16): 386 – 405
- Consolandi, C., Jaiswal-Dale, A., Poggiani, E., Vercelli, A. (2009), Global Standards and Ethical Stock Indexes: The Case of the Dow Jones Sustainability Stoxx Index, in: *Journal of Business Ethics* 87(1): 185 – 197
- Copeland, T., Murrin, J., Koller, T. (1994), *Valuation*, 2nd ed., New York
- Cordazzo, M. (2007), Intangibles and Italian IPO prospectuses: a disclosure analysis, in: *Journal of Intellectual Capital* 8(2): 288 – 305
- Cormier, D., Gordon, I. M. (2001), An Examination of Social and Environmental Reporting Strategies: Determinants, Costs and Benefits, in: *Accounting, Auditing & Accountability Journal* 14: 587 – 616
- Cormier, D., Magnan, M. (2007), The revisited contribution of environmental reporting to investors' valuation of a firm's earnings: An international perspective, in: *Ecological Economics* 62(3-4): 613 – 626
- Cowen, S. S., Ferreti, L. B., Parker, L. D. (1987), The Impact of Corporate Characteristics on Responsibility Disclosure: A Typology and Frequency-Based Analysis, in: *Accounting, Organizations and Society* 12(3): 111 – 122
- Crane, A., Matten, D. (2007), Editor's Introduction. Corporate Social Responsibility as a Field of Scholarship, in: Crane, A., Matten, D. (eds.), *Corporate Social Responsibility, Volume 1: Theories and Concepts of Corporate Social Responsibility*, London: xvi-xxx
- Davey, J., Schneider, L., Davey, H. (2009), Intellectual capital disclosure and the fashion industry, in: *Journal of Intellectual Capital* 10(3): 401 – 424
- De Bakker, F., Groenewegen, P., Den Hond, F. (2005), A Bibliometric Analysis of 30 Years of Research and Theory on Corporate Social Responsibility and Corporate Social Performance, in: *Business & Society* 44(3): 283 – 317
- Deegan, C., Carroll, G. (1993), An Analysis of Incentives for Australian Firms to Apply for Reporting Excellence Awards, in: *Accounting and Business Research* 26(3): 219 – 227
- Deegan, C., Gordon, B. (1996), A Study of the Environmental Disclosure Practices of Australian corporations, in: *Accounting and Business Research* 26(3): 187 – 199
- Déjean, F., Martinez, I. (2009), Environmental Disclosure and the Cost of Equity: The French Case, in: *Accounting in Europe* 6(1): 57 – 80
- Deutsche Boerse (2010), Website of Deutsche Boerse AG., <http://www.boerse-frankfurt.com>, accessed in February 2010
- Diamond, D. W., Verrecchia, R. E. (1991), Disclosure, Liquidity, and the Cost of Capital, in: *The Journal of Finance* 46(4): 1325 – 1359
- Donaldson, T., Preston, L. (1995), The Stakeholder Theory of the Corporation: Concepts, Evidence, Implications, in: *Academy of Management Review* 20(1): 65 – 91
- Dowling, J., Pfeffer, J. (1975), Organizational Legitimacy: Social Values and Organizational Behaviour, in: *The Pacific Sociological Review* 18(1): 122 – 136
- Drucker, P. F. (1984), The new meaning of corporate social responsibilities, in: *California Management Review* 26(2): 53 – 63

- Drucker, P. F. (1995), The Information Executives Truly Need. *Harvard Business Review* 73(1), 54 – 62
- Dye, R. A. (1985), Disclosure of Nonproprietary Information, in: *Journal of Accounting Research* 23(1): 123 – 145
- Dyllick, T., Hockerts, K. (2002), Beyond the Business Case for Corporate Sustainability, in: *Business Strategy and the Environment* 11(2): 130 – 141
- Edvinsson, L., Malone, M. S. (1997), *Intellectual Capital – realizing your company's true value by finding its hidden roots*, New York
- Eisenhardt, K. M. (1989), Agency Theory. An Assessment and Review, in: *Academy of Management Review* 14(1): 57 – 74
- Epstein, M. J., Roy, M. J. (2001), Sustainability in Action - Identifying and Measuring the Key Performance Drivers, in: *Long Range Planning* 34: 585 – 604
- Fama, E. F. (1970), Efficient capital markets: A review of theory and empirical work, in: *Journal of Finance* 25: 383 – 417
