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Alexander Kerscher

Corporate Social Responsibility and the Market Valuation of Listed Real Estate Investment Companies

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Geleitwort

Der Themenkomplex Corporate Social Responsibility (CSR) ist aufgrund der politischen, gesellschaftlichen und geoökologischen Entwicklungen der jüngeren Vergangenheit zunehmend in den Fokus unternehmerischen Handelns gerückt und hat eine Gleichstellung mit den klassischen Bereichen der Unternehmensführung erfahren. Bedingt durch die zunehmende Wertebildung einer immer dynamischeren und differenzierteren Gesellschaft sowie die stetige Weiterentwicklung moderner Kommunikations- und Informationsmedien finden sich Unternehmensführer heutzutage in einem sich ständig wandelndem Spannungsfeld verschiedener Interessensgruppen wieder, welche teilweise erheblichen Einfluss auf Unternehmen und deren Entscheidungen ausüben können. Gesteigertes Umweltbewusstsein, höhere ethische Standards sowie die immer weiter steigende Nachfrage nach und das immer geringer werdende Angebot von natürlichen Ressourcen sind wesentliche Treiber dieser Entwicklungen.

Insbesondere institutionelle Investoren haben die sich aus den neuen Anforderungen ergebenden Markt- und Unternehmensrisiken erkannt und üben durch geändertes Anlageverhalten zunehmend Druck auf die Unternehmen aus. Die sich daraus ergebenden Konsequenzen für börsennotierte Immobiliengesellschaften sind insbesondere gestiegene Transparenz- und Dokumentationsanforderungen sowie die nachhaltige Ausrichtung des jeweiligen Unternehmens im Kerngeschäft mit seinen Immobilien. Immobilienportfolien werden nicht mehr nur anhand finanzieller Parameter gemessen, sondern auch an daran, welchen Beitrag die Immobilien zur Erreichung vorgegebener Klimaschutzziele leisten können und inwiefern eine ökologische Zukunftsfähigkeit gewährleistet werden kann.

Dabei stellt sich die Frage, ob die Umsetzung einer Nachhaltigkeitsstrategie in börsennotierten Immobilienunternehmen zu einer erhöhten Bewertung an den Kapitalmärkten führt. Eine umfassende wissenschaftliche Auseinandersetzung mit dieser Thematik, welche sich insbesondere auf eine tiefgreifende theoretische Analyse von unternehmerischer Nachhaltigkeit und unternehmerischen Erfolg stützt, liegt im immobilienwirtschaftlichen Fachbereich noch nicht vor. Die Arbeit von Alexander Kerscher stützt sich auf eine umfangreiche theoretische Betrachtung der Einbettung von Unternehmen in ihr gesellschaftliches Umfeld sowie einer ausführlichen Aufarbeitung des Übergangs von klassischen Managementansätzen hin zur Implementierung einer nachhaltigen Unternehmensorientierung. In einem nächsten Schritt werden die Erkenntnisse auf börsennotierte Immobiliengesellschaften übertragen und konkrete Handlungsfelder normativer, strategischer und operativer Ebene beleuchtet. Dabei wird die Nachhaltigkeitsberichterstattung als wesentliche Komponente einer umfassenden CSR-Strategie herausgearbeitet.

Die empirische Untersuchung stützt sich auf eine interkontinentale Stichprobe von 191 börsennotierten Immobiliengesellschaften aus neun Ländern. Alle Informationen zur Nachhaltigkeit der ausgewählten Unternehmen wurden primär anhand eines auf den Global Reporting Standards basierenden Scoring-Models erhoben. Den Kern der empirischen Untersuchung bilden verschiedene ein- und zweistufige Regressionsmodelle sowie die

Anwendung eines Optimierungsalgorithmus zur Identifikation wesentlicher nachhaltiger Werttreiber einer unternehmerischen Nachhaltigkeitsorientierung.

Die Dissertation ist eine gelungene Synthese theoretischer sowie empirischer Erkenntnisse, welche in ihrer Gesamtheit eine inhaltlich geschlossene Arbeit ergeben. Die fundierten theoretischen Ausarbeitungen und deren Übersetzung in einen praktischen für börsennotierte Immobilienunternehmen relevanten CSR-Strategieansatz sowie die empirische Untersuchung unter Einbeziehung einer in der immobilienwirtschaftlichen Forschung bisher nicht verwandten Methode ist sehr gut gelungen. Die vorgelegten empirischen Ergebnisse sind von hoher praktischer Relevanz, da sie Entscheidungsträgern börsennotierter Immobilienunternehmen helfen, adäquate CSR-Handlungsfelder zu identifizieren, welche auch in Bezug auf den finanziellen Unternehmenserfolg relevant sind. Ich wünsche der Arbeit von Herrn Alexander Kerscher daher eine gute Aufnahme in Theorie und Praxis der Immobilienwirtschaft.

Table of Content

List of Figures

List of Tables

List of Abbreviations

2SLS	Two-Stage Least Squares
3SLS	Three-Stage Least Squares
ATO	Asset Turnover
AUS	Australia
BREEAM	Building Research Establishment Environmental Assessment Method
CAN	Canada
CG	Corporate Governance
CFP	Corporate Financial Performance
CO_2e	Carbon Dioxide Equivalent
COP	Communication on Progress
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
DGNB	Deutsche Gesellschaft für Nachhaltiges Bauen
DMA	Disclosure on Management Approach
EPRA	European Public Real Estate Association
ESG	Environmental, Social and Governance
EU	European Union
FFO	Funds from Operations
FRA	France
GDP	Gross Domestic Product
GER	Germany
GHG	Greenhouse gas
GRI	Global Reporting Initiative
HKG	Hong Kong
HQE	Haute Qualité Environnementale
i.e.	id est

IFRS	International Financial Accounting Standards
ILO	International Labor Organization
IPO	Initial Public Offering
ISO	International Organization for Standardization
KPI	Key Performance Indicator
kWh	Kilowatt hour
LSDV	Least Squares Dummy Variable
MTBV	Market-to-Book Value
MVA	Market Value Added
NLD	Netherlands
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
R&D	Research and Development
REIT	Real Estate Investment Trust
REOC	Real Estate Operating Company
ROA	Return on Assets
ROE	Return on Equity
ROS	Return on Sales
SGP	Singapore
SRI	Socially Responsible Investment
SWE	Sweden
toe	Tonnes of oil equivalent
TR	Total Return
TRD	Thomson Reuters Datastream
UK	United Kingdom
UN	United Nations
UNGC	United Nations Global Compact

UNPRI	United Nations Principles for Responsible Investment
U.S.	United States (of America)
USD	United States Dollar
VIF	Variance Inflation Factor
WGBC	World Green Building Council
WTO	World Trade Organization
ZIA	Zentraler Immobilien Ausschuss (German Property Federation)

1 Introduction

1.1 Relevance and Topicality of the Study

For long periods in history, societal needs and claims were largely neglected by governments and business. However, in the wake of increasing democratization and progressing socioeconomic development in wide parts of Western societies, power relations have undergone considerable change.[1] Over time, civil society has gained substantial power which is channeled through NGOs and public organizations. Today, corporations face an increased level of scrutiny from various stakeholders and find themselves as part of a complex nexus of distinctive interest groups. In this context, the most pressing drivers of change in societal expectations on business stem from increasing environmental awareness and increasing consumption alongside a shrinking supply of natural resources and geopolitical changes.[2] In order to ensure their long-term viability, corporations have no choice but to adapt to society's changed expectations and to identify new approaches to strategic management that can meet the challenges thus posed.

As the environmental, social and political developments of recent decades unfolded, the concept of corporate social responsibility (CSR) attracted more and more attention among business leaders. While there is still much debate on *what* actually constitutes CSR and *how* it should be integrated into the conduct of business, business leaders across the board agree on one key insight: *that* CSR matters and, as a result, warrants incorporation into their company DNA. Indeed, the incorporation of CSR is seen as the most important leadership challenge for business today.[3] A growing number of organizations promoting a sustainable approach towards strategic management such as the United Nations Global Compact, the International Organization for Standardization or the Global Reporting Initiative lend support to this observation. A further case in point is the fact that there are only a few, if any, high-profile listed corporations that have not yet made their CSR initiatives a permanent feature of their annual report.

In view of the rising number of real estate investment trusts and the incessant growth of listed real estate operating companies increasingly gaining influence in the sector, the real estate investment industry cannot afford to ignore these global trends. Porter and Kramer (2006) argue that a company has the obligation to contribute to the solution of societal problems where these coincide with its specific business.[4] There is little doubt that social and environmental issues are the areas in which the real estate investment industry can contribute the most. According to various sources, buildings are responsible for about 40 % of energy consumption and greenhouse gas emissions worldwide.[5] Unsurprisingly, governments have identified buildings as a major lever in the fight against climate change and continue to impose

1 See van Marrewijk (2003), p. 100.

2 See McKinsey (2007), p. 11.

3 See BSR (2012), 11.

4 See Porter / Kramer (2006), p. 84.

5 See UNEP (2009), p. 4; USGBC (2008), p. 6.

stricter laws and regulations in order to reduce their consumption of energy. Besides more general social areas like, for example, labor practices, the core business of listed real estate investment companies intersects with the expectations of society where public open spaces are concerned. After all, buildings are part of everyone's daily lives and can hardly vanish into thin air. As a consequence, the pro-active integration of CSR into the strategic management of listed real estate investment companies appears to be a reasonable response to one of today's urgent and important challenges.

In addition to the aforementioned social and environmental reasons, another major driver for this development is the growing volume of responsibly managed assets belonging to institutional investors. Given the fact that institutional investors are by far the largest shareholders of listed real estate investment companies, meeting their requirements is all the more important for publicly traded companies. The volume of socially responsibly managed assets in Europe grew by 22.5 % from USD 7.15 trillion at the end of 2009 to USD 8.76 trillion at the end of 2011. This figure represents around 49 % of all professionally managed assets in Europe.[6]

Consequently, listed companies in general and listed real estate investment companies in particular are seen to increasingly adopt the reporting guidelines provided by the Global Reporting Initiative (GRI) in order to enhance their transparency with regard to CSR. The number of worldwide issued GRI-aligned CSR reports rose from about 540 in 2006 to about 2600 in 2012. In the course of the same year, 75 companies from the real estate industry reported in line with the GRI framework.[7]

In this context, it is import to know if enhanced integration of CSR into core business functions positively affects the market valuation of a listed real estate investment company. In order to make strategic investment decisions, business executives of listed real estate investment companies need to know whether the integration of CSR into core business functions is appreciated and rewarded by investors through higher stock market valuations.

[6] See GSIA (2013), pp.10 & 20.

[7] GRI (2014)

1.2 Purpose of Analysis and Research Questions

Several meta-analyses have found a positive but moderate relationship between corporate social performance and corporate financial performance.[8] However, the results of each study depend heavily on the operationalization of the variables of interest and the empirical methodologies applied, not to forget the specific study contexts within which they were carried out. Consequently, individual study results have to be handled with due caution. Indeed, results obtained are only transferable to other situations in the rarest of cases.

The purpose of this analysis is to investigate whether a positive link can be established between the CSR efforts of listed real estate investment companies and their stock market valuation. In so doing, this study contributes to the current academic debate in the real estate literature in five distinct ways. First, the study focuses solely on listed real estate investment companies whose primary objective is the investment in and management of real estate. All other companies operating in the real estate investment industry, such as real estate investment service providers or home-builders, are excluded. By employing such a homogenous sample the study satisfies the claim for intra-industry analyses.[9] Second, most of the existing empirical literature on the subject to date relies on samples taken from U.S. companies. The sample upon which this study is based, by contrast, includes firms from nine countries in Europe, North America and the Asia-Pacific region. Third, this study uses an index based on the GRI reporting framework and the associated Construction and Real Estate Sector Supplement in order to measure a listed real estate investment company's level of disclosure regarding issues of CSR. This approach ensures a precise, industry-specific and comprehensive measurement of both a company's engagement with and integration of CSR. Fourth, a special method called component-wise gradient boosting is applied in order to identify the most value relevant CSR reporting content. Finally, the method of instrumental variable estimation is used to take into account the increasingly addressed issue of endogeneity.

In the context of this study's distinct features, the following research questions are formulated:

- Is there an association between a listed real estate investment company's degree of engagement in CSR and its market valuation?
- Is it possible to establish a causal relationship between the degree of engagement in CSR and the market valuation of listed real estate investment companies?
- Do engagements in different fields of CSR have a different degree of association with a listed real estate company's market valuation?
- What regional differences exist in the relationships between the degree of engagement in CSR and the market valuation of listed real estate investment companies?

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[8] See Allouche / Laroche (2005), p. 22; Margolis et al. (2009), p. 23; Orlitzky et al. (2003), p. 404; Wu (2006), p. 168.

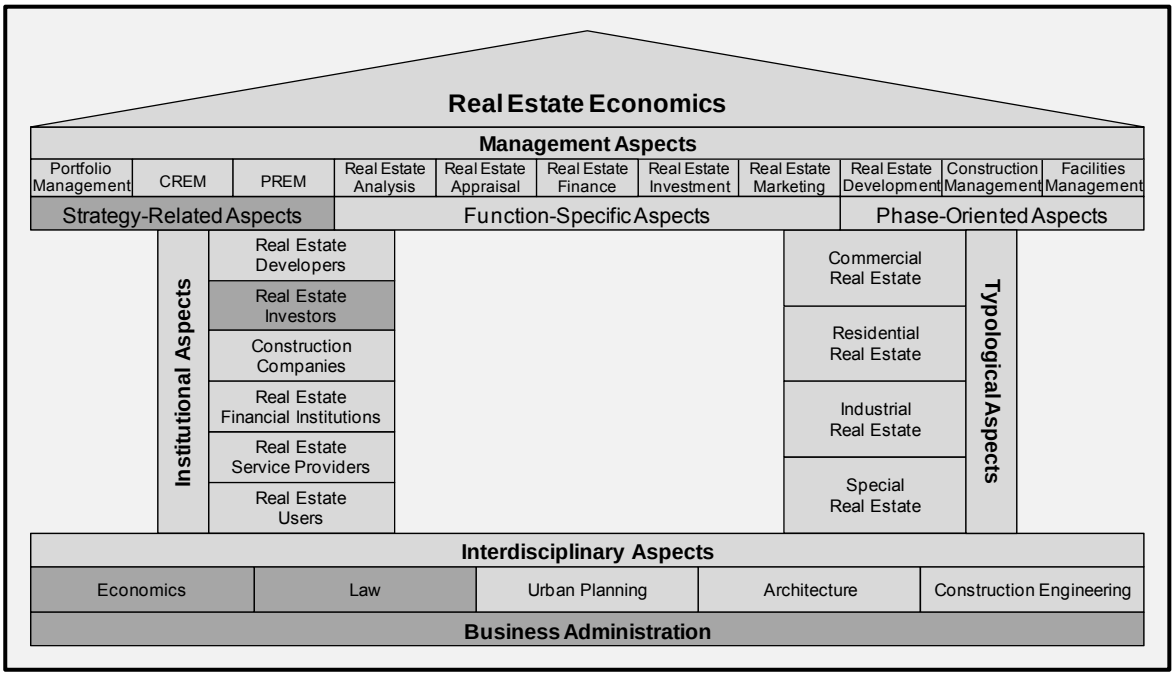
[9] See Chand (2006), 243; Griffin / Mahon (1997), p. 99.

- With regard to the association between the degree of engagement in CSR and market valuation, is there a difference between real estate investment trusts and listed real estate operating companies?
- What are the implications of the results obtained from the empirical analysis for the strategic management of real estate investment trusts and listed real estate operating companies?

1.3 General Theoretical Frame of Reference and Course of Analysis

Due to its particular features, the topic of real estate as covered in academic literature resides at the intersection of various academic disciplines. This study draws on several aspects of Schulte and Schäfers' (2008) "House of Real Estate Economics".[10] Their model is illustrated in figure 1.

Figure 1: House of Real Estate Economics



Source: Schulte / Schäfers (2008), p. 58.

In the House of Real Estate Economics, the authors approach the field of real estate economics from various different angles and, in so doing, identify a number of different aspects. With regard to the institutional aspects, this study focuses on real estate investors on two levels. On the one hand, listed real estate investment companies constitute the primary objects of interest. On the other hand, capital market real estate investors are also important as they determine the market valuation of listed real estate investment companies. The holistic integration of CSR into a core business function has to be approved and promoted by a listed real estate investment company's executive management team. Hence, CSR falls into the strategy-related sub-category of management aspects. In terms of academic disciplines, this study encompasses aspects of economics, law as well as business administration.

Following these introductory remarks and the academic contextualization of the study at hand, the remainder of this chapter sets out the proposed course of analysis.

Chapter 2 lays the theoretical foundation for the empirical study. By introducing legitimacy theory, stakeholder theory and the concept of CSR, the chapter provides an overview of how corporations are embedded in their environments. Furthermore, it is shown why and how corporations have a vested interest in the consideration of the claims of society.

[10] See Schulte / Schäfers (2008), p. 58.

Chapter 3 begins by elucidating the particularities of listed real estate investment companies. Taking these considerations as a point of departure, the remainder of the chapter will explain the reasons for the increased importance of CSR strategies in the industry and elaborate their implementation in listed real estate investment companies. The final section will then turn to the issues of CSR reporting of listed real estate investment companies and introduce a number of CSR reporting standards.

Chapter 4 elaborates on the measurement of corporate social performance and corporate financial performance for empirical matters and identifies appropriate measures to be used on listed real estate investment companies. The chapter then proceeds to make a business case for CSR for listed real estate investment companies. The chapter concludes with a literature review of relevant articles in the literature on finance and real estate and formulates a list of hypotheses to be examined in the empirical part of this study.

Setting out from these hypotheses, Chapter 5 turns to the empirical investigation on the impact of CSR transparency on the market value of listed real estate investment companies. This part begins with introducing both the make-up of the sample and the selection of variables. In a next step the variables of interest are descriptively analyzed. The results of the empirical analyses are provided following some comments on both the research design and empirical methodology used in performing the analysis. The chapter will then wrap up with a discussion of the results and their implications for further research whilst also deriving some practical applications. The last chapter draws a final conclusion.

Figure 2 illustrates the structure of this study.

Figure 2: Summary of Contents

1	**Introduction**		
2	**Theoretical Frame of Reference**		
2.1 Corporations in Society	2.2 Legitimacy Theory	2.3 Contemporary Developments in Strategic Management	
2.4 Concept of Corporate Social Responsibility	2.5 Reconciling Legitimacy Theory, Stakeholder Theory and Corporate Social Responsibility		
3	**Listed Real Estate Investment Companies and Corporate Social Responsibility**		
3.1 Specifics of Listed Real Estate Investment Companies	3.2 Reasons for the Increasing Importance of CSR in the Real Estate Investment Industry	3.3 CSR Implementation in Listed Real Estate Investment Companies	
4	**Corporate Social Performance and Corporate Financial Performance: The Case of Real Estate Investment Companies**		
4.1 Measurement of CSP	4.2 Measurement of CFP	4.3 Factors Influencing the CSP-CFP Link	
4.4 Literature Investigating the CSP-CFP Link	4.5 Formation of Hypotheses		
6	**Empirical Investigation of the Impact of CSR Transparency on the Market Value of Listed Real Estate Investment Companies**		
5.1 Process of Sample Selection	5.2 Variable Selection and Definition	5.3 Descriptive Analysis	
5.4 Research Design and Empirical Methodology	5.5 Empirical Findings		
6	**Conclusion and Prospects**		

Source: Own illustration

2 Theoretical Frame of Reference

The following chapter gives an overview of the theoretical framework within which this study is carried out. The first part provides a brief introduction to the sociological concept of the constituents of society. On this basis, it reviews three relevant theories: legitimacy theory, stakeholder theory and the concept of CSR. In so doing, this chapter endeavors to derive a theoretical concept that will form the basis of the empirical investigations in later chapters.

2.1 Corporations in Society

The next two sections provide a brief overview of the concept of society and social change. Understanding this social background is crucial to deciphering current discussions and developments with which many of the theories and concepts to be introduced below are concerned.

2.1.1 Society, Values and Norms

In general, the term society describes the totality of social relationships within certain boundaries.[11] These boundaries of a society are drawn where its members desist from interacting with each other due to certain circumstances.

The members of a given society take on many different shapes and forms and range from individuals to groups and organizations. A group is a definable amalgamation of individual persons who interact on a regular basis and for a general purpose.[12] School classes, families or circles of friends serve as good examples. Organizations are also amalgamations of individual persons, albeit with a defined structure characterized by a higher hierarchy and founded in order to pursue a single or a few specific purposes.[13] Examples of organizations are corporations, unions, environmental protection organizations or the World Trade Organization (WTO). It is important to point out that organizations often are supranational entities whose operations are not restricted to national borders.

Borders of societies may be determined by territorial aspects as a result of politically or geographically imposed barriers and / or by non-physical aspects such as language and common cultural heritage.[14] These barriers, however, are subject to change over time. When the term society is used in this work, it refers to national societies like, for instance, the Australian society or supranational societies like the EU.

Besides these externally imposed limits to society there exist also a number of internal forces which foster coherence among the members of a society. Common values are a vital component of the foundations upon which societies are built. Values are general principles

11 See Fulcher / Scott (2011), p. 834.

12 See Lehner (2011), p.125.

13 See Dimbath (2011), p131; Gukenbiehl (2008), p. 155.

14 See Meulemann (2006), p. 125.

which are accepted as adequate and deemed desirable by a vast majority of society.[15] Together, they form the cultural core of a society and, as such, are normative in nature.

While values are abstract entities which cannot be directly applied in daily life, norms are able to remedy this shortcoming. Norms can be defined as prevailing rules of behavior that take effect in certain situations or under certain sets of conditions and, as such, serve as mutually agreed frames of reference in accordance with which any member of society can adjust or adapt its behavior.[16] A major distinction between different classes of norms can be drawn along the lines of varying degrees of obligation.[17] On the one hand, there are norms like folkways and mores.[18] Behavior at variance with these norms does not entail serious consequences for the transgressor. Rather the norm-breaking individual, group or organization may be confronted with responses which range from gossip to open censure, ostracism, or dishonor.[19] On the other hand, there are codified systems of norms, i.e. law. This type of norms is legally binding and misconduct leads to considerable negative sanctions enforced by the respective state upholding the law.

Norms which are crucial for the existence of a society are called institutions. They have to be understood as a complex nexus of norms which regulate behaviors in certain fields of society and satisfy its fundamental needs.[20] Universities or business are examples of institutions. For instance, universities regulate both the ways to and necessary processes of higher education and satisfy society's demand for higher education and innovation. Moreover, the institution of business regulates ways and means in trade and commerce. It serves society by supplying it with valuable goods and services.

2.1.2 Change of Values and Contemporary Societal Expectations towards Corporations

Values and norms differ in their shape across cultural spheres, countries and political systems and are subject to change over time. The question of how values and norms take shape is key to understanding the current developments and shifts in societal power relations.

Socioeconomic development in general and the change of values in particular are ultimately driven by technological progress. This leads to enhanced labor productivity which, in turn, entails rising income levels and, eventually, higher educational levels and greater autonomy. With regard to human choice, Inglehart and Welzel (2006) identify three major consequences of socioeconomic development. First, a secure and sufficient income places people in existential security and minimizes material constraints on human choice. Second, higher levels of education and the development of mass media provide people with the ability to make choices without cognitive and informational restrictions. Third, the increasing occupational

15 See Henecka (2006), p. 81.

16 See Lehner (2011), p. 91.

17 See Schäfers (2008), p. 30.

18 See Lehner (2011), p. 91 who refers to Sumner (1906).

19 See Bicchieri (2006), p. 8.

20 See Henecka (2006), p. 82.

specialization and the accompanying diversification of human interactions enable people to make choices unaffected by social constraints.[21]

Inglehart and Welzel (2006) argue that history seems to manifest two major phases of changes in societal values. The first phase was triggered by industrialization which marks the transition from an agrarian society to an industrialized society. New technologies and enhanced productivity provided people with existential security. In the wake of the emergence of modern sciences, industrialized societies developed secular-rational values which led to a secularization of authority. The rise of the post-industrialized society marks the second major phase of value changes. This phase began in the early 1970s and is characterized by the automation and outsourcing of workplaces in the industrial sector and a contemporaneous increase of workplaces in the service sector. The service industry heavily relies on a highly educated workforce. Communication and organizational skills are of high importance. The introduction of new communication technologies spawned an interaction-based and fast-paced working environment. This development fostered the creation of post-materialistic values and promoted people's emancipation from authority accompanied by increased autonomy.[22] Western societies are going to move further towards theses post-materialistic values.[23]

Changes of prevailing values can significantly alter the importance of institutions and their acceptance among members of society.[24] Industrialization and the division of ownership and control led to a marked increase of average corporation size. This, in turn, facilitated the accumulation of capital and power within corporations and consolidated the institutionalization of business. As such, business is subject to the same rules as other institutions.

Against the background of prevailing post-materialistic values as well as increased power of civil society, corporations are exposed to intense public scrutiny.[25] This development was already predicted by Epstein in 1972:

> *"Although the primarily economic function of producing goods and services efficiently will remain a major criterion of utility, the ways in which these activities are carried out, as well as their social and political consequences, will become part of the measure. In short, concepts of corporate responsibility are continuously evolving as societal needs and expectations change, and are increasingly being incorporated into our concept of utility."*[26]

The reason for this increased level of scrutiny lies in the fact that especially large and multinational corporations, while very powerful, are not subject to the same legal constraints

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21 See Inglehart / Welzel (2006), p. 24.

22 See Inglehart / Welzel (2006), pp. 25-31.

23 See Inglehart (2008), p. 145.

24 See Henecka (2006), p. 83.

25 See McKinsey (2007), p. 26.

26 Epstein (1972), p. 1715.

as their democratically elected political counterparts. In the context of a growing emancipation from authority and increasing claims for civil codetermination, corporations are subject to growing pressure from NGOs, special interest groups and consumer initiatives which channel the demands of civil society. The interests of these groups are in congruence with the values and norms of society and predominantly focus on social and environmental concerns. The public wants to know how corporations operate and what their contributions are in the combat against global societal problems such as global warming and mass poverty. Institutions which are opposed to the claims of civil society compromise their legitimacy.[27] These problems, however, can be solved by introducing new approaches to strategic management and the incorporation of societal needs by business.

[27] Oesterdiekhoff / Jegelka (2001), p. 8.

2.2 Legitimacy Theory

Over the last decade legitimacy theory has become a subject of major interest among scholars in different fields of research. In particular, legitimacy theory has often been used as a theoretical foundation for studies concerned with social and environmental accounting as well as its explanation and empirical validation.[28] Another reason for the recently witnessed increased levels of interest is the higher quality of scrutiny to which organizations are exposed. In this context, Epstein (1972) posits that within democratic society, the indispensable need to continuously reassess the rights and obligations of essential institutions of society cannot be suppressed.[29] Thus, corporations are faced and forced to confront an ever changing environment.

2.2.1 Foundations of Legitimacy Theory

A vital prerequisite for legitimacy theory is the concept of the social contract.[30] Shocker and Sethi (1973) contend that any organization within society operates via a social contract. This notion implies that an organization's survival depends on the delivery of some socially desirable good to society which in turn grants the organization power and legitimacy.[31] Based on these deliberations, an organization or corporation has to pursue at least two goals. On the one hand it must be economically viable by producing goods and services which meet customers' demands. On the other hand, and in contrast to classical economic theories, a corporation needs to seek societal approval of its operations and revenues in order to secure long-term survival. This duality of legitimacy is expressed by Hurst (1970) who identifies utility and responsibility as organizational or corporate legitimizers.[32]

Legitimacy theory follows a systems-oriented approach of looking at organizations and is classified as an open system theory.[33] In contrast to, for instance, the classical input-output model of the firm which is narrowly focused on the supply of raw materials or intermediate products, the production process and sale of marketable goods, systems-oriented theories take a wider perspective on a corporation. The organization is not seen as a discrete entity which, irrespective of any external circumstances, pursues internal efficiency enhancement and revenue growth, but instead as part of a broader social system. Indeed, an organization is seen as an entity of society which does not only influence its environment but is also itself influenced by its environment.[34] Stakeholder theory is a further example for a systems-oriented theory and shall be discussed in due course.

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28 See Deegan (2006), p. 161;For an overview of studies empirically testing legitimacy theory see Deegan (2006), pp. 175f; Deegan / Unerman (2011), pp. 399f.

29 See Epstein (1972), p. 1703.

30 See Deegan (2006), p. 171.

31 See Shocker and Sethi (1973), p. 97.

32 See Hurst (1970), pp. 58f.

33 See Gray et al. (1996), p. 45.

34 See Deegan (2006), p. 166.

2.2.2 Relevant Terms and Definitions within Legitimacy Theory

In order to understand legitimacy theory and to make it applicable for this study, it is important to reach a common understanding of what exactly is meant by legitimacy in the context of organizations operating within a broader social system.

In general, the

> *"'subjects of legitimation' are those social entities, structures, actions, and ideas whose acceptability is being assessed."* [35]

This, however, is a rather broad definition which needs to be narrowed for the purpose of this study. The theoretical part of the examination will therefore focus exclusively on business organizations or corporations as subjects of legitimation.

According to Dowling and Pfeffer (1975), an organization strives to reconcile the values associated with its actions with the values of the broader social system of which it is part. In their account, legitimacy is achieved when the perceived values associated with the actions of an organization are in accordance with the prevailing values of the respective society.[36]

In the scholarly literature on this subject, two frequently cited definitions of legitimacy were put forward by Lindblom (1994) and Suchman (1995). Lindblom (1994) defines legitimacy as:

> *"...a condition or status which exists when an entity's value system is congruent with the value system of the larger social system of which the entity is a part. When a disparity, actual or potential, exists between the two value systems, there is a threat to the entity's legitimacy."* [37]

Suchman (1995) provides a more general definition:

> *"Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions."* [38]

Such being the case, legitimacy is a conferred status which assigns societal endorsement and approval to a corporation's behavior. This implies that a legitimate status is always subject to outside control.[39] This outside control is exerted by societal observers who compare corporate behavior with a certain standard or model.[40]

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35 Deephouse / Suchman (2008), p. 54.

36 See Dowling / Pfeffer (1975), p. 122.

37 Lindblom (1994), p. 2 as quoted in Deegan (2002), p. 293.

38 See Suchman (1995), p. 574.

39 See Pfeffer / Salancik (1978), p. 194.

40 See Ruef / Scott (1998), p. 880.

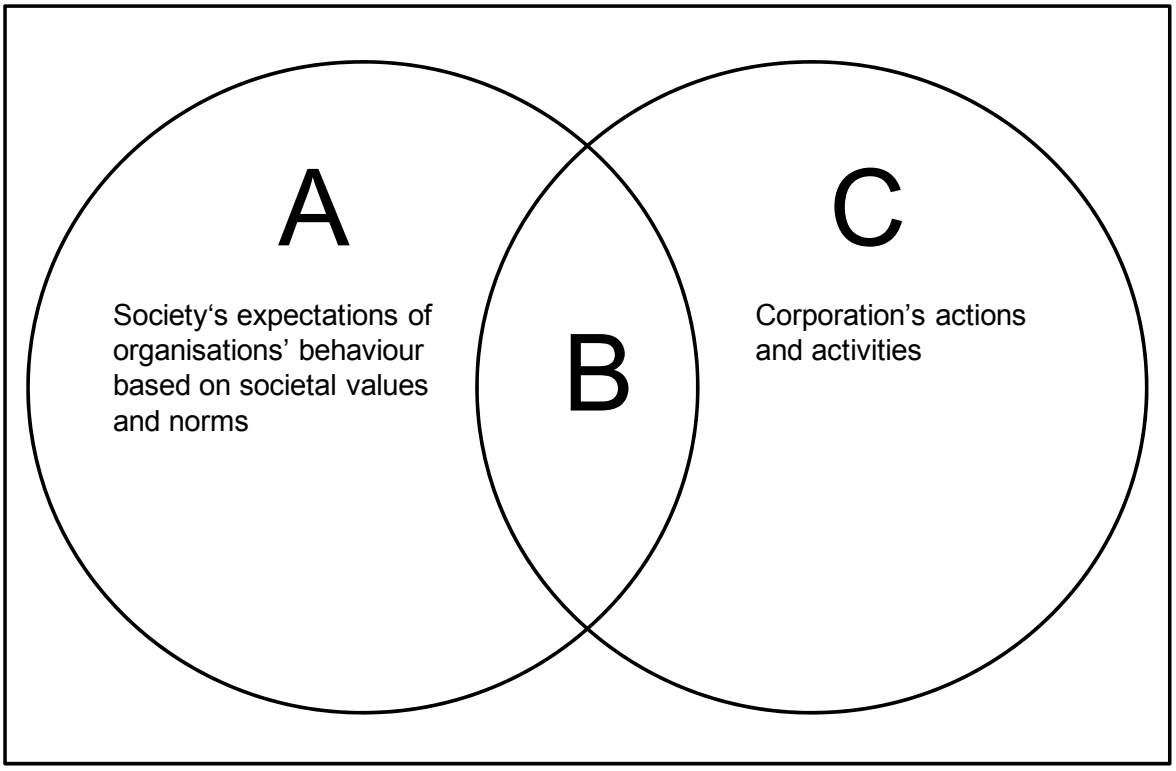
The process which precedes a corporation's attainment of a legitimate status is called legitimation and is best described by Maurer (1971):

> *"Legitimation is the process whereby an organization justifies to a peer or a superordinate system its right to exist, that is, to continue to import, transform, and export energy, material, or information"* [41]

The use of the word 'exist' in connection with 'continue' implies a certain forward-looking nature of the definition. Thus, legitimacy is a resource which is crucial for the survival of a corporation and a higher level of legitimacy improves the probability of survival of the corporation in the long run.[42] In order to survive, a corporation needs to align the perception of its activities to the value system of the expectations of society. If this is the case, society grants legitimacy to a corporation.[43]

In this context, Sethi (1978) coined the term "legitimacy gap"[44]. The term refers to the gap between the actions of a corporation and the expectations of society. Figure 3 illustrates corporate legitimacy and legitimacy gaps.

Figure 3: Corporate Legitimacy and Legitimacy Gaps



Source: Own illustration following O´Donovan (2000), p. 56.

Intersection B outlines congruence between society's expectations of a corporation's behavior and a corporation's actions and activities. In contrast to this overlap, areas A and C portray

41 Maurer (1971), p. 361.

42 See Ashforth / Gibbs (1990), p. 177; Dowling / Pfeffer (1975), p. 125; Deegan (2006), p. 165.

43 See Deegan (2006), p. 167; Deephouse (1996), p. 1025;Pfeffer / Salancik (1978), p. 194.

44 Sethi (1978), p. 58.

society's unfulfilled expectations of corporate behavior and corporations' actions and activities which are not in congruence with the expectations of society. A corporation therefore seeks to maximize area B and in turn tries to minimize the legitimacy gaps as illustrated by areas A and C. Area A represents the manifold expectations of the entire society, hence a corporation will never be able to achieve a total overlap of the two circles, since compliance to all expectations from all parts of society would be unrealistic.[45] However, legitimacy theory provides no answer to the question of how many constituents of society need to be willing to confer legitimacy to a corporation in order for its behavior and actions to be legitimized.[46]

Wartick and Mahon (1994) argue that there are three possible types of changes in the relationship between an organization and society which favor the widening of a legitimacy gap. First, the behavior of a corporation changes although societal expectations of corporate behavior remain constant. Second, societal expectations of corporate behavior change whereas the behavior of a corporation stays the same. Third, both corporate behavior and societal expectations of corporate behavior change. However, instead of simultaneously moving into the same direction, they either diverge or change at different speed which can create or exacerbate a legitimacy gap.[47] An additional reason is given by Deegan (2006) who argues that a legitimacy gap can exist even when corporate activities comply with the expectations of society. This is the case when an organization omits to disclose the relevant information which helps to legitimate its activities.[48] Another reason for the emergence or the extension of a legitimacy gap is the revelation of inappropriate information which is at odds with the image of the corporation. The information may be uncovered either accidently or through the activities of interest groups or the media.[49]

However, besides all the above mentioned reasons that may lead to the widening of a legitimacy gap, there is also the possibility of maintaining legitimacy when the activities of a corporation are not in line with society's expectations. This may be the case for smaller corporations or corporations in industries outside of the public eye where, as a result, misbehavior goes unheeded. Alternatively, certain activities may only be perceived as inappropriate by a minor part of society which is not strong enough to deprive a corporation of legitimacy.[50]

2.2.3 Managing Legitimacy

As indicated in section 2.1.2 values and norms of societies are subject to continuous change over time and alter between different cultural spheres. Accordingly, societal expectations of the behavior of corporations vary over time and place.[51] If the values associated with the actions of

[45] See O´Donovan (2000), p. 57.