- Fama, E. F. (1991), Efficient Capital Markets: II, in: *Journal of Finance* XLVI (5): 1575 – 1617
- Fama, E. F., Fisher, L., Jensen, M. C., Roll, R. (1969), The adjustment of stock prices to new information, in: *International Economic Review* 10(1): 1 – 21
- Fama, E. F., Jensen, M. C. (1983), Separation of Ownership Structure and Control, in: *Journal of Law and Economics* 26(2): 301 – 325
- Farrar, D., Glauber, R. (1967), Multicollinearity in Regression Analysis the Problem Revisited, in: *Review of Economics and Statistics* 49(1): 92 – 107
- Feltham, G. A., Ohlson, J. A. (1995), Valuation and clean surplus accounting for operating and financial activities, in: *Contemporary accounting research* 11: 689 – 732
- Feltham, G. A., Ohlson, J. A. (1996), Uncertainty resolution and the theory of depreciation measurement, in: *Journal of Accounting Research* 34: 209 – 234
- Fields, T. D., Lys, T. Z., Vincent, L. (2001), Empirical research on accounting choice, in: *Journal of Accounting and Economics* 31: 255 – 307
- Fitz-enz, J. (2000), *The ROI of Human Capital. Measuring the Economic Value of Employee Performance*, New York
- Flöstrand, P. (2006), the sell side – observations on intellectual capital indicators, in: *Journal of Intellectual Capital* 7(4): 457 – 473
- Freeman, R. E. (1984), *Strategic Management: A Stakeholder Approach*, Boston
- Friedman, M. (1962), *Capitalism and Freedom*, Chicago
- Friedman, M. (1970), The Social Responsibility of Business is to Increase its Profits, in: *The New York Time Magazine*
- Friedman, M. (2007), The Social Responsibility of Business is to Increase its Profits, In: Crane, A., Matten, D. (eds.), *Corporate Social Responsibility, Vol. 1: Theories and Concepts of Corporate Social Responsibility*, London: 69 – 74
- Frooman, J. (1999), Stakeholder Influence Strategies, in: *Academy of Management Review* 24(2): 191 – 205
- Gamerschlag, R., Möller, K. (2011), The positive effects of human capital reporting, in: *Corporate Reputation Review* (forthcoming)

- Gamerschlag, R., Möller, K., Verbeeten, F. (2010), Determinants of voluntary CSR disclosure: empirical evidence from Germany, in: *Review of Managerial Science*, doi: 10.1007/s11846-010-0052-3
- Garcia-Meca, E. (2005), Bridging the gap between disclosure and use of intellectual capital information, in: *Journal of Intellectual Capital* 6(3): 427 – 440
- Gelb, D. S., Strawser, J. A. (2001), Corporate Social Responsibility and Financial Disclosures: An Alternative Explanation for Increased Disclosure, in: *Journal of Business Ethics* 33: 1 – 13
- Ghazali, N. A. M. (2007), Ownership structure and corporate social responsibility disclosure: some Malaysian evidence, in: *Corporate Governance* 7(3): 251 – 266
- Gladwin, T. N., Kennelly, J. J., Krause, T.-S. (1995), Shifting Paradigms for Sustainable Development: Implications for Management Theory and Research, in: *Academy of Management Review* 20: 874 – 907
- Godfrey, P. C. (2005), The relationship between corporate philanthropy and shareholder wealth: a risk management perspective, in: *Academy of Management Review* 30: 777 – 798
- Godfrey, P. C., Merrill, C. B., Hansen, J. M. (2009), The relationship between corporate social responsibility and shareholder value: an empirical test of the risk management hypothesis, in: *Strategic Management Journal* 30: 425 – 455
- Goodwin, J., Ahmed, K. (2006), Longitudinal value relevance of earnings and intangible assets: Evidence from Australian firms, in: *Journal of International Accounting, Auditing and Taxation* 15: 72 – 91
- Grant, R. M. (1996), Toward a knowledge-based theory of the firm, in: *Strategic Management Journal* 17 Special Issue: Knowledge and the Firm (Winter 1996): 109 – 122