[46] See Pfeffer / Salancik (1978), p. 194.

[47] See Wartick / Mahon (1994), p. 302.

[48] See Deegan (2006), p. 164.

[49] See Näsi et al. (1997), p. 301; Sethi (1975), p. 62.

[50] See Suchman (1995), p. 574.

[51] See Näsi et al. (1997), p. 300; Pfeffer / Salancik (1978), p. 202.

an organization are not perceived to be in accordance with the prevalent values and norms of society, the legitimacy of an organization is threatened. In order to keep legitimacy on a constant level, corporations must adopt various strategies to meet changing expectations of society.

Different corporations depend on their legitimacy for commercial purposes to a varying extent. Thus, corporations that are highly dependent on legitimacy for commercial purposes tend to be more vigilant and respond to societal objections in a more comprehensible manner.[52] This being the case, it becomes obvious that the average level of legitimacy of different corporations may deviate considerably from one industry to another. Therefore, the chosen strategy on how to meet the changing expectations of society mainly depends on a corporation's existing level of legitimacy[53] and degree of dependence on legitimacy for commercial purposes[54].

In his article, Suchman (1995) distinguishes three different challenges of legitimation: gaining legitimacy, maintaining legitimacy, and repairing legitimacy. With regard to gaining legitimacy, he provides three different strategies for corporations. First, organizations have the option of simply conforming to a pre-existing social regime. This is achieved by manipulating the internal structures of a corporation. Second, corporations can choose between different environments. If a corporation's activities do not conform to what its environment or the society of which it is part expects, the corporation may seek another setting for its activities which tolerates the corporation's behavior as it is. Third, a corporation may manipulate the perception of its environment in a way that legitimizes its actions. With respect to the challenge of maintaining legitimacy, the author lays out two strategies. The first strategy is to carefully monitor the reactions of the environment towards the corporation's activities and to anticipate future changes in society's values. Another way to maintain legitimacy is to protect accomplishments. This means that the organization has to proceed from applying discrete legitimizing efforts to employing a continuous strategy. It is necessary to establish communication channels between the corporation and its environment in order to maintain a trusting relationship. The need for repairing legitimacy arises in particular after adverse events. In order to repair legitimacy a corporation can formulate a normalizing statement by denying, justifying, explaining or excusing the disruptive event. Such a statement should then be followed by the introduction of corporate governance systems and internal structural changes.[55]

Ashforth and Gibbs (1990) characterize the extension, the maintenance and the defense of legitimacy (which correspond to Suchman's (1995) gaining, maintaining and repairing of legitimacy) as proactive, routinized or reactive, respectively.[56] Proactive in this context means that a corporation with a low level of legitimacy anticipates divergence between intended

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52 See Deegan (2006), p. 171; O´Donovan (2002), pp. 359ff.

53 See O'Donovan (2002), p. 363.

54 See O'Donovan (2002), p. 300.

55 See Suchman (1995), pp. 586ff; For more general ways to manage legitimacy gaps see Dowling / Pfeffer (1975), p. 127; Sethi (1978), p.58.

56 See Ashforth / Gibbs (1990), p. 182.

activities and societal expectations. Therefore, the corporation seeks ways and means to build legitimacy in order to bolster its future actions. This may become necessary when a corporation seeks to enter new fields of business or wants to make use of new technologies. With regard to the maintenance of legitimacy, a corporation may already have reached a higher and widely accepted level of legitimacy. It thus has an interest in assuring the achieved level of legitimacy by various means and tries to detect potential threats to its legitimacy. A reactive behavior can be observed when unexpected adverse events take place or a misconduct of business suddenly becomes public. In the case of such an event, a corporation reacts to a loss of legitimacy. The relation to a sudden loss of legitimacy through the sudden occurrence of a crisis is the main difference between the strategies for extending and defending legitimacy or gaining and repairing legitimacy, respectively.[57]

Managers usually prefer to change societal perceptions by symbolic acts instead of effectively altering internal ways of business conduct, since this requires fewer resources whilst retaining flexibility. The "double edge of legitimacy"[58] is then formed by the notion that society is well aware of this fact and is suspicious of a mere communication of social and environmental behavior. This is particularly relevant in the absence of any associated actions which are externally auditable. This applies especially to corporations with an urgent need to enhance their level of legitimacy. In such a case, society is bound to closely examine the actions taken by the corporation.[59] It is thus even harder for low legitimacy corporations to gain or repair their legitimacy, although their need for a higher level of legitimacy is more urgent.

Against this background, however, it is important to be aware of the fact that the level and shape of legitimacy assigned to an individual corporation is not directly linked to the ways and means in which a corporation conducts business. The societal perception of how a corporation conducts business and therewith associated values determine the level and shape of legitimacy conferred to a corporation. Nevertheless, intensive business conduct related disclosure of social and environmental information clearly contributes to a more positive societal perception. This applies especially to cases in which the reported information is a true reflection of improved business conduct with regard to social and environmental issues. Thus, communication and corporate disclosure are the basis of legitimacy management and can be seen as a tool for legitimation.[60] It is therefore crucial for managers to make use of suitable channels of communication in order to broadcast the right information pertinent to different interest-groups in society. Corporate disclosure is regarded as an essential means to alter external perceptions of a corporation.[61] In line with this reasoning, Guthrie and Parker (1990) see accounting reports as an appropriate instrument for legitimizing corporate actions.[62] They give

[57] See O´Donovan (2002), p. 350.

[58] Ashforth / Gibbs (1990), p. 186.

[59] See Ashforth / Gibbs (1990), pp. 182-186.

[60] See Deegan (2002), p. 292; Deegan (2006), p. 165; Suchman (1995), p. 586.

[61] See Suchman (1995), p. 571; Deegan / Unerman (2011), p. 321.

[62] See Guthrie / Parker (1990), p. 166.

a corporation the opportunity to compile and transmit to the various interest-groups within society relevant information in a comprehensible and consistent way.

In the literature on legitimacy theory, some authors refer to the terms "constituents"[63], "conferring publics"[64], or "relevant publics"[65] when emphasizing the heterogeneity of society. This suggests that legitimacy theory recognizes society as a structure encompassing different parts with different interests. However, legitimacy theory provides no guidance on how to decide which societal claims are more important or urgent than others.[66] Power relations between parts of society and corporations are only implicitly considered. No suggestions are made concerning the distinction between the various parts of society and their different levels of power.

2.2.4 Need for Legitimacy

Having now introduced and defined some relevant terms of legitimacy theory and having explained how legitimacy is managed from an executive's perspective, a central question has yet to be answered: why is the concept of legitimacy so important for corporations?

It needs to be pointed out that a corporation's need for legitimacy does not simply arise from its status as a corporation. In fact, the need stems from the economic, political and social power that a corporation inevitably exercises over large segments of society.[67] In this sense, the concept of legitimacy acts as a watchdog that oversees and regulates the interrelationship between corporations and society. This becomes obvious when an organization does not use the assigned power in a way which society deems desirable and appropriate. In this case, a corporation tends to lose its power over the long-term.[68]Nowadays, legitimacy is even more important than, say, 30 years ago, inasmuch as people no longer blindly trust companies. This attitude is encouraged in particular by misconduct and wrongdoing by business.

Corporations need to be legitimized in order to secure long-term survival. A high level of legitimacy is worth striving for because it is equivalent to endorsement and approval granted by society. As a consequence, management can sporadically commit minor offences against social norms without severely damaging a corporation's reputation and capacity to act.[69] In this sense, a high level of legitimacy moderates societal impacts and thus protects the economic core against external disturbances.

Besides securing long-term survival, Brown (1998) ascertains that a high level of legitimacy also facilitates access to resources and markets.[70] The reason for this is that some market

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63 Ashforth / Gibbs (1990), p. 177.

64 O'Donovan (2000), p. 77.

65 Pfeffer / Salancik (1978), p. 194.

66 See Näsi et al. (1997), p. 304.

67 See Epstein (1972), p. 1709.

68 See Davis (1973), p. 314.

69 See Ashforth / Gibbs (1990), p. 189.

70 See Brown (1998), p. 38.

participants will not execute transactions with an illegitimate corporation. This in turn decreases the sales potential and reduces the opportunities on the supply side for corporations with a low level of legitimacy.[71] Legitimacy hence influences the competition for resources. A corporation with strong legitimacy is in the position to gain competitive advantage over its less legitimate competitors by drawing attention to their lack of legitimacy and convincing society of the importance of a high level of legitimacy.[72]

A characteristic of legitimacy theory is that it is not self-contained or independent because it overlaps with other theories, in particular stakeholder theory.[73] As stated above, the aim of this study is to examine the relationship between strategic management decisions regarding the degree of engagement in CSR and the valuation of firms by capital markets. Stakeholder theory typically sees the world through the eyes of a firm's management[74] and provides an approach to the analysis of strategic decision-making processes. Consequently, the next section provides a comparison of the two major approaches to strategic management, i.e. the shareholder value approach and the stakeholder value approach.

[71] See Deephouse / Suchman (2008), p. 64.

[72] See Pfeffer / Salancik (1978), p. 201.

[73] See Deegan (2006), p. 169.

[74] See Gray et al. (1995), p. 53.

2.3 Contemporary Developments in Strategic Management

The contemporary developments in the strategic management of firms pave the way for a paradigm shift from a purely shareholder wealth maximization driven approach to an approach which incorporates the claims of a firm's environment. The following sections provide an overview of both the shareholder value approach and the stakeholder value approach towards the strategic management of a firm and addresses several advantages of the latter.

2.3.1 Neo-Classical Approach towards Strategic Management - Shareholder Value Theory

Shareholder value theory has been the predominant approach towards strategic management for decades. With regard to the current socioeconomic developments, however, there are various aspects of the approach which cast doubt on its long-lasting primacy.

2.3.1.1 Concept of Shareholder Value Theory

Shareholder value theory suggests a one-dimensional approach towards the strategic management of a corporation. The primary goal and guiding principle overarching all management decisions is the maximization of shareholder wealth. The basic idea underlying this theory is that in a free economy a shareholder wealth-driven approach to corporate management leads to enhanced economic efficiency and in turn to general welfare improvements for all constituencies of society.[75] Any other corporate goals such as the internalization of external effects pose a threat to profits and are therefore not considered by corporate management.[76] In this context, the fiercest advocate of the shareholder value approach, Milton Friedman, famously contended that:

> *"[i]n a free-enterprise, private-property system, a corporate executive is an employee of the owners of the business. He has direct responsibility to his employers. That responsibility is to conduct the business in accordance with their desires, which generally will be to make as much money as possible while conforming to the basic rules of the society, both those embodied in law and those embodied in ethical custom."* [77]

Accordingly, there are only two normative standards within shareholder theory. First, the fiduciary duties of corporate management towards the shareholders and, second, the obedience to law.[78] The notion of ethical custom must not be confused with what is nowadays understood as CSR. A business conduct which is in line with ethical custom refers to just and fair behavior towards competitors and trade partners.

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[75] See Melé (2008), p. 60; Sudaram / Inkpen (2004), p. 359; Windsor (2006), p. 103.

[76] See Husted / Salazar (2006), p. 76.

[77] Friedman (1970), p. 32.

[78] See Melé (2008), p. 60.

This notion is underlined by Friedman (1970) who argues that management should not spend money on the reduction of pollution as long as it is not required by law. Thus, exclusively government is obliged to protect the environment and society against the negative externalities of business.[79] Shareholder value theory suggests that there is a functional independence of business, civil society, and government as the legislative body.

Until the beginning of the 1990s, the shareholder value approach was the most widely used approach to strategic management, especially in the Anglo-Saxon world. However, the progressive international integration in areas such as business, politics and society represents a major challenge for corporations. Thus, a multidimensional approach towards strategic management is required in order to cope with the global interconnections between business, governments and civil societies. The next section critically elaborates on the deficiencies of the shareholder value approach.

2.3.1.2 Shortcomings of Shareholder Value Theory

Neo-classical theorists justify their attitude towards business conduct with the argument that solely government is obliged to protect society against negative externalities of business through the enactment of appropriate laws. While this notion is reasonable theoretically, it is not tenable in practice. Therefore, the major points of criticism of the shareholder value approach focus on the assumption of management's sole responsibility towards shareholders and the assumption that it is the government's obligation to protect the environment and society against the negative effects of corporate actions.

In general, a weak regulatory environment offers the opportunity for corporations to create shareholder wealth at the expense of others. Without the breach of law, profits can be achieved while workers are exploited and the natural environment is severely damaged or destroyed.[80]

Proponents of shareholder value theory follow an inappropriate view on both the efficiency and impartiality of governmental regulations.[81] This notion is based on two reasons, namely the incongruence of law with current societal expectations and the size and power of large corporations.

Clearly, law correlates with the values and norms of society. However, Dowling and Pfeffer (1973) suggest three reasons why law is no direct reflection of a society's values and norms. First, the change of values and norms is informal and often takes place very quickly, whereas changing law is a formal and protracted process. Accordingly, there will always be substantial incongruence and time lags between prevailing societal values and the codified norms enacted by the government. Second, some norms are contradictory. Since law is based on logical reasoning and seeks to form a consistent body of rules, it is not possible that societal norms

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79 See Friedman (1970), p. 32.

80 Melé (2008), p. 61.

81 See Husted / Salazar (2006), p. 77.

can be accurately depicted by law. Third, society does not want every breach of norms to entail legal sanctions.[82]

Most of today's social and environmental problems have to be seen in a global context. The power of large and multinational corporations poses new challenges to regulatory bodies. Epstein (1972) posits that corporation law has not been able to cope with the various impacts which large corporations have on society. Examples are the influence exerted over political processes, the manipulation of social life, the excessive use and consumption of natural resources and the ensuing pollution of the environment.[83] Yet still today, corporation law judges the conduct of business mainly from the economical perspective and in favor of the shareholders. Against this background, it is questionable whether national approaches to tackling corporate social and environmental misbehaviors are, in fact, successful. As mentioned in section 2.2, in the case of a legitimacy gap, a corporation is able to choose between different environments. A practical implication of this notion is that in particular large multi-national corporations shift unaccepted parts of business into countries with less rigorous regulatory environments.

Contrary to the assumption of a functional separation of business and government, reality shows a close interrelationship between business and government. An uninfluenced position of government would be a precondition for the fulfillment of its duty to protect society from the negative externalities of business. In light of the power of large corporations and industry bodies which translate into extensive lobbying in all political arenas, legislation is heavily influenced by business rendering the assumption of fully independent policy making unrealistic.

As a consequence, corporations following the narrowly defined shareholder value approach are not able to cope with today's challenges posed by the business environment. Thus, multiple dimensions have to be incorporated into the strategic management of a corporation.

2.3.2 Extension of a Narrow Focus - Stakeholder Theory

Stakeholder theory offers an alternative and multi-dimensional approach to the strategic management of corporations. It seeks to maintain favorable relationships to all relevant constituents of society in order to foster a business environment which is conducive to economic success.

2.3.2.1 Concept of Stakeholder Theory

Stakeholder theory explicitly incorporates morals and values into the strategic management of corporations.[84] It promotes the view that a firm has to take into account the impact it has on entities of the broader social system of which it is part of and, in turn, the potential impacts these entities may have on the firm. In particular, aligning the strategic management of a corporation to the stakeholder concept means not to exclusively satisfy shareholders' demands

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82 See Dowling / Pfeffer (1973), p. 124.

83 See Epstein (1972), p. 1707.

84 See Phillips et al. (2003), p. 481.

for profit-maximization, but also to take into regard the needs of other claimants.[85] Entities in society which do exert influence on a corporation's decisions and actions are called stakeholders. According to Freeman (1984), the term stakeholder was first mentioned in an internal memorandum at the Stanford Research Institute in 1963 where it was defined as those groups without whose support the organization would cease to exist.[86] This notion is focused rather narrowly, since it takes only those stakeholders into account which are crucial for the survival of an organization. Over time, powers and abilities of stakeholders can change. It is possible that stakeholders which have not been taken into account in the past can gain power and threaten the existence of corporations in the future. In order to include these stakeholders, it is essential to extend the definition of a stakeholder used in the Stanford Research Institute's memorandum in a way that integrates all relevant individuals, groups and organizations of society.

Keeping to this line of argument, this study adopts Freeman's (1984) definition of stakeholder which is as follows:

> *"A stakeholder in an organization is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives."* [87]

Clarkson (1995) classifies stakeholders into two groups. The term primary stakeholder refers to stakeholders whose continuous support and cooperation are indispensable to the long-term viability of a corporation. Examples for primary stakeholders are employees or customers. In contrast, a corporation's existence is not directly dependent on the actions of secondary stakeholders. This type of stakeholders does not maintain direct transactions with the corporation and is therefore not vital to its existence. Nevertheless, constituents of this stakeholder category such as, for instance, the media or special interest groups have the power to influence primary stakeholders to the detriment of the corporation.[88] Figure 4 depicts the stakeholder model incorporating the stakeholder classification as suggested by Clarkson (1995).

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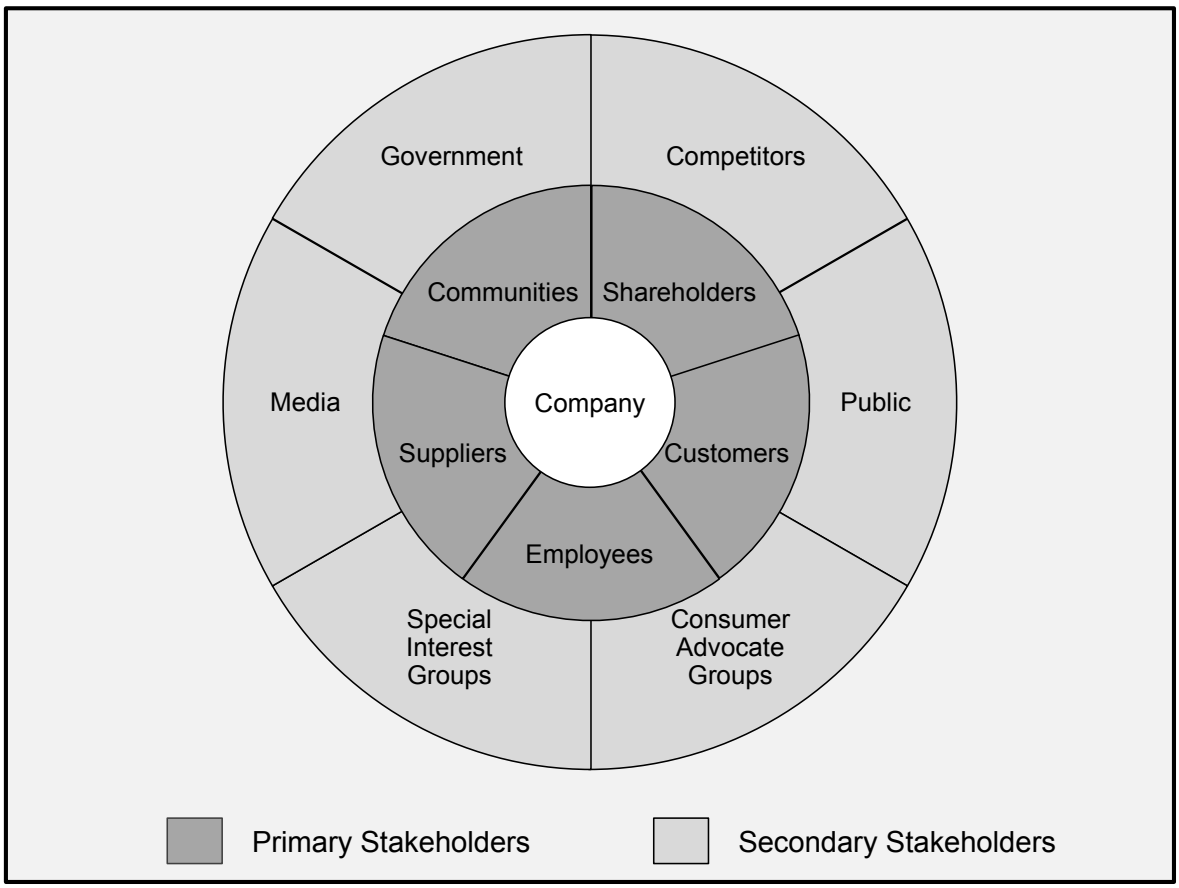
85 See McWilliams et al. (2006), p. 3.

86 See Freeman (1984), p. 31.

87 Freeman (1984), p. 46.

88 See Clarkson (1995), pp. 106-107.

Figure 4: Stakeholder Model



Source: Own illustration following Clarkson (1995), pp. 106-107; Freeman (1984), p. 25; Freeman et al. (2010), p.24.

Another classification scheme is introduced by Mitchell et al. (1997) who were the first to develop a model to identify stakeholders based on their salience to a firm's management as reflected by the degree of priority it gives to competing stakeholder claims. According to the authors of this model, salience is a function of power, legitimacy and urgency. A stakeholder's power is defined as the relationship between the stakeholder and the firm in which the stakeholder can make the firm do something the firm would not have done otherwise. As does the legitimacy of a corporation, the legitimacy of a stakeholder refers to the degree of congruence between its actions and the norms, values and beliefs of the wider social system. Urgency denotes the magnitude to which the claim of a stakeholder requires immediate action.[89] Agle et al. (1999) provide empirical evidence showing that all three attributes relating to the prioritization of individual stakeholders influence CEOs' decisions.[90]

For a corporation's management it is therefore of high importance to monitor all relevant stakeholders with regard to the three above mentioned attributes. Power, legitimacy and urgency can change over time and alter a corporation's stakeholder framework.[91] Management needs to adapt to these changes by managing its stakeholder relations accordingly. Therefore,

89 See Mitchell et al. (1997), pp. 869.

90 See Agle et al. (1999), p. 520.

91 See Alam (2006), p. 214.

stakeholder theory is about the appropriate management of stakeholder relationships and their monitoring over time.

Besides the descriptive application of stakeholder theory which is used to explain relationships between corporations and its stakeholders, a major distinction can be drawn between instrumental stakeholder theory and normative stakeholder theory.[92] The latter is applied to provide guidance for management decisions on stakeholder relations based on a moral and ethical foundation. This implies that a corporation decides on stakeholder relations on the basis of some overarching value concept and treats all stakeholder relationships with the necessary diligence. In contrast, the instrumental view on stakeholder theory is driven by the idea to draw a connection between stakeholder relationship management and an enhanced financial performance of the corporation. In this case, management is inclined to put more effort into managing those stakeholder relationships which are deemed to be conducive to economic success.

2.3.2.2 Benefits of a Broader Perspective

A major advance of stakeholder theory is that it features a moral or ethical aspect which overarches management's decisions-making process. The fulfillment of shareholders' needs is not the only goal guiding management decisions and law is not perceived to be the only criterion restricting corporate actions.[93] Thus, the stakeholder approach to strategic management enables management to foster a favorable business environment which helps to legitimate corporate actions.

In contrast to the opinion of the proponents of the shareholder value approach, stakeholder theory does not stand in contradiction to a corporation's financial success. In particular, the instrumental stakeholder approach provides guidance to manage stakeholder relationships in a way that enhances the assurance of a firm's profitability and revenues. This, in turn, is without doubt in the best interest of shareholders.[94]

Moreover, close relationships with stakeholders provide the corporation with the opportunity to anticipate social developments in its environment. This arguably enhances a corporation's ability both to develop and market new products and services.

Corporations which are strategically managed in line with the stakeholder approach tend to extensively report on non-financial matters to a broad spectrum of stakeholders.[95] Evidence for a paradigm shift in the way in which corporations are strategically managed can therefore be found in increased non-financial reporting by corporations.[96] Moreover, most of these non-financial reports feature a list of stakeholders as identified by corporations.

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92 See Donaldson / Preston (1995), p. 70.

93 See Melé (2008), p. 66.

94 See Berman et al. (1999), p. 491.

95 See Alam (2006), p. 214.

96 See Freeman et al. (2010), p. 253.

2.4 Concept of Corporate Social Responsibility

The following section elaborates on some basic historical developments which led to today's interest in the concept of CSR. Furthermore, current definitions of sustainable development and CSR are discussed.

2.4.1 Historical Development

The previous sections already outlined some of the societal changes that occurred over the last century. However, in order to understand the concept of sustainable development and CSR which will both be elaborated on in the subsequent section, it is essential to be aware of the historical developments which led to the current debates on the two concepts. In this context van Marrewijk (2003) provides an intuitive outline which is partly followed here.[97]

In his view, government or political elites, respectively, formed the institutions which stated the values and norms for a long time in history. As technological progress and industrialization advanced, corporations gained significant influence on these values and norms. The consequences were and still are pollution and the degradation of the environment. Furthermore, the gap between rich and poor is widening and thus exacerbating global social disparity.

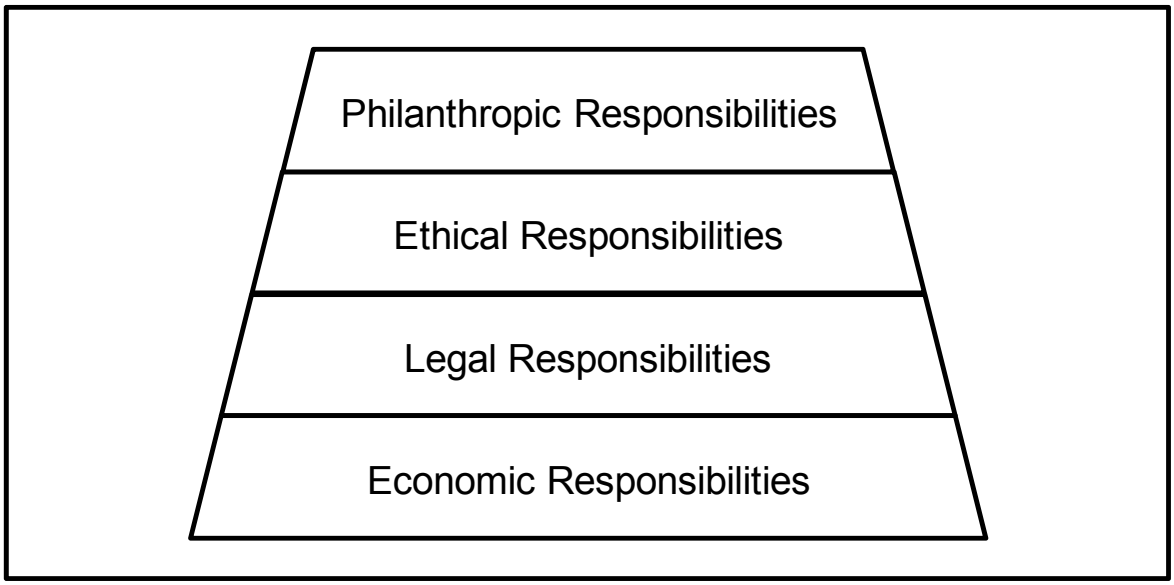
However, further technological progress also led to enhanced productivity as less work was needed to achieve the same level of output. As a consequence, people in today's developed countries were able to secure their basic needs and to accumulate wealth. In conjunction with progressive democratization, civil society gained influence over legislation, executive authority and jurisdiction. Moreover, civil society sharpened the focus on social and environmental issues and stated new values and norms.

Today, business is forced to adapt to these altered circumstances in order to be successful. A major threat to corporations is posed by NGOs or special interest groups which restrict corporate behavior on behalf of civil society. In this context, faster and more wide-spread ways of communication play a central role in monitoring. Responsible business conduct is of major importance in view of a high probability that corporate misdeeds will eventually be revealed. Furthermore, a growing portion of consumers is unwilling to accept products which are produced under conditions that disadvantage others. Therefore, corporations are increasingly held responsible for substandard working conditions within their supply chains.

Over two decades ago, Carroll (1991) introduced the pyramid of CSR to show how business copes with these altered circumstances as depicted in figure 5.

[97] van Marrewijk (2003), pp. 99-100.

Figure 5: Pyramid of Corporate Social Responsibility



Source: Own illustration following Carroll (1991), p. 42.

Economic responsibilities form the foundation and are an essential prerequisite to all other responsibilities of the corporations. Legal responsibilities refer to the law and regulations to which corporations have to abide in conducting business. One level above, there are ethical responsibilities which mirror current standards or expectations of civil society which are not yet codified. Philanthropic responsibilities constitute the highest level of the pyramid and pertain to the notion that civil society expects corporations to allocate human and financial resources to the improvement of the communities in which they operate. The difference between ethical and philanthropic responsibilities is that failing to comply with the latter is not considered to be unethical corporate behavior by communities.[98]

This early academic interpretation of CSR shows that more emphasis was put on philanthropic issues. Furthermore, all other aspects were put under the umbrella of ethical responsibilities and not further elaborated upon. In order to meet today's expectations, a more sophisticated and narrower defined construct of CSR is needed. This will be provided in the next section.

2.4.2 Definitions of Sustainability and Corporate Social Responsibility

The two terms sustainability and CSR are part of the same framework.[99] It is therefore important to provide appropriate definitions to facilitate a common understanding for the subsequent analysis.

Recently, the term sustainable has been en vogue and omnipresent in media, business and politics alike. Yet in spite of its frequent use the term is often interpreted differently. It is, for instance, not uncommon that listed real estate investment companies refer to "sustainable increase in rents" or "sustainable stream of income" in their corporate reports. In those cases it is evident that "sustainable" is used in the sense of long-term endurance or stability. In this

[98] See Carroll (1991), pp. 41-42.

[99] See Wheeler et al. (2003), p. 2.

study, however, the terms sustainable and sustainability are used in another sense. The most widespread definition of sustainable development is provided by the World Commission on Environment and Development (1987) which characterizes sustainable development as:

> *"...development that meets the needs of the present without compromising the ability of future generations to meet their own needs."* [100]

In the context of business and based on the quoted definition of sustainable development, sustainability can be described as a guiding principle which reconciles business, environment and society. Accordingly, this study considers a sustainable approach to business to be one that targets the long-term viability of the company while contemporarily considering the environmental and social requirements of future generations.

In clear contrast to shareholder value theory where business, government and society are strictly distinct entities, the concept of CSR understands business and its environment as closely intertwined.[101] The first academic approaches towards the concept of CSR can be traced back to the period of 1945 – 1960[102] yet in spite of 60 years of research, a universal definition of the term has yet to emerge. In line with the aforementioned definition of sustainability, one of the first definitions of CSR was provided by McGuire (1963) who argues that the concept of CSR demands:

> *"...that the corporation has not only economic and legal obligations but also certain responsibilities to society which extend to these obligations."*[103]

Building on this notion, society's expectations towards corporations have been categorized into economic, legal, ethical and discretionary responsibilities as mentioned in section 2.4.1.[104] In a more recent article Dahlsrud (2008) investigated 37 definitions of CSR from the 1980 – 2003 period and identifies a group of five dimensions of CSR which comprises the:

- Environmental dimension,
- Social dimension,
- Economic dimension,
- Stakeholder dimension, and
- Voluntariness dimension.[105]

While the economic and social dimensions were soon established, the environmental dimension gained prominence particularly after the year 2000. The fact that the environmental

[100] WCED (1987), p. 43.

[101] See Wood (1991), p. 695.

[102] See Carroll (1999), p. 291; Spector (2008), 315.

[103] McGuire (1963), p. 144.

[104] See Carroll (1979), p. 500.

[105] See Dahlsrud (2008), p. 5.

dimension only became a permanent feature of definitions of CSR over the last decade implies that the requirements of a sustainable approach to business changes over time. Definitions of CSR therefore mirror the requirements on sustainable development at a certain point in time.[106] The stakeholder dimension refers to the importance of maintaining individual relationships to different stakeholders. However, the most important distinguishing feature of CSR is addressed by the voluntariness dimension. CSR exclusively encompasses responsibilities and actions which are not required by law. Mere business conduct in compliance with environmental and social regulations is therefore not part of CSR, but instead denotes the acceptable minimum of social and environmental standards.[107]

Depending on their individual contexts, the definitions of CSR under examination vary significantly in their scope and purpose. It therefore makes sense to develop a definition for CSR which meets the individual requirements of the study context at hand and at the same time incorporates dimensions of a broader definition.[108] This study thus understands CSR as:

> *a concept by which companies accountably and transparently integrate social and environmental concerns into both their business operations and interaction with their stakeholders on a voluntary basis.*

This definition closely follows the definition of CSR of the Commission of European Communities (2001) because it features all five CSR dimensions identified by Dahlsrud (2008).[109] Particular emphasis is put on to the integration of social and environmental concerns into business conduct. This implies an integrated view on CSR which focuses on ex-ante value creation. As opposed to the residual view on CSR which, above all, considers CSR to be giving back to society after profits are made, integrative CSR understands CSR as a cornerstone of managerial decision-making processes.[110] Furthermore, the suggested definition encompasses the aspects of accountability and transparency. In the context of CSR, ISO (2009b) argues that a corporation has to be accountable for its impact on environment and society.[111] A corporation's awareness of this accountability towards society is expressed by the transparent documentation of a sustainable business conduct.

In conclusion, CSR can be understood as the contribution of business to a global sustainable development by internalizing external effects on a voluntary basis.[112] Since no corporation has the ability nor the financial means to engage in all societal and environmental problems, a

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106 ISO (2009b), p. 6.

107 See Dahlrud (2008), p. 6.

108 See van Marrewijk (2003) p.96; Gatto (1995) p.1183.

109 See CEC (2001), p. 6.

110 See Freeman et al. (2010), p. 258.

111 See ISO (2009b), p. 10.

112 See Moon (2007), p. 296.

corporation has to identify and engage in those issues which overlap with its specific business.[113]

[113] See Porter / Kramer (2006), p. 84.

2.5 Reconciling Legitimacy Theory, Stakeholder Theory and Corporate Social Responsibility

As already stated in section 2.2, stakeholder theory overlaps with legitimacy theory. However, a major distinction between the two theories can be drawn upon the theories' views on the firm's environment. Legitimacy theory often simply refers to society as a whole and the goal of meeting society's expectations.[114] In other words, it does not sufficiently distinguish between the different constituencies of society nor does it suggest how large a part of society needs to confer legitimacy in order to achieve a legitimate status.[115] Furthermore, the theory steps short of providing guidance on how to assess illegitimate actions or legitimacy gaps with regard to the magnitude of their impact on legitimacy, because the power of society remains implicit.[116] For these reasons, legitimacy theory fails to provide guidance for a corporation's management on how to practically gain and maintain legitimacy.

In contrast, stakeholder theory paints a more differentiated picture of the firm's environment. In so doing, it enables management to comprehend how to gain or maintain a legitimate status and how to develop appropriate strategies.[117] In particular, stakeholders are seen as an appropriate unit for the analysis of the external effects that business has on society.[118] Thus, following the stakeholder approach enables executive management teams to identify and classify different groups in society and to examine their individual abilities and powers to impact an organization's decisions and actions.[119] As a result, the stakeholder approach provides business with the necessary tools to safeguard and bolster its legitimate status and "license to operate".[120]

Stakeholder theory can also be interpreted as an essential prerequisite for CSR, given that the identification of and the distinction between stakeholders forms the basis of specific CSR initiatives. Integrating CSR into business conduct is not possible without stakeholder engagement. On the other hand, CSR is able to translate the guiding principles of sustainable development into the relationships identified by the stakeholder approach to strategic management. Stakeholder theory is therefore used to specify and operationalize CSR.[121] In short, CSR provides guidance on balancing stakeholders' interests based on the concept of sustainability.

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114 See Deegan (2002), p. 295.

115 See Pfeffer / Salancik (1978), p. 194.

116 See Näsi et al. (1997), p. 304.

117 See Wartick / Cochran (1985), p. 766; Wood (1991), p. 679.

118 See Wheeler et al. (2003), p. 15.

119 See Deegan / Blomquist (2006), p. 350.

120 See Freeman et al. (2010), p. 260; Heugens et al. (2002), p. 56.

121 See Freeman et al. (2010), p. 242.

3 Listed Real Estate Investment Companies and Corporate Social Responsibility

This chapter unites listed real estate investment companies with the concept of CSR. After defining the two company-types which constitute the industry sector of listed real estate investment companies, it explores the reasons for the increasing importance of CSR in the industry. It then elaborates on the implementation of CSR in listed real estate investment companies.