- Gray, R., Javad, M., Power, D. M., Sinclair, C. D. (2001), Social and Environmental Disclosure and Corporate Characteristics: A Research Note and Extension, in: *Journal of Business Finance & Accounting* 28(3&4): 327 – 356
- Gray, R., Kouhy, R., Lavers, S. (1995a), Corporate Social and Environmental Reporting: A Review of the Literature and a Longitudinal Study of UK Disclosure, in: *Accounting, Auditing and Accountability Journal* 8(2): 47 – 77
- Gray, R., Kouhy, R., Lavers, S. (1995b), Constructing a research database of social and environmental reporting by UK companies, in: *Accounting, Auditing & Accountability Journal* 8(2): 78 – 101
- GRI (2010), Website of Global Reporting Initiative, <http://www.globalreporting.org>, accessed in January 2010
- Grüning, M. (2007), Drivers of corporate disclosure: a structural equation analysis in a Central European setting, in: *Management Research News* 30: 646 – 660
- Guimón, J. (2005), Intellectual capital reporting and credit risk analysis, in: *Journal of Intellectual Capital* 6(1): 28 – 42
- Guenther, T., Beyer, D. (2003), Hurdles of the Voluntary Disclosure of Information on Intangibles – Empirical Results for “New Economy” Industries, in: *Dresden Papers of Business Administration* 71(03)
- Guenther, T., Neumann, P. (2005), Measuring Human Capital – A meta-analytic structural equation analysis of cause and effects, in: *Dresden Papers of Business Administration* 100(05)
- Gupta, S., Goldar, B. (2004), Do stock markets penalize environment-unfriendly behaviour? Evidence from India, in: *Ecological Economics* 52(1): 81 – 95
- Guthrie, J., Cuganesan, S., Ward, L. (2008), Industry specific social and environmental reporting: The Australian Food and Beverage Industry, in: *Accounting Forum* 32: 1 – 15

- Guthrie, J., Farneti, F. (2008), GRI Sustainability Reporting by Australian Public Sector Organizations, in: *Public Money & Management* 28(6): 361 – 366
- Guthrie, J., Parker, L. D. (1989), Corporate Social Reporting: A Rebuttal of Legitimacy Theory, in: *Accounting and Business Research* 19: 343 – 352
- Guthrie, J., Petty, R. (2000), Intellectual capital: Australian annual reporting practices, in: *Journal of Intellectual Capital* 1(3): 241 – 251
- Guthrie, J., Petty, R., Yongvanich, K., Ricceri, F. (2004), Using content analysis as a research method to inquire into intellectual capital reporting, in: *Journal of intellectual capital* 5: 282 – 293
- Guthrie, J., Steane, P., Farneti, F. (2009), IC reporting in the Australian Red Cross blood service, in: *Journal of Intellectual Capital* 10(4): 504 – 519
- Hackston, D., Milne, M. J. (1996), Some determinants of social and environmental disclosures in New Zealand companies, in: *Accounting, Auditing, and Accountability Journal* 9(1): 77 – 108
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E. (2010), *Multivariate Data Analysis. A Global Perspective*, Upper Saddle River
- Han, J. C. Y., Wang, S. W. (1998), Political costs and earnings management of oil companies during the 1990 Persian Gulf crisis, in: *Accounting Review* 73: 103 – 117
- Handelsblatt (2009), Website of Handelsblatt Newspaper, <http://www.handelsblatt.com>, accessed in March 2010
- Healy, P. M., Hutton, A., Palepu, K. G. (1999), Stock performance and intermediation changes surrounding sustained increases in disclosure, in: *Contemporary Accounting Research* 16: 485 – 520
- Healy, P. M., Palepu, K. G. (2001), Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature, in: *Journal of Accounting and Economics*, 31(1-3): 405 – 440
- Holder-Webb, L., Cohen, J. R., Nath, L., Wood, D. (2008), The Supply of Corporate Social Responsibility Disclosures Among U.S. Firms, in: *Journal of Business Ethics* 84: 497 – 527
- Holsti, O. R. (1969), *Content analysis for the social sciences and humanities*, Reading, MA.