3.1 Specifics of Listed Real Estate Investment Companies

On a basic level, a distinction between two major types of market-listed real estate investment companies can be drawn: Real Estate Investment Trusts (REITs) on the one side and Real Estate Operating Companies (REOCs) on the other. The subsequent two sections define these two types of companies and discuss some of their special characteristics.

3.1.1 Real Estate Investment Trusts

Around 40 countries worldwide provide the necessary regulatory environment for establishing a REIT. REITs are listed companies which acquire, develop, own and operate income-producing properties. Especially for smaller investors, they provide the opportunity to invest into large and diversified property portfolios in order to reap the benefits commonly associated with real estate investments. However, REITs do not only bear the usual risks attached to direct property investment but also bear stock market risks and are valued in the same way as every other publicly traded company. Nevertheless, since they are traded on the stock exchange, REIT investments are liquid real estate investments. A major advantage and probably the most important feature of a REIT is its corporate tax exempt status. Profits of REITs are taxed only at the investor level and not at company level. In order to claim this special tax advantage, REITs have to comply with country-specific regulatory restrictions.[122]

The majority of these regulatory restrictions are similar in most countries. In particular, restrictions focus on distributions, shareholder structure and gearing. Table 1 provides an overview of regulatory restrictions for selected REIT regimes.

[122] See Geltner et al. (2007), pp. 585-587.

Table 1: Regulatory Restrictions for REITs in Selected Countries

Country	Notation	Year of enactment	Minimum distribution of net income to avoid tax	Minimum invested in income generating real estate	Minimum Income from income generating real estate	Shareholding requirements	Leverage restrictions	Listing mandatory
Australia	A-REIT	1985	100 %	no restriction	75 %	75 % of share capital must be held by at least 20 investors	Thin capitalisation rules	No
Canada	MFT	1994	100 %	75 %	75 %	Minimum of 150 unitholders each of which holds not less than one 'block of units'	none	Required to avoid redemption right of unitholders
France	SIIC	2003	85 % of operative income, 50 % of capital gains, 100 % of dividends	80 %	no restriction	15 % must be held by shareholders who individually own less than 2 % and a single individual may not own an interest of more than 60 %	Thin capitalisation rules	Yes
Germany	G-REIT	2007	90% of operating income, 50 % deferral of capital gains allowed	75 %	75 %	15 % must be held by at least six investors	max. 45 %	Yes
Hong Kong	HK-REIT	2003	90% of operating income, capital gains can be retained	90 %	no restriction	no restrictions	max. 45 %	Yes
Netherlands	FBI	1969	100 % of operating income, capital gains may be added to reinvestment reserve	no restriction	no restriction	A single individual may not own an interest of more than 25 %	max. 60 %	No
Singapore	S-REIT	1999	90% of operating income, capital gains can be retained	75 %	90 %	At least 25 % of share capital must be held by at least 500 public shareholders	max. 60 %	No, but necessary for tax concessions
United Kingdom	UK-REIT	2007	90% of operating income, capital gains can be retained	75 %	75 %	35 % must be held by shareholders who individually own less than 5 %	Interest cover ratio of must be below 1.25	Yes

Notes: REITs from the countries presented in the table are used in the empirical part of this study. Sweden has not yet introduced a REIT regime.

Source: Own illustration following EPRA (2013) and PwC (2011).

Some countries host unlisted REITs which are not traded on a stock exchange but through agent networks. This form of REITs, however, is excluded from this study's scope of analysis as they, unlike their listed equivalents, are not subject to stock market regulations. Mortgage REITs or Hybrid REITs are also not part of this study.

3.1.2 Real Estate Operating Companies

In contrast to REITs, REOCs are not restricted with regard to distributions, shareholding structures or gearing. Additionally there is no obligation to be listed. Accordingly, there exists neither an academic nor a legal definition of the term.

However, for the purpose of analysis, a firm is said to be a REOC when it is listed on a stock exchange and therefore meets the necessary criteria defined by the respective stock exchange. Furthermore, the firm must own and operate a considerable amount of real estate for the

purpose of generating income from rental property and achieving capital gains. Acquisitions and developments of properties are conducted with the objective of subsequent long-term holding. The mission statement should allude to these superior goals. Equivalent to REITs, REOCs should also offer a unitized and therefore liquid investment opportunity for private investors to invest into large, diversified and actively managed real estate portfolios.

Based on these considerations, the major difference between REITs and REOCs is the corporate tax-exempt status which only applies to REITs. However, this advantage comes at a price in the form of various restrictions as presented above. The obligation to distribute almost all income to shareholders marks the most important disadvantage of REITs. In contrast to this, REOCs are able to drive growth without being dependent on external funds. In this respect, company-type REOC is better suited for growth-strategies. Additionally, REOCs may also avoid double taxation for investors by retaining earnings.[123]

For the identification of REOCs and a subsequent sample derivation, several studies rely on certain industry classification standards such as the Global Industry Classification Standard developed by Standard & Poor's and MSCI. These standards are also used by data providers like Thomson Reuters Datastream and SNL.[124]

[123] See Decloure / Dickens (2004), p. 239.

[124] See Hess / Liang (2002), p. 280.

3.2 Reasons for the Increasing Importance of Corporate Social Responsibility in the Real Estate Investment Industry

CSR plays an increasingly important role in the management of listed real estate investment companies. This section explores the major reasons for this development.

3.2.1 Increasing Mandatory Environmental and Social Regulations

Global warming and its consequences have been well recognized by governments across the globe. Social issues like gender equality have likewise entered political agendas a long time ago. In the wake of these developments, environmental and social regulations for corporations have become stricter in many countries – a trend that is very likely to continue in the future.

As one of the largest supra-national bodies, the European Union identifies the buildings sector as one of the largest polluters of greenhouse gas emissions. The European Union thus issued the Directive 2010/31EU which sets minimum energy performance standards for new buildings and the renovation of existing buildings. Moreover, according to the directive, energy performance certificates have to be issued for rented buildings larger than 250 m² in order to allow potential tenants to assess the energy intensity of the building themselves.[125]

With regard to social aspects of CSR, it is likely that mandatory standards will emerge soon. At the end of 2013, the European Parliament voted in favor of a 40 %-female quota on non-executive boards of European listed companies. The approval of the European Council is likely to make a transposition into national laws but a question of time. Australia, however, is following another path. The Australian stock exchange requires listed companies to establish a diversity policy, including measurable objectives for achieving gender diversity on all management levels. The achievements have to be reported annually and companies failing to provide such a policy are obliged to state why.

An integrative CSR strategy enables a listed real estate investment company to monitor, measure and control its impact on society and the natural environment. In particular, a green investment portfolio strategy improves the ability to deal with stricter future regulations. Furthermore, with reference to social issues in general and the looming female quotas in non-executive boards for listed companies in the EU in particular, a responsible approach to business conduct offers the opportunity to proactively embrace new regulations imposed by government. Overall, responsible listed real estate investment companies have a temporal advantage over competitors, as they are able to implement new environmental or social regulations imposed by government faster than others.

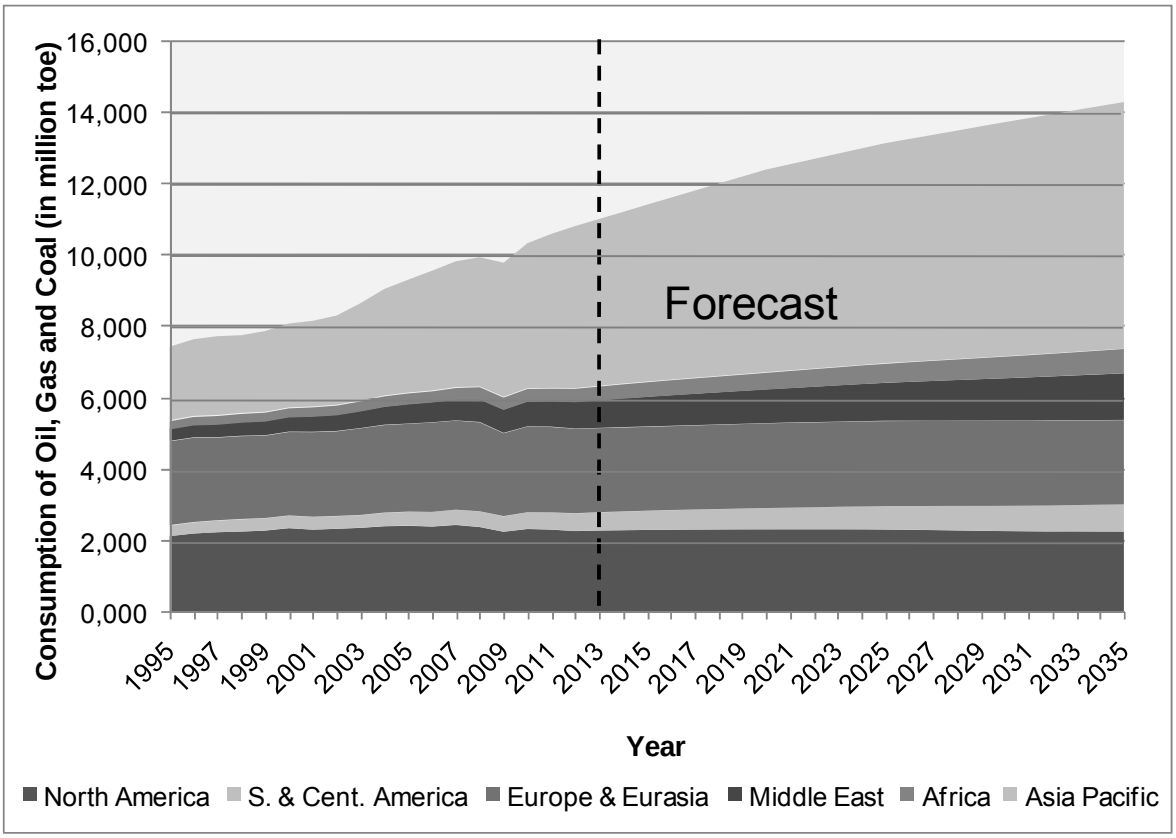
3.2.2 Buildings as a Major Driver for Global Resource Consumption

The global consumption of natural resources can be described as a function of two basic components: population and economic development. The world's population reached 7.2 billion in 2013 and is expected grow to 9.6 billion in 2050. The difference of 2.4 billion

[125] See EPCEU (2010), p.13 & 23.

people is roughly equal to the combined populations of China and India today.[126] Economic development is an indicator for people's wealth and how much they can afford. It is essentially driven by technological progress, capital investments and education. Until 2050 the average annual GDP growth rates are expected to be 4 % and 2 % for emerging economies and advanced economies, respectively.[127] Although alternative technologies may advance, this development inevitably leads to increased global resource consumption while contemporaneously the supply of natural resources is going to decrease. Figure 6 presents the accumulated annual consumption of fossil fuels for six world regions.

Figure 6: Accumulated Annual Consumption of Fossil Fuels by Region for the 1995 to 2012 Period and a Projection for the 2013 to 2035 Period



Note: The figure shows the accumulated annual consumption of fossil fuels (oil, natural gas and coal) by region. In order to accumulate the different fossil fuels, the amounts were converted into a common dimensional unit, i.e. tonnes of oil equivalent (toe). Values from 2013 onwards are forecast.

Source: Own illustration following BP (2013); BP (2014a); BP (2014b).

The expected consumption of fossil fuels mirrors the aforementioned future growth of population and GDP, in particular in emerging economies. While the consumption of the developed regions of Europe and North America is expected to stagnate on its current level, the combined consumption of all other regions is forecasted to increase by around 56 % over the 2013 – 2035 period. Since most of fossil fuels are used for power generation and transport, greenhouse gas emissions are projected to increase accordingly.

[126] UNDESA (2013), p. 1.

[127] PwC (2013), p. 1.

In this context, buildings play a major role in direct and indirect energy consumption. Direct energy consumption refers to, for example, oil-fired heating systems, whereas indirect energy consumption relates to the use of electricity for lighting or air-conditioning. On a global level, the construction, management and operation of buildings are responsible for:

- 40 % of raw materials use,
- 39 - 40 % of direct energy consumption,
- 30 – 38 % of greenhouse gas emissions, and
- 79 – 90 % of indirect energy consumption in cities.[128]

Sustainable buildings are able to mitigate the problem of increasing global resource consumption. In fact, there are various benefits attached to sustainable or certified buildings which will be discussed in section 3.3.4.1.

Resource dependency and uncertain future prices for oil, gas and coal pose a major and rather unpredictable risk to owners of large real estate portfolios such as listed real estate investment companies. Based on these considerations, a rethinking of common managerial patterns is inevitable. The incorporation of CSR into a comprehensive business strategy has the largely untapped potential to generate solutions to urgent, yet unresolved real estate related issues and problems. Indeed, now is the time to set the right course for a sustainable business model in the real estate investment industry in order to secure companies' long-term viability.

3.2.3 Increasing Competition for Equity Capital

With the introduction of REIT-regimes in almost all major real estate markets across the globe and the growth of REOCs witnessed in particular over the last two decades, the capital markets gained substantial influence on the real estate investment industry. In order to successfully attract investors' interests, listed real estate investment companies have to comply with the rules and demands of the capital markets. Given the increasing number of listed real estate investment companies, there is strong competition for equity capital. In this context, a company's CSR engagement is a valuable resource in order to gain a competitive advantage over others.

In general, a responsible investor bases his investment decisions on ethical and environmental considerations as well as on financial considerations. In this context, Kurtz (2008) differentiates three major strategies to invest responsibly. First, the screening method that avoids investments in sectors which are commonly classified as contentious such as gambling, tobacco or nuclear energy. Second, shareholder activism is defined as a process in which shareholders actively seek to influence and change management's behavior in areas of concern. The third method is the process of positive screening. Investors who employ this method seek for investments into companies which can boast an exceptionally positive corporate social performance.[129]

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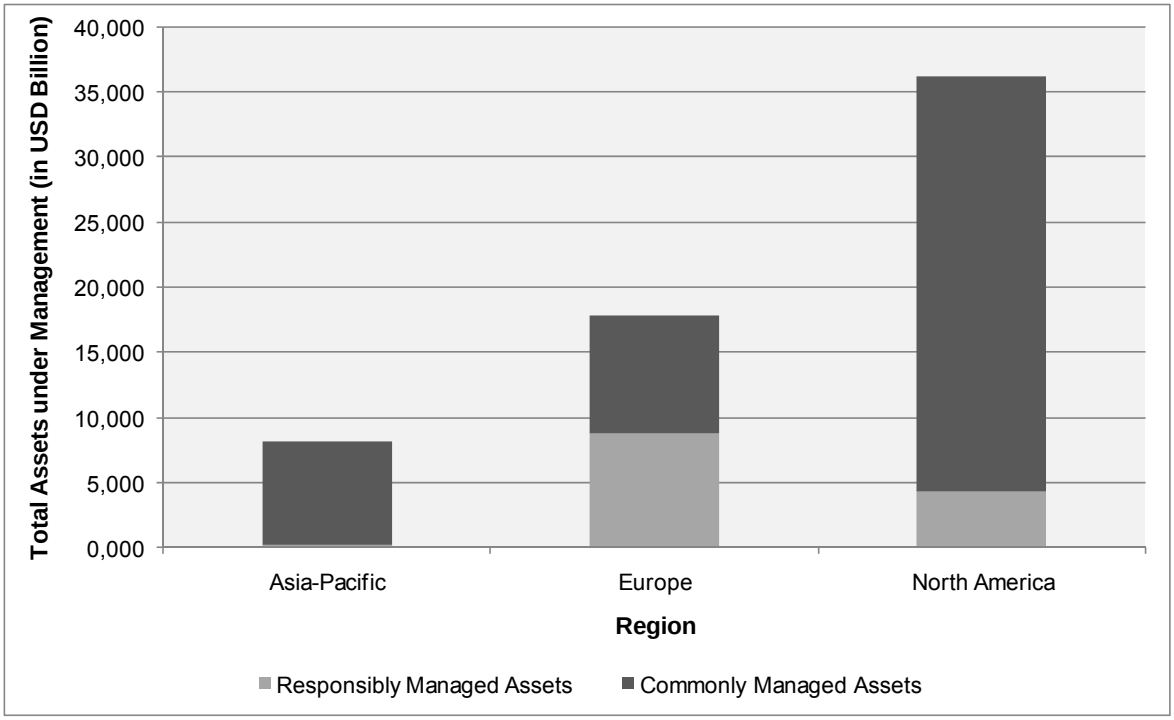
[128] See HKGBC (2011), p. 38; RICS (2005), p. 12; UNEP (2009), p. 4; USGBC (2008), p. 6.

[129] See Kurtz (2008), p. 250.

Empirical evidence shows that the share of institutional ownership is positively related to the degree of a company's corporate social performance.[130] Given the fact that, for instance, in 2010 67 % of all stocks in the United States were held by institutional investors, the importance and influence of this investor group must not be underestimated.[131] Furthermore, among all investor groups institutional investors are at the forefront of implementing responsible investment strategies.

In all regions of the world besides Latin America, responsibly managed assets amount to over USD 13.5 trillion which constitutes around 21.8 % of all assets under management covered by the Global Sustainable Investment Alliance study (2013).[132] The study aggregates the results of seven regional reports. Figure 7 presents responsibly managed assets as a portion of total assets under management for the regions Asia-Pacific, Europe and North-America.

Figure 7: Responsibly and Commonly Managed Assets by Regions



Source: Own illustration following GSIA (2013), pp. 9-10.

In Europe about 49 % of all assets under management incorporate some form of social responsible investment strategy. The respective portions for North America and Asia-Pacific are lower and amount to 11.2 % and 3.2 %, respectively.

Another indicator of the increasing implementation of socially responsible investment strategies by institutional investors is the number of signatories of the United Nations Principles for Responsible Investment (UNPRI). The signatories of the six principles are placed under the obligation to include social issues into their investment considerations. UNPRI started with 100

130 See Mahoney / Roberts (2007), p. 250; Saleh et al. (2010), p. 603.

131 See Blume / Keim (2012), p. 4; No data was available for Europe or other regrions.

132 See GSIA (2013), p. 9.

signatories in 2006. Today the initiative has gathered approximately 1,200 signatories who together hold around USD 34 trillion of assets under management.[133]

Against this background, it is obvious that a listed real estate investment company needs to implement a coherent CSR strategy and to disseminate CSR information through appropriate channels. This enables a REIT or REOC to access responsibly invested capital which, in turn, expands its potential base of investors. Consequently, this effort leads to an enhanced supply and lower cost of equity capital.[134]

3.2.4 Increasing Competition for Quality Workforce in Shrinking Societies

CEOs are aware of the fact that there is a competitive advantage in having the ability to attract potential employees and to motivate and retain current employees.[135] Against the backdrop of ageing and shrinking societies, especially in Europe and some parts of Asia, the competition for quality workforce is becoming increasingly intense. Therefore companies are forced to find new ways and means to prevail in this so-called war for talents.

Gietl et al. (2013) argue that the attractiveness of an employer is determined by intangible aspects of a company such as credibility, reliability and employee satisfaction. An approach to promote these intangible values is the implementation of a comprehensive CSR strategy. Empirical evidence suggests that enhanced corporate social performance of a company is associated with an increased ability to attract new employees.[136] Furthermore, Backhaus et al. (2002) find that especially the performance in aspects of CSR such as employee relations and diversity play a significant role.[137] With regard to employee retention, Brammer et al. (2007) and Peterson (2004) provide empirical evidence that employee's positive perception of a company's CSR engagement and organizational commitment are positively related.[138] Moreover, companies exhibiting a high level of job satisfaction among employees are able to generate higher long-run stock returns.[139]

It is further argued that a higher organizational commitment is related to higher employee motivation as well as to lower turnover rates. Using CSR as a means to acquire new talents and retaining current staff seems to be a reasonable choice for listed real estate investment companies, because the vast majority of their employees are drawn from a highly skilled workforce. Additionally, in some countries real estate is a rather new branch of academic study with a limited number of university graduates in this field.

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133 See UNPRI (2013), p. 8.

134 See Dhaliwal et al. (2011), p. 94; El Ghoul et al. (2011), p. 2400; Reverte (2012), p. 266.

135 See Bhattacharya et al. (2008), p. 37.

136 See Schmidt-Albinger / Freeman (2000), p. 250; Greening / Turban (2000), p. 271; Turban / Greening (1996), p. 666.

137 See Backhaus et al. (2002), p. 309.

138 See Brammer et al. (2007), p. 1714; Peterson (2004), p. 313.

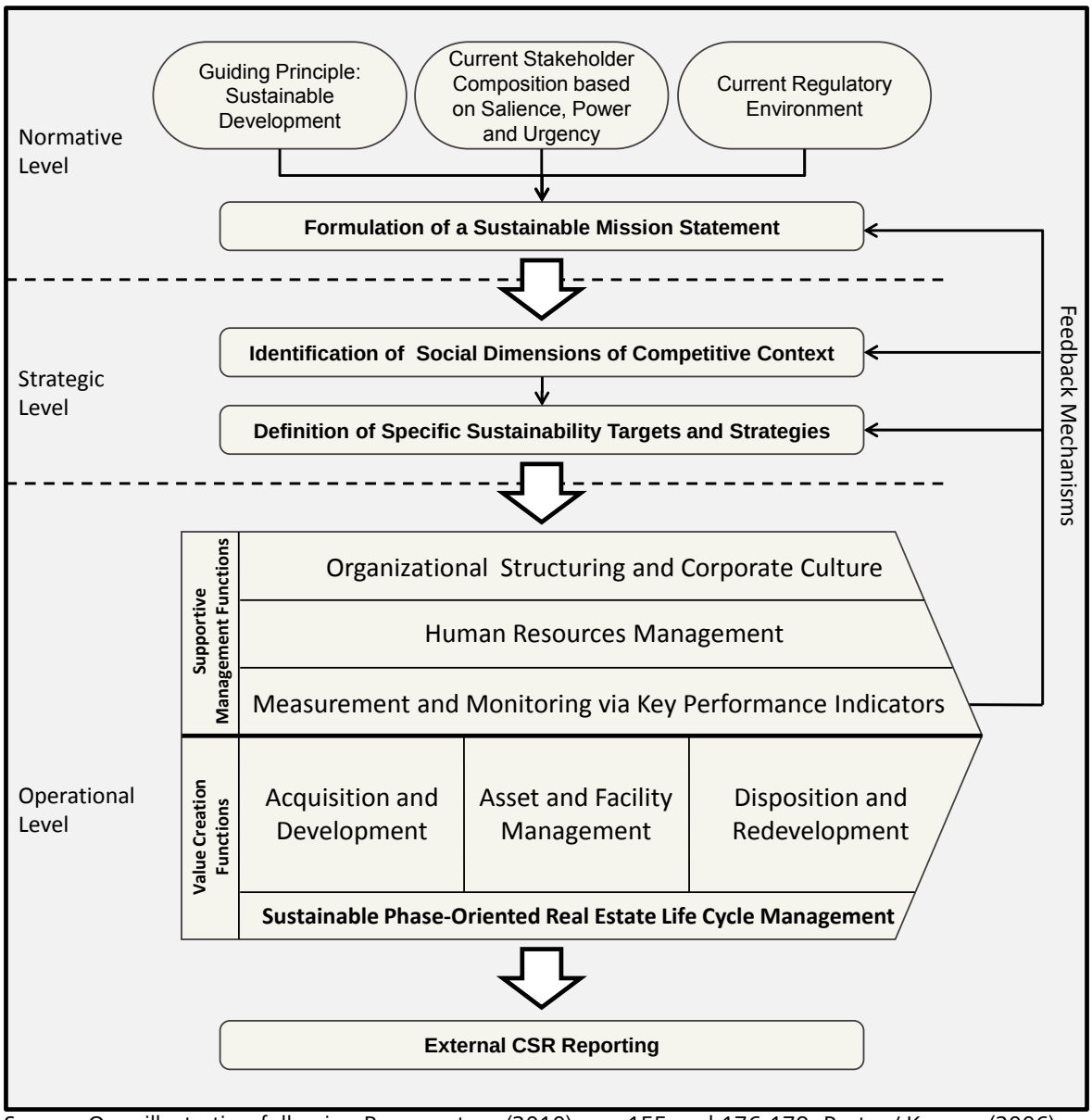
139 See Edmans (2012), p. 16.

3.3 CSR Implementation in Listed Real Estate Investment Companies

The implementation of a CSR can be understood as the transposition of the guiding principle of sustainable development into all management levels and operational units of a corporation. Once in place, business executives face the challenge of reconciling economic prosperity, social responsibility and environmental stewardship. Achieving an accurate balance of these partly competitive facets is key to the successful implementation of CSR practices.

In general, a top-down approach is the only serious and reliable way of introducing a comprehensive CSR strategy. The process of implementation can be divided into several phases and levels as illustrated in figure 8:

Figure 8: Model of CSR Implementation in Listed Real Estate Investment Companies



Source: Own illustration following Baumgartner (2010), pp. 155 and 176-179; Porter / Kramer (2006), p. 86; Schleich (2012), p. 196.

3.3.1 Normative Level

On a normative level it is of highest priority for a listed real estate investment company to establish a coherent mission statement. Besides the overall general economic purpose, such a declaration must also feature non-financial social and environmental values and principles. It should clarify the company's conception of corporate social responsibility in relation to its business conduct.[140] In order to derive a comprehensive and sustainable mission statement three external aspects have to be considered.

First, the mission statement has to be aligned with a generally accepted definition of sustainability. Ideally, the guiding principle underlying the mission statement is devised in accordance with the notion of sustainable development as defined by the World Commission

[140] See Kok et al. (2001), p. 289.

on Environment and Development in 1987.[141] On an international level, this is currently the most widely accepted and recognized definition available. In applying it, a listed real estate investment company is able to ensure an alignment of its business conduct with society's interests. A second vital part of the mission statement concerns the composition of stakeholders which are engaged by the company.[142] The identification of relevant stakeholders may follow the model developed by Mitchell et al. (1997), which ranks stakeholders based on their respective salience, power and urgency as set out in section 2.3.2.1. Probably the most important stakeholders are those whose constant support and cooperation are vital to the log-term success of a listed real estate investment company, i.e. its employees, tenants, communities, real estate service providers and shareholders. The third external aspect is the current regulatory environment within which a listed real estate investment company operates. In this regard it is important to clarify that the company's business conduct is not simply in compliance with current laws and regulations but also exceeds their demands by incorporating social and environmental responsibilities. Each of these three external aspects presented, however, are subject to constant change. Regular reviews of the mission statement to incorporate the effects of changing environmental conditions are thus paramount to ensure both its ongoing validity and usability

3.3.2 Strategic Level

The gap between the formulation of these normative statements and their operational implementation into core business functions has to be bridged by a profound analysis of the real estate investment company's relative position to its rivals in terms of sustainability as well as competiveness. Based on this examination the company must turn its CSR engagement into a competitive advantage and set out specific sustainability targets and strategies.

In other words, a listed real estate investment company can benefit from successfully translating the noble values formulated on the normative level into actual measures applied systematically throughout all its operations. Here, the concept of shared value is a useful tool to identify the individually most promising approach to CSR. Creating shared value is defined as:

> *"policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates. Shared value creation focuses on identifying and expanding the connections between societal and economic progress."*[143]

Establishing and implementing a CSR strategy means moving away from a reactive or responsive towards a proactive or integrative approach to CSR. Since no company in any industry is capable of providing solutions to all sustainability issues it faces, managers have to identify the intersections of their companies' operative business and social and environmental

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141 See section 2.4.2.

142 See Bart (1997), p. 377; Epstein / Rejc Buhovac (2014), p. 51.

143 Porter / Kramer (2011), p. 66.

issues.[144] At this juncture, Porter and Kramer (2006) draw a distinction between three different categories of social issues.[145]

First, while generic social issues are significant for society, the operative business of a listed real estate investment company does not have any impact on such issues, nor do they affect the company's long-term viability. Trying to solve these generic social issues, moreover, is not necessarily desirable either, since it does not lead to cost avoidance or result in a competitive advantage.

The second category comprises value chain social issues. These social issues largely refer to issues which are significantly affected by usual business routines of listed real estate investment companies. Examples include, for instance, the consumption of land or the occurrence of accidents at construction sites. In order to address these issues, a real estate investment company can seek to mitigate their negative external effects by, for example, choosing infill locations for new developments or alternative solutions and enhancing health and safety procedures on constructions sites.

The third category includes social dimensions of competitive context which are social issues that significantly impact the fundamental drivers of a listed real estate investment company's competitiveness at the locations in which it operates. Social issues in this category are located at the intersections of operative business and social issues. In strategically searching for solutions to these social issues, a company is able to create shared value by actively responding to a significant social issue and, contemporaneously, creating a competitive advantage over its rivals. The emission of greenhouse gases constitutes an issue of this category. Reducing buildings' energy consumption is a good way of reducing a listed real estate investment company's carbon footprint whilst also creating a competitive advantage over its rivals by attracting green tenants and achieving higher rents and sales prices as well as lower void rates.[146] At the same time, the company contributes to the larger goal of mitigating the effects of a major local and global social issue.

Given that achieving a competitive advantage much depends on achieving differentiation, the strength of a successful CSR strategy arguably lies in its ability to set out a way of conducting a company's business differently than its competitors.[147] Hence, on a strategic level, a listed real estate investment company has to identify ways and means of translating sustainability engagement into competitive advantages and, in turn into economic success and long-term viability. It is thus necessary to set attainable targets in all relevant CSR dimensions, while prioritizing engagements assumed to add most value to both the company and society.

Since the competitive environment of a listed real estate investment company is subject to constant change, the outcomes of implementing a CSR strategy have to be assessed on a

144 See Porter / Kramer (2006), p. 84.

145 See Porter / Kramer (2006), p. 85.

146 The various advantages offered by green or certified buildings will be elaborated on in section 3.3.4.1.

147 See Porter (1996), p. 64.

regular basis. The results of these assessments then have to be fed back in order for the executive management to amend the strategy accordingly.

3.3.3 Operational Level: CSR in Supportive Management Functions

On the operational level, management issues on a corporate level pertain to supportive management functions. These are present in any listed real estate investment company, but are not part of the actual value-added chain. The three most relevant supportive management functions with regard to the implementation of a CSR strategy are organizational structuring and corporate culture, human resources management, and measurement and monitoring via key performance indicators (KPIs).

3.3.3.1 Corporate Culture and Organizational Structuring

Sustainability must become an essential part of business processes together with other established decision-making factors and parameters. The treatment of sustainability as an add-on or separate aspect to the company's core operations has to be avoided.[148] In this context, Schleich (2012) proposes that, ideally, all employees are involved in putting a company's sustainability approach into practice.[149] A connecting element which reaches all employees is a corporate culture which is premised on sustainability. Generally, corporate culture refers to common but informal routines and behaviors based on corporate values and norms. For NBS (2010), a sustainable corporate culture is a corporate culture

> *"in which organizational members hold shared assumptions and beliefs about the importance of balancing economic efficiency, social equity and environmental accountability."* [150]

Sustainable corporate values and norms create a common operational framework which unconsciously governs employees' actions.[151] A possible means of incorporating sustainability into corporate values and norms is the official engagement in industry organizations which promote sustainable business conduct or the publication of sustainability reports.[152] Furthermore, the role model function of the top executive management must also be considered.

As already argued above, the only way of successfully implementing CSR in a listed real estate investment company is by using of a top-down approach. It is decisive for a successful CSR implementation that a sustainable approach to business conduct is practiced and demonstrated by the top executive management on a day-to-day basis. In this context, selecting an

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148 See UNEPFI (2014), p. 92.

149 See Schleich (2012), p. 144.

150 NBS (2010), p. 10.

151 See Schwarz-Herion (2005), p. 56.

152 See Linnenluecke / Griffiths (2010), p. 364.

appropriate organizational structure is key to ensuring the enforcement of sustainability policies at all levels of management.

An organizational structure defines the extent of centralization of decision-making, the mechanisms of control and the channels of communication. Furthermore it defines tasks and responsibilities.[153] While aspects like, inter alia, the competitive environment or the presence of a growth strategy form the core organizational structure of a company, the implementation of CSR also plays an important role. According to a global survey carried out by Kok et al. (2010), the majority of real estate investment companies listed in the U.S., Europe and Australia employ an officer who is exclusively dedicated to CSR.[154] This is reasonable, not least because it is hard if not impossible for a company to accumulate in-depth knowledge on issues of sustainability and keep an eye on current developments in CSR best practices in the industry without a recognized expert in this field on its payroll. Nevertheless, in order to disseminate sustainability knowledge throughout the company, the formation of cross-functional teams made up of members from different departments is also a necessary step. By this means, a company is able to drive forward innovations in sustainable management from staff with different professional backgrounds.[155] IVG, a German listed real estate investment company, employs an organizational structure combining both aspects. CSR strategies and initiatives are developed, planned and controlled by the corporation's CSR unit. The technical implementation throughout the company is then carried out by project-specific representatives of involved corporate divisions.[156]

3.3.3.2 Human Resources Management

Human resources management also constitutes an important aspect of the supporting management functions operationalizing CSR in a listed real estate investment company. Among others, the two most important elements of human resources management are the training and development of employees and the implementation of special remuneration and incentive schemes. With regard to the implementation of CSR, both elements aim at providing incentives that foster a sustainable approach to business.[157] Based on interviews with real estate business experts, Schleich (2012) concludes that, particularly in the case of listed real estate investment companies, there seems to be an accumulated demand for training and development of employees in CSR best practices. The reason for this is that CSR has not yet made it to the top of the agenda of property companies' higher echelons of management.[158] Examples for sustainability related trainings for employees in the real estate industry include the education in building certification schemes and sustainable investment best practices as well as anti-corruption seminars. With regard to sustainable remuneration and incentive schemes, only a

153 See Pitt / Koufopoulos (2012), p. 371.

154 See Kok et al. (2010), p. 45.

155 See UNEPFI (2009), p. 8.

156 See IVG (2012), p. 16.

157 See Dyckhoff / Souren (2008), p. 150.

158 See Schleich (2012), p. 144.

minority of listed real estate investment companies in the U.S., Europe and Australia have tied employees' compensation to sustainable goals and targets.[159] One possible means of integrating aspects of sustainability into employee remuneration is reaching individual target agreements or even setting out common targets for the entire workforce. On an executive level, it is possible to link financial bonuses to the achievement of certain business goals in relation to sustainability performance.[160] The sustainable remuneration scheme for regular employees introduced by Stockland, an Australian listed real estate investment company, is a good example of adhering to best practice standards in this area. Besides a fixed compensation, Stockland's remuneration framework is made up of a long-term and a short-term incentive. While the long-term incentive basically resembles an employee equity compensation plan to align employee and company interests, the short-term incentive is a variable remuneration component based on the accomplishment of individually agreed sustainability performance goals[161] Potential targets for employees of listed real estate investment companies may include the achievement of certain energy efficiency goals or the reduction of greenhouse gas emissions.

3.3.3.3 Measurement and Monitoring via Key Performance Indicators

There is much debate in academic literature on how to measure and monitor accurately social and environmental performance of a company.[162] Nevertheless, a precise and all-encompassing measurement and monitoring of corporate social and environmental performance is indispensable in order to evaluate an implemented CSR strategy and to ensure the effectiveness of measures taken in this context. An individual performance metric is called KPI.

Generally, the process of setting up an operative environmental and social performance measurement system can broadly be divided into three steps.[163] First, it is necessary to identify a set of relevant KPIs. Essential sustainability areas for listed real estate investment companies on a corporate level are decent labor practices and community engagement. On a real estate portfolio level, environ-mental issues like the use of energy, water consumption and the emission of greenhouse gases play an important role. These are the areas from which the KPIs should be drawn. There are various organizations and institutions which provide real estate company specific sets of KPIs, such as EPRA or GRI which will be elaborated in section 3.3.5.2.

It is important that the chosen KPIs are:

- Clear (all stakeholders should effortlessly comprehend the information provided),
- Comparable (the gathered data should facilitate the assessment of relative performance across different companies),

[159] See Kok et al. (2010), p. 46.

[160] See Epstein / Rejc Buhovac (2014), p. 131.

[161] See Stockland (2013), p. 25.

[162] See Schultze / Trommer (2012), p. 376; Wood (2010), p. 50.

[163] See UNEPFI (2010), pp. 7-18.

- Usable (data collection and analysis must be feasible with reasonable effort), and
- Accurate (data collection processes must be complete and reliable).[164]

The establishment of an information management system is the second step in implementing a CSR measurement system. The process of data gathering is an arduous task and it is important to define the exact responsibilities of key employees in order to ensure the reliability and integrity of collected data. Especially in the case of property related data like energy or water consumption, a listed real estate investment company is highly dependent on the cooperation with external stakeholders such as tenants and property management firms. In this case, an accurate definition of responsibilities and tasks is all the more important.