- Holthausen, R., Leftwich, R. (1983), The economic consequences of accounting choice: implications of costly contracting and monitoring, in: *Journal of Accounting and Economics* 5: 77 – 117
- Holthausen, R. W., Watts, R. L. (2001), The Relevance of the Value Relevance Literature for Financial Accounting Standard Setting, in: *Journal of Accounting and Economics* 31(1-3): 3 – 75
- Huang, C. L., Kung, F. H. (2010), Drivers of Environmental Disclosure and Stakeholder Expectation: Evidence from Taiwan, in: *Journal of Business Ethics* 96: 435 – 451
- Huselid, M. (1995), The impact of human resource management practices on turnover, productivity, and corporate financial performance, in: *Academy of Management Journal* 38(3), 635 – 672
- Huselid, M. A., Jackson, S. E., Schuler, R. S. (1997), Technical and strategic human resource management effectiveness as determinants of firm performance, in: *Academy of Management Journal* 39: 949 – 969
- Husted, B. W., Salzar, J. (2006), Taking Friedman Seriously: Maximizing Profits and Social Performance, in: *Journal of Management Studies* 43(1): 75 – 91
- Ichniowski, C., Shaw, K., Prennushi, G. (1997), The Effects of Human Resource Management Practices on Productivity: A Study of Steel Finishing Lines, in: *American Economic Review* 87: 291 – 213

- Islam, M. A., Deegan, C. (2010), Media pressures and corporate disclosure of social responsibility performance: A case study of two Global clothing and sports retail companies, in: *Accounting and Business Research* 40(2): 131 – 148
- Jensen, M. C. (2001), Value Maximization, Stakeholder Theory, and the Corporate Objective Function, in: *European Financial Management* 7(3): 297 – 317
- Jensen, M. C., Meckling, W. H. (1976), Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure, in: *Journal of Financial Economics* 3(4): 305 – 360
- Johnson, W. H. A. (2002), Leveraging intellectual capital through product and process management of human capital, in: *Journal of Intellectual Capital* 3(4), 415 – 429
- Kallapur, S., Kwan, S. Y. S. (2004), The Value Relevance and Reliability of Brand Assets Recognized by U.K. Firms, in: *Accounting Review* 79(1): 151 – 172
- Kaplan, R. S., Norton, D. P. (2004a), Measuring the Strategic Readiness of Intangible Assets, in: *Harvard Business Review* 82(2), 52 – 63
- Kaplan, R. S., Norton, D. P. (2004b), *Strategy maps: converting intangible assets into tangible outcomes*, Boston
- Kaplan, R. S., Norton, D. P. (1996), *The Balanced Scorecard – Translating Strategy into Action*, Boston
- Kaplan, R. S., Norton, D. P. (1992), *The Balanced Scorecard – Measures That Drive Performance*. *Harvard Business Review* 70(1), 71 – 79
- Kim, O., Verrecchia, R. (1994), Market liquidity and volume around earnings announcements, in: *Journal of Accounting and Economics* 17: 41 – 68
- Kohlbeck, M., Mayhew, B. W. (2009), Valuation of firms that disclose related party transactions, in: *Journal of Accounting and Public Policy* 29(2): 115 – 137
- Kolk, A. (2005), Environmental reporting by multinationals from the Triad: Convergence or divergence, in: *Management International Review* 45(1): 145 – 167
- Kolk, A., Walhain, S., Van de Wateringen, S. (2001), Environmental Reporting by the Fortune Global 250: Exploring the Influence of Nationality and Sector, in: *Business Strategy and the Environment* 10: 15 – 28
- Krippendorff, K. (2004), *Content Analysis: An Introduction to Its Methodology*, London
- Lajili, K., Zéghal, D. (2005), Labor cost voluntary disclosures and firm equity values: Is human capital information value-relevant?, in: *Journal of International Accounting, Auditing, and Taxation* 14(2): 121 – 138
- Lajili, K., Zéghal, D. (2006), Market performance impacts of human capital disclosures, in: *Journal of Accounting and Public Policy* 25(2): 171 – 194