The third step is to put the defined set of sustainable KPIs to work. The collected data has to be analyzed and evaluated. In this context, it is important to set specific targets for each KPI and to measure the relative sustainability performance against these targets. Monitoring the developments over time enables companies to readjust their sustainability strategy depending on whether certain goals were reached or not. There is evidence that, once implemented, a sustainable corporate strategy is mainly driven by feedback mechanisms which serve to extract the insights gained and lessons learnt from earlier social and environmental measures taken.[165]

3.3.4 Operational Level: CSR in Value Creation Functions

As mentioned in section 3.2.2, real estate has been identified as one of the largest contributors of climate-damaging emissions.[166] As supranational organizations, countries and cities become more aware of climate change and its consequences, governmental institutions around the world have started to introduce stricter legislation with regard to resource saving and reduction of emissions. Consequently, this changing regulatory environment poses substantial challenges for the core business of long-term real estate investors, i.e. the transaction, development and management of property. The following sections provide an introduction to the implementation of sustainable policies and best practices in value creation functions of listed real estate investment companies.

3.3.4.1 Property Development, Acquisition and Disposition

The development, acquisition and disposition of real estate constitute major parts of a listed real estate investment company's ordinary business routine. In order to align these activities with the overall CSR strategy of a company, it is important to recognize and exploit the utility of certificates issued for green buildings. Building certifications offer a framework within which to assess the sustainability of a building by measuring, among other things, the carbon footprint, the amount of greenhouse gas emissions and the use of sustainable materials as well as sustainable design features. An assigned building certificate provides investors and tenants

164 See UNEPFI (2010), p. 7.

165 See Papagiannakis et al. (2014), p. 266.

166 See UNEP (2009), p. 3.

with valuable information on the sustainability of a green building and enables them to easily benchmark and compare different buildings within certain property markets.

There is a growing body of literature which provides empirical evidence for many advantages that green buildings offer. The without doubt most important aspect is the fact that certified buildings are able to achieve higher occupancy rates, higher rents and higher transaction prices in comparison to otherwise identical buildings.[167] The proven aspects illustrate this contention. First, there is evidence that market valuations of buildings vary systematically with energy efficiency. Consequently, not only the certification of a building increases its value but also the saving of energy itself.[168] In this regard, energy saving features of a building serve as an insurance against soaring energy prices. Against the backdrop of rising consumption of resources by developing countries in conjunction with a realignment of energy policies in developed countries (e.g. the "Energiewende"[169] in Germany), this seems to be a likely scenario. Second, certified buildings tend to have lower void rates as compared to normal buildings in similar locations.[170] Third, several studies find a positive correlation between green building design features which have a positive impact on indoor air-quality and workplace productivity.[171] This in turn increases the bottom line of occupying companies and therefore future marketability of green buildings through enhanced demand. Furthermore, although the rents and prices for certified buildings decreased during the financial crisis, they remained on a higher level relative to the rents and prices of comparable non-certified buildings.[172]

Although no internationally accepted standard has yet evolved, today almost every developed country has a national certification scheme for green buildings to assess their respective level of sustainability. This may seem to be a logical consequence, since every country features a unique regulatory environment, different climatic conditions as well as a specific building stock. However, these country-dependent differences in certification schemes hamper the comparability of labeled sustainable buildings across national borders. For instance, the Australian certification scheme Green Star puts more emphasis on areas such as water consumption and less weight on energy consumption than the British equivalent BREEAM. This is due to the permanent water scarcity and the abundance of natural resources on the Australian continent and therefore reflects regional peculiarities. It is obvious that ratings based on different rating schemes are difficult to compare.[173]

In order to gain an impression of the variety of certification schemes, table 2 provides an overview of selected national building certificates. The selection is based on the sample used in

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[167] See Dermisi (2009), p. 45; Eichholtz et al. (2013), p. 52; Fuerst / McAllister (2011), pp. 66-67; Reichardt et al. (2012), p. 121.

[168] See Cajias / Piazolo (2013), p. 67; Eichholtz et al. (2010), p. 2508.

[169] "Energiewende" describesthe transition towards a sustainable power generation based on renewable energies enacted by the German government which entails rising energy prices in the future.

[170] See Fuerst / McAllister (2009), p.62.

[171] See WGBC (2013), p. 69.

[172] See Eichholtz et al. (2013), p. 61.

[173] See Reed et al. (2009), p. 13.

the empirical part of this study and only shows the labels which are the most often used in the respective countries.

Table 2: Building Certification Schemes for Selected Countries by the End of 2013

Country	Certification Scheme	Inception	Certificates Issued
Australia		2003	628
Canada		2005	3.049
France		2005	N/A
Germany		2009	261
Hong Kong		2010	165
Netherlands		2010	109
Singapore		2005	853
Sweden		2009	854
United Kingdom		1990	3.232

Note: The year of inception in the third column marks the year the certification scheme was introduced. The number of certificates issued in column four refers to certificates issued for existing buildings in the post construction phase within the respective country in November 2013.

Source: Individual websites of the respective national green building councils.

Generally, the sustainability of a building has to be considered prior to the development or acquisition process. In the case of development, this includes analyzing the potential certification of a new building. The decision on whether a new development applies for a certification or not largely depends on the prospective tenants, the location and the local real estate market environment. Today, the majority of new developments in high-profile locations in internationally significant property markets are certified green buildings. The development of

a green building offers one way of enhancing the "greenness" of the overall property portfolio and thus of generating a sustainable corporate image.

The acquisition of real estate also offers ways of translating the overarching sustainable corporate strategy into the core business of listed real estate investment companies. By investing only in certified properties, a company would be able to fully align its investment strategy with its overall CSR strategy. However, this approach remains purely theoretical, since the large transaction volumes and the restricted number of certified buildings available impede the application of this strategy.[174] An alternative way forward is the integration of a sustainability dimension into the acquisition due-diligence of a property. This means that the current and future social and environmental risks and opportunities of a building have to be considered before a decision to invest is taken. The use of sustainability checklists or sustainability SWOT-analyses is a useful method for this approach. Here, potential opportunities include the possibility of subsequent sustainable refurbishments and certifications. By contrast, non-adaptable energy inefficiency or a long distance to means of public transport pose risks to the ability to meet certain sustainable portfolio targets.

Besides a financial analysis, sustainability considerations should also be part of a disposition due-diligence. The disposal of an above average green building is always associated with a decline in overall portfolio sustainability and may jeopardize long-term sustainability goals. However, in the event of a divestment of a green building, sustainable design features and energy efficiency should be communicated to the potential buyer and used for negotiations on the sales price. The disposal of assets which underperform in terms of sustainability is a useful way for listed real estate investment companies to enhance the portfolio sustainability in the short-run.

3.3.4.2 Asset and Facility Management

Within the framework of the sustainable management of a listed real estate investment company the responsible use of natural resources and the sustainable management of buildings is of particular importance. The array of methods that can be implemented during the leasing and management phase can broadly be broken down into three components, namely:

- Strategic and organizational building management and minor adaptions of building equipment,
- Sustainable capital investments, and
- Procurement of utilities and services from sustainable sources.[175]

The easiest and most inexpensive way of introducing sustainability in the management of buildings is to implement environmental management plans. These documents set out sustainable performance criteria and practices which help the owner and tenants to minimize the negative impacts of using the building on the environment. An environmental management

[174] See Schleich (2012), p. 162.

[175] See Schleich (2012), pp. 177-187.

plan may include a detailed code of conduct with regard to recycling and waste management procedures as well as measures for reducing the consumption of water and electricity. Some of these measures are particularly important to maintain building certifications.[176]

Minor adaptions of building equipment comprise the installation of technical appliances to comply with the standards as defined in the environmental management plan. Sustainable technical appliances comprise, among others, movement-sensitive lighting and automatic faucets. Furthermore, the installation of smart meters to measure the use of electricity, gas and water enable a listed real estate company to monitor over time the overall consumption data of a building remotely. The generated data are indispensable for calculating respective KPIs identified by management.

Sustainable capital investments refer to major refurbishments and retrofits which significantly enhance the sustainability of a building. Such measures may include the renewals of major parts of a building like windows, insulation or heating, ventilation and air conditioning systems. Furthermore, the installations of solar power systems or geothermal water heating systems also fall into this category. When considering the execution of sustainable capital investments a listed real estate investment company should always ponder a possible certification of a building. However, another important aspect of this issue is whether these investments pay off. The decision for or against a major sustainable refurbishment is dependent on future rents, rentability and marketability as well as legislation and prices for energy.[177]

Sustainability considerations can also be integrated into the supply chain of a managed building. Here, the simplest initiative is probably the exclusive use of clean energy from renewable sources provided that the price is within a certain range of those offered by conventional energy suppliers. Furthermore, these initiatives include recycling and waste management as well as the use of sustainable building materials for refurbishments. When facility management is outsourced to third parties, it is the responsibility of the listed real estate investment company to ensure that their contractors' activities are carried out in compliance with the sustainable codes of practice of a building which include green cleaning and occupational health and safety.[178]

The approaches to the sustainable management of buildings discussed above subsume various ways and means of effectively enhancing the sustainability of the value creation process of a listed real estate investment company. However, the success of these measures heavily relies on the cooperation of landlord and tenants. A useful instrument able to facilitate a good and sustainable owner-tenant relationship is the signing of a green lease.

In general, a rental contract or lease is a contractual agreement which governs the relationship between the tenant and the landlord. In entering this agreement, the tenant undertakes the obligation to pay a certain amount of rent to the landlord in return for which the landlord grants the tenant the use of the rented space. Besides these essential and indispensable

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176 See Oberle / Sloboda (2010), p. 35.

177 See Schleich (2012), p. 182

178 See UNEPFI (2008), p. 8.

components, a green lease incorporates green or sustainable provisions for both the tenant and the landlord.

While there is no universal definition of what exactly constitutes a green lease, there is general acceptance among real estate professionals that a green lease promote and facilitate the sustainable use of (green) buildings.[179] However, there are various initiatives promoting green leases and providing recommendation on the implementation of green provisions in rental contracts. Examples are the UK-based Better Buildings Partnership and the German Projektgruppe Green Lease which is supported by the German Property Federation ZIA.[180] Both issued comprehensive collections of sustainable lease clauses which can be introduced into commercial and residential leases.

Commonly addressed sustainability dimensions in green leases include, inter alia:

- Direct and indirect energy consumption,
- Water consumption,
- Waste management,
- Transportation,
- Biodiversity, and
- Building services.

In order to achieve sustainability improvements, green leases include targets and sustainable codes of practice which are obligatory for the landlord and the tenant. This may include, for instance, the provision to use only renewable energy, the development of a water strategy for the building or the establishment of a green travel plan for the employees of the tenant.

Furthermore, a green lease is able to solve an issue which academics in the field of real estate commonly refer to as the "split incentive problem".[181] Based on an conventional lease contract the landlord has little to no incentive to improve the energy or water efficiency of a building through capital investments. The reason is that, from a financial point of view, all cost advantages from these investments will financially benefit the tenant and not the landlord. A green lease is able to overcome this issue by introducing mechanisms which ensure that the landlord, too will benefit from energy efficiency enhancing investments. For instance, the tenant could pass on a share of his or her savings on energy to the landlord through increased rental payments.

However, a close relationship between landlord and tenant is key to realizing all of the goals addressed by green leases. To ensure a fruitful liaison, BBP (2013) suggests, among other measures, the inclusion of three important clauses. First, the green lease should include a cooperation obligation. Although this is rather a statement of intent than a meaningful legal

[179] See Oberle / Sloboda (2010), p. 32.

[180] For further information on green lease clauses see BBP (2013) and Conradi et al. (2012).

[181] See Bird / Hernández (2012), pp. 506-507; Wood et al. (2012), p. 440.

obligation, it forms the foundation of other "green clauses" and, as such, is frequently referred to throughout the document. Second, in order to encourage communication between the parties, the establishment of a building management group is recommended. The building management group should be staffed by representatives of both the landlord and the tenant who meet on a regular basis. Working together, their aim is to drive forward the development of sustainable strategies for the management of the building with the common goal of reducing resource consumption and costs. Third, metering and data sharing are vital components of the environmental and social performance measurement system of a listed real estate investment company. A green lease has to ensure that the tenant grants the landlord access to all relevant data concerning utilities consumption and waste generation. This also involves the installation and reading of meters.[182] The latter clause is particularly important, since the data collection process is not feasible without the consent and cooperation of the tenant.[183]

For listed real estate investment companies, green leases can be a powerful tool to enhance their corporate social and environmental performance on a real estate portfolio and asset level. However, the subsequent introduction of green clauses in existing leases is a rather difficult and protracted process.

3.3.5 Operational Level: CSR Reporting in the Real Estate Investment Industry

In order to reap the merits of a sustainable business development which may, for instance, include an enhanced reputation, competitive advantages, closer stakeholder relationships, and eventually improved financial performance, a sustainably managed listed real estate investment company needs to communicate those engagements. Comprehensive and well-structured CSR reporting provides the only way of efficiently and effectively informing all stakeholders and, in particular, shareholders.

In accordance with the increased demand for social and environmental disclosure and the growing acceptance of the stakeholder approach in the strategic management of corporations, many institutions have developed CSR-guidelines and sustainability reporting frameworks to facilitate common and standardized CSR reporting. The following section provides some reasons for the need for such common standards in CSR reporting. This study then turns to an overview of different CSR-guidelines as suggested by various institutions and a brief discussion thereof.

3.3.5.1 Reasons for a Common and Independent CSR Reporting Standard

Over the last decade, the amount of CSR information published by companies has grown considerably. However, CSR reporting practices and efforts significantly vary across countries and industries. This rather confusing situation is exacerbated by the large number of available CSR reporting initiatives and guidelines.

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[182] See BBP (2013), pp. 15-18.

[183] See Schleich (2012), p. 171.

The current situation in which various standards coexist provides companies with the opportunity to choose the reporting framework which suits them best and in the worst case helps them to "greenwash" their image.[184] Furthermore, some of the current standards are designed by purely business-backed organizations. This clearly challenges their impartiality and completeness.[185] It is therefore inevitable that a common CSR reporting standard is developed in an open process which involves all stakeholders equally. In general, a common and independent CSR reporting standard would increase the comparability, readability and processing of companies' CSR reports.

The use of a common framework would primarily reduce costs on both sides. Stakeholders' cost for processing the data provided in CSR reports would be lowered, because the information would be available on a structured and standardized basis. In particular, a common standard would enable responsible investors to assess more quickly a company's CSR engagement. It would also help those companies that decide to issue a CSR report for the first time to save resources, since they do not incur costs for the establishment of their own individual reporting framework.

In order to facilitate empirical analysis, CSR activities have to be reported consistently across a large group of companies.[186] Thus, as the amount of standardized and comparable CSR reports significantly increases, future academic research would also benefit from a widely accepted and used common CSR reporting framework. Researchers would be able to make further use of advanced empirical methods which require large amounts of data to further investigate the relationship between corporate social and financial performance.

Nevertheless, harmonization of CSR reporting may also lead to inflexibility in CSR reporting. Furthermore, the standardization of CSR reporting bears the risk of omitting key stakeholder issues in areas only relevant to specific companies or industries.[187]

Overall, it remains to be seen whether one of the currently existing CSR reporting frameworks will prevail in the long-run. For now, the next section will provide an overview of the most important organizations promoting CSR reporting.

3.3.5.2 Selected Organizations and CSR Reporting Frameworks

Writing in 1972, Epstein pointed out that the lack of both commonly agreed criteria for the measurement of corporate social and environmental behavior and appropriate techniques for their evaluation would make the research on the subject remain on a low level.[188] About 40 years later several organizations have designed different sustainability frameworks which can be adopted by any corporation in order to consistently tackle CSR and report on social and environmental matters.

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184 See Brown et al. (2009), p. 189.

185 See Adams / Narayana (2007), p. 80.

186 See Abbott / Monsen (1979), p. 502.

187 See Laposa / Villupuram (2010), p. 41.

188 See Epstein (1972), p. 1709.

However, there is a gap between the need for standardization of CSR reporting and the heterogeneity of different industries which has yet to be bridged. Due to the specific features of real estate as an economic good and its major impact on society and environment, the real estate industry in general and listed real estate investment companies in particular face different challenges with regard to CSR reporting as compared to other industries such as, for instance, the consumer goods industry or the service industry.

Based on these considerations, the next section presents a narrow selection of organizations and reporting frameworks which are relevant to the real estate industry.

European Public Real Estate Association

The European Public Real Estate Association (EPRA) is the European trade body for publicly traded companies from the real estate investment sector, i.e. REITs and listed REOCs. The organization has been based in Brussels ever since its foundation in 1999. EPRA's mission is to promote, develop and represent the European public real estate sector with the aim of encouraging more investment in European listed real estate.

The majority of its approximately 200 members are listed property companies and real estate investment firms. With the support of different working groups composed of experts in various real estate related fields such as research, reporting and accounting, investor relations or sustainability, EPRA provides various services to its members. Additionally, the association offers a wide range of real estate indices in collaboration with FTSE which help to promote the European listed real estate sector.

Through the publication of EPRA Best Practices Recommendations, the organization tries to set standards and to harmonize financial reporting among listed real estate companies. One of the reports special features are the EPRA Performance Measures which take into account the particular characteristics of real estate and enhance transparency as well as comparability.[189]

In September 2011, EPRA published the first edition of Best Practices Recommendations on Sustainability Reporting with a view to likely rising sustainability reporting regulations in numerous countries. The Sustainability Performance Measures which EPRA recommends to report on cover exclusively environmental matters related to the real estate investment portfolio of a company and the company's own office occupation.[190] All reporting items are measureable and refer to energy consumption, greenhouse gas emissions, water consumption and waste disposal. Furthermore, it is suggested to report all numbers on a normalized basis. This means that, for instance, the consumption of energy is reported per square meter in order to make consumption comparable across different property portfolios. Moreover, EPRA suggests providing year-on-year and like-for-like comparisons as well as additional information on strategies for consumption reduction and money saved as a result of measures taken previously. Table 3 provides an overview of the EPRA Sustainability Performance Measures.

[189] See EPRA (2011a), p. 4.

[190] See EPRA (2011b), pp. 5-6.

Table 3: EPRA Sustainability Performance Measures

Absolute Measures		
Broad Issue Type	**Sustainability Performance Measure**	**Units of Measurement**
Energy	Total energy consumption from electricity	kWh
	Total energy consumption from district heating and cooling	kWh
	Total energy consumption from fuels	kWh
GHG emissions	Total direct GHG emissions	metric tonnes CO_2e
	Total indirect GHG emissions	metric tonnes CO_2e
Water	Total water withdrawal by source	cubic meters (m^3)
Waste	Total weight of waste by disposal route	metric tonnes
	Percentage of waste by disposal route	proportion by weight (%)
Intensity Measures		
Broad Issue Type	**Sustainability Performance Measure**	**Units of Measurement**
Energy	Building energy intesity	kWh / m^2 / year
		kWh / m^2 / person
GHG emissions	GHG intensity from building energy	kgCO2e / m^2 / year
		kgCO2e / person / year
Water	Building water intensity	m^3 / m^2 / year
		m^3 / person / day

Notes: For abbreviations in the table refer to the List of Abbreviations on page XI.

Source: Own illustration following EPRA (2011b), p. 7.

While EPRA's proposed Sustainability Reporting Measures offer a detailed and real estate specific way to report on environmental issues within property companies, they do not include social aspects of CSR. This shortcoming in the reporting guidelines arguably hampers a holistic approach to sustainability reporting for listed real estate investment companies.

United Nations Global Compact

Founded in 2000, the United Nations Global Compact (UNGC) is the world's largest sustainability initiative and network for business. It counts over 8,000 members from over 140 countries and considers business to be the main driver of globalization and, as such, an appropriate channel to disseminate ideas and ideals in support of the UN's broader goals. The UNCG seeks to generate synergies by combining the UN's moral authority and the private sector's strength in using efficient market based approaches to find solutions to global problems. The ten principles of the UNGC constitute the very core of the initiative. They cover the sustainability fields of human rights, labor, environment and anti-corruption.[191]

Table 4 clearly shows that the principles encompass both social and environmental aspects of CSR. Nevertheless, these principles are vague and general allowing for various forms of sustainability reporting and thus preventing a convergence of sustainability reporting standards.

[191] See UNGCO (2013b), pp. 2-3.

Table 4: The Ten Principles of the United Nations Global Compact

	Human rights
Principle 1	Business should support and respect the protection of internationally proclaimed human rights; and
Principle 2	make sure that they are not complicit in human rights abuses.
	Labour
Principle 3	Business should uphold the freedom of association and the effective recognition of the right to collective bargaining;
Principle 4	the elimination of all forms of forced and compulsory labour;
Principle 5	the effective abolition of child labour; and
Principle 6	the elimination of discrimination in respect of employment and occupation.
	Environment
Principle 7	Business should support a precautionary approach to environmental challenges;
Principle 8	undertake initiatives to promote greater environmental responsibility; and
Principle 9	encourage the development and diffusion of environmentally friendly technologies.
	Anti-corruption
Principle 10	Business should work against corruption in all its forms, including extortion and bribery.

Source: Own illustration following UNGCO (2013a), p. 3.

However, once a year, a signatory to the UNGC is obliged to draft a report for its stakeholders, the so-called Communication on Progress (COP). The COP contains comments on the overall compliance to the UNGC, actions taken in relation to the implementation of the ten principles as well as measurable outcomes of these actions. This policy ensures transparency and comprehensibility with regard to sustainability efforts and the related developments. Noncompliant firms are labeled "non-communicating" on the UN Global Compact's website and are excluded from taking part in UN Global Compact's events or from using UNGC's logo in company reports.[192]

Taken as a whole, the UNGC offers a holistic approach for companies to address and implement sustainability issues within management decisions. The mandatory reporting to stakeholders on a yearly basis facilitates transparency and makes changes in behavior traceable. However, due to the streamlined "one-size-fits-all" character of the approach, industry-specific extensions in general and real estate related indicators in particular are missing. Furthermore, the rather broadly formulated principles do not contribute to the emergence of a standardized reporting framework which makes sustainability reporting comparable between companies and across industries.

International Organization for Standardization

The International Organization for Standardization (ISO) emerged from the idea of promoting and facilitating the development and introduction of industrial standards on an international level. Founded in 1947 and based in Geneva, the organization has published almost 20,000 international standards, primarily in the field of technology and manufacturing. ISO has 164 active members which are mostly national institutes for standardization.

Inspired by the 1992 UN Conference on Environment and Development, ISO decided to develop international standards for environmental matters. Consequently, in 1996 the

[192] See UNGCO (2012), pp. 19-20.

organization published its ISO 14000 family of standards for environmental management. So far, the framework consists of 21 international standards and other types of normative documents. Among other aspects, the standards assist companies with accounting for greenhouse gas emissions as well as in verifying and measuring the carbon footprint of products. In addition, they offer guidelines on how to approach different product and process related environmental issues.[193]

Another international standard which helps organizations to implement CSR within their business conduct is enshrined in ISO 26000. A first draft was published in 2009. ISO 26000 provides support to stakeholder identification and engagement as well as assistance with CSR implementation throughout an organization. Additionally, ISO 26000 also provides guidance on the seven social responsibility core subjects. These are:

- Organizational governance,
- Human rights,
- Labor practices,
- Environment,
- Fair operating practices,
- Consumer issues, and
- Community involvement and development.[194]

All aforementioned core subjects are further subdivided into a number of so-called issues for which the framework provides descriptions and recommended actions to be taken. In addition, the standard also offers an overview of various aspects of CSR reporting.

In conclusion, ISO offers two different frameworks with regard to CSR. While the ISO 14000 family of standards provides narrowly defined standards for one aspect of CSR, i.e. measurement of carbon dioxide emissions, ISO 26000 constitutes a more holistic approach to CSR implementation throughout a company. However, while the latter provides an all-encompassing framework for companies to approach CSR, it is not a collection of standards and indicators in a narrow sense of the word. Rather, the framework defines a broad management standard without standardizing each and every aspect of CSR. In sum, ISO 26000 can therefore not be seen as a standardizing tool for sustainability issues which focuses on results but rather as an assistant guideline which helps corporations both get in touch with and tackle issues under the heading of CSR.[195]

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193 See ISO (2009a), pp. 2-5.

194 See ISO (2009b), pp. 19-67.

195 See Schwartz and Tilling (2009), p. 296.

Global Reporting Initiative

Launched in 1997 and based in Amsterdam, the Global Reporting Initiative (GRI) is the most prominent international not-for-profit organization which fosters standardized and comprehensive CSR reporting by companies across industries on an international level.

GRI envisions a

> *"sustainable global economy where organizations manage their economic, environmental, social and governance performance and impacts responsibly, and report transparently."* [196]

The organization seeks to make sustainability reporting a permanent feature of the annual reporting of companies. In order to assist companies with different sustainability issues in a structured manner, GRI provides a comprehensive reporting toolkit known as the GRI Guidelines. With this sustainability reporting framework, GRI offers companies a standardized and comprehensive way of reporting on sustainability matters. The GRI Sustainability Reporting Guidelines contain three standard parts of disclosure. The first part encompasses more general company information and puts the sustainability reporting into the context of the company's profile, strategy and governance standards. Furthermore, it determines the scope and boundaries of sustainability reporting. The second part of the standard disclosures sets out the so called disclosures on management approach (DMAs). DMAs provide information on how a company deals with different sets of sustainability topics. The third part of the GRI standard disclosure is the set of GRI-performance indicators. They form the heart of every GRI aligned sustainability reporting effort. GRI-performance indicators are supposed to standardize sustainability reporting and make it comparable across different companies. They cover the economic, environmental and social dimensions of corporate performance which feature sub-categories such as indirect economic impacts, energy consumption, emissions, labor practices, society or product responsibility. Based on the GRI 3.1 sustainability reporting framework, table 5 provides an overview of all 92 GRI-performance indicators.

[196] See GRI (2012), p. 2.

Table 5: GRI Performance Indicators

Economic			
Economic performance			
EC1	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments.	**EC2**	Financial implications and other risks and opportunities for the organization's activities due to climate change and other sustainability issues.
EC3	Coverage of the organization's defined benefit plan obligations.	**EC4**	Significant financial assistance received from government.
Market presence			
EC5	Range of ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation.	**EC6**	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation.
EC7	Procedures for local hiring and proportion of senior management and all direct employees, contractors and sub-contractors hired from the local community at significant locations of operation.		
Indirect economic impacts			
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement.	**EC9**	Understanding and describing significant indirect economic impacts, including the extent of impacts.
Environmental			
Materials			
EN1	Materials used by weight, value or volume.	**EN2**	Percentage of materials used that are recycled and reused input materials.
Energy			
EN3	Direct energy consumption by primary energy source.	**EN4**	Indirect energy consumption by primary source.
EN5	Energy saved due to conservation and efficiency improvements.	**EN6**	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.
EN7	Initiatives to reduce indirect energy consumption and reductions achieved.		
Water			
EN8	Total water withdrawal by source.	**EN9**	Water sources significantly affected by withdrawal of water.
EN10	Percentage and total volume of water recycled and reused.		
Biodiversity			
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	**EN12**	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.
EN13	Habitats protected or restored.	**EN14**	Strategies, current actions, and future plans for managing impacts on biodiversity.
EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.		
Emissions, effluents and waste			
EN16	Total direct and indirect greenhouse gas emissions by weight.	**EN17**	Other relevant indirect greenhouse gas emissions by weight.
EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	**EN19**	Emissions of ozone-depleting substances by weight.
EN20	NOx, SOx, and other significant air emissions by type and weight.	**EN21**	Total water discharge by quality and destination.
EN22	Total weight of waste by type and disposal method.	**EN23**	Total number and volume of significant spills.
EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.	**EN25**	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.
Products and services			
EN26	Initiatives to enhance efficiency and mitigate environmental impacts of products and services, and extent of impact mitigation.	**EN27**	Percentage of products sold and their packaging materials that are reclaimed by category.
Compliance			
EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.		
Transport			
EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.		
Overall			
EN30	Total environmental protection expenditures and investments by type.		
Social: Labor Practices and Decent Work			
Employment			
LA1	Total workforce by employment type, employment contract, and region, broken down by gender.	**LA2**	Total number and rate of new employee hires and employee turnover by age group, gender, and region.
LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operations.	**LA15**	Return to work and retention rates after parental leave, by gender.
Labor/management relations			
LA4	Percentage of employees covered by collective bargaining agreements.	**LA5**	Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements.
Occupational health and safety			
LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs.	**LA7**	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region and by gender.
LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases.	**LA9**	Health and safety topics covered in formal agreements with trade unions.

Table 5 continued

Training and education			
LA10	Average hours of training per year per employee by gender, and by employee category.	**LA11**	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.
LA12	Percentage of employees receiving regular performance and career development reviews, by gender.		
Diversity and equal opportunity			
LA13	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.		
Equal remuneration for women and men			
LA14	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation.		
Social: Human Rights			
Investment and procurement practices			
HR1	Percentage and total number of significant investment agreements and contracts that include clauses incorporating human rights concerns, or that have undergone human rights screening.	**HR2**	Percentage of significant suppliers, contractors and other business partners that have undergone human rights screening, and actions taken.
HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained.		
Non-discrimination			
HR4	Total number of incidents of discrimination and corrective actions taken.		
Freedom of association and collective bargaining			
HR5	Operations and significant suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and actions taken to support these rights.		
Child labor			
HR6	Operations and significant suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor.		
Forced and compulsory labor			
HR7	Operations and significant suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor.		
Security practices			
HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations.		
Indigenous rights			
HR9	Total number of incidents of violations involving rights of indigenous people and actions taken.		
Assessment			
HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments.		
Remediation			
HR11	Number of grievances related to human rights filed, addressed and resolved through formal grievance mechanisms.		
Social: Society			
Local communities			
SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs.	**SO9**	Operations with significant potential or actual negative and positive impacts on local communities.
SO10	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities.		
Corruption			
SO2	Percentage and total number of business units analyzed for risks related to corruption.	**SO3**	Percentage of employees trained in organization's anti-corruption policies and procedures.
SO4	Actions taken in response to incidents of corruption.		
Public policy			
SO5	Public policy positions and participation in public policy development and lobbying.	**SO6**	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country.
Anti-competitive behavior			
SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes.		
Compliance			
SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations.		
Social: Product Responsibility			
Customer health and safety			
PR1	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures.	**PR2**	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes.
Product and service labelling			
PR3	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements.	**PR4**	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes.
PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.		
Marketing communications			
PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship.	**PR7**	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship by type of outcomes.
Customer privacy			
PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.		
Compliance			
PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services.		

Source: Own illustration following GRI (2011).

Those 92 GRI-performance indicators are suitable for every company irrespective of the specific industry it belongs to. Nevertheless, some industries require additional and more specific performance indicators in order to provide a full picture of their CSR engagement. In line with this notion, GRI issues Sector Supplements for various industries. With regard to the real estate sector, the dedicated Construction and Real Estate Sector Supplement was released in September 2011. The supplement was developed in close collaboration with EPRA which, again, evidences the open development structures of GRI. Table 6 illustrates the 8 real estate sector specific GRI-performance indicators which are part of the Construction and Real Estate Sector Supplement.

Table 6: GRI Construction and Real Estate Sector-Specific Performance Indicators

Construction and Real Estate Sector-Specific Performance Indicators			
CRE1	Building energy intensity.	**CRE2**	Building water intensity.
CRE3	Greenhouse gas emissions intensity from buildings.	**CRE4**	Greenhouse gas emissions intensity from new construction and redevelopment activity.
CRE5	Land and other assets remediated and in need of remediation for the existing or intended land use according to applicable legal designations.	**CRE6**	Percentage of the organization operating in verified compliance with an internationally recognized health and safety management system.
CRE7	Number of persons voluntarily and involuntarily displaced and/or resettled by development, broken down by project.	**CRE8**	Type and number of sustainability certification, rating and labeling schemes for new construction, management, occupation and redevelopment.

Source: Own illustration following GRI (2011).

Besides issuing stand-alone CSR reports, GRI also promotes the formation of integrated reports in which financial and non-financial aspects form equally important parts of the annual company report. The first version of the GRI Guidelines was published in the year 2000. Since then, the guidelines have been steadily further developed. Consequently, in May 2013 the organization released the fourth generation of its guidelines, the G4 Guidelines.

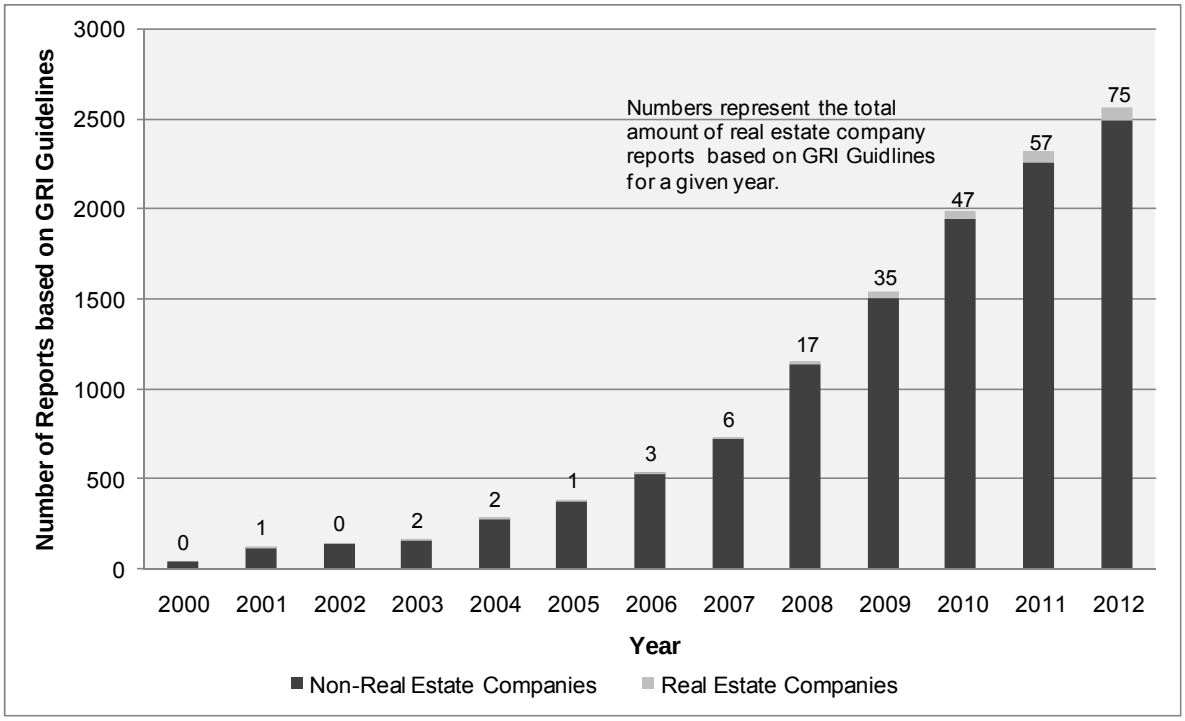
The most important features of the GRI approach are the international multi-stakeholder consultation and the structured feedback process. The first invites all external organizations such as NGOs, companies or special interest groups to share their knowledge in different working groups and to support the further development of the guidelines. The latter contributes by means of iterative testing and self-correction by users. Employing this integrative way of development, GRI is able to gain acceptance and legitimacy among users and to increase recognition of the guidelines.[197] Furthermore, GRI benefits from strategic partnerships with the United Nations Environment Programme, the UN Global Compact and the International Organization for Standardization.

The wide dissemination on all continents is a testimony to the success of the GRI Guidelines and made it the world's most widely used sustainability reporting framework.[198] According to the organization's online Sustainability Disclosure Database, there were 2,486 firms from different industries which reported on sustainability matters in line with the GRI Guidelines in 2012. Figure 9 provides an overview of the number of company reports based on the GRI Guidelines from 2000 up to 2012. One remarkable development is the rapid growth following the financial crisis in 2007 and 2008.

[197] See Brown et al. (2009), p. 191.

[198] See Gamerschlag et al. (2011), p. 241; Gietl et al. (2013), p. 59.

Figure 9: Number of Published Reports Based on the GRI Guidelines for the 2000 to 2012 Period



Source: Own illustration following GRI (2014).

Although GRI provides the so-called GRI Application Level Check which verifies the degree to which a reporting company has reported the items included in the GRI Guidelines, the organization does not offer any external assurance. External assurance is comparable to a company's annual audit by a third party to confirm the correctness of the provided information. The GRI Application Level Check only approves the correctness of the form of sustainability reporting.

In summary, the GRI Guidelines constitute an internationally well recognized framework for standardized sustainability reporting. The steady testing of the guidelines by means of a structured feedback process ensures a consistent advancement in the future. Furthermore, the working groups composed of all different kinds of stakeholders add significant value by drawing on their respective experiences and specific knowledge. With regard to the Construction and Real Estate Sector Supplement, the collaboration with EPRA guarantees a high degree of real estate specific know-how.

4 Corporate Social Performance and Corporate Financial Performance: The Case of Real Estate Investment Companies

The primary objective of this chapter is to provide the theoretical foundations and prerequisites informing and influencing the proposed business case for CSR for listed real estate investment companies. The first part of this chapter is dedicated to the identification of appropriate and coherent industry-specific measures of corporate social performance (CSP) and corporate financial performance (CFP). The subsequent section develops a business case for CSR before turning to a number of hypotheses for ensuing empirical analysis in the final subsection.

4.1 Measurement of Corporate Social Performance

An often cited definition of corporate social performance was put forward by Wood in 1991 who defines the term as:

> *"a business organization's configuration of principles of social responsibility, process of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships."* [199]

As the definition shows, the concept of CSP is as multifaceted as the construct of CSR itself which is in turn a harbinger of the difficulty in measuring CSP. The measurement of CSP is one of the most discussed issues within the empirical research on the CSP-CFP link. Unfortunately, there is no "one-size-fits-all" solution to this problem. However, since there are measurable outcomes and results from these "non-market strategies"[200] researchers have developed a multitude of measures of CSP. Most of these CSP measures, however, are rather to be considered as surrogate measures since the "real" measures cannot be observed or are too difficult to obtain.[201] It is therefore important to have a clear idea of both *what* is measured and *how* this relates to an underlying theory. The multitude and diversity of CSP measures used in previous literature gives an impression of the complexity of the measurement of CSP. However, the selection of an appropriate measure mainly depends on the context of the study in which it is to be applied.

The derivation of an appropriate CSP measure for listed real estate investment companies arguably requires a discussion of the hitherto most common measurement strategies. A major distinction can be drawn between single-dimensional measures and multi-dimensional measures. Single-dimensional measures used in CSP-CFP research on, for example, toxic emissions released[202], charitable giving[203] or customer satisfaction[204] are not discussed further,

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199 Wood (1991), p. 693.

200 Orlitzky et al. (2003), p. 403.

201 See Carroll (2000), p. 473.

202 See King / Lenox (2001), p. 109.

203 See Brammer et al. (2007), p. 144.

as they fail to provide a comprehensive assessment of a company's overall CSR engagement as demanded by Carroll (2000).[205] Instead, the next sections elaborate on three often applied aggregated measures for CSP, namely reputational surveys, third-party assessments and CSR disclosures.

4.1.1 Reputational Surveys / Perceptional Measures

During the 1990s, reputational surveys and perceptional measures used to be an often applied proxy for CSP. The Fortune reputation survey used to be the most common measure for CSP in empirical research on the CSP-CFP link.[206] Accordingly, the rating is obtained from a survey in which financial analysts and senior-executives are asked to rate companies in several categories. The result of the category entitled "Social Responsibility" is then used as a proxy for CSP.

Several researchers cast doubt on the legitimacy of perceptual measures in CSP-CFP research.[207] Critique is primarily based on the so-called halo effect which describes the empirically confirmed issue that survey respondents' judgments are heavily influenced by prior financial performance of a company.[208] Critics thus point at a cognitive distortion on the part of the survey respondents which, they argue, leads to an overestimation of the actual CSP of a company due to a high past CFP. Attempts to overcome this major shortcoming by Brown and Perry (1994) have failed to gain wide acceptance in the field.[209]

Wood (2010) reports that only one study was published after the year 2000 which used this type of measure as a proxy for CSP.[210] Consequently, there seems to be a broad consensus about the inapplicability of both reputational surveys and perceptional measures as a proxy of CSP.

In the context of the present study on sustainability and market valuation of listed real estate investment companies, the use of perception based measures as a proxy for CSP is not considered for two major reasons. First, the rare use of the measure over the last decade clearly does not speak in favor of the perceptional measure. Thus far, it seems that no method has been able to overcome the aforementioned inaccuracy and bias. Second, there are no real estate industry-specific surveys relating to sustainability which would allow deriving an acceptably large sample for empirical investigations.

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204 See Anderson et al. (2004), p. 174.

205 See Carroll (2000), p. 473.

206 For articles using the Fortune reputation survey as a proxy for CSP refer to Griffin / Mahon (1997), Preston / O'Bannon (1997), Stanwick / Stanwick (1998).

207 See Wood (1995), p. 198; Baucus (1995), p. 229.

208 See McGuire et al. (1990), p. 178; Fombrun / Shanley (1990), p. 252.

209 See Brown / Perry (1994), p. 1350.

210 See Wood (2010), p. 71.

4.1.2 Third-Party Assessment and Indices

Most of the demand for third-party assessments of the CSP of companies is driven by investors who do not have the necessary resources to conduct these analyses by themselves.[211] The use of CSP ratings provided by different rating companies like MSCI (MSCI ESG, formerly known as KLD), Thomson Reuters DataStream (ASSET4 ESG) or oekom research (oekom Corporate Rating) offers a convenient way for investors to categorize potential investments based on their CSP. An alternative way for investors to assess CSP is to check a listed company's inclusion in a sustainability index like the Dow Jones Sustainability Index, the FTSE4GOOD, the STOXX ESG or the Ethibel Sustainability Index. Given the increased demand for CSP measurement, the number of sustainability ratings and indices has grown significantly over the last decade.

There are basically three channels through which rating agencies collect data on the CSP of a company.[212] The easiest way is to collect publicly available CSR data. Furthermore, rating agencies ask companies to fill in a questionnaire and conduct interviews with company experts on various sustainability areas. Most rating-agencies rely on all three channels.

The rating processes of rating agencies, however, engendered criticism by various scholars. Having carried out a comprehensive literature review, Windolph (2011) identifies six major shortcomings of these rating processes. The major point of criticism highlights the lack of transparency.[213] The rating processes are opaque, because rating agencies do not publish to the full extent the methodologies and data underlying their calculations. Hence, the results are not open for validation by a third party and cannot be tracked. As a consequence, it is not always clear as to what exactly the rating actually measures.

Besides the application within the SRI industry, CSP ratings and sustainability indices have also found their way into academic research on the CSP-CFP link. Among third-party assessments, the MSCI ESG[214] rating is the most intensively used measure for CSP in the academic arena.[215]

Because of this, the MSCI ESG rating method shall briefly be elaborated on here. The rating is a comprehensive measure encompassing a set of criteria which cover seven categories of sustainability addressing different stakeholders. These categories are community, diversity, employee relations, environment, human rights, products and governance. Each category's criteria are divided into binary strengths and concern variables. The value "one" indicates that a company meets a certain strength or concern. Otherwise the variable takes the value of "zero". Aggregated CSP scores are derived by subtracting the sum of concerns from the sum of

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211 See Márquez / Fombrun (2005), p. 304.

212 See Márquez / Fombrun (2005), p. 305.

213 See Windolph (2011), p. 69.

214 The vast majority of empirical studies on the subject refers to KLD instead of MSCI ESG, because they employ data from before the renaming in 2010. Throughout the whole study the terms MSCI ESG and KLD are therefore used interchangeably.

215 For articles using the MSCI ESG rating (formerly known as KLD rating) as a proxy for CSP refer to Chatterji et al. (2009); Cajias et al. (2011); Callan / Thomas (2009); Dhaliwal et al. (2011); Erhemjamts et al. (2013); Garcia-Castro et al. (2010); Jo / Harjoto (2011).

strengths.[216] As a consequence, concerns can be outweighed by strengths making it possible for a company with zero concerns and zero strengths to obtain the same overall CSP evaluation as a company with ten concerns and ten strengths.[217] This is obviously problematic. Weighting schemes which attach a weight to each criterion based on its importance do not fully remedy this shortcoming.[218]

Third-party ratings nonetheless offer a convenient way for stakeholders and particularly investors to compare different companies based on their CSP. Furthermore, they foster companies' accountability towards their stakeholders, since stakeholders can easily use the information to indicate weaknesses.[219] In the context of academic research, MSCI ESG ratings are easy to obtain and employ in empirical studies. Due to its metric nature, the measure can be used in various ways. With regard to listed real estate investment companies in an international context, MSCI ESG does not cover a sufficient number of companies outside the U.S. to make use of this measure.

4.1.3 CSR Disclosure (Indices / Scores)

In contrast to CSP ratings, a company's CSR disclosure as a measure for CSP is based only on information provided by a company without further manipulation by a third party. In this context a company is able to disseminate CSR information either unsystematically or in a standardized way. Five major guidelines or standards have come to the fore on a global level: the previously discussed Global Reporting Initiative, the UN Global Compact and the ISO 14000 as well as the OECD Guidelines for Multinational Enterprises and the ILO Conventions.[220] Disseminating CSR information in alignment with certain guidelines or standards has the advantage that stakeholders can compare CSR disclosure levels among companies.

There are various ways of making use of CSR disclosure in empirical studies on the CSP-CFP link. The simplest way is probably the employment of a dummy variable which indicates whether a company issues a stand-alone CSR report or not.[221] However, the growing trend to integrate CSR information into the annual report makes this method impractical. An alternative is to use a dummy variable which indicates whether a company discloses CSR information in alignment with a recognized guideline or standard.[222] Gietl et al. (2013) go one step further and make use of three dummy variables. Each dummy variable indicates whether a company achieves GRI application level "A+", "B+", "C+" or none. The GRI application level is an indicator for a report's degree of compliance with the GRI Guidelines.[223]

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216 See Chatterji et al. (2009), p. 134; Mahoney / Roberts (2007), p. 241.

217 See Hillman / Keim (2001), p. 131; Erhemjamts et al. (2013), p. 397.

218 See Schreck (2011), p. 173.

219 See Graafland et al. (2004), p. 139.

220 See Fortanier et al. (2011), p. 679.

221 See Berthelot et al. (2012), p. 358; Dhaliwal et al. (2011), p. 67; Plumlee et al. (2008), p. 17.

222 Schadewitz / Niskala (2010), p. 102.

223 See Gietl et al. (2013), p. 65.

An advanced method to make use of CSR disclosure as a measure of CSP is content analysis which Abbott and Monsen (1979) define as:

> *"a technique for gathering data that consists of codifying qualitative information in anecdotal and literary form into categories in order to derive quantitative scales of varying levels of complexity."* [224]

There are various empirical studies which use the method of content analysis and employ an index based on a certain guideline or standard.[225] The cited definition needs to be extended in the sense that not only qualitative, but also quantitative information is gathered. However, the aim of this approach is to derive a quantitative overall-score measuring CSP. As the MSCI ESG ratings, CSR disclosures are able to be split into various sub-categories which correspond to different stakeholder interests.

Notwithstanding all the advantages of this method, one has to keep in mind that the measure actually measures communication on CSP and not CSP per se.[226] Consequently, it is possible that a company either fails to adequately report on its real CSP or that companies are "greenwashing" their true intentions and corporate strategies. In the case of listed companies, the latter is alleviated because listed companies are subject to the scrutiny of stakeholders and revealed misdeeds are punished. Moreover, Clarkson et al. (2008) are able to show that actual corporate environmental performance is positively associated with the level of discretionary environmental disclosure.[227] This finding indicates that sustainably well performing companies tend to report more on their CSR engagement which, in turn, suggests that the level of CSR disclosure is able to predict accurately the actual CSP of a company.

4.1.4 Standardized CSR Disclosure as a Measure of CSP in the Real Estate Investment Industry

Deciding on the appropriate measure for the CSP of a listed real estate investment company is a difficult task. The industry-specific peculiarities as outlined in section 3.1 limit the applicability of common third-party assessments and CSR disclosure indices / scores. Reputational surveys and perceptional measures are not considered for the aforementioned reasons and their rare application in empirical studies investigating the CSP-CFP link in recent years.

This study uses a CSR disclosure index based on the GRI-performance indicators of the GRI Sustainability Reporting Guidelines G3.1 covering its environmental and social categories.[228] The decision is based on five major reasons.

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[224] Abbott / Monsen (1979), p. 504.

[225] For articles using an index based on the GRI Guidelines as a proxy for CSP refer toClarkson et al. (2008); Clarkson et al. (2010); Gamerschlag et al. (2011); Morhardt et al. (2002); Moroney et al. (2012); Plumlee (2008), Plumlee (2010), Toppinen et al. (2012).

[226] See Toppinen et al. (2012), p. 197.

[227] See Clarkson et al. (2008), p. 325.

[228] This approach will be elucidated in-depth in section 5.2.

First, using the level of CSR disclosure based on an index in alignment with the GRI Guidelines to gauge a company's CSP makes for a transparent process. After all, the GRI Guidelines as well as the sources of a listed real estate investment company's CSR information such as annual reports, stand-alone CSR reports or company websites are accessible to the public. Once the transformation process which stands between the CSR disclosure index and the final CSR disclosure score is clearly defined, the full approach is open to scrutiny as urged by Margolis et al. (2009).[229] The method therefore fully avoids the "black box"-issues associated with third-party assessments.

Second, among the five most prominent sustainability reporting guidelines, the GRI Guidelines constitute the only reporting framework which offers a real estate industry-specific supplement. As elaborated in section 3.3.5.2 the real estate industry supplement was developed in close collaboration with EPRA. This guarantees the appropriateness of the additional performance indicators.

Third, with regard to the business case for CSR (which will be discussed in section 4.3), it is of major importance to establish a well-founded connection between the underlying theory and the empirical examination. Chapter 1 elucidated in detail the theoretical fundaments underlying this investigation showing a strong connection between legitimacy and stakeholder theory and CSR disclosure.[230] To recap briefly, CSR disclosure is perceived as a major tool to create and maintain legitimacy[231] while stakeholder theory contends that CSR communication can be used to manage stakeholder relationships by documenting achievements in various CSR engagement areas.

Fourth, with view to the empirical part of this study and the intended empirical analysis on the CSP-CFP relationship, CSR transparency is an appropriate measure for CSP. This is the case, because CSR reporting is an outwardly directed tool that aims to provide information on the CSR engagement of a company to external stakeholders in general and investor stakeholders in particular. This is in line with Wood and Jones (1995) who argue that the issue of stakeholder mismatching is a critical point when it comes to the investigation of the CSP-CFP link.[232]

Fifth, the GRI Guidelines provide a framework which can easily be divided into sub-categories of CSR. It is thus possible to separately test the impact of various sub-categories of CSP on CFP within the empirical investigation.

[229] See Margolis et al. (2009), p. 28.

[230] See Deegan (2002), p. 291; Holder-Webb et al. (2009), p. 517.

[231] See Deegan (2006), p. 165; Suchman (1995), p. 586.

[232] See Wood / Jones (1995), p. 252.

4.2 Measurement of Corporate Financial Performance

As with the measurement of CSP, there are various alternatives for the measurement of the CFP of a company. In general, the choice of CFP measurement is critical for the establishment of a CSP-CFP link. Different CFP measures come with different implications and need to be interpreted one by one. Accordingly, the results of empirical models may vary considerably when using different measures for CFP.[233] Given these considerations, the type of CFP can have a significant mediating effect on the CSP-CFP link.

In the empirical literature on the CSP-CFP link, a major distinction can be drawn between two types of CFP measures.[234] On the one hand there are accounting based measures which basically use accounting data to assess the financial performance of a firm. On the other hand many researchers employ market-based measures of various kinds which focus on the shareholders' valuation of the firm. Moreover, there are perceptual-based financial performance measures which, due to their rare application, are not considered here.

4.2.1 Accounting-Based Measures

The probably most widely used measures of CFP are accounting-based measures which fully rely on a company's accounting data. The most frequently used accounting-based measures for CFP in CSP-CFP research are return on assets (ROA)[235], return on equity (ROE)[236] return on sales (ROS)[237] and asset turnover (ATO)[238]. This type of measure is suitable for the measurement of a company's operational profitability and efficiency as well as asset utilization based on tangible values.[239]

Although accounting-based measures are intuitive and easy to obtain, some researchers cast doubt on the applicability and appropriateness of accounting-based measures in research investigating the CSP-CFP link. There are three major reasons for which this criticism is valid.

First, accounting-based measures only reflect past financial performance. Because the underlying financial statements are published periodically and take into regard only events from the previous period, this type of measure is backward looking in nature.[240] It does not take into account any future earnings and benefits from current investments or other present actions. Second, this type of measure can be easily manipulated, either at the discretion of

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233 See Dam (2006), p. 3.

234 See Margolis et al. (2009), p. 12; Orlitzky et al. (2003), p. 407.

235 SeeCallan / Thomas (2009), p. 66;Erhemjamts et al. (2013), p. 400; Garcia-Castro et al. (2010), p. 112; Guenster et al. (2011), p. 681; Mahoney / Roberts (2007), p. 240; Makni et al. (2009), p. 412; Nelling / Webb (2009), p. 199; Shen / Chang (2009), p. 140.

236 See Callan / Thomas (2009), p. 66; Garcia-Castro et al. (2010), p. 112; Mahoney / Roberts (2007), p. 240; Makni et al. (2009), p. 412; Schreck (2011), p. 175; Shen / Chang (2009), p. 140.

237 See Callan / Thomas (2009), p. 66.

238 See Cajias et al. (2012), p. 142.

239 See Guenster et al. (2011), p. 681.

240 See Hillman / Keim (2001), p. 129.

management or due to regulatory restrictions.[241] On the one hand, accounting data is heavily influenced by a firm's accounting policies which are determined by its management. On the other hand, country specific tax regulations impact accounting-based measures for CFP. Third, accounting-based measures for CFP neglect intangible values. Since accounting data reflect a company's tangible assets, intangible values from investments in, for instance, CSR engagement are neglected.

4.2.2 Market-Based Measures

In contrast to accounting-based measures for CFP, market-based measures evaluate the overall value of a company through the investor's lens. The most prominent examples for market-based measures of CFP are stock market returns[242] and Tobin's Q[243]. Both measures share a direct relation to capital markets. However, especially Tobin's Q offers a range of advantages as compared to accounting-based measures of CFP.

Tobin's Q is calculated by dividing the sum of market value of equity, book value of long-term debt, and current liabilities by the value of total assets.[244] By comparing the market valuation of a company to its tangible assets, the ratio is able to capture the value of intangible assets assigned to a company by investors. Intangible values are the benefits associated with, for instance, quality of management or CSR engagement. Moreover, Tobin's Q is a forward-looking measure. Typically, investors value a company by discounting future cash flows which is in turn reflected in a company's share price.[245] Hence, Tobin's Q does not only account for the current profitability of a company, but emphasizes future profitability which is able to capture long-term benefits of current investments in CSR activities.

4.2.3 Tobin's Q as an Appropriate Measure for Corporate Financial Performance in the Real Estate Investment Industry

Against the view of Callan and Thomas (2009) who argue that different measures have to be considered when investigating the CSP-CFP link, it is more important to avoid stakeholder mismatching as proposed by Wood and Jones (1995).[246] In order to successfully investigate the CSP-CFP relationship it is therefore critical to employ one appropriate measure of CFP instead of various measures of CFP. The appropriate CFP measure for the subsequent empirical part of this study is Tobin's Q for three main reasons.

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241 See Anderson et al. (2004), p. 174.

242 See Nelling / Webb (2009), p. 199; Makni et al. (2009), p. 412; Murray et al. (2006), p. 235.

243 See Cajias et al. (2011), p. 11; Callan / Thomas (2009), p. 66; Dowell et al. (2000), p. 1063; Erhemjamts et al. (2013), p. 400; Garcia-Castro et al. (2010), p. 112; Gietl et al. (2013), 66; Guenster et al. (2011); Jo / Harjoto (2011), p. 357; King / Lenox (2001), p. 109; Schreck (2011), p. 175; Surroca et al. (2010), p. 475.

244 See King / Lenox (2001), p. 109; Kohl / Schaefers (2012), p. 368; Surroca et al. (2010), p. 475.

245 See Konar / Cohen (2001), p. 282.

246 See Callan / Thomas (2009), p. 74; Wood / Jones (1995), p. 229.

First, Tobin's Q consists of two components, i.e. market value and total assets. It is therefore possible to capture the intangible value of a company's CSR activities as indicated by a company's disclosures. Furthermore, Tobin's Q reflects the future benefits associated with a CSR engagement. In most cases, the adoption of a green strategy by listed real estate investment companies entails an increased investment into green property. The intangible benefits from investing in green buildings as, for instance, improved productivity for employees are also reflected in Tobin's Q.[247]

Second, the denominator of Tobin's Q which reflects replacement costs as proxied by total assets is particularly suited for listed real estate investment companies.[248] Due to these companies' business strategy of holding properties long term, IAS 40 "investment property" is by far the largest item on the balance sheet. According to IFRS regulations, investment properties have to be recognized at fair value. To meet this accounting rule, the appropriate fair value is guaranteed by annual appraisals. The age of an asset is thus rendered irrelevant since investment property cannot be written off. A further advantage is that much of the replacement cost of a listed real estate company is very accurately predicted by total assets. Moreover, in the case of listed real estate investment companies, most of the future cash flows associated with tangible assets is already incorporated in the balance sheet, because these cash flows are reflected in the annual DCF-based valuation of investment properties. As a consequence, the difference between market value and total assets predominantly refers to future benefits from intangible assets such as good management or the incorporation of CSR into strategic management.

Third, in relation to CSR transparency (identified as an appropriate CSP measure in section 4.1.4), Tobin's Q as a measure of CFP meets the requirements of stakeholder matching as claimed by Wood and Jones (1995).[249] This combination ensures that investor stakeholders are both addressees and evaluators of a company's CSP. The problem of stakeholder mismatching is outlined in section 4.4.4.

247 See Sah et al. (2013), p. 173.

248 See Kohl / Schaefers (2012), p. 368.

249 See Wood / Jones (1995), p. 252.

4.3 Factors Influencing the CSP-CFP Relationship

Much research conducted on the business case for CSR is based on the instrumental view on CSR which deploys empirical data to establish a relation between stakeholder management and a firm's financial performance.[250] Essentially, the business case for CSR addresses the question of whether there is any financial benefit attached to the implementation of CSR by business.[251] The theoretical assumption of a positive relationship rests primarily on the notion of the enlightened self-interest model. According to this model, it is in a company's long-term interest to foster good relationships with its stakeholders as a means to secure long-term viability.[252] It would be inaccurate to assume an unreservedly positive association between CSP and CFP. In fact, a contingency perspective has to be adopted.[253] This approach allows for mitigating and mediating factors to influence the relationship between CSP and CFP. Empirical investigations in this field led to unambiguous results but overall suggest a moderately positive association.

There are three main factors that influence the link between CSP and CFP, namely mitigating effects, moderating mechanisms, and the issue of endogeneity. While the first and the second relate to factors which have an impact on the association between CSP and CFP, the issue of endogeneity concerns methodological obstacles in connection with the later applied statistical method of ordinary least squares (OLS).

4.3.1 Mitigating effects on the CSP-CFP link

The notion of a link between CSP and CFP which is unconditionally positive and statistically significant is equivocal. There are various reasons for which this might not be the case. Mitigating or moderating effects are those effects that can mask the true underlying link between CSP and CFP and may thus pose problems for the investigation of the CSP-CFP link.

It is often argued that industry is an important factor affecting the relationship between CSP and CFP.[254] Generally, different industries are subject to different configurations of stakeholders which in turn have variably strong interests in different areas of CSR.[255] In this context, Hoepner et al. (2010) set out four major reasons as to why industry mitigates the link between CSP and CFP. First, the distance to end consumers is believed to have a negative effect on the CSP-CFP link because CSR awareness among end consumers is larger than in the procurement departments of firms. Consequently, an increased level of CSR enhances sales for companies from industries with closer proximity to end consumers. Second, the dependence on industry-specific stakeholders and their respective salience and power play an important role.[256] It is argued that the costs of CSR engagement in certain areas vary among companies from

[250] See Donaldson / Preston (1995), p. 71.

[251] See Carroll / Shabana (2010), p. 92; Kurucz et al. (2008), p. 84.

[252] See Lee (2008), p. 59.

[253] See Barnett (2007), p. 813; Rowley / Berman (2000), p. 406.

[254] See Griffin / Mahon (1997), p. 10; Porter / Kramer (2006), p. 78; Ullmann (1985), p.544.

[255] See Chand (2006), p. 243.

[256] For a qualitative classification of stakeholders see Mitchell et al. (1997), p. 872.

different industries and therefore sometimes negatively affects the CSP-CFP link. Third, the varying degree of possible environmental and social damage caused by an industry plays a significant role. The question is whether the effect of a CSR engagement on financial performance is the same for an oil company as for a company in the computer industry. The last aspect concerns the benefit or advantage a company can draw from a CSR engagement with regard to product or service differentiation. The link between CSP and CFP should be stronger within industries where CSR can help to generate a competitive advantage.[257]

The temporal and geographical setting of investigations is also able to mitigate the CSP-CFP link.[258] Van Breuden and Gössling (2008) argue that not so much emphasis should be put on dated studies, because societies have since changed. Customer demands, investors' interests, governmental regulations and the influential power of the public have altered considerably over the last two decades.[259] The degrees of economic development and democratization differ from country to country. It is therefore highly uncertain that sustainability has the same status in every society.

Another critical point is the form of CSR communication. When companies do not provide CSR information properly or use wrong communication channels they fail to inform relevant stakeholders. As a consequence, CSR became one of the most important topics within corporate reporting besides the financial figures.[260] However, there is a fine line between so-called CSR "window dressing" or "greenwashing"[261] and the documentation of an honest integration of CSR into business operations.[262] This shows that the shape of CSR communication and, as a consequence, the measurement of CSP constitute a moderating factor in the CSP-CFP link.

4.3.2 Mediating Mechanisms

It is commonly accepted that a high KLD score or a high level of CSR disclosure is not linked to enhanced financial performance. Instead, KLD score or CSR disclosure are proxies for the mediating mechanisms which underlie a potential association between CSP and CFP. These underlying mediating mechanisms relate to almost every relevant stakeholder group of a company. Within this section only the mechanisms referring to the most common stakeholder groups are reviewed, namely employees, customers, and the environment which is institutionalized by NGOs and governmental regulations.

The probably most influential stakeholder group for every company is found in its employees. By integrating CSR driven employee-related policies, a company is able to increase employee satisfaction. Companies which show a high degree of CSP have an enhanced ability to attract

257 See Hoepner et al. (2010), pp. 11-13.

258 See Wood (1991), p. 700.

259 See van Breuden / Gössling (2008), p. 407.

260 See Arvidsson (2010), p. 349.

261 See Ramus / Montiel (2005), p. 409.

262 See Du et al. (2010), p. 10.

employees and to retain them.[263] In particular, the support of diversity and employee participation are essential to bolster a company's attractiveness for potential applicants.[264] This in turn leads to lower employee turnover rates and reduces costs related to the hiring of new staff.[265]

The sale of products or services is essential for a company to be profitable. Customers must therefore be considered a highly important stakeholder group. A company is able to increase customer satisfaction through enhanced customer care. Customer satisfaction is an important mediating factor in the CSP-CFP link.[266] Furthermore, empirical evidence shows that CSR engagement creates trust between a company and its customers and leads to increased customer bonding.[267] Based on these arguments, it is reasonable to infer that increased CSR engagement of a company leads to better relationships with customers which in turn positively affect shareholder value.[268]

The environment is usually institutionalized as a stakeholder group through public organizations or environmental regulations introduced by governments. Increasing public awareness of environmental concerns and rising environmental regulations in combination with soaring commodity prices pose a major threat to the long-term viability of companies. A proactive approach to these issues reduces the risk of unexpected negative financial impacts in the future. Appropriate strategies for listed real estate investment companies include the active engagement in working groups of organizations such as the WGBC or the GRI. Companies are thus able to improve their ability to anticipate future regulatory risks. Furthermore, CSR engagement in environmental concerns strengthens a firm's reputation and legitimacy which in turn lowers risk.[269] By means of CSR implementation into the development and manufacturing of products as well as the provision of services, a company is able to gain competitive advantages through sustainable product and service differentiation.[270]

In the real estate investment industry, customers are better described as tenants. Introducing sustainability in the investment program translates into the increased investment into green buildings. Green buildings offer various advantages for the tenant such as reputational benefits, enhanced workplace productivity, and lower costs for lighting, heating, ventilation and air conditioning.[271] It has been shown empirically that green buildings achieve higher occupancy rates, higher rents and higher transaction prices as otherwise comparable

263 See Greening / Turban (2000), p. 276.

264 See Schmidt-Albinger / Freeman (2000), p. 250; Turban / Greening (1996), p. 666.

265 See Surroca et al. (2010), p. 468.

266 See Luo / Bhattacharya (2006), p. 13.

267 See Pivato et al. (2008), p. 8.

268 See Anderson et al. (2004), p. 181.

269 See Bansal / Clelland (2004), p. 100.

270 See Babiak / Trendafilova (2011), p. 21; Porter / Kramer (2006), p. 82.

271 See Eichholtz et al. (2009), p. 4; WGBC (2013), 48 & 64.

buildings.[272] This is in turn a large benefit for the listed real estate investment company and eventually for shareholders. In respect to other stakeholder relationships the same mediating mechanisms apply as for non-real estate investment companies.

Since all stakeholder relationships are closely intertwined and data on all these individual stakeholder relationships are hardly available for large samples, it is common practice in CSP-CFP research to use aggregated measures such as third-party audits or CSR disclosure.[273] However, most of these aggregated measures can be decomposed and make investigations for individual stakeholder relationships possible.

4.3.3 Issue of Endogeneity

A general problem to multiple regression analysis is the issue of endogenous explanatory variables. Explanatory variables are deemed endogenous when they are correlated with regression error. As a consequence, estimates for all coefficients in the OLS regression are inconsistent, i.e. the variances of the coefficient estimators do not approach zero as the sample size grows. The presence of endogeneity may stem from various sources such as misspecification due to omitted variables, simultaneous causality or measurement error in variables.[274] These three sources of endogeneity are seen as the main reasons for the varying results in studies empirically investigating the CSP-CFP link.[275]

A multiple regression model can suffer from omitted variable bias when a relevant explanatory variable is excluded from the analysis. Relevant in this context means that the omitted variable is both correlated with an explanatory variable included in the regression model and a determinant of the dependent variable. Since the error term of a regression equation comprises all factors that determine the dependent variable other than the included explanatory variables, a correlation between an omitted variable and an explanatory variable inevitably leads to a correlation between an explanatory variable and the error term, i.e. endogeneity.[276]

A major distinction can be drawn between observed and unobserved omitted variables. Both forms have already been addressed in the literature investigating the CSP-CFP link. In their study, McWilliams and Siegel (2000) give an example of an observable omitted variable and provide evidence for a link between firm-level expenditure in R&D and both CSP and CFP. In light of these results, they propose to control for R&D expenditure when investigating the impact of CSP on CFP.[277] The solution to unobserved omitted variables is more challenging and necessitates the method of instrumental variable estimation and two-stage least squares

[272] See Dermisi (2009), p. 45; Eichholtz et al. (2013), p. 52; Fuerst / McAllister (2011), pp. 66- 67; Reichardt et al. (2012), p. 121.

[273] See Schreck (2011), p. 170.

[274] See Stock / Watson (2007), p. 422.

[275] See Surroca et al. (2010), p. 465.

[276] See Stock / Watson (2007), pp. 187-189.

[277] See McWilliams / Siegel (2000), p. 608.

(2SLS).[278] An example for an unobservable omitted variable is given by Erhemjamts et al. (2013) who argue, for instance, that managerial ability is neither observable nor measurable. Provided that more capable managers tend to be more successful in CFP improvement and more responsive to CSR issues, the notion of managerial ability influencing CSP as well as CFP is plausible.[279]

Simultaneous causality or reverse causality as a source for endogeneity generally refers to the problem of having a bidirectional causal link between one or more explanatory variables and the dependent variable. With regard to the CSR literature and the investigation on the CSP-CFP link, the issue is based on two opposing theories, namely the slack resources theory and the good management theory. Both theories propose a positive association between CSP and CFP. The causal relation, however, runs in different directions.[280]

The slack resources theory proposes that enhanced CSP is a consequence of better CFP. The reason for this is that good prior CFP eventually leads to additional available funds, i.e. slack resources, which can be spent discretionarily on CSR initiatives or responsive CSR measures.[281] Thus, better CFP results in better CSP. McGuire et al. (1988) and Waddock and Graves (1997) provide empirical evidence in support of this concept.[282]

Conversely, the good management theory suggests that causality runs from CSP to CFP and therefore improved CFP follows from good CSP. It is argued that a good CSP fosters good relationships with stakeholders which eventually lead to enhanced CFP. Examples of this effect are good employee relations resulting in increased productivity or good customer relationships entailing an improved outside perception of a firm's products.[283]

Notwithstanding the dichotomy of the two concepts, they do not preclude each other and a simultaneous causality between CSP and CFP is a probable scenario.[284] Within the literature on the CSP-CFP link, this situation is referred to as the virtuous circle.[285] Since the technical result of simultaneous causality is that an explanatory variable is correlated with the error term in the population regression of interest, the solution to this problem is again instrumental variables regression and 2SLS, respectively.[286]

Measurement error or error in variables may also be a source of endogeneity. Measurement error occurs when there is a discrepancy between the data used in a regression model and its

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[278] For a more detailed explanation of the method of instrumental variable regression refer to section 5.4.3.1.

[279] See Erhemjamts et al. (2013), p. 396.

[280] See Preston / O'Bannon (1997), p. 422 for an encompassing overview of possible CSP-CFP relationships.

[281] See Ullmann (1985), p. 544; Orlitzky et al. (2003), p. 406.

[282] See McGuire et al. (1988), p. 868; Waddock / Graves (1997), p. 312.

[283] See Waddock / Graves (1997), p. 307.

[284] See Schreck (2009), p. 66.

[285] See Nelling / Webb (2009), p. 198.

[286] See Stock / Watson (2007), p. 781.

theoretical counterparts.[287] A measurement error in an explanatory variable is considered to be a more difficult problem than a measurement error in the dependent variable.[288] This being the case, only the former type is discussed here.

As most researchers are primarily interested in a causal direction running from CSP to CFP, the majority of studies on the CSP-CFP link focuses on models treating CSP as an explanatory variable and CFP as the dependent variable. Thus, a major question in this field of research is how to measure CSP. In her literature review on the measurement of CSP, Wood (2010) highlights the large number of approaches to measuring CSP. Furthermore, she contends that one of the major issues regarding the measurement of CSP is the inaccessibility of appropriate data, although there is growing transparency in CSR reporting of companies.[289]

[287] See Greene (2012), p. 137.

[288] See Wooldridge (2009), p. 318.

[289] See Wood (2010), p. 75.

4.4 Literature Investigating the CSP – CFP Link

The following section provides an overview of the existing literature investigating the CSP-CFP link. Articles discussed in this work are categorized into three groups. The first group encompasses meta-analyses which provide overviews of past studies on the subject. Additionally, these studies combine the results of several empirical investigations and perform statistical analyses on an aggregated level. The second group refers to finance literature investigating the CSP-CFP link which is linked to this study. The last group encompasses real estate related literature on the same subject.

4.4.1 Meta-Analyses

Common literature reviews in the field of CSP-CFP research provide a valuable and comprehensive overview of the current state of the art of adequately measuring CSP and CFP. Furthermore, most of these overviews categorize studies in terms of the econometric methods they employ and the results they obtain. However, a major shortcoming and point of criticism is that common literature reviews draw inferences about the CSP-CFP relationship based on mere "vote-counting", i.e. summarizing studies depending on their significant positive / negative or insignificant findings.[290] Effect-size meta-analysis, however, is a useful means of remedying this drawback. This technique collates results from several underlying empirical studies on a specific subject and evaluates those on an aggregated level using statistical methods. The four studies summarized in table 7 and described in more detail below exemplify this approach in the context of investigating the CSP-CFP link.