- Lambert, R., Leuz, C., Verrecchia, R. (2007), Accounting Information, Disclosure, and Cost of Capital, in: *Journal of Accounting Research* 45: 385 – 420
- Langlois, C. C., Schlegelmilch, B. B. (1990), Do Corporate Codes of Ethics Reflect National Character? Evidence from Europe and the United States, in: *Journal of International Business Studies* 21(4): 519 – 539
- Leuz, C., Verrecchia, R. E. (2000), The Economic Consequences of Increased Disclosure, in: *Journal of Accounting Research* 38: 91 – 124
- Lev, B. (2001), *Intangibles. Management, Measurement, and Reporting*, Washington
- Lev, B. (2004), Sharpening the Intangibles Edge, in: *Harvard Business Review* 82(6): 109 – 116

- Lev, B., Zarowin, P. (1999), The Boundaries of Financial Reporting and How to Extend Them, in: *Journal of Accounting Research* 37(2): 353 – 385
- Levitt, T. (1970), The Dangers of Social Responsibility, in Marshall, H.D. (ed.), *Business and Government: The Problem of Power*, New York: 35 – 40
- Liang, C. J., Yao, M. L. (2005), The Value-Relevance of Financial and Nonfinancial Information – Evidence from Taiwan’s Information Electronics Industry, in: *Review of Quantitative Finance and Accounting* 24: 135 – 157
- Lijphart, A. (1984), *Democracies: Patterns of majoritarian and consensus government in twenty-one countries*, New Haven
- Lynch, B. (2009), An examination of environmental reporting by Australian state government departments, in *Accounting Forum*, doi: 10.1016/j.accfor.2009.11.001
- Lyon, T. P., Maxwell, J. W. (2006), Greenwash: Corporate Environmental Disclosure und Threat of Audit, in: *Ross School of Business Working Paper Series, Working Paper No. 1055*, <http://ssrn.com/abstract=938988>
- Lyon, T. P., Maxwell, J. W. (2007), Corporate Social Responsibility and the Environment: A Theoretical Perspective, in: *Working Paper Series*, <http://ssrn.com/abstract=1011793>
- Mackey, A., Mackey, T. B., Barney, J. B. (2007), Corporate Social Responsibility and firm performance: investor preferences and corporate strategies, in: *Academy of Management Review* 32(3): 817 – 835
- Maignan, I., Ferrell, O. C. (2004), Corporate Social Responsibility and Marketing: An Integrative Framework, in: *Journal of the Academy of Marketing Science* 32(1): 3 – 19
- Maignan, I., Ralston, D. A. (2002), Corporate Social Responsibility in Europe and the US: Insights from Businesses’ Self-Representations, in: *Journal of International Business Studies* 33(3): 497 – 514
- Maines, L. A., Bartov, E., Fairfield, P. M., Hirst, D. E., Iannaconi, T. E., Mallett, R., Schrand, C. M., Skinner, D. J., Vincent, L. (2002), Recommendations on disclosure of nonfinancial performance measures, in: *Accounting Horizons* 16(4): 352 – 362
- Maines, L. A., Bartov, E., Fairfield, P. M., Hirst, D. E., Iannaconi, T. E., Mallett, R., Schrand, C. M., Skinner, D. J., Vincent, L. (2003), Implications of Accounting Research for the FASB's Initiatives on Disclosure of Information about Intangible Assets, in: *Accounting Horizons* 17(2): 175 – 184
- Mankiw, N. G., Romer, D., Weil, D. N. (1992), A Contribution to the Empirics of Economic Growth, in: *Quarterly Journal of Economics* 107(2): 407 – 437
- Margolis, J. D., Walsh, J. P. (2003), Misery Loves Companies: Rethinking Social Initiatives by Business, in: *Administrative Science Quarterly* 48(2): 268 – 305
- Marr, B. (2006), *Strategic Performance Management – Leveraging and Measuring Your Intangible Value*, Amsterdam
- Marr, B., Schiuma, G., Neely, A. (2004), The dynamics of value creation: mapping your intellectual performance drivers, in: *Journal of Intellectual Capital* 5(2): 312 – 325
- Matten, D., Moon, J. (2008), “Implicit” and “explicit” CSR: A conceptual framework for a comparative understanding of corporate social responsibility, in: *Academy of Management Review* 33: 404 – 424