Table 7: Selected Meta-Analyses Investigating the CSP-CFP Link

Study	Orlitzky et al. (2003)	Allouche / Laroche (2005)	Wu (2006)	Margolis et al. (2009)
Data	52 primary studies	82 primary studies	39 primary studies	251 primary studies
Years considered	1976 - 1997	1972 - 2003	1975 - 1999	1972 - 2007
Methods	effect-size meta analysis	effect-size meta analysis & meta regression analysis	effect-size meta analysis	effect-size meta anlysis
Overall effect size	0.184	0.143	0.166	0.105
Observations	33,878	57,409	21,933	n/a
Findings	- Overall positive relationship between CSP and CFP - positive association is mitigated by choice of CSP ad CFP proxies	- Overall positive relationship between CSP and CFP - controlling for size, risk, R&D and industry does not impact the association between CSP and CFP	- Overall positive relationship between CSP and CFP - correlation smaller when market-based measures of CFP are used	- Overall positive relationship between CSP and CFP - different average effect sizes when temporal sequence of CSP and CFP is considered

Source: Own illustration.

Orlitzky et al. (2003) meta-analyze 52 studies published between 1976 and 1997. Based on a positive average effect-size of 0.184 they conclude that there exists an overall positive association between CSP and CFP.[291] This finding holds across industries and study contexts.

[290] See Orlitzky et al. (2003), p. 404.

[291] Within the reported meta-analyses, effect-size r refers to an aggregate measure which is used to investigate the CSP-CFP relationship. It is calculated using the (partial) correlations between CSP and CFP or t-statistics reported in underlying studies.

Nevertheless, the generally positive association between CSP and CFP is mitigated by the choice of CSP and CFP measures as well as the chosen form of operationalization. Thus, the positive relationship between CSP and CFP fluctuates from highly positive to modestly positive across studies. Moreover, the authors find no differences in the relationship between CSP and CFP when the studies under examination employ lagged values for the variables of interest. The fact that CSP and CFP influence each other corroborates the thesis of a virtuous circle. Furthermore, the authors posit that this finding contradicts the trade-off theory which posits that a company which engages in CSR eventually suffers financial losses.

Allouche and Laroche (2005) carry out a similar investigation based on a set of 82 studies published between 1972 and 2003. They find a positive generic relationship between CSP and CFP and report an overall sample-size weighted effect size of 0.143. With regard to studies using accounting-based measures as proxies for CFP, they find evidence that the association between CSP and CFP is higher as compared to studies which employ market-based measures for CFP. It is also reported that environmental measures for CSP yield a lower correlation with CFP than do overall measures for CSP. Employing the method of meta-regression analysis, the researchers find that controlling for firm-size, risk, R&D as well as industry does not significantly influence the relationship between CSP and CFP.

Another meta-analysis is conducted by Wu (2006) who draws on data from 39 studies. Again and in favor for the virtuous circle theory, he reports a positive study-size weighted effect-size of 0.166. The author provides additional evidence that the association between market-based measures and CSP is lower than for other proxies of CFP. Asset utilization is found to have the highest correlation with CSP. Moreover, the study shows that CFP is not significantly affected by firm-size in studies on the CSP-CFP link.

The most comprehensive meta-analysis using studies which investigate the CSP-CFP link is carried out by Margolis et al. (2009). The researchers investigate 251 studies on the subject and confirm an overall positive association between CSP and CFP. The calculated weighted mean effect-size is 0.105. Opposed to Orlitzky et al. (2003), the authors find different average effect-sizes when the temporal sequence is considered. In the studies under examination, the relationship between CSP and lagged CFP is higher than for lagged CSP and CFP. Nevertheless, this does not contradict the virtuous circle theory since both relationships are positive and significant.

The results show that, on an aggregated level, CSP and CFP have a mutual effect on each other which is small yet statistically significant and positive. On an aggregated level, the results of four meta-analyses on the CSP-CFP link corroborate the theory of a virtuous circle and contradict the neo-classical view that a high CSP invariably leads to financial loss. Indeed, based on the findings by Frooman (1997) rather the opposite is true. His meta-analysis on 27 event studies reveals that socially irresponsible and illegal behavior by companies, if discovered, leads to a significant drop in market valuations and destroys shareholder value.[292]

In spite of the results of the meta-analyses in which a higher correlation is reported for CSP and accounting-based proxies of CFP, market-based measures are believed to reflect better the

[292] See Frooman (1997), p. 241.

(shareholder) value of a company. As a result, the further analysis shall rely on the market-based measure of Tobin's Q for CFP.

4.4.2 Finance Literature

The articles reviewed in the previous section provide evidence that overall CSP is significantly and positively associated with CFP. However, there is also evidence for a varying strength of this relationship based on the choice of CSP and CFP proxies, the use of control variables and the application of lagged variables. In order to gain a deeper insight into the various sources of mitigating effects on the CSP-CFP relationship, it is necessary to analyze some of the underlying primary studies in more detail. Table 8 lists several articles in the literature on finance which investigate the CSP-CFP link and are methodologically related to this analysis.[293]

[293] Some of the featured articles account for the problem of endogeneity as described in section 4.3.3. In the case of cross-section analysis, an often employed method is the two-stage least squares estimation which will be further elaborated on in the empirical part of this study.

Table 8: Selected Studies from the Finance Literature Investigating the CSP-CFP Link

Study	Callan / Thomas (2009)	Garcia-Castro et al. (2010)	Schadewitz / Niskala (2010)	Jo / Harjoto (2011)	Schreck (2011)	Erhemjamts et al. (2013)	Gietl et al. (2013)
Data	441 firms for the year 2005	About 3,000 firm-year observations over the 1991 - 2005 period	276 firm-year observations over the 2002 - 2005 period	12,527 firm-year observations over the 1993 - 2004 period	294 firms for the year 2006	17,000 firm-year observations over the 1995 - 2007 period	1,926 firm-year observations over the 2007 - 2010 period
Region	USA	USA	Finland	USA	International (24 countries)	USA	Europe
Sample	Cross-section	Longitudinal / panel	Longitudinal	Longitudinal	Cross-section / longitudinal / panel	Longitudinal / panel	Longitudinal
Methods	GMM	OLS, Fixed Effects, 2SLS	OLS	Heckman two-stage treatment effect model, 2SLS	OLS, 2SLS, Granger causality	OLS, 2SLS	OLS, Random Effects
CSP measure	Decomposed KLD index (qulitative & negative screens)	Equally weighted KLD index	GRI application dummy	KLD index, CG dimension is replaced by measures from RiskMetrics, KLD subcategories	Decompsed CSR scores from oekom research AG	Decomposed KLD index (strengths & concerns)	GRI application level dummies
CFP measure	ROA, ROE, ROS, Tobin's Q	MVA, ROA, ROE, Tobin's Q	Market value of equity	Industry-adjusted Tobin's Q	ROE, Tobin's Q	ROA, Tobin's Q	Tobin's Q
Controls	Advertising expenditures, capital expenditures, firm-size, industry, leverage, R&D	Firm size, industry, leverage, R&D, risk, past CFP	Earnings-based value	Advertising expen-ditures, capital expenditures, firm-size, growth, industry, R&D, leverage	Firm-size, leverage, risk	Firm-size, industry, leverage, R&D, risk	Capital expenditures, foreign sales, firm-size, leverage, R&D, ROA
Accounting for endogenity	No	Yes	No	Yes	Yes	Yes	No
CSP-CFP relationhsip	Overall positive for ROA, ROS & Tobin's Q, insignificant for ROE	OLS: positive FE: insignificant 2SLS: insignificant	Overall positive	Overall positive	Overall insignificant, positive for some CSR categories	Positive for CSR strengths and negative for CSR concerns	Negative for GRI A+ reporting companies, insignificant else
Findings	- Positive association between overall measure / decomposed measure and ROA, ROE and Tobin's Q - Negative screens have stronger influence on CFP than a qualitative CSP measure	- Positive relation between CSP and CFP is driven by unobserved variables - Positive relation turns insignificant in Fixed Effects Model - No significant CSP-CFP relation after controlling for endogenity	- GRI aligned company reporting enhances market value of equity	- Positive relation between CSP and CFP after controlling for endogenity - Inbound CSR subcategories as diversity, employee relations & product quality are positively related to CFP, outward CSR is insignificant	- No general CSP-CFP link - Positive (negative) association between subcategories CG and environment (product responsi-bility) and CFP - CSP does not harm CFP - No evidence for causal CSP → CFP relationship	- Positive (negative) relation between CSR strenghts (concerns) and CFP, regradless of CFP measure - Positive relation remains after controlling for endogenity	- Negative influence of GRI A+ reporting on Tobin's Q for smaller or less profitable firms - Insignificant relationship for larger and profitable firms

Notes: The table gives an overview of the results of relevant articles from the finance literature which have a direct relation with this study. For abbreviations in the table refer to the List of Abbreviations on page XI.

Source: Own illustration.

Callan and Thomas (2009) conduct a GMM regression using a lagged variable structure. The CSP measures in the equations are from 2004 and all other variables stem from 2005. By this means, they are able to draw causal inferences on whether prior CSP influences current CFP. Overall, they report a positive and statistically significant association between the used CSP measures and the CFP measures ROA, ROE and Tobin's Q, but not ROS. The authors find that engaging in contentious business like tobacco or nuclear power has stronger influence on ROA, ROE and Tobin's Q than qualitative areas such as "Environment" and "Employee Relations".

A different approach to investigating the causal relationship between CSP and CFP is taken by Garcia-Castro et al. (2010) who examine the CSP-CFP link using various proxies for CFP. CSP is measured by an equally weighted KLD index. Employing OLS, they replicate the results of previous studies that a positive and statistically significant relationship exists between CSP and Tobin's Q, ROA, ROE and MVA. However, based on the results obtained from a fixed effects model they conclude that the positive CSP-CFP association traces back to unobserved variables. The authors find evidence for the presence of endogeneity. A subsequently conducted 2SLS estimation controls for the endogeneity problem and reveals that the initially positive association between CSP and CFP turns insignificant for all four measures of CFP.

In their research article Schadewitz and Niskala (2010) provide evidence that GRI aligned sustainability reporting is an important factor in predicting a company's market value of equity. In order to test their hypotheses, they apply the Ohlson model[294] which is a clean surplus accounting-based method used to estimate the market value of a company's equity. A dummy variable is introduced in order to indicate whether a company provides sustainability information according to the GRI Guidelines or not. The authors find a positive and statistically highly significant association between firm value and GRI-aligned reporting. Accordingly, a well-structured sustainability reporting is used to mitigate the problems associated with the information asymmetry between management and shareholders. And this, in turn, enhances market value.

In 2011, Jo and Harjoto published a comprehensive research article providing evidence for a positive and very robust association between CSP and CFP. After controlling for simultaneity bias and endogeneity by using second-stage Heckman regression analysis and an instrumental variables approach, they find a positive relationship between CSP and CFP as measured by an industry-adjusted Tobin's Q. The authors take this as evidence for the confirmation of their proposed conflict-resolution theory. According to the conflict-resolution theory, agency conflicts are mitigated, because top-management enhances stakeholder relationships by engaging in CSR activities which in turn positively affects firm value. This association is economically and statistically significant. One of the researchers' noteworthy findings is that subcategories of CSR which relate to internal company issues like diversity, employee relations and product quality are positively related to CFP. On the contrary, they report an insignificant association between CSR categories which are related to external company issues like environment and community and CFP.

[294] See Ohlson (1995) for an empirical assessment of this method of firm valuation.

Schreck (2011) is the first to use an aggregated CSP measure based on the sustainability scorings provided by oekom research AG, a German-based CSR rating agency. Moreover, decomposed measures which refer to single subcategories of CSR are employed. OLS regression analysis reveals that there is no generic positive association between CSP and CFP when the aggregate measure for CSP is used. However, the use of CSR subcategory measures shows that "Corporate Governance" and "Environmental Management" is positively and significantly associated with Tobin's Q. Interestingly, the study finds a negative and statistically significant relation between the measure for the CSR subcategory "Product and Customer Responsibility" and CFP. No significant association is found for "Society and Community". Neither the employed instrumental variables regression nor the Granger causality tests are able to establish a causal relation that runs from one of the CSR measures to Tobin's Q. The author concludes that the failure to establish a causal relation between CSP and CFP is predominantly due to the small sample size and limited data.

Erhemjamts et al. (2013) employ the method of OLS to investigate the relationship between CSP and CFP in an inter-industry sample. They find a positive relationship for the overall KLD score and CFP measured by Tobin's Q and ROA. Additionally, they use a decomposed KLD score as proxies for CSP. CSR strengths (concerns) are positively (negatively) related to CFP. In order to account for the problem of endogeneity, the authors use instrumental variables and employ the method 2SLS. The instruments pass the tests for instrument relevance and instrument exogeneity. However, in the case of the equations which include only one endogenous regressor (overall KLD), the researchers are not able to reject the null hypothesis of weak instruments since the corresponding F statistic is below the critical value of ten as proposed by Stock and Watson (2007).[295] Nevertheless, after controlling for endogeneity, the results of the OLS regression are confirmed.

Gietl et al. (2013) are the first to use the application levels of the GRI Guidelines (A+, B+, C+) reported by companies as a proxy for CSP. Furthermore, they use a dummy variable indicating sustainability reporting in line with the GRI Guidelines which is otherwise set to zero. The results of the OLS regressions reveal a negative and statistically significant relation between Tobin's Q and CSP as measured by the A+ GRI-reporting dummy. Further analyses show that this negative relationship only holds for smaller and less profitable firms and this actually drives the results for the entire sample. The authors thus conclude that investors do not value extensive CSR reporting by smaller or less profitable firms, because they reject the belief that, in their case, the costs for CSR reporting are off-set by the gains.

The finance articles reviewed in this section show that there are various ways of exploring the CSP-CFP link. The most important aspects of the selected studies relate to the operationalization of CSP and CFP as well as to the chosen method for investigating a possible link. In particular, it has become a common practice to account for endogeneity in studies analyzing the CSP-CFP link. Moreover, there are studies which test new proxies for CFP, namely oekom research scorings and the application of the GRI Guidelines. More precisely, Gietl et al. (2013) consider different levels of application of the GRI Guidelines which is similar to the approach taken in this investigation on listed real estate investment companies. Another

[295] See Stock / Watson (2007), pp. 441 & 466.

important point is that the studies provide evidence for the appropriateness of Tobin's Q as a measure for CFP. However, only two of the reviewed studies from the finance literature employ an international data set. Hence, further research has to investigate the CSP-CFP link in a broader international framework.[296]

On the basis of the considerations presented in section 3.1 a review of real estate related research articles is necessary. This will be conducted in the next section.

4.4.3 Real Estate Literature

Within the real estate literature the analysis of the CSP-CFP link is a rather new branch of research. Nevertheless, there are a number of articles which investigate the business case for CSR in the real estate industry. While some studies use purely real estate related CSP measures, the CFP is always measured on the corporate level. Table 9 presents a selection of relevant studies in the literature on real estate.

Table 9: Selected Studies from the Real Estate Literature Investigating the CSP-CFP Link

Study	Cajias et al. (2011)	Cajias et al. (2012)	Eichholtz et al. (2012)	Sah et al. (2013)
Data	Yearly data for 341 real estate companies over the 2003 -2010 period	Yearly data for 80 real estate comapnies over the 2006 - 2009 period	Yearly data for 128 REITs over the 2000 - 2011 period	Quarterly data for 67 REITs over the 2009 - 2010 period
Region	USA	13 European countries	USA	USA
Sample	Panel	Panel	Panel	Panel
Methods	Vector auto-regression, pooled OLS, LSDV model	OLS	2SLS, 4-factor model	OLS, Fixed Effects, Random Effects
CSP measure	Overall CSR score based on KLD database, differentiate between strengths and concerns	GRI-based disclosure	Greeness of property portfolio (share of green buildings in the property portfolio)	Dummy for participation in ENERGY STAR Partnership program
CFP measure	Annual total return, Tobin's Q	Asset turnover	Abnormal returns, ROA, ROE, FFO	Abnormal earnings, ROA, Tobin's Q
Controls	Firm-size, leverage, NAREIT return, risk	DJSI inclusion, firm-size, leverage, visibility, REIT, risk, Tobin's Q	Firm-age, firm-size, growth, price-book ratio, leverage	3-yr beta, firm-size, growth, leased area, ROA,
Accounting for endogenity	Yes	No	Yes	No
CSP-CFP relationhsip	Overall score positive, concerns negative, strengths insignificant	Overall positive	Overall positive	Overall positive
Findings	- Granger causality test does not indicate causality in either direction, - Contempraneous ESG score is positively associated with Tobin's Q, - high number of concerns is related to lower Tobin's Q	- Investments into employee relationships enhances asset turnover, - Distribution of CSR informaiton is a key to facilitate a positive CSP-CFP link	- The share of green buildings in REIT's portfolios grew notwithstanding the recent downturn, - The share of green buildings as measured by sqft or number of buildings is positivley related to CFP	- Green REITs have a larger protion of certified leasable area, - Green REITs have higher Tobin's Q, ROA and abnormal earnings

Notes: The table gives an overview of the results of relevant articles in the literature on real estate which have a direct relation with this study. For abbreviations in the table refer to the List of Abbreviations on page XI.

Source: Own illustration.

[296] See Allouche / Laroche (2005), p. 24.

With regard to the measurement of CSP, Cajias et al. (2011) draw on an approach which has already been observed in the finance literature. Using a sample consisting of real estate service firms, development companies, real estate investment companies and REITs, the authors employ a composite CSR score based on seven dimensions of the KLD database. They also create a weighted CSR score in order to emphasize CSR criteria which are of higher importance for real estate companies. Moreover, they split the overall CSP measure into one measure which is only based on concerns and one that is only based on strengths. The applied test yields no evidence for the presence of Granger causality. Nevertheless, the authors find that contemporary CSP as measured by the overall CSR score is associated with a higher CFP as measured by Tobin's Q. This effect is stronger for the weighted CSR score. For the CSR concerns score they find a negative relationship. The relation between CSR strengths and Tobin's Q remains insignificant. Interestingly, the relation between the overall CSR score and total return is negative and statistically significant. The researchers conclude that these findings indicate that activities influencing CSP can promptly be priced by the market as reflected in Tobin's Q. However, in the case of total return, a lagged effect seems reasonable, since reduced CSP needs some time to affect operational business.

Cajias et al. (2012) measure the CSP of a company by taking account of the amount and quality of reported sustainability information. Based on the GRI Guidelines, the researchers investigate 13 aspects of company reports covering the CSR subcategories "human rights and social responsibility", "environmental responsibility", "financial responsibility" and "transparency and disclosure quality". Per criterion two, one or zero points are assigned to a company depending on whether the company provides quantitative, qualitative or no information. Subsequently, the sum of all points is divided by the maximally achievable amount of points to derive the company-specific CSR score which is used as a proxy for CSP. The authors find that companies engaging in and reporting on overall CSR issues are associated with a higher financial performance at present. In particular, a high performance in the field of employee relations exerts a significantly positive effect. Conversely, they find a negative relationship between the amount of disclosed real estate related sustainability information and asset turnover. The researches cite the high level of disclosure of real estate information which may disclose too much of a company's operating strategy to the public as one possible reason for this finding.

As pointed out in section 3.3.4.1, there are several studies which provide empirical evidence for the various advantages sustainable buildings offer. Among others, the most important benefits of certified buildings are higher transaction prices, higher rents and higher occupancy rates as compared to non-certified buildings. Eichholtz et al. (2012) find evidence that the financial benefits of investing into certified buildings also translate into an increased financial performance on a corporate level. There are four different measures used as proxies for CSP. The first CSP proxy is the share of the number of green buildings in a REIT's property portfolio. The second measure of CSP is the share of a REIT's leasable green space as a portion of total leasable space. They further differentiate between buildings certified under the LEED scheme and buildings certified under the ENERGY STAR scheme leaving them overall with four different measures. After accounting for endogeneity, the researchers find that by increasing the share of LEED-certified buildings in the portfolio by 1 % a REIT is able to enhance its ROS by approximately 3.5 %. A 1 % increase of the share of ENERGY STAR-certified buildings in the

portfolio is associated with a 0.5 % increase of the REIT's ROA. Robustness tests using FFO as a proxy for CFP confirm these results. A relation between CSP and stock performance as measured by abnormal earnings, however, cannot be established.

Another research article providing evidence for the translation of green buildings' superior financial performance into enhanced financial performance on the corporate level is provided by Sah et al. (2013). The authors differentiate between green REITs and usual REITs. Green REITs are characterized by a corporate policy which is geared to sustainability. Accordingly, the proxy for CSP is introduced as a dummy variable indicating whether a REIT participates in the ENERGY STAR Partnership Program or not. CFP is measured by Tobin's Q, ROA and abnormal earnings. The authors find that Green REITs, which are found to have a larger share of their property portfolios certified, are associated with higher CFP.

Overall, the findings from the real estate related literature on the investigation of the CSP-CFP link confirm the results obtained from the finance literature. They show that GRI-based measures are a valid proxy for CSP and that Tobin's Q meets the requirements for an applicable CFP measure which reflects investors' sentiments. With regard to real estate, two studies were able to demonstrate that the financial advantages of a green property portfolio translate into an enhanced financial performance on the corporate level. This is a very important finding in support of the notion that, especially with regard to the real estate investment industry, sustainability on the product level, i.e. property level, positively affects financial returns on a corporate level. Furthermore, green property investment can be understood as the integration of CSR into the value creation process as outlined in section 2.4.2.

However, the majority of the few studies in the real estate literature focus on U.S. companies and the one remaining study includes real estate service companies. In order to gain a more profound insight into the CSP-CFP link on a transcontinental level, it is therefore necessary to perform analyses with a broader international focus. This approach offers the opportunity of creating an exclusive sample of listed real estate investment companies of significant size. Moreover the utilization of the GRI Guidelines as a proxy for CSP needs to be investigated further, since GRI-aligned reporting offers a convenient and transparent way for listed real estate investment companies to report on sustainability issues.

4.4.4 Prerequisite for a Financially Effective Impact of CSR

Rowley and Berman (2000) claim that the mere establishment of a positive or negative relationship between CSP and CFP is not sufficient to understand the true mechanisms underlying a potential association of the two components.[297] It is therefore necessary for empirical analysis to be based on a well-founded and coherent theory. In this context, it is of major importance that there exists also a theoretical link between CSP and CFP, i.e. the proxies for CSP and CFP must be compatible. In this context Griffin and Mahon (1997) aptly remark that:

[297] See Rowley / Berman (2000), p. 401.

> *"[s]ome of the reasons for these contradictory results* [from studies investigating the CSP-CFP link] *stem from conceptual, operationalization, and methodological differences in the definitions of social and financial performance."* [298]

An underlying theory enables the researcher to circumvent the problem of stakeholder mismatching as delineated by Wood and Jones (1995). The researchers argue that, for example, a study using charitable giving and stockholder returns as a measure for CSP and CFP, respectively, is clearly misspecified. The reason for this is that the stakeholder affected by charitable giving is not the same as the one who evaluates this form of CSP.[299] There is without doubt little evidence for a theory which is able to draw a connection between these two forms of CSP and CFP.

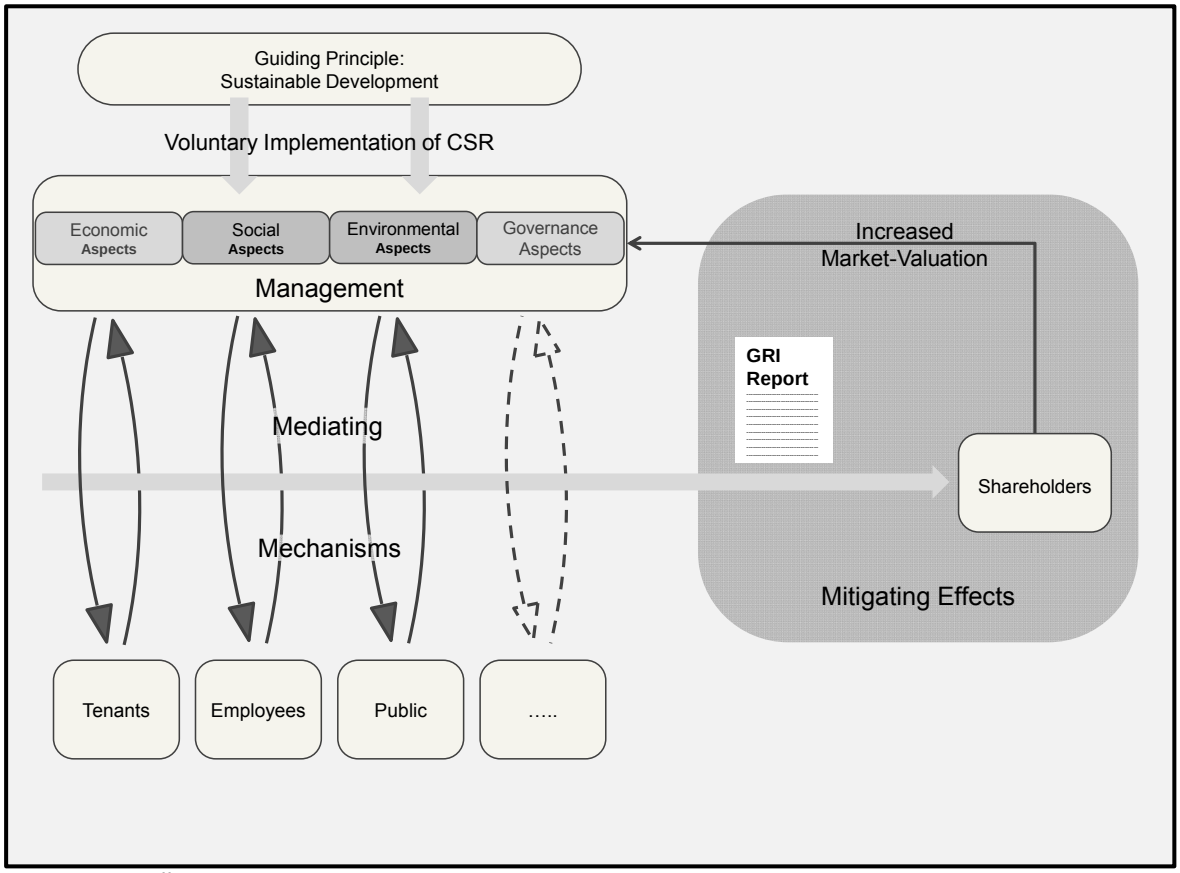
To conclude, it is not sufficient to find appropriate measurements for CSP and CFP as elucidated in section 4.1 and section 4.2. Moreover, it is of utmost importance that there is a theoretical link which can be drawn between the two components. The stakeholder that experiences the outcome of CSP must be the same stakeholder that evaluates its impact.

With regard to this study and listed real estate investment companies, the theoretical connection between CSR disclosure and Tobin's Q is depicted in figure 10.

[298] Griffin / Mahon (1997), p. 7.

[299] See Wood / Jones (1995), p. 243.

Figure 10: Theoretical Framework Underlying the CSP-CFP Relationship for Listed Real Estate Investment Companies



Source: Own illustration.

The overarching principle of sustainable development takes precedence over everything else and is voluntarily implemented by the management of a listed real estate investment company. Social and environmental aspects are the two most important of the four CSR dimensions in this case. The integration of CSR into the value creation process entails the proactive engagement with all relevant stakeholders like tenants, employees, the public and others. Based on the GRI Guidelines, these stakeholder engagements and the consequential benefits for the company are reported in a standardized way, in order to inform in particular shareholders about the company's sustainable corporate management. From shareholders' point of view, a sustainable business management approach is associated with lower risks of stakeholder interventions by enhanced legitimacy. This in turn fosters the long-term viability of a listed real estate investment company. By this means, shareholders are the main addressees of CSP as measured by CSR disclosure. At the same time, shareholders use Tobin's Q for their financial evaluation of CSP. Nevertheless, this link may be affected by various mitigating effect as elaborated in section 4.3.1.

4.5 Formation of Hypotheses

The literature review in section 4.4 provides an ample amount of evidence that, overall, there exists a positive and statistically significant association between CSP and CFP. Section 4.1 identified CSR reporting based on the GRI Guidelines as an appropriate CSP measure for listed companies in the real estate investment industry. Additionally, section 4.2 has found that Tobin's Q optimally captures the intangible values of a market-listed real estate investment company. Considering the mitigating and mediating effects as well as the issue of endogeneity as discussed in section 4.3, the following hypotheses are put forward in order to empirically investigate the CSP-CFP link for a transcontinental sample of listed real estate investment companies as outlined in section 4.4.4:

> H_{1a}: The amount of disclosed CSR information by a listed real estate investment company is positively related to its market valuation.
>
> H_{1b}: The amount of disclosed CSR information regarding the environment by a listed real estate investment company is positively related to its market valuation.
>
> H_{1c}: The amount of disclosed CSR information regarding labor practices and decent work by a listed real estate investment company is positively related to its market valuation.
>
> H_{1d}: The amount of disclosed CSR information regarding human rights by a listed real estate investment company is positively related to its market valuation.
>
> H_{1e}: The amount of disclosed CSR information regarding society by a listed real estate investment company is positively related to its market valuation.
>
> H_{1e}: The amount of disclosed CSR information regarding product responsibility by a listed real estate investment company is positively related to its market valuation.

The GRI reporting framework is a comprehensive tool to facilitate the dissemination of CSR information by companies as well as the reception of CSR information by internal and external stakeholders. However, companies from different industries are susceptible to different interests from external and internal stakeholders to different extents.[300] Putting aside the GRI industry supplements, this raises the question as to whether the "one-size-fits-all" framework may also lead to an over-reporting on CSR issues and therefore dilute the effect of CSR information which is specifically relevant for the real estate investment industry.

As a consequence, it is of interest whether certain contents in disclosed CSR information are more value relevant for investors of listed real estate investment companies than others. It seems reasonable that, for instance, real estate specific CSR information has a larger or at least more significant association with the market value of a listed real estate investment company. Hence the following hypothesis is proposed:

> H_2: A too comprehensive measurement of CSR mitigates the relationship between CSP and CFP for listed real estate investment companies.

[300] See Garcia-Castro et al. (2010), p. 118; Cajias et al. (2011), p. 9.

As pointed out in section 3.1, there are no major differences between REITs and REOCs besides the former's corporate tax-exempt status. Consequently, there is no reason to expect any findings of differences between REITs and REOCs with regard to the CSP-CFP link. Furthermore, since sustainability is a global issue, no significant differences are expected for different countries. Hence, the following two hypotheses are introduced:

> H_3: There are no country-specific peculiarities regarding the association between the amount of disclosed CSR information by a listed real estate investment company and its market valuation.
>
> H_4: There is no difference in the association between the amount of disclosed CSR information by a listed real estate investment company and its market valuation for REITs and REOCs.

The literature review revealed that accounting for endogeneity increasingly became a common feature of studies investigating the CSP-CFP link. Accordingly, this study also addresses the issue of endogeneity. Thus, a last hypothesis is established.

> H_5: Reverse causality is present in the relation between the amount of disclosed CSR information by a listed real estate investment company and its market valuation.

The following chapter of this study expounds the methodological approach to empirically test the proposed hypotheses before turning to a discussion of the results obtained.

5 Empirical Investigation of the Impact of CSR Transparency on the Market Value of Listed Real Estate Investment Companies

This chapter empirically investigates the association between CSR transparency and the market value of listed real estate investment companies. Based on the theoretical considerations and the literature review above, the hypotheses stated in section 4.5 are tested by means of statistical data analysis. All statistical calculations are performed with R, a free software environment for statistical computing and graphics.[301]

This chapter is structured as follows: the first step explains the derivation of the sample. The second step provides definitions of all variables used and descriptive statistics of the variables of interest. The third and final step proceeds to testing the hypotheses formulated in the previous section using appropriate statistical techniques.[302]

5.1 Process of Sample Selection

The universe from which the sample of listed REOCs and REITs is drawn comprises all active companies listed under the sectors "Real Estate Investment and Services" and "Real Estate Investment Trusts" of Thomson Reuters Datastream (TRD). The cut-off date is 19 June 2012. An additional prerequisite is that the firms' shares must be registered in a country where financial reporting of listed companies is required to be in line with the rules of the International Financial Accounting Standards (IFRS).[303] This requirement is necessary, since the use of common accounting standards is essential to the comparison of companies from different countries based on financial accounting measures and variables. The universe is therefore restricted to the following countries:

- Australia,
- Canada,
- France,
- Germany,
- Hong Kong,
- Netherlands,
- Singapore,

[301] For further information on R see R Core Team (2013). Among other R add-on packages used, the most specific ones are ggplot2, mboost and tonymisc. For more information on R packages refer to the corresponding manuals available at http://cran.r-project.org/web/packages/.

[302] All theoretical explanations on methodologies referred to throughout the entirety of this chapter, are essentially based on the relevant chapters in Greene (2012), pp.259-294; Stock / Watson (2007), pp.422-456; Wooldridge (2002), pp. 83-122; and Wooldridge (2009), pp.506-536.

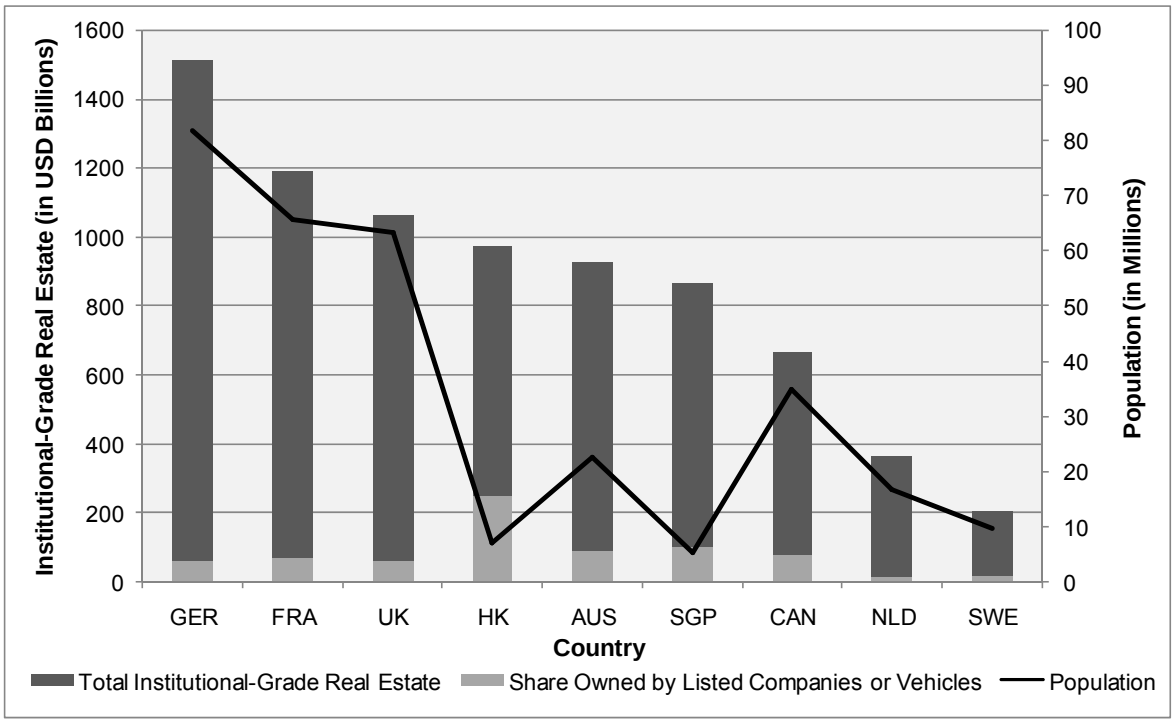
[303] Up to date information on when IFRS became mandatory in different countries is available at www.ifrs.org or www.iasplus.com.

- Sweden, and
- United Kingdom.

The two largest markets for institutional-grade real estate, the United States and Japan, are excluded, since neither countries' financial reporting regulations are in line with the IFRS in 2011 and 2012. However, as the literature review in section 4.4 reveals, the vast majority of previous research on the CSP-CFP link has used only U.S. samples. Insofar, the focus on non-U.S. markets will yield new insights.

In order to obtain an idea of the sizes of the real estate markets, figure 11 provides an overview of the stock of institutional-grade real estate in USD by country. Furthermore, the respective share of real estate stock owned by listed companies or vehicles is illustrated below. In order to make these numbers comparable, the curve provides information about the population of each country.

Figure 11: Stock of Institutional-Grade Real Estate and Population by Country



Note: The values on the primary ordinate refer to the columns and the values on the secondary ordinate refer to the line.

Source: Own illustration following EPRA (2012), pp. 7-8; World Bank (2013).

Since the ordinates are in due proportion, it quickly becomes apparent that the territorial states, except for Australia, have similar amounts of institutional-grade real estate stocks per capita. Australia, where the bulk of the population is concentrated in a few urban centers, and the city states Hong Kong and Singapore show a larger amount of investment-grade real estate in relation to their populations. The most market capitalized stock of real estate can be found in the city states as well as in Australia and Canada.

The number of retrieved companies within the above mentioned TRD-sectors and countries consists of 583 companies. However, in order to ensure a homogenous sample with regard to company features and characteristics, certain qualifications have to be met:

First, companies with a market capitalization of less than USD 50 million[304] as of 31 December 2011 are not taken into account. Consequently, companies whose IPO took place after 31 December 2011 were equally ignored, leaving a preliminary sample of 355 firms.

Second, the minimum free float required to be included in the sample is set to 15 %.[305] This requirement secures a certain degree of "investibility" and excludes listed real estate companies owned by single parties which are believed not to underlie market competition for international capital. After applying this criterion for exclusion, 325 firms remain.

In a third step, companies whose major field of business is different to the long-term investment in and the operating of real estate are removed from the sample. Examples of those companies are real estate development companies as well as real estate consulting companies and real estate service providers. The decision for or against a firm to be included in the sample is based on whether the item IAS 40 investment property is the largest item within non-current assets on the consolidated statement of financial position and on the company's strategy section in the annual report. In imposing this requirement, another 43 firms are deleted from the samples leaving a remaining 282 companies.

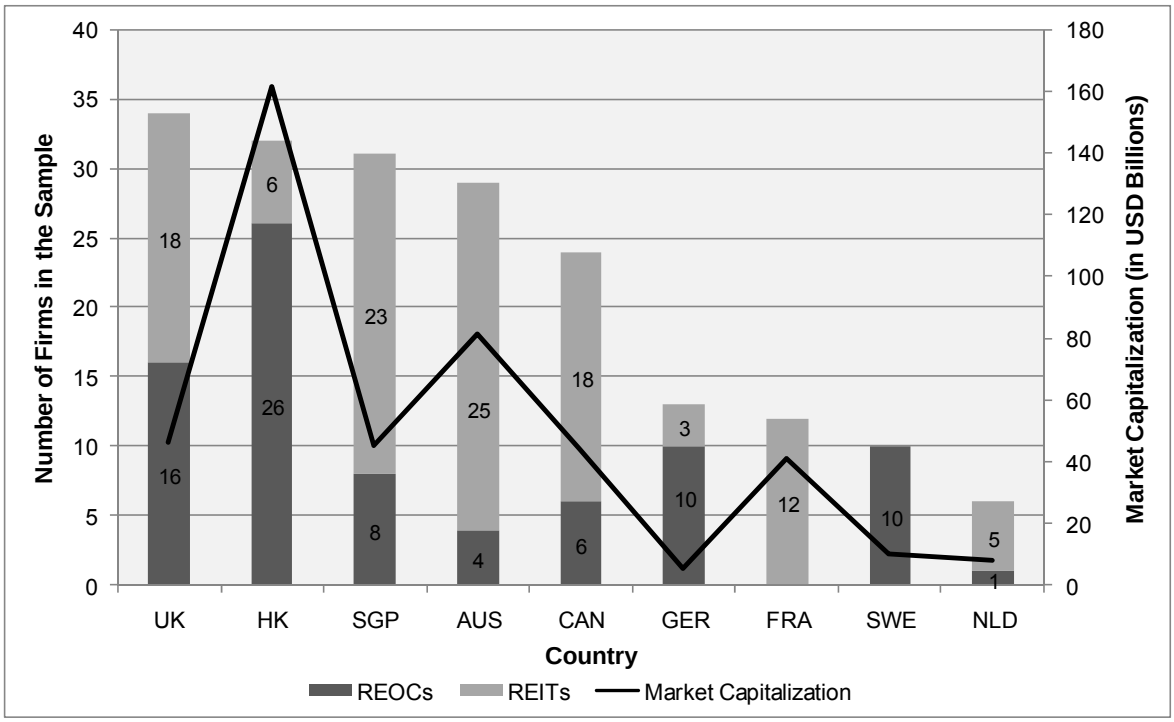
In a last step, companies lacking data and annual reports in English are also excluded from the sample.[306] Annual reports in English are a vital prerequisite in order to conduct a coherent content analysis with regard to the CSR variables. As a result, the final sample comprises 191 listed real estate investment companies (81 REOCs and 110 REITs) from nine different countries. Figure 12 shows the composition of the final sample by country, REIT-status and aggregated market capitalization.

[304] Exchange rates were retrieved for the 31 December 2011 from the official website of the Financial Management Service (FMS) which is a bureau of the United States Department of the Treasury.

[305] The requirements of a minimum market capitalization of USD 50 million and a minimum free float of 15 % are in line with the rules for company inclusion of all four major indices provided by Global Property Research, a renowned provider of property indices.

[306] The provision of websites, financial reports and press releases in Englishis a general recommendation by the EPRA Best Practices Recommendations. For further information see EPRA (2011), p. 5.

Figure 12: Final Sample by Country, REIT-Status and Aggregated Market Capitalization



Note: The values on the primary ordinate refer to the columns and the values on the secondary ordinate refer to the line.

Source: Own illustration.

Most firms in the sample are registered in Anglo-Saxon countries and Asia. Continental European firms account for about 20 % of the sample. Clearly Hong Kong has by far the largest share of aggregated market capitalization within the sample and also the highest market capitalization per company in relation to its number of firms. It is also remarkable that only a small share of firms incorporated in Hong Kong, Germany and Sweden hold a REIT-status. Sweden has yet to introduce a REIT-legislation and Germany only allowed REITs in 2007. Many Hong Kong registered companies with a main focus on real estate investment are often engaged in other lines of business, too, making a conversion into a REIT difficult.

5.2 Variable Selection and Definition

An investigation into the relationship between CSP and CFP requires both a set of variables to be chosen and relevant data to be collected. Thomson Reuters Datastream and Worldscope are the main sources of financial company data. Additionally, company reports and websites are used to gather information about CSR matters. Since the fiscal year-ends vary between companies, four dates are considered in the sample: 30 June 2011, 30 November 2011, 31 December 2011 and 31 March 2012. A selection of major variables used in the study as well as corresponding definitions and sources is shown in table 10.

Table 10: Definition and Sources of Major Variables Used in this Study

Variable	Definition	Source
Tobin's Q	Share price multiplied by the number of ordinary shares in issue plus total debt devided by total assets	Datastream / Worldscope: Market value (MV), Total debt (WC03255), Total assets (WC02999)
MTBV	Market value of the ordinary equity devided by the balance sheet value of the ordinary equity in the company	Datastream: Market to book value (MTBV)
CSR83	CSR transparency score based on 83 GRI indicators	Company reports and websites
ENV83, LAB83, HR83, SOI83, PR83	CSR transparency score based on 83 GRI indicators from the subsections "Environmental", "Labor Practices and Decent Work", "Human Rights", "Society" and "Product Responsibility"	Company reports and websites
CSR37	CSR transparency score based on 37 GRI indicators	Company reports and websites
ENV37, LAB37, SOI37, PR37	CSR transparency score based on 37 GRI indicators from the subsections "Environmental", "Labor Practices and Decent Work", "Society" and "Product Responsibility" of the 37 GRI indicator selection	Company reports and websites
CSR05	CSR transparency score based on 5 GRI indicators	Company reports and websites
log(ASSETS)	Natural logarithm of total assets	Worldscope: Total assets (WC02999)
log(SALES)	Natural logarithm of sales	Worldscope: Sales (WC01001)
REIT	Binary variable which takes the value 1 if the company is a REIT and 0 otherwise	Datastream: Industry Classification Benchmark
ROA(t)	Return on assets for the current period	Worldscope: Return on assets (WC08326)
ROA(t-1)	Return on assets for the previous period	Worldscope: Return on assets (WC08326)
VOLA	Standard deviation of share price based on the last 52 weekly values, divided by the mean price and multiplied by 40	Datastream: Volatility (VOL)
LEV	Total debt / total assets	Worldscope: Total debt (WC03255), Total assets (WC02999)
GRI_yrs	Number of years for which a company has reported in line with the GRI Guidelines	Company reports and websites

Source: Own illustration.

As elaborated in section 4.2.3, Tobin's Q is used as a proxy for CFP. Three components are necessary to derive the variable for each company, i.e. market value, total debt and total assets. Since the share price and therefore the market value of a company change almost continuously, the closing price on the day three months after the fiscal year-end is chosen. The reason for this is that most stock-exchanges require listed companies to issue an annual report within three months after the end of the fiscal year. This ensures that the latest financial

accounting data and information on a firm's sustainability efforts is distributed and received by investors. As a consequence, the market value already reflects this information. Schreck (2011) follows a similar approach.[307]

The calculation of the market to book value follows the same time pattern with regard to market value and book value of equity. Previous studies use the market to book value as a proxy for Tobin's Q.[308] However, since this measure is not able to fully reflect the characteristics of Tobin's Q, it is used solely in the robustness-checks.

In order to capture the amount of CSR relevant information provided by listed real estate investment companies and in order to make it comparable among firms, a CSR transparency score is developed. For the purpose of gaining a full insight into a company's CSR engagement, the underlying content analysis examines not only annual reports but in particular stand-alone CSR reports as well as corporate websites.[309] There are various examples of studies using the technique of content analysis based on the GRI Guidelines in the literature on empirical research on CSR.[310]

The variable CSR83 is a relative measure based on the 83 environmental and social GRI-performance indicators taken from the G3.1 Sustainability Reporting Guidelines and the Construction and Real Estate Sector Supplement.[311]Table 11 contains a full list of these indicators and corresponding descriptions.

[307] See Schreck (2011), p. 175.

[308] See Garcia-Castro et al. (2010), p. 113; Rountree et al. (2008), p. 239.

[309] See Unerman (2000), p. 674.

[310] See Cajias et al. (2012), p. 137; Cajias / Bienert (2011), p. 125; Clarkson et al. (2008), p. 309; Gamerschlag et al. (2011), p. 241; Holder-Webb et al. (2009), p. 504; Plumlee et al. (2010), p. 17.

[311] Following the notion of Gamerschlag et al. (2011), p. 242, economic GRI-performance indicators are not considered, as financial reporting according to IFRS is mandatory for all listed real estate investment companies in the sample.

Table 11: List of Employed GRI-Performance Indicators Including Corresponding Descriptions and Their Respective Inclusion in the Sustainability Measures CSR83, CSR37 and CSR05

Environmental (EN)		CSR37	CSR05
Materials			
EN1	Materials used by weight, value or volume.		
EN2	Percentage of materials used that are recycled and reused input materials.		
Energy			
EN3	Direct energy consumption by primary energy source.	yes	
EN4	Indirect energy consumption by primary source.	yes	
CRE1	Building energy intensity.	yes	
EN5	Energy saved due to conservation and efficiency improvements.	yes	
EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.	yes	yes
EN7	Initiatives to reduce indirect energy consumption and reductions achieved.	yes	yes
Water			
EN8	Total water withdrawal by source.	yes	
EN9	Water sources significantly affected by withdrawal of water.		
EN10	Percentage and total volume of water recycled and reused.	yes	
CRE2	Building water intensity.	yes	
Biodiversity			
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.		
EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.		
EN13	Habitats protected or restored.		
EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.		
EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.		
Emissions, effluents and waste			
EN16	Total direct and indirect greenhouse gas emissions by weight.	yes	
EN17	Other relevant indirect greenhouse gas emissions by weight.	yes	
CRE3	Greenhouse gas emissions intensity from buildings.	yes	
CRE4	Greenhouse gas emissions intensity from new construction and redevelopment activity.	yes	
EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	yes	
EN19	Emissions of ozone-depleting substances by weight.		
EN20	NOx, SOx, and other significant air emissions by type and weight.		
EN21	Total water discharge by quality and destination.		
EN22	Total weight of waste by type and disposal method.	yes	
EN23	Total number and volume of significant spills.		

Table 11 continued

EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.		
EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.		
	Land Degradation, Contamination and Remediation		
CRE5	Land and other assets remediated and in need of remediation for the existing or intended land use according to applicable legal designations.	yes	
	Products and services		
EN26	Initiatives to enhance efficiency and mitigate environmental impacts of products and services, and extent of impact mitigation.	yes	yes
EN27	Percentage of products sold and their packaging materials that are reclaimed by category.		
	Compliance		
EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.	yes	
	Transport		
EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.		
	Overall		
EN30	Total environmental protection expenditures and investments by type.		
	Social: Labor Practices and Decent Work (LAB)		
	Employment		
LA1	Total workforce by employment type, employment contract, and region, broken down by gender.	yes	
LA2	Total number and rate of new employee hires and employee turnover by age group, gender, and region.	yes	
LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operations.	yes	yes
LA15	Return to work and retention rates after parental leave, by gender.	yes	
	Labor/management relations		
LA4	Percentage of employees covered by collective bargaining agreements.		
LA5	Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements.		
	Occupational health and safety		
LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs.		
LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region and by gender.		
CRE6	Percentage of the organization operating in verified compliance with an internationally recognized health and safety management system.		
LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases.		
LA9	Health and safety topics covered in formal agreements with trade unions.		

Table 11 continued

Training and education			
LA10	Average hours of training per year per employee by gender, and by employee category.	yes	
LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.	yes	
LA12	Percentage of employees receiving regular performance and career development reviews, by gender.	yes	
Diversity and equal opportunity			
LA13	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.	yes	
Equal remuneration for women and men			
LA14	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation.	yes	
Social: Human Rights (HR)			
Investment and procurement practices			
HR1	Percentage and total number of significant investment agreements and contracts that include clauses incorporating human rights concerns, or that have undergone human rights screening.		
HR2	Percentage of significant suppliers, contractors and other business partners that have undergone human rights screening, and actions taken.		
HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained.		
Non-discrimination			
HR4	Total number of incidents of discrimination and corrective actions taken.		
Freedom of association and collective bargaining			
HR5	Operations and significant suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and actions taken to support these rights.		
Child labor			
HR6	Operations and significant suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor.		
Forced and compulsory labor			
HR7	Operations and significant suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor.		
Security practices			
HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations.		
Indigenous rights			
HR9	Total number of incidents of violations involving rights of indigenous people and actions taken.		
Assessment			
HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments.		

Table 11 continued

Remediation			
HR11	Number of grievances related to human rights filed, addressed and resolved through formal grievance mechanisms.		
Social: Society (SOI)			
Local communities			
SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs.	yes	
SO9	Operations with significant potential or actual negative and positive impacts on local communities.	yes	
SO10	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities.	yes	
CRE7	Number of persons voluntarily and involuntarily displaced and/or resettled by development, broken down by project.		
Corruption			
SO2	Percentage and total number of business units analyzed for risks related to corruption.	yes	
SO3	Percentage of employees trained in organization's anti-corruption policies and procedures.	yes	
SO4	Actions taken in response to incidents of corruption.	yes	
Public policy			
SO5	Public policy positions and participation in public policy development and lobbying.		
SO6	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country.		
Anti-competitive behavior			
SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes.		
Compliance			
SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations.	yes	
Social: Product Responsibility (PR)			
Customer health and safety			
PR1	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures.		
PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes.		
Product and service labelling			
PR3	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements.	yes	
CRE8	Type and number of sustainability certification, rating and labeling schemes for new construction, management, occupation and redevelopment.	yes	yes
PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes.		
PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.	yes	

Table 11 continued

Marketing communications			
PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship.		
PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship by type of outcomes.		
Customer privacy			
PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.		
Compliance			
PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services.		

Notes: The table gives an overview of all environmental and social GRI-performance indicators based on the G3.1 Sustainability Reporting Guidelines and the Construction and Real Estate Sector Supplement. All 83 indicators are included in the CSR83 measure. The last two columns highlight those indicators which are included in the CSR37 and CSR05 measure, respectively.

Source: Own illustration following GRI (2011).

One point is assigned to a company for every GRI-performance indicator which is reported either fully or partially. A zero is allocated in all other cases. The CSR-transparency score CSR83 for a listed real estate investment company is calculated as follows:

$$CSR83 = \frac{number\ of\ reported\ GRI-performance\ indicators}{maximum\ number\ of\ achievable\ points} \quad . \tag{1}$$

In the case of a company giving justified reasons for why certain indicators are not applicable and therefore not reported, the maximum number of achievable points is reduced by the number of substantiated omissions. CSR83 can take values between zero and one. The sub-indices ENV83, LAB83, HR83, SOI83 and PR83 are analogously computed by dividing the number of reported GRI-performance indicators by the total number of achievable points in the respective sub-category. For instance, the maximum number of achievable points for ENV83 is 35, as can be seen from table 11.

However, the possibility of a problem related to the chosen method of measuring the sustainability of a listed real estate investment company cannot be excluded. A company achieving a high CSR83-score may not necessarily report exclusively on value relevant GRI-performance indicators. The question of whether comments on each and every GRI-performance indicator can be assumed to be value relevant can thus not be avoided. With regard to listed real estate investment companies in developed countries, it would, for instance, be rather precarious to ascribe a value relevance to the GRI-performance indicators HR6 or EN27 which require information on business conduct concerning the problem of child labor or packaging of products, respectively. Based on this notion, a strict and full compliance to the GRI Guidelines may lead to an over-estimation of sustainability, due to the reporting of information irrelevant to investors.

Furthermore, it is possible that two companies reporting on the same set of indicators achieve a different transparency score. This is the case when a company explicitly states that a certain indicator is not relevant or applicable in which case the denominator would be reduced by one. It is therefore easier for companies that exclude certain indicators to achieve a higher score although the amount of information provided does not exceed the amount provided by a company which reports on the same set of indicators yet without having excluded any others.

Consequently, a second set of GRI-performance indicators is created. CSR37 is derived in the same way as CSR83, but only refers to 37 GRI-performance indicators which are assumed to be of importance to the investors of listed real estate investment companies. The GRI-performance indicators included in this reduced measure are marked with a "yes" in column 3 of table 11. Again, the sub-indices ENV37, LAB37, SOI37 and PR37 are derived in the same manner and based on the maximum number of achievable points in the respective sub-category. To take one example, the maximum number of achievable points for ENV37 is 18.

There is one major weakness in the previously described method of obtaining CSR37 and its respective sub-indices. Despite being based on reasonable grounds, the choice of GRI-performance indicators of supposed relevance for real estate investment companies is, after all, discretionary. To weaken this argument, an additional method of identifying relevant GRI-performance indicators is applied which is fully based on a computational optimization algorithm. Generally, component-wise gradient boosting is a technique used to perform a variable selection based on the associated impact strength of explanatory variables on the dependent variable. The aim of this method is to find the optimal set of explanatory variables to predict an independent variable. In so doing, the method is able to test which GRI-performance indicators included in CSR37 are the most important.[312]

In order to derive CSR83 or CSR37, it is verified whether a company reports on a certain GRI-performance indicator or not. As a consequence, the amount and shape of information on a certain GRI-performance indicator is ignored. Due to the binary nature of the GRI-performance indicators as employed in the calculation of the CSR scores, it is not possible to automatically generate an objective stop criterion for the number of iterations. Thus, the default setting of 100 iterations is applied. During the application of component-wise gradient boosting certain GRI-performance indicators are picked more often than others, depending on their predictive power. The result of the process is a list of variables and the associated number of updates. Analogous to the calculation of CSR83 and CSR37, the five most relevant GRI-performance indicators are chosen to create a new CSR-disclosure variable called CSR05.

The five GRI-performance indicators used to derive CSR05 based on the application of component-wise gradient boosting are shown in table 12.

[312] See Hofner et al. (2014) for a comprehensive introduction to component-wise gradient boosting and its application using R.

Table 12: Identified GRI-Performance Indicators Based on the Results Obtained Through Component-Wise Gradient Boosting

CRE8	Type and number of sustainability, rating, and labelling schemes for new construction, management, occupation and redevelopment,
EN6	Initiatives to provide energy-efficient or renewable energy-based products and services
EN7	Initiatives to reduce indirect energy consumption and reductions achieved
EN26	Initiatives to enhance efficiency and mitigate environmental impacts of products and services, and extent of impact mitigation
LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operation

The identified GRI-performance indicators come from the GRI-subcategories Product Responsibility, Environment and Labor Practices and Decent Work. This result suggests that in particular those indicators are value relevant which provide information on sustainability in the core-business of real estate investment companies, i.e. environmental sustainability in the real estate portfolio.

In order to prevent distorted results, a set of several control variables is included in the analyses. The omission of various firm-specific characteristics may lead to omitted variable bias which in turn leads to blurred coefficient estimates for the CSP and CFP variables.[313] Schreck (2009) argues that the investigation of the CSP-CFP link and the investigation of the corporate governance-CFP link are similar in nature.[314] For this reason, the selection of control variables largely follows the approach taken by Kohl and Schaefers (2012).[315]

Previous research suggests that size influences CSP and CFP. Additionally, size may be associated with the urgency and salience of stakeholder relationships.[316] To account for these effects, the natural logarithm of total assets (log(ASSETS)) is included as a proxy for size. This approach is in line with Callan and Thomas (2009), Gietl et al. (2013) and Jo and Harjoto (2011). Sah et al. (2013) and Kohl and Schaefers (2012) use return on assets to control for firm profitability. Therefore, return on assets for the current and previous period is denoted by ROA(t) and ROA(t-1). Both variables are integrated into the analysis so as to take into account previous operating performance. With regard to financial aspects, another major distinction between companies can be drawn on the basis of the risk which is attached to the investment into such a company. Erhemjamts et al. (2013), Cajias et al. (2011) and Cajias et al. (2012) ascertain investment risk by measuring the past volatility of a share price. The variable VOLA which is calculated by the deviation of share price over the previous year is therefore also included. Based on the empirical investigations of Schreck (2011) and Garcia-Castro (2010), it is moreover proposed to include leverage (LEV) as another control variable.

313 See Callan / Thomas (2009), p. 76; Garcia-Castro et al. (2010), p. 114.

314 See Schreck (2009), p. 78.

315 See Kohl / Schaefers (2012), p. 371.

316 See Hillman / Keim (2001), p. 131.

Industry has also frequently been used as a control variable in studies investigating the CSP-CFP link.[317] The reasoning behind the inclusion of an industry dummy variable is that it enables the researcher to account for inter-industry differences which usually mitigate the CSP-CFP link in inter-industry analyses.[318] Since this study draws upon a very homogenous sample from the real estate investment industry, only one binary variable called REIT is employed to account for the regulatory differences between REITs and REOCs.

Another frequently used control variable is the amount of money spent on research and development (R&D). In this context it is important to explain why this study does not meet the claim of McWilliams and Siegel (2000) who argue that firm-level investment in R&D should be included in a regression model investigating the CSP-CFP link, since it is correlated with CSP and determines CFP.[319] In general, it is correct and indispensable to include all observable omitted variables in a regression model. However, the inclusion of firm-level investment in R&D as an explanatory variable depends on the industry from which the sample is drawn. In their study McWilliams and Siegel (2000) examine a sample of 524 firms from various industries. The study at hand, however, consists exclusively of listed real estate investment companies. As a matter of fact, the business of real estate investment is neither a technology intensive business nor a research intensive business in the sense of product design. A listed real estate investment company buys and manages finished products. Of course, R&D is needed for the advancement and improvement of green buildings, yet this is taken over by the construction industry and related suppliers of building materials. Consequently, the search for the item "research and development expenditures" within the income statements of all listed real estate investment companies in the sample invariably remained unsuccessful.

317 See Andersen / Dejoy (2011), p. 251.

318 See Chand (2006), p. 243; Hoepner et al. (2010), p. 30.

319 See McWilliams / Siegel (2000), p. 607.

5.3 Descriptive Analysis

The following section provides an overview over the descriptive statistics of the previously defined variables. Prior to differentiating between countries and company types, the whole sample of 191 listed real estate investment companies from nine different countries is considered. Table 13 summarizes the descriptive statistics for the entire sample.

Table 13: Summary of Descriptive Statistics of Major Variables for the Full Sample

Variable	Min	Max	Mean	SD	1st Q	Median	3rd Q
Tobin's Q	0.186	1.341	0.776	0.188	0.680	0.806	0.884
MTBV	0.100	2.600	0.802	0.315	0.633	0.790	0.955
CSR83	0.000	0.986	0.126	0.182	0.012	0.060	0.169
ENV83	0.000	0.963	0.138	0.191	0.000	0.057	0.186
LAB83	0.000	1.000	0.161	0.207	0.000	0.063	0.188
HR83	0.000	1.000	0.055	0.185	0.000	0.000	0.000
SOI83	0.000	1.000	0.114	0.200	0.000	0.000	0.182
PR83	0.000	1.000	0.123	0.189	0.000	0.100	0.200
CSR37	0.000	1.000	0.210	0.241	0.027	0.108	0.324
ENV37	0.000	1.000	0.225	0.277	0.000	0.111	0.333
LAB37	0.000	1.000	0.220	0.246	0.000	0.111	0.333
SOI37	0.000	1.000	0.128	0.218	0.000	0.000	0.143
PR37	0.000	1.000	0.281	0.305	0.000	0.333	0.333
CSR05	0.000	1.000	0.360	0.325	0.000	0.400	0.600
ASSETS	95	60,009	5,683	9,832	851	2,271	5,533
SALES	-53	8,939	492	1,112	63	152	394
REIT	0.000	1.000	0.576	0.496	0.000	1.000	1.000
ROA (t-1)	-24.010	26.280	5.318	5.426	2.130	5.250	7.965
ROA (t)	-8.520	48.750	6.834	5.601	3.625	6.120	9.450
VOLA	1.709	16.808	4.922	2.565	3.079	4.209	5.954
LEV	0.000	0.816	0.380	0.171	0.259	0.386	0.488
GRIyrs	0.000	8.000	0.387	1.186	0.000	0.000	0.000

Notes: All variables are defined and calculated as described in section 5.2. Min and Max denote the minimum and maximum values per variable. SD stands for standard deviation. 1st Q and 3rd Q designate the first and third quartile. The variables ASSETS and SALES are given in USD millions.

With a mean value of Tobin's Q of just 0.776, the real estate investment companies in the sample are on average undervalued. This means that between the third quarter of 2011 and the second quarter of 2012, investors were unwilling to pay a price for listed real estate investment companies which equaled the replacement cost of these companies or total assets, respectively. The descriptive statistics of the market to book value are similar to the descriptive statistics of Tobin's Q. This seems reasonable, as the market to book value is used as a proxy

for Tobin's Q within the robustness-checks. However, the standard deviation and maximum value are slightly higher for the market to book value.

The maximum value for CSR83 is 0.986, indicating that no company fully reports on all 83 GRI-performance indicators. The arithmetic mean for CSR83 is 0.126 which is significantly lower than the arithmetic means for CSR37 and CSR05 located at 0.210 and 0.360, respectively. Obviously, CSR37 and CSR05 comprise less irrelevant indicators which are not reported by companies. The three corresponding median values underscore this notion. Furthermore, listed real estate investment companies tend to report less on GRI-performance indicators from the sub-indices HR83, SOI83 and SOI37. The means and medians for these three variables are significantly lower than for other sub-index scores.

Company size as measured by total assets is on average USD 5,683 million. However, only 25 % of the companies are larger than USD 5,533 million. The descriptive statistics for return on assets of the current and previous period show similar values. Furthermore, the volatility score as calculated according to Thomson Reuters Datastream ranges from 1.709 to 16.808 and is on average 4.922. Leverage ranges from zero to 0.816. On average, the leverage ratio lies at 38 % which is rather low as compared to other industries. In summary, the descriptive statistics for the control variables are comparable to other studies on listed real estate investment companies.

The full sample is drawn from nine different countries around the world. Table 14 shows the summary of descriptive statistics of major variables by countries.

Table 14: Summary of Descriptive Statistics of Major Variables by Countries

		Tobin's Q	CSR83	CSR37	CSR05	ASSETS	VOLA	LEV
Australia (30)	Min	0.472	0.000	0.000	0.000	95	1.709	0.012
	Max	0.990	0.986	1.000	1.000	35,238	8.087	0.718
	Mean	0.780	0.210	0.286	0.421	5,042	3.619	0.328
	SD	0.111	0.301	0.316	0.368	7,199	1.465	0.161
	1st Q	0.726	0.024	0.054	0.000	847	2.698	0.222
	Median	0.797	0.072	0.162	0.400	1,892	2.976	0.286
	3rd Q	0.848	0.241	0.432	0.800	7,890	4.384	0.410
Canada (25)	Min	0.667	0.000	0.000	0.000	481	2.150	0.388
	Max	1.185	0.265	0.486	1.000	27,358	11.663	0.692
	Mean	0.869	0.046	0.093	0.250	4,330	3.610	0.476
	SD	0.117	0.063	0.120	0.308	5,719	1.960	0.070
	1st Q	0.798	0.000	0.000	0.000	977	2.603	0.436
	Median	0.861	0.018	0.041	0.000	2,889	3.094	0.467
	3rd Q	0.928	0.075	0.162	0.600	5,114	3.769	0.506
France (12)	Min	0.635	0.012	0.027	0.000	705	3.431	0.376
	Max	1.341	0.578	0.865	0.800	39,369	10.436	0.692
	Mean	0.897	0.216	0.392	0.583	9,627	6.921	0.497
	SD	0.229	0.166	0.268	0.262	11,557	2.316	0.104
	1st Q	0.738	0.069	0.135	0.550	1,224	4.913	0.426
	Median	0.847	0.235	0.432	0.600	4,840	7.221	0.474
	3rd Q	0.967	0.292	0.568	0.800	15,442	8.478	0.551
Germany (15)	Min	0.768	0.000	0.000	0.000	210	2.868	0.427
	Max	0.973	0.714	0.818	1.000	7,716	16.808	0.816
	Mean	0.868	0.184	0.273	0.462	2,161	6.635	0.617
	SD	0.062	0.241	0.289	0.350	2,280	4.273	0.105
	1st Q	0.822	0.036	0.081	0.000	630	3.862	0.552
	Median	0.870	0.072	0.162	0.600	1,095	4.878	0.647
	3rd Q	0.903	0.120	0.270	0.600	2,909	8.754	0.669
Hong Kong (33)	Min	0.186	0.000	0.000	0.000	155	2.347	0.000
	Max	1.061	0.482	0.622	1.000	60,009	9.988	0.395
	Mean	0.507	0.082	0.141	0.250	13,020	6.177	0.181
	SD	0.195	0.125	0.181	0.317	18,449	2.137	0.103
	1st Q	0.395	0.012	0.020	0.000	791	4.677	0.129
	Median	0.515	0.012	0.027	0.000	3,058	6.064	0.168
	3rd Q	0.610	0.123	0.250	0.600	16,334	8.030	0.243
Netherlands (6)	Min	0.666	0.024	0.054	0.200	2,667	3.439	0.388
	Max	0.918	0.590	0.730	1.000	10,131	13.503	0.672
	Mean	0.827	0.149	0.230	0.567	4,648	7.742	0.498
	SD	0.088	0.217	0.248	0.266	2,768	3.382	0.119
	1st Q	0.812	0.063	0.135	0.450	3,110	6.123	0.431
	Median	0.857	0.072	0.149	0.600	3,928	7.497	0.437
	3rd Q	0.866	0.072	0.162	0.600	4,278	8.512	0.578

Table 14 continued

		Tobin's Q	CSR83	CSR37	CSR05	ASSETS	VOLA	LEV
Singapore (32)	Min	0.394	0.000	0.000	0.000	401	1.987	0.079
	Max	1.066	0.482	0.649	0.800	30,016	6.751	0.433
	Mean	0.786	0.042	0.080	0.213	3,371	3.748	0.297
	SD	0.162	0.087	0.125	0.236	5,382	1.499	0.089
	1st Q	0.660	0.000	0.000	0.000	872	2.543	0.246
	Median	0.798	0.024	0.054	0.200	1,695	3.342	0.312
	3rd Q	0.895	0.048	0.108	0.400	3,171	4.934	0.365
Sweden (10)	Min	0.772	0.036	0.081	0.400	139	3.102	0.199
	Max	1.192	0.474	0.649	1.000	5,502	15.919	0.640
	Mean	0.870	0.235	0.400	0.640	3,252	5.618	0.478
	SD	0.124	0.147	0.199	0.227	1,611	3.772	0.130
	1st Q	0.803	0.145	0.291	0.400	3,081	3.468	0.459
	Median	0.818	0.211	0.432	0.700	3,564	4.748	0.497
	3rd Q	0.898	0.313	0.534	0.800	3,764	5.706	0.566
United Kingdom (34)	Min	0.673	0.000	0.000	0.000	138	2.079	0.181
	Max	1.041	0.663	0.946	0.800	16,712	9.469	0.801
	Mean	0.838	0.140	0.262	0.388	3,237	4.787	0.439
	SD	0.095	0.139	0.238	0.303	4,230	1.796	0.147
	1st Q	0.767	0.036	0.034	0.000	437	3.561	0.325
	Median	0.854	0.120	0.243	0.500	1,656	4.246	0.441
	3rd Q	0.899	0.205	0.426	0.600	3,134	5.558	0.535

Notes: All variables are defined and calculated as described in section 5.2. Min, Max, SD, 1st Q and 3rd Q denote minimum value, maximum value, standard deviation, 1st Quartile and 3rd Quartile, respectively. Numbers in parenthesis stand for number of observations.

While most countries' arithmetic mean values for Tobin's Q range between 0.780 (Australia) and 0.897 (France), Hong Kong shows an exceptionally low arithmetic mean of just 0.507 for Tobin's Q. This exception is taken into account during the further empirical analysis. Sweden, France and Australia are the three countries with the highest average CSR83, CSR37 and CSR05 scores. By contrast, listed real estate investment companies from Hong Kong, Canada and Singapore show the lowest propensity to report on sustainability issues as their average scores for CSR83, CSR37 and CSR05 are the lowest. With around USD 13 billion, Hong Kong is the country with the largest average company size. However, only 50 % of these companies have total assets larger than USD 3 billion which indicates that the high mean value is skewed by a small number of very large companies. Additionally, it should be noted that many Hong Kong companies engage in fields of business other than real estate, even if real estate remains their core business. With regard to company size, Hong Kong is followed by France with mean total assets of USD 9.6 billion. Again, this high average is influenced by a few very large companies. For the remaining countries, the means range from USD 5 billion (Australia) and USD 2.2 billion (Germany). As with Hong Kong and France, most countries' averages are biased by a small number of large companies. As measured by VOLA, the riskiest companies can be found in France with an arithmetic mean value of 6.921. The lowest mean values for this variable are

observed for the Australian and Canadian samples. In terms of the capital structure, German companies display the highest average degree of leverage which is around 61.7 %. The lowest debt ratios can be found in the two Asian countries, Hong Kong and Singapore. The mean values for these two countries are 18.1 % and 29.7 %, respectively.

Subdividing the full sample according to REITs and REOCs delivers further insight into company type-specific peculiarities. Table 15 presents the summary of descriptive statistics for major variables by type of company.

Table 15: Summary of Descriptive Statistics for Major Variables by Type of Company

		Tobin's Q	CSR83	CSR37	CSR05	ASSETS	VOLA	LEV
REITs (110)	Min	0.394	0.000	0.000	0.000	95	1.709	0.059
	Max	1.341	0.986	1.000	1.000	39,369	11.663	0.718
	Mean	0.840	0.137	0.223	0.375	4,492	4.229	0.392
	SD	0.148	0.205	0.262	0.324	6,170	2.043	0.127
	1st Q	0.783	0.024	0.027	0.000	1,017	2.730	0.300
	Median	0.849	0.060	0.135	0.400	2,239	3.587	0.387
	3rd Q	0.908	0.187	0.324	0.600	5,619	5.070	0.466
REOCs (81)	Min	0.186	0.000	0.000	0.000	138	1.987	0.000
	Max	1.192	0.714	0.818	1.000	60,009	16.808	0.816
	Mean	0.690	0.111	0.192	0.341	7,299	5.865	0.364
	SD	0.204	0.145	0.209	0.328	13,158	2.894	0.217
	1st Q	0.577	0.012	0.027	0.000	739	3.851	0.164
	Median	0.728	0.048	0.108	0.400	2,609	5.066	0.375
	3rd Q	0.837	0.157	0.297	0.600	5,344	7.657	0.543

Notes: All variables are defined and calculated as described in section 5.2. Min, Max, SD, 1st Q and 3rd Q denote minimum value, maximum value, standard deviation, 1st Quartile and 3rd Quartile, respectively. Numbers in parenthesis stand for number of observations.