- McGuire, J. B., Sundgren, A., Schneeweis, T. (1988), Corporate Social Responsibility and Firm Financial Performance, in: *Academy of Management Journal* 31(4): 854 – 872
- McWilliams, A., Siegel, D. (2001), Corporate Social Responsibility: A Theory of the Firm Perspective, in: *Academy of Management Review* 26(1): 117 – 127

- Meek, G. K., Roberts, C. B., Gray, A. J. (1995), Factors influencing voluntary annual report disclosures by US, UK and Continental European multinational corporations, in: *Journal of International Business Studies* 26(3): 555 – 572
- Milne, M. J. (2002), Positive accounting theory, political costs and social disclosure analyses: a critical look, in: *Critical perspectives on accounting* 13: 369 – 395
- Mincer, J. (1958), Investment in Human Capital and personal income distribution, in: *Journal of Political Economy* 66(4): 281 – 302
- Mitchell, R. K., Agle, B. R., Wood, D. J. (1997), Toward a theory of stakeholder identification and salience: Defining the principles of who and what really counts, in: *Academy of Management Review* 22: 853 – 886
- Modigliani, F., Miller, M. (1958), The cost of capital, corporation finance and the theory of investment, in: *American Economic Review* 48: 261 – 297
- Möller, K. (2009), Intangible and financial performance: causes and effects, in: *Journal of Intellectual Capital* 10(2), 224 – 245
- Moneva, J. M., Archel, P., Correa, C. (2006), GRI and the camouflaging of corporate unsustainability, in: *Accounting Forum* 30: 121 – 137
- Mowday, R. T., Porter, L. W., Steers, R. M. (1982), *Employee-Organization Linkages – The Psychology of Commitment, Absenteeism, and Turnover*, New York
- Murray, A., Sinclair, D., Power, D., Gray, R. (2006), Do financial markets care about social and environmental disclosure? Further evidence and exploration from the UK, in: *Accounting, Auditing & Accountability Journal* 19(2): 228 – 255
- Neely, A., Adams, C., Kennerley, M. (2002), *The Performance Prism – The Scorecard for Measuring and Managing Business Success*, Harlow
- Neuendorf, K. A. (2002), *The content analysis guidebook*, London
- Nonaka, I. (2007), The Knowledge-Creating Company, in: *Harvard Business Review* 85(7/8), 162 – 171
- Nonaka, J., Takeuchi, H. (1995), *The knowledge-creating company*, New York
- Ohlson, J. (1995), Earnings, book values and dividends in security valuation, in: *Contemporary Accounting Research* 11: 661 – 687
- Ohlson, J. (1999), On transitory earnings, in: *Review of Accounting Studies* 4: 145-162
- Olsson, B. (2001), Annual reporting practices: Information about human resources in corporate annual reports in major Swedish companies, in: *Journal Human Resource Costing and Accounting* 6(1): 39 – 52
- Orlitzky, M., Schmidt, F. L., Rynes, S. L. (2003), Corporate Social and Financial Performance: A Meta-Analysis, in: *Organization Studies*, 24(3): 403-441
- Overfelt, W. V., Deloof, M., Vanstraelen, A. (2010), Determinants of Corporate Financial Disclosure in an Unregulated Environment: Evidence from the Early 20th Century, in: *European Accounting Review* 19(1): 7 – 34
- Owen, D. L. (1990), Towards a theory of social investment: a review essay, in: *Accounting, Organizations and Society* 15(3): 249 – 266
- Patten, D. M. (1991), Exposure, Legitimacy, and Social Disclosure, in: *Journal of Accounting and Public Policy* 10: 297 – 308

- Peng, G. Z., Beamish, P. W. (2008), The Effect of National Corporate Responsibility Environment on Japanese Foreign Direct Investment, in: *Journal of Business Ethics* 80: 677 – 695
- Penrose, E. T. (1959), *The Theory of the Growth of the Firm*, Oxford
- Petty, R., Guthrie, J. (2000), Intellectual Capital literature review – measurement, reporting and management, in: *Journal of Intellectual Capital* 1(2), 155 – 176
- Pfeffer, J. (1998), *The Human Equation – Building Profits by Putting People First*, Boston
- Pfeffer, J. (1994), *Competitive advantage through people: Unlashing the power of the work force*, Boston
- Polanyi, M. (1958), *Personal Knowledge*, Chicago
- Porter, M. E. (1998), *Competitive advantage: creating and sustaining superior performance*, New York
- Porter, M. E., Kramer, M. R. (2006), Strategy & Society: The Link Between Competitive Advantage and Corporate Social Responsibility, in: *Harvard Business Review* 84(12): 78 – 92
- Powell, W. W. (1991), Expanding the scope of institutional analysis, in: Powell, W.W., DiMaggio, P.J. (eds.), *The new institutionalism in organizational analysis*, Chicago: 183 – 204
- Prahalad, C. K., Hamel, G. (1990), The Core Competence of the Corporation, in: *Harvard Business Review* 68(3): 79 – 91
- Rappaport, A. (1998), *Creating Shareholder Value*, 2nd edition, New York
- Riketta, M. (2002), Attitudinal organizational commitment and job performance: a meta-analysis, in: *Journal of Organizational Behavior* 23(3), 257 – 266
- Rivoli, P. (1995), Ethical aspects of Investor Behavior, in: *Journal of Business Ethics* 14: 265 – 277
- Roberts, R. W. (1992), Determinants of Corporate Social Responsibility Disclosure: An Application of Stakeholder Theory, in: *Accounting, Organizations and Society* 17: 595 – 612
- Roos, G., Pike, S., Fernstroem, L. (2004), Intellectual Capital Management, Measurement and Disclosure, in: Horváth, P., Moeller, K. (eds.) *Intangibles in der Unternehmenssteuerung*, München
- Ross, S. A., Westerfield, R.W., Jaffe, J. Jordan, B.D. (2008), *Modern Financial Management*, 8th edition, New York
- Russo, M. V., Fouts, P. A. (1997), A Resource-Based Perspective on Corporate Environmental Performance and Profitability, in: *Academy of Management Journal* 40(3): 534 – 559
- Schaltegger, S., Synnestvedt, T. (2002), The link between ‘green’ and economic success: environmental management as the crucial trigger between environmental and economic performance, in: *Journal of Environmental Management* 65: 339 – 346
- Schultz, T. W. (1961), Investment in Human Capital, in: *The American Economic Review* 51(1): 1 – 17
- Sengupta, P. (1998), Corporate disclosure quality and the cost of debt, in: *Accounting Review* 73: 459 – 474
- Shane, P. B., Spicer, B. H. (1983), Market response to environmental information produced outside the firm, in: *The Accounting Review* 58(3): 521 – 538
- Shannon, C. E., Weaver, W. (1998), *The mathematical theory of communication*, Urbana

- Siders, M. A., George, G., Dharwadkar, R. (2001), The relationship of internal and external commitment foci to objective job performance measures, in: *Academy of Management Journal* 44(3), 570–579
- Siegel, D. S., Vitaliano, D. F. (2007), An Empirical Analysis of the Strategic Use of Corporate Social Responsibility, in: *Journal of Economics and Management Strategy* 16(3): 773 – 792
- Smith, A. (1776), *An inquiry into the nature and causes of the wealth of nations*, Vol. 1, London
- Snell, S. A., Youndt, M. A., Wright, P. M. (1996), Establishing a framework for research in strategic human resource management: Merging resource theory and organizational learning, in: Ferris, G. (ed.), *Research in personnel and human resource management*, 61 – 90
- Solow, R. M. (1956), A Contribution to the Theory of Economic Growth, in: *Quarterly Journal of Economics* 70(1): 65 – 94
- Spender, J. C. (1994), Organizational Knowledge, Collective Practice and Penrose Rents, in: *International Business Review* 3(4): 353 – 367
- Spender, J. C., Grant, R. M. (1996), Knowledge and the firm: overview, in: *Strategic Management Journal* 17 Winter Special Issue: 5 - 9
- Spicer, B. H. (1978), Investors, Corporate Social Performance and Information Disclosure: An Empirical Study, in: *The Accounting Review* 53(1): 94 – 111
- Stern, J. M., Stewart, G. B., Chew, D. H. Jr. (1996), The EVA Financial Management System, in: *Journal of applied corporate finance* 8(2): 32 – 46
- Stewart, G. B. (1999a), *The Quest for Value – A Guide for Senior Managers*, New York
- Stewart, T. A. (1999b), *Intellectual Capital – The New Wealth of Organizations*, New York
- Stolowy, H., Jeny-Cazavan, A. (2001), International accounting disharmony: the case of intangibles, in: *Accounting, Auditing & Accountability Journal* 14(4): 477 – 497
- Sveiby, K. E. (1997), *The new organizational wealth: Managing and measuring knowledge-based assets*, San Francisco
- Sveiby, K. E. (2001), A Knowledge-based theory of the firm to guide strategy formulation, in: *Journal of Intellectual Capital* 2(4), 344 – 358
- Sveiby, K. E. (2007), *Methods for Measuring Intangible Assets*, <http://www.sveiby.com/Portals/0/articles/IntangibleMethods.htm>, accessed 19 July 2010
- Tate, W. L., Ellram, L. M., Kirchoff, J. F. (2010), Corporate Social Responsibility Reports: a thematic analysis related to supply chain management, in: *Journal of Supply Chain Management* 46(1): 19 – 44
- Teece, D. J. (1998), Capturing Value from Knowledge Assets: The New Economy, Markets for Know-how, and Intangible Assets, in: *California Management Review* 40(3): 55 – 79
- Thomson One Banker (2009), <http://banker.thomsonib.com/>, accessed in December 2009
- Vandemaele, S. N., Vergauwen, P. G. M. C., Smits, A. J. (2005), Intellectual capital disclosure in The Netherlands, Sweden, and the UK, in: *Journal of Intellectual Capital* 6(3): 417 – 426
- Van der Laan-Smith, J., Adhikari, A., Tondkar, R. H. (2005), Exploring differences in social disclosures internationally: A stakeholder perspective, in: *Journal of Accounting and Public Policy* 24(2): 123 – 151
- Van der Meer-Kooistra, J., Zijlstra, S. (2001), Reporting on Intellectual Capital, in: *Accounting, Auditing and Accountability Journal* 14(4): 456 – 476

- Verrecchia, R. E. (1983), Discretionary Disclosure, in: *Journal of Accounting and Economics* 5: 179 – 194
- Waddock, S. A., Graves, S. B. (1997), The Corporate Social Performance – Financial Performance Link, in: *Strategic Management Journal* 18(4): 202 – 319
- Watts, R. L., Zimmermann, J. L. (1978), Towards a Positive Theory of the Determination of Accounting Standards, in: *The Accounting Review* 53(1): 112 – 134
- Watts, R. L., Zimmermann, J. L. (1979), The demand for and supply of accounting theories, the market for excuses, in: *Accounting Review* 54: 273 – 305
- Watts, R. L., Zimmermann, J. L. (1986), *Positive Accounting Theory*, Englewood Cliffs
- Watts, R. L., Zimmermann, J. L. (1990), Positive Accounting Theory: A Ten Year Perspective, in: *The Accounting Review* 65(1): 131 – 156
- Wernerfelt, B. (1984), A resource-based view of the firm, in: *Strategic Management Journal* 5: 171 – 180
- Whitley, R. (1999), *Divergent capitalisms: The social structuring and change of business systems*, Oxford
- Wright, P. M., Dunford, B. B., Snell, S. A. (2001), Human resources and the resource based view of the firm, in: *Journal of Management* 27: 701 – 721
- Wright, P. M., McMahan, G. C., McWilliams, A. (1994), Human resources and sustained competitive advantage: a resource-based perspective, in: *International Journal of Human Resource Management* 5(2): 301 – 326
- Wyatt, A. (2008), What Financial and Non-Financial Information on Intangibles is Value Relevant? A Review of the Evidence, in: *Accounting and Business Research* 38(3): 217 – 256
- Wyatt, A., Webster, E., Hunter, L. (2004), *Techniques for Measuring Intellectual Capital: A review of current practice*, in: Intellectual Property Research Institute of Australia, Working Paper no. 16/04, Melbourne
- Zingales, L. (2000), In Search of New Foundations, in: *The Journal of Finance* 55(4): 1623 – 1653