Average Tobin's Q for REITs is higher than it is for REOCs. The corresponding values are 0.840 and 0.690. This is in particular due to the large proportion of Hong Kong companies in the REOCs sample. With regard to CSR disclosure, REITs show a higher average propensity to report on sustainability matters as the average values of all three transparency variables CSR83, CSR37 and CSR05 are higher for the REITs sample than for the REOCs sample. REOCs are on average larger than REITs. The mean values for total assets are USD 7.3 billion and USD 4.2 billion, respectively. With respect to risk, the volatility ratio of the REOCs sample is slightly higher than the one measured for the REITs sample. The leverage ratio, however, is similar for both sub-samples.

With regard to the regression analyses in the next sections, it is important to look at the correlation matrices for the variables of interest, i.e. the CFP measure and the CSP measures which are concurrently used throughout various models. Table 16 presents the Pearson correlation matrix for Tobin's Q, CSR83 and its sub-indices.

Table 16: Pearson Correlation Matrix of Tobin's Q, CSR83 and Respective Sub-Indices

Variables	Tobin's Q	CSR83	ENV83	LAB83	HR83	SOI83
CSR83	**0.127 *** (0.081)	1.000 (-----)				
ENV83	**0.148 ** ** (0.041)	**0.965 *** ** (0.000)	1.000 (-----)			
LAB83	**0.136 *** (0.061)	**0.943 *** ** (0.000)	**0.892 *** ** (0.000)	1.000 (-----)		
HR83	0.049 (0.497)	**0.871 *** ** (0.000)	**0.753 *** ** (0.000)	**0.767 *** ** (0.000)	1.000 (-----)	
SOI83	0.075 (0.304)	**0.911 *** ** (0.000)	**0.830 *** ** (0.000)	**0.795 *** ** (0.000)	**0.866 *** ** (0.000)	1.000 (-----)
PR83	0.114 (0.117)	**0.932 *** ** (0.000)	**0.842 *** ** (0.000)	**0.878 *** ** (0.000)	**0.878 *** ** (0.000)	**0.850 *** ** (0.000)

Notes: The table presents the Pearson correlation coefficients among Tobin's Q, CSR83 and respective sub-indices. Statistical significance at the 1 %, 5 % and 10 % levels is indicated by ***, **, and *, respectively. The respective p-values are in parentheses.

Tobin's Q is positively correlated with CSR83 and all its sub-indices. However, only the correlations with CSR83, ENV83 and LAB83 are statistically significant. A very high and positive correlation between CSR83 and all sub-indices can also be observed. The Pearson correlation coefficients range between 0.871 and 0.965. This seems reasonable, since a higher sub-index inevitably leads to a higher CSR83. Moreover, the correlations among the CSR83 sub-indices invariably turn out very high and statistically highly significant. The values range from 0.767 to 0.892. This result clearly indicates that listed real estate investment companies do not merely pursue high levels of CSR disclosure in selective fields of CSR, but rather seek to implement a holistic approach to CSR disclosure which is able to reflect the integration of CSR into the value creation process.

The correlation matrix for Tobin's Q, CSR37 and its sub-indices is presented in table 17.

Table 17: Pearson Correlation Matrix of Tobin's Q, CSR37 and Respective Sub-Indices

Variables	Tobin's Q	CSR37	ENV37	LAB37	SOI37
CSR37	**0.169 **** (0.019)	1.000 (-----)			
ENV37	**0.180 **** (0.013)	**0.972 ***** (0.000)	1.000 (-----)		
LAB37	**0.150 **** (0.038)	**0.916 ***** (0.000)	**0.828 ***** (0.000)	1.000 (-----)	
SOI37	0.069 (0.345)	**0.845 ***** (0.000)	**0.749 ***** (0.000)	**0.757 ***** (0.000)	1.000 (-----)
PR37	**0.194 ***** (0.007)	**0.825 ***** (0.000)	**0.769 ***** (0.000)	**0.727 ***** (0.000)	**0.654 ***** (0.000)

Notes: The table presents the Pearson correlation coefficients among Tobin's Q, CSR37 and respective sub-indices. Statistical significance at the 1 %, 5 % and 10 % levels is indicated by ***, **, and *, respectively. The respective p-values are in parentheses.

Again, Tobin's Q is positively correlated with all CSR disclosure variables. Other than with PR83, the correlation between Tobin's Q and PR37 is statistically highly significant. In addition, CSR37 is positively correlated to all its sub-indices. The Pearson correlation coefficients among the sub-indices range between 0.654 and 0.828. These values are somewhat lower than the correlation coefficients for the CSR83 sub-indices.

The Pearson correlation coefficient for Tobin's Q and CSR05 is provided and analyzed in section 5.4.3.2.

5.4 Research Design and Empirical Methodology

The proposed hypotheses from section 4.5 are tested in a cross-sectional regression framework using ordinary least-squares estimation (OLS). In a first step, Tobin's Q is regressed against CSR83 and several control variables. In order to investigate the individual impacts of the sub-indices of CSR 83, Tobin's Q is regressed separately against each of the CSR83 sub-indices and several control variables. The last equation includes all CSR83 sub-indices. For the last equation, variance inflation factors are calculated in order to account for the problem of multicollinearity. Afterwards, several robustness checks are conducted to validate the obtained results. The described procedure is repeated for CSR37 and CSR05 to the extent to which this is applicable. Throughout the entire empirical analysis, all coefficient estimates are calculated based on standard errors robust to the presence of heteroscedasticity.

The descriptive analysis of the data revealed specific country-related differences. Accordingly, the second part of the empirical analysis introduces several interaction terms in order to account for regional differences. Only CSR05 is used as a proxy for CSP.

The last part of the empirical study addresses the problem of endogeneity by applying the method of instrumental variables estimation and 2SLS. An in-depth explanation for the method adopted is provided in this section. Again, only CSR05 is used as a measure for CSP.

5.4.1 Amount of CSR Information and Firm Value

The following section analyzes the association between the CSR-transparency of listed real estate investment companies and firm value as measured by Tobin's Q. The three variables CSR83, CSR37, CSR05 and their respective sub-indices are used as proxies for the CSR-transparency. Furthermore, robustness tests are conducted.

5.4.1.1 CSR83: Model Specification and Robustness Tests

This section introduces the results of the cross-sectional regression analysis using OLS. Tobin's Q is regressed separately on CSR83 and its sub-indices as well as on a set of several control variables in models (1) – (6). Model (7) introduces all sub-indices at once to explain the variation in Tobin's Q. The results are presented in table 18.

Table 18: Results of the Cross-Sectional Regression (OLS Estimation) of Tobin's Q on Various CSR-Variables (based on 83 indicators) and Control Variables

dependent Variable	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
model	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CSR83	**0.116 ****						
	(2.256)						
ENV83		**0.124 ****					0.080
		(2.388)					(0.762)
LAB83			**0.122 *****				0.073
			(2.736)				(0.737)
HR83				0.033			**-0.289 *****
				(0.998)			(-2.947)
SOI83					0.059		-0.014
					(1.475)		(-0.162)
PR83						**0.115 ****	**0.265 ****
						(2.335)	(2.005)
log(ASSETS)	-0.006	-0.007	-0.007	0.001	-0.001	-0.005	-0.015
	(-0.478)	(-0.602)	(-0.586)	(0.089)	(-0.114)	(-0.454)	(-1.171)
REIT	**0.103 *****	**0.102 *****	**0.105 *****	**0.106 *****	**0.105 *****	**0.104 *****	**0.104 *****
	(5.453)	(5.344)	(5.563)	(5.559)	(5.481)	(5.568)	(5.383)
ROA(t)	**0.006 ***	**0.006 ***	**0.006 ***	**0.006 ***	**0.006 ***	**0.006 ***	**0.006 ***
	(1.732)	(1.738)	(1.770)	(1.659)	(1.685)	(1.717)	(1.779)
ROA(t-1)	**-0.007 *****	**-0.007 *****	**-0.007 *****	**-0.007 *****	**-0.007 *****	**-0.007 *****	**-0.007 *****
	(-3.902)	(-3.848)	(-4.019)	(-4.005)	(-3.995)	(-3.899)	(-4.114)
VOLA	**-0.015 ****	**-0.015 ****	**-0.015 ****	**-0.015 ****	**-0.015 ****	**-0.015 ****	**-0.014 ****
	(-2.287)	(-2.329)	(-2.346)	(-2.220)	(-2.208)	(-2.198)	(-2.189)
LEV	**0.531 *****	**0.529 *****	**0.526 *****	**0.530 *****	**0.533 *****	**0.536 *****	**0.528 *****
	(9.120)	(9.094)	(9.073)	(9.042)	(9.112)	(9.177)	(9.275)
Intercept	**0.671 *****	**0.695 *****	**0.685 *****	**0.590 *****	**0.615 *****	**0.661 *****	**0.776 *****
	(25.440)	(25.519)	(25.903)	(24.918)	(25.042)	(25.851)	(18.115)
N	191	191	191	191	191	191	191
F-Statistic	**25.440 *****	**25.519 *****	**25.903 *****	**24.918 *****	**25.042 *****	**25.851 *****	**18.115 *****
(p-vlaue)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Adjusted R^2	0.464	0.466	0.469	0.455	0.458	0.465	0.475

Notes: The table presents the estimators for the coefficients of the OLS regression of Tobin's Q on various CSR-variables (based on 83 indicators) and control variables. T-values are calculated on the basis of White heteroscedasticity-robust standard errors and presented in parentheses below the respective estimates. Statistical significance at the 1 %, 5 % and 10 % level is indicated by ***, **, and *, respectively.

Model (1) represents the CSR83 base model. The coefficient estimate for CSR83 is 0.116 and statistically significant at the 5 % level. The increase or decrease of CSR83 is only possible by a multiple of 1,205 percentage points, because reporting on one more GRI-performance indicator invariably leads to an increase of 1,205 (= 100 / 83) percentage points. According to the model, the additional reporting on one more GRI-performance indicator is on average associated with an increase of Tobin's Q by 0.002 holding all other factors constant. Thus, the theoretical difference in Tobin's Q of a company which fully reports on all GRI-performance indicators and a company which does not report on any GRI-performance indicators is 0.116, all other factors held fixed. Models (2) – (6) are analogous to the base model but use the single components of CSR83 to explain the variation in Tobin's Q. The coefficient estimates for all sub-indices of CSR83 show positive signs as expected. However, even though the coefficient

estimates for ENV83, LAB83 and PR83 are statistically significant at least on the 5 % level, it is not possible to reject the null hypothesis that the coefficient estimates of HR83 and SOI83 are different from zero.

Including all sub-indices as explanatory variables in model (7) leads to rather unexpected results. The algebraic sign of the coefficient estimate for HR83 turns negative while the coefficient estimate itself becomes larger and statistically highly significant. With regard to the other sub-index estimates, only PR83 stays significant whilst also increasing in magnitude. Based on the very high correlation coefficients among the CSR83-subindices reported in table 16, the presence of multicollinearity must be considered when interpreting model (7). The usual remedy for problems of multicollinearity is to enlarge the sample size which, however, is not possible for the study at hand. However, an additional F-test for model (7) (which is not reported in the table) to test the joint hypothesis that all CSR-variables, i.e. ENV83, LAB83, HR83, SOI83 and PR83, are equal to zero after their groupwise inclusion is performed. The test yields an F-value of 3.086. Given the respective degrees of freedom, this F-value indicates that the null hypothesis can be rejected at the 5 % level (p-value = 0.011). Nevertheless, the calculation of the respective variance inflation factors (VIFs) for ENV83, LAB83, HR83, SOI83 and PR83 yields values of 6.78, 7.13, 6.52, 5.81 and 9.08, respectively. While it is not clear at which value of the VIF multicollinearity poses a problem, Wooldridge (2009) suggests a cutoff value of 10.[320] With this in mind, the results of model (7) have to be treated with extreme caution.

The goodness-of-fit is measured by the adjusted R^2 and measures the portion of variance of the dependent variable that is explained by the set of explanatory variables. In models (1) – (7), the value for R^2 is above 0.45.

All control variables, except log(ASSETS), are statistically significant at least on the 10 % level across all seven models. The insignificance of log(ASSETS) mirrors the results of Callan and Thomas (2009) and Garcia-Castro et al. (2010).[321] Holding all other factors constant, REITs are supposed to show a Tobin's Q which is on average 0.103 higher than the Tobin's Q for REOCs. ROA of the current period is positively correlated with Tobin's Q, whereas ROA of the previous period is negatively correlated with Tobin's Q. However, the economic significance of both is rather low, given the very small values of the respective coefficient estimates. In line with various other empirical studies which also measure risk by the variation in stock returns, VOLA is negatively associated with Tobin's Q.[322] LEV, however, is positively related to long-term financial profitability. This stands in contrast to the findings of Erhemjamts et al. (2013) and Schreck (2011) but corresponds to the findings of Garcia-Castro et al. (2010) and Cajias et al. (2011).[323]

[320] See Wooldridge (2009), p. 99.

[321] See Callan / Thomas (2009), p. 75; Garcia-Castro et al. (2010), p. 116.

[322] See Cajias et al. (2011), p. 14; Cajias et al. (2012), p. 150; Erhemjamts et al. (2013), p. 406.

[323] See Cajias et al. (2011), p. 14; Erhemjamts et al. (2013), p. 407; Garcia-Castro et al. (2010), p. 116; Schreck (2011), p. 180.

Table 19 displays the results of a variety of robustness checks for model (1) of table 18 which employs CSR83 as the explanatory variable of interest. The first model replaces Tobin's Q by MTBV as the dependent variable. Among others, Gietl et al. (2013) use this variation in their approach to investigating the CSP-CFP link.[324] In several studies, the natural logarithm of sales is furthermore used as a proxy for company size in the CSR literature.[325] Consequently, model (2) replaces log(ASSETS) by log(SALES). Column (3) and (4) document the results for the CSR83 base model for the REITs and REOCs subsample, respectively. Model (5) includes dummy variables to control for country-specific effects.

It should be noted, that the sample size N for the models (1) and (2) vary due to missing data in TRD. However, excluding the two missing observations from the base model does not alter the results. Furthermore, the sample sizes N for the models (3) and (4) are in line with the subsample-sizes for REITs and REOCs as delineated in section 5.1.

[324] See Gietl et al. (2013), p. 77.

[325] See Erhemjamts et al. (2013), p. 403; Garcia-Castro et al. (2010), p. 114; Gietl et al. (2013), p. 72; Schreck (2011), p. 175.

Table 19: Results of the Cross-Sectional Regression (OLS Estimation) of Market-to-Book Value and Tobin's Q on CSR83 and Control Variables

dependent Variable	MTBV	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
model	(1)	(2)	(3)	(4)	(5)
CSR83	0.081	**0.093 ***	-0.003	**0.246 ****	0.021
	(0.768)	(1.918)	(-0.065)	(2.596)	(0.415)
CAN					0.047
					(1.255)
UK					**0.074 *****
					(3.096)
FRA					0.090
					(1.285)
GER					**0.100 *****
					(2.780)
HK					**-0.131 *****
					(-2.738)
NLD					**0.031 ****
					(1.979)
SGP					0.061
					(0.808)
SWE					**0.139 *****
					(2.985)
log(ASSETS)	0.035		0.014	-0.022	0.005
	(1.343)		(1.301)	(-1.537)	(0.436)
log(SALES)		0.001			
		(0.063)			
REIT	**0.103 *****	**0.103 *****			**0.096 *****
	(2.626)	(5.400)			(4.709)
ROA(t)	0.005	0.006	0.001	**0.014 ****	0.005
	(0.695)	(1.586)	(0.200)	(2.551)	(1.545)
ROA(t-1)	**-0.010 *****	**-0.007 *****	-0.005	**-0.008 *****	**-0.004 ***
	(-3.690)	(-3.641)	(-1.247)	(-4.802)	(-1.901)
VOLA	**-0.030 ****	**-0.015 ****	**-0.022 *****	**-0.012 ***	**-0.011 ***
	(-2.058)	(-2.335)	(-3.763)	(-1.911)	(-1.711)
LEV	**0.444 *****	**0.531 *****	**0.375 *****	**0.594 *****	**0.270 *****
	(3.315)	(9.224)	(3.503)	(8.289)	(3.490)
Intercept	**0.248 *****	**0.586 *****	**0.602 *****	**0.831 *****	**0.576 *****
	(11.543)	(25.985)	(3.992)	(31.383)	(15.826)
N	190	189	110	81	191
F-Statistic	**11.543 *****	**25.985 *****	**3.992 *****	**31.383 *****	**15.826 *****
(p-vlaue)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Adjusted R^2	0.200	0.462	0.137	0.601	0.527

Notes: The table presents the estimators for the coefficients of the OLS regression of Tobin's Q and Market-to-Book value on various CSR-variables (based on 83 indicators) and control variables. T-values are calculated on the basis of White heteroscedasticity-robust standard errors and presented in parentheses below the respective estimates. Statistical significance at the 1 %, 5 % and 10 % level is indicated by ***, **, and *, respectively.

Model (1) shows that the CSR83 base model is not robust to the use of the market-to-book value in exchange for Tobin's Q. In addition, adjusted R^2 decreased to a value of just 0.200 displaying an exacerbated overall goodness-of-fit. Since total assets is included in the denominator of Tobin's Q which may lead to simultaneity problems, model (2) follows Gietl et

al. (2013) and uses log(SALES) as a proxy for firm-size.[326] A change of the size variable does not demonstrate a considerable effect. As for log(ASSETS), the coefficient estimate for log(SALES) is insignificant. The coefficient estimate for CSR83 slightly shrinks to 0.093 but is still statistically significant at the 10 % level.

An interesting finding is that the level of CSR transparency is only statistically significant for the REOCs subsample as shown in model (4). The coefficient estimate is 0.246 which is more than twice the coefficient estimate of the CSR83 base model. Additionally, the value of the adjusted R^2 for the REOCs subsample increases to 0.601. By contrast, the chosen explanatory variables are only able to explain 13.7 % of the variation of Tobin's Q for REITs in model (3). Furthermore, the coefficient estimate for CSR83 in the REITs subsample turns slightly negative, yet remains statistically insignificant.

Model (5) illustrates the result of controlling for country-specific effects. The binary variables CAN, UK, FRA, GER, HK, NLD, SGP and SWE take on the value one when the company's shares are registered in Canada, the United Kingdom, France, Germany, Hong Kong, the Netherlands, Singapore or Sweden. Otherwise the value is zero. Australia thus forms the reference group. Although the explanatory power increases, the coefficient estimate for CSR83 becomes quite small and statistically insignificant. Nonetheless, model (5) reaffirms the country-specific findings from table 14. For all country dummies, the coefficient estimates feature the expected algebraic signs with regard to their respective relation to the reference group. That is, the coefficient estimates for countries with a larger mean for Tobin's Q are positive and vice versa. Thus, only real estate investment companies listed in Hong Kong have a lower Tobin's Q on average. However, the results are statistically insignificant for companies from Canada, France and Singapore.

5.4.1.2 CSR37: Model Specification and Robustness Tests

The methods used in this section resemble the ones used in the previous section, yet rely on the use of CSR37 instead of CSR83 as a measure for CSP. An overview of the 37 selected GRI-performance indicators can be found in table 11 in section 5.2. As opposed to CSR83, CSR37 is based only on GRI-performance indicators which are deemed relevant for the investors of listed real estate investment companies. Accordingly, it is assumed that the CSR37 measure is less biased due to the omission of irrelevant information and therefore yields more valid results as suggested in Hypothesis H_2. The first five columns of table 20 present the results for the models using CSR37 and its sub-indices as an explanatory variable. Model (6) includes all CSR37-subindices as explanatory variables. Since no GRI-performance indicator from the subsection human rights (HR) is deemed relevant, there is no HR37 measure.

[326] See Gietl et al. (2013), p. 77.

Table 20: Results of the Cross-Sectional Regression (OLS Estimation) of Tobin's Q on Various CSR-Variables (Based on 37 Indicators) and Control Variables

dependent Variable	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
model	(1)	(2)	(3)	(4)	(5)	(6)
CSR37	**0.130 *****					
	(3.052)					
ENV37		**0.107 *****				0.037
		(2.886)				(0.566)
LAB37			**0.117 *****			0.074
			(2.919)			(1.117)
SOI37				**0.067 ***		-0.084
				(1.758)		(-1.510)
PR37					**0.113 *****	**0.086 ***
					(3.486)	(1.869)
log(ASSETS)	-0.011	-0.010	-0.008	-0.003	-0.012	-0.013
	(-0.913)	(-0.839)	(-0.714)	(-0.251)	(-1.010)	(-1.080)
REIT	**0.102 *****	**0.102 *****	**0.105 *****	**0.105 *****	**0.103 *****	**0.103 *****
	(5.421)	(5.336)	(5.576)	(5.501)	(5.574)	(5.435)
ROA(t)	**0.006 ***	**0.006 ***	**0.006 ***	**0.006 ***	**0.006 ***	**0.006 ***
	(1.789)	(1.762)	(1.822)	(1.688)	(1.766)	(1.839)
ROA(t-1)	**-0.007 *****	**-0.007 *****	**-0.007 *****	**-0.007 *****	**-0.007 *****	**-0.007 *****
	(-3.861)	(-3.837)	(-4.000)	(-4.032)	(-3.688)	(-3.733)
VOLA	**-0.015 ****	**-0.015 ****	**-0.015 ****	**-0.015 ****	**-0.015 ****	**-0.016 ****
	(-2.347)	(-2.353)	(-2.356)	(-2.208)	(-2.331)	(-2.426)
LEV	**0.526 *****	**0.522 *****	**0.526 *****	**0.535 *****	**0.521 *****	**0.511 *****
	(9.121)	(9.043)	(9.075)	(9.161)	(9.171)	(9.032)
Intercept	**0.739 *****	**0.733 *****	**0.699 *****	**0.635 *****	**0.746 *****	**0.765 *****
	(26.414)	(26.303)	(26.322)	(25.297)	(27.453)	(19.574)
N	191	191	191	191	191	191
F-Statistic	**26.414 *****	**26.303 *****	**26.322 *****	**25.297 *****	**27.453 *****	**19.574 *****
(p-vlaue)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Adjusted R^2	0.474	0.472	0.473	0.459	0.479	0.476

Notes: The table presents the estimators for the coefficients of the OLS regression of Tobin's Q on various CSR-variables (based on 37 indicators) and control variables. T-values are calculated on the basis of White heteroscedasticity-robust standard errors and presented in parentheses below the respective estimates. Statistical significance at the 1 %, 5 % and 10 % level is indicated by ***, **, and *, respectively

A first glance at table 20 reveals that the adjusted R^2 increases for all models as compared to their counterpart models using CSR83 (see table 18). Furthermore, the t-values for all CSR-measures used in models (1) – (5) are higher than in the models using CSR83 thereby implying a higher statistical significance. Consequently, the coefficient estimate for SOI37 is significant at the 10 % level. With regard to the magnitude and signs of the coefficient estimates, all besides CSR37 and SOI37 decrease in magnitude, yet stay positive. CSR37 increases in magnitude from 0.116 to 0.130 as compared to the coefficient estimates of CSR83 in the base model.

Column (6) illustrates the results of the model including all CSR37-subindices as explanatory variables. Looking at the CSR-variables, only the coefficient estimate for PR37 remains positive and significant, albeit at the lower 10 % level. The fact that the coefficient estimates for PR83

and PR37 are positive and significant in the models which include all respective CSR sub-indices provides support in favor of a special value relevance for the product responsibility area of CSR.

Analogous to section 5.4.1.1, an F-test for model (6) to test the joint hypothesis that all CSR37-sub-index variables, i.e. ENV37, LAB37, SOI37 and PR37, are equal to zero after their groupwise inclusion is performed. The test (which is not reported in the table) yields an F-value of 3.631. Given the respective degrees of freedom, this F-value indicates that the null hypothesis can be rejected at the 1 % level (p-value = 0.007). With regard to the potential problem of multicollinearity, the VIFs for ENV37, LAB37, SOI37 and PR37 are 4.46, 3.93, 2.78 and 2.77, respectively. Compared to the CSR83 counterpart model, the VIFs for the CSR37-subindices are much lower and thus remain far away from the cutoff value 10. Multicollinearity should therefore not pose a problem when interpreting model (6).

Table 21 illustrates the result of the robustness checks for the CSR37 base model.

Table 21: Results of the Cross-Sectional Regression (OLS Estimation) of Market-to-Book Value and Tobin's Q on CSR37 and Control Variables

dependent Variable	MTBV	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
model	(1)	(2)	(3)	(4)	(5)
CSR37	**0.170 ***	**0.104 ****	0.022	**0.214 *****	0.032
	(1.913)	(2.571)	(0.443)	(3.371)	(0.630)
CAN					0.049
					(1.303)
UK					**0.072 *****
					(2.909)
FRA					0.088
					(1.219)
GER					**0.097 ****
					(2.561)
HK					**-0.128 *****
					(-2.627)
NLD					**0.062 ****
					(2.022)
SGP					0.029
					(0.883)
SWE					**0.134 *****
					(2.751)
log(ASSETS)	0.022		0.011	**-0.026 ***	0.005
	(0.855)		(0.892)	(-1.808)	(0.436)
log(SALES)		-0.003			
		(-0.287)			
REIT	**0.100 ****	**0.103 *****			**0.096 *****
	(2.578)	(5.380)			(4.709)
ROA(t)	0.006	0.006	0.001	**0.013 ****	0.005
	(0.739)	(1.624)	(0.235)	(2.461)	(1.545)
ROA(t-1)	**-0.009 *****	**-0.007 *****	-0.005	**-0.007 *****	**-0.004 ***
	(-3.531)	(-3.661)	(-1.218)	(-4.634)	(-1.901)
VOLA	**-0.031 ****	**-0.015 ****	**-0.022 *****	**-0.011 ***	**-0.011 ***
	(-2.099)	(-2.420)	(-3.807)	(-1.788)	(-1.711)
LEV	**0.438 *****	**0.528 *****	**0.382 *****	**0.581 *****	**0.270 *****
	(3.276)	(9.237)	(3.569)	(8.155)	(3.490)
Intercept	**0.399 *****	**0.623 *****	**0.643 *****	**0.868 *****	**0.576 *****
	(12.031)	(26.438)	(3.999)	(30.817)	(15.826)
N	190	189	110	81	191
F-Statistic	**12.031 *****	**26.438 *****	**3.999 *****	**30.817 *****	**15.826 *****
(p-vlaue)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Adjusted R^2	0.210	0.469	0.138	0.613	0.527

Notes: The table presents the estimators for the coefficients of the OLS regression of Tobin's Q and Market-to-Book value on various CSR-variables (based on 83 indicators) and control variables. T-values are calculated on the basis of White heteroscedasticity-robust standard errors and presented in parentheses below the respective estimates. Statistical significance at the 1 %, 5 % and 10 % level is indicated by ***, **, and *, respectively.

Models (1) – (4) show higher values for adjusted R^2 as compared to their counterpart models using CSR83. The adjusted R^2 for model (5) does not change compared to the CSR83 equivalent. In contrast to the model using CSR83, the coefficient estimate for CSR37 comes up as positive and statistically significant in model (1), although the market-to-book value is used as dependent variable instead of Tobin's Q. Nevertheless, the goodness-of-fit stays on a rather

low level. The exchange of the size variables in model (2) shows no notable changes, even if the coefficient estimate for CSR37 becomes slightly larger in magnitude and is now statistically significant at the 5 % level.

Models (3) and (4) show that the results of the regressions using either the REITs subsample or the REOCs subsample undergo little change compared to table 19. The explanatory power of the model for REITs is rather weak and the coefficient estimate for CSR37 is low and statistically not significant, yet slightly positive. By contrast, the coefficient estimate for CSR37 in model (4) decreases marginally in magnitude but is now significant at the 1 % level, as compared to the 5 % level in the CSR83 counterpart model. Additionally, the coefficient estimate for the size variable log(ASSETS) is negative and becomes significant at the 10 % level. This indicates that larger REOCs tend to have smaller Tobin's Qs which reflects the lower future growth opportunities of large corporations.[327]

The last robustness test in model (5) once again includes country dummies and uses Australia as the reference group. Corresponding to the results using CSR83, the coefficient estimate remains insignificant. With regard to sign, magnitude and statistical significance, the coefficient estimates for the country dummies closely resemble their equivalents from model (5) in table 19.

In summary, using CSR37 instead of CSR83 yields more robust results. Taking into account the removal of the over-reporting bias, the general enhancement of the model can be considered as reasonable. Nonetheless, the method used to derive CSR37 is highly arbitrary and the doubts regarding its sufficiency cannot be dispelled. In view of these limitations, the next section uses the computationally derived CSR05 variable which comprises the five most influential GRI-performance indicators.

5.4.1.3 CSR05: Model Specification and Robustness Tests

The two previous sections used CSR83 and CSR37 as explanatory variables to predict listed real estate investment companies' Tobin's Q. As already mentioned in section 5.2, CSR05 will now be used as an explanatory variable of interest in order to meet the valid objection with regard to the arbitrariness of the process of deriving CSR37.Table 22 illustrates the results obtained from the examination of CSR05. Model (1) constitutes the CSR05 base model and models (2) – (6) resemble the related robustness checks discussed in the two previous sections. Furthermore, model (7) splits CSR05 into six dummy variables and includes them in the regression model. Each dummy variable in the model (CSR05_0.0, CSR05_0.2, CSR05_0.4, CSR05_0.6 and CSR05_0.8) corresponds to one possible value of CSR05 (i.e. 0.0, 0.2, 0.4, 0.6 and 0.8) depending on the number of GRI-performance indicators commented upon by a company. This is then divided by five so as to give the total number of included GRI-performance indicators in CSR05. Accordingly, CSR05_1.0 serves as the reference group. As a consequence, the reported coefficient estimate for a specific CSR05 dummy variable always has to be interpreted in relation to a company with a CSR05 value of 1.0.

[327] See Kohl / Schaefers (2012), p. 373

Table 22: Results of the Cross-Sectional Regression (OLS Estimation) of Tobin's Q and Market-to-Book Value on CSR05 and Control Variables

dependent Variable	Tobin's Q	MTBV	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
model	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CSR05	**0.167 *****	**0.234 *****	**0.145 *****	0.073	**0.219 *****	**0.108 *****	
	(4.259)	(2.831)	(3.855)	(1.292)	(5.371)	(2.707)	
CSR05_0.8							-0.044
							(-1.437)
CSR05_0.6							**-0.055 ***
							(-1.710)
CSR05_0.4							**-0.066 ***
							(-1.681)
CSR05_0.2							**-0.094 ****
							(-2.254)
CSR05_0.0							**-0.169 *****
							(-4.679)
CAN						0.054	
						(1.438)	
UK						**0.064 ****	
						(2.552)	
FRA						0.078	
						(1.152)	
GER						**0.069 ***	
						(1.786)	
HK						**-0.103 ****	
						(-2.218)	
NLD						**0.049 ***	
						(1.763)	
SGP						0.043	
						(1.356)	
SWE						**0.104 ****	
						(2.291)	
log(ASSETS)	**-0.022 ***	**0.006 ***		0.002	**-0.037 *****	-0.009	**-0.022 ***
	(-1.759)	(0.193)		(0.104)	(-2.803)	(-0.749)	(-1.778)
log(SALES)			-0.012				
			(-1.115)				
REIT	**0.100 *****	**0.095 ****	**0.100 *****			**0.090 *****	**0.096 *****
	(5.587)	(2.577)	(5.474)			(4.590)	(5.277)
ROA(t)	**0.006 ****	**0.006 ****	**0.006 ***	0.001	**0.012 ****	**0.005 ***	**0.007 ****
	(2.078)	(0.838)	(1.846)	(0.450)	(2.610)	(1.724)	(2.112)
ROA(t-1)	**-0.006 *****	**-0.009 *****	**-0.007 *****	-0.004	**-0.007 *****	**-0.004 ****	**-0.006 *****
	(-3.849)	(-3.325)	(-3.829)	(-1.169)	(-4.673)	(-2.076)	(-3.842)
VOLA	**-0.015 *****	**-0.031 *****	**-0.016 *****	**-0.022 *****	**-0.011 ****	**-0.011 ***	**-0.016 *****
	(-2.693)	(-2.297)	(-2.846)	(-3.983)	(-2.028)	(-1.848)	(-2.873)
LEV	**0.511 *****	**0.418 *****	**0.518 *****	**0.405 *****	**0.534 *****	**0.314 *****	**0.517 *****
	(9.196)	(3.212)	(9.297)	(3.734)	(7.396)	(4.316)	(9.525)
Intercept	**0.877 *****	**0.606 *****	**0.716 *****	**0.748 *****	**1.020 *****	**0.727 *****	**1.033 *****
	(32.504)	(14.573)	(30.886)	(4.331)	(37.116)	(18.136)	(5.802)
N	191	190	189	110	81	191	191
F-Statistic	**32.504 *****	**14.573 *****	**30.886 *****	**4.331 *****	**37.116 *****	**18.136 *****	**22.420 *****
(p-vlaue)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Adjusted R^2	0.509	0.237	0.498	0.152	0.659	0.543	0.506

Notes: The table presents the estimators for the coefficients of the OLS regression of Tobin's Q and Market-to-Book value on CSR05 and control variables. T-values are calculated on the basis of White heteroscedasticity-robust standard errors and presented in parentheses below the respective estimates. Statistical significance at the 1 %, 5 % and 10 % level is indicated by ***, **, and *, respectively.

The CSR05 base model, represented in the first column of table 22, shows an adjusted R^2 of 0.509 which is significantly higher than the two comparable figures seen in the CSR83 and CSR37 base models. Furthermore, the coefficient estimate for CSR05 is 0.167 and highly

significant at the 1 % level. Since the steps between the possible values of CSR05 are 0.2, reporting on one additional GRI-performance indicator is on average associated with an increment of Tobin's Q by 0.033, holding all other factors fixed. Accordingly, the theoretical difference in Tobin's Q for a company reporting fully on all five GRI-performance indicators included in CSR05 and a company not reporting on any GRI-performance indicator included in CSR05 is on average 0.167, holding all other factors fixed. The coefficient estimate for the size variable log(ASSETS) is negative and statistically significant at the 10 % level, indicating that on average smaller firms would be expected to have a larger Tobin's Q.

In model (2), CSR05 passes the first robustness check in which Tobin's Q is replaced with the market-to-book value. The coefficient estimate for CSR05 is positive and statistically significant at the 1 % level. However, as with CSR83 and CSR37, the goodness-of-fit remains on a rather low level of 0.237. As in the base model, the coefficient estimate for the size variable log(ASSETS) is statistically significant at the 10 % level. However, the algebraic sign is positive and the magnitude rather small. This finding is similar to the results of a comparable model presented by Gietl et al. (2013).[328] The authors justify this outcome by pointing out that the market-to-book value is not able to mirror the theoretical assumptions for Tobin's Q.

Using log(SALES) as a proxy for size in model (3) yields no further insights. The respective coefficient estimate is negative as expected but insignificant. However, as opposed to the CSR83 and CSR37 counterpart models, the coefficient estimate for the variable of interest becomes statistically more significant.

Models (4) and (5) present the results of the regression using the REITs and REOCs subsample, respectively. The outcomes confirm the findings from the previous models. In the REITs subsample the coefficient estimate for CSR05 is positive but statistically insignificant. Nevertheless, the corresponding t-value increased to 1.292. For the REOCs subsample the association between Tobin's Q and CSR05 is positive and statistically significant at the 1 % level. The adjusted R^2 for the latter model is 0.659, indicating that 65.9 % of the variation in Tobin's Q for REOCs is explained by the model.

Contrary to the results of the robustness checks for CSR83 and CSR37, model (6), which controls for country-specific differences, shows a positive and highly significant coefficient estimate for CSR05. A model using CSR05 is therefore fully robust to this kind of modification.

To challenge the argument alleging a wrong scaling of CSR05, model (7) replaces the metric CSR05 variable by the CSR05 dummy variables as explained above. A dummy variable CSR05_1.0 is not included in the model, since companies which report on all five GRI-performance indicators form the reference. As expected, the coefficient estimates of all CSR05 dummies come up with negative algebraic signs as well as an increase in magnitude as the amount of provided information on the GRI-performance indicators CRE8, EN6, EN7, EN27 and LA3 decreases. Companies which do not report on these five GRI-performance indicators have the lowest market valuation. The respective coefficient estimate for CSR_0.0 is -0.169.Thus, on average and holding all other factors constant, the difference in Tobin's Q for a listed real estate investment company not reporting on any of the five GRI-performance indicators and a

[328] See Gietl et al (2013), p. 77.

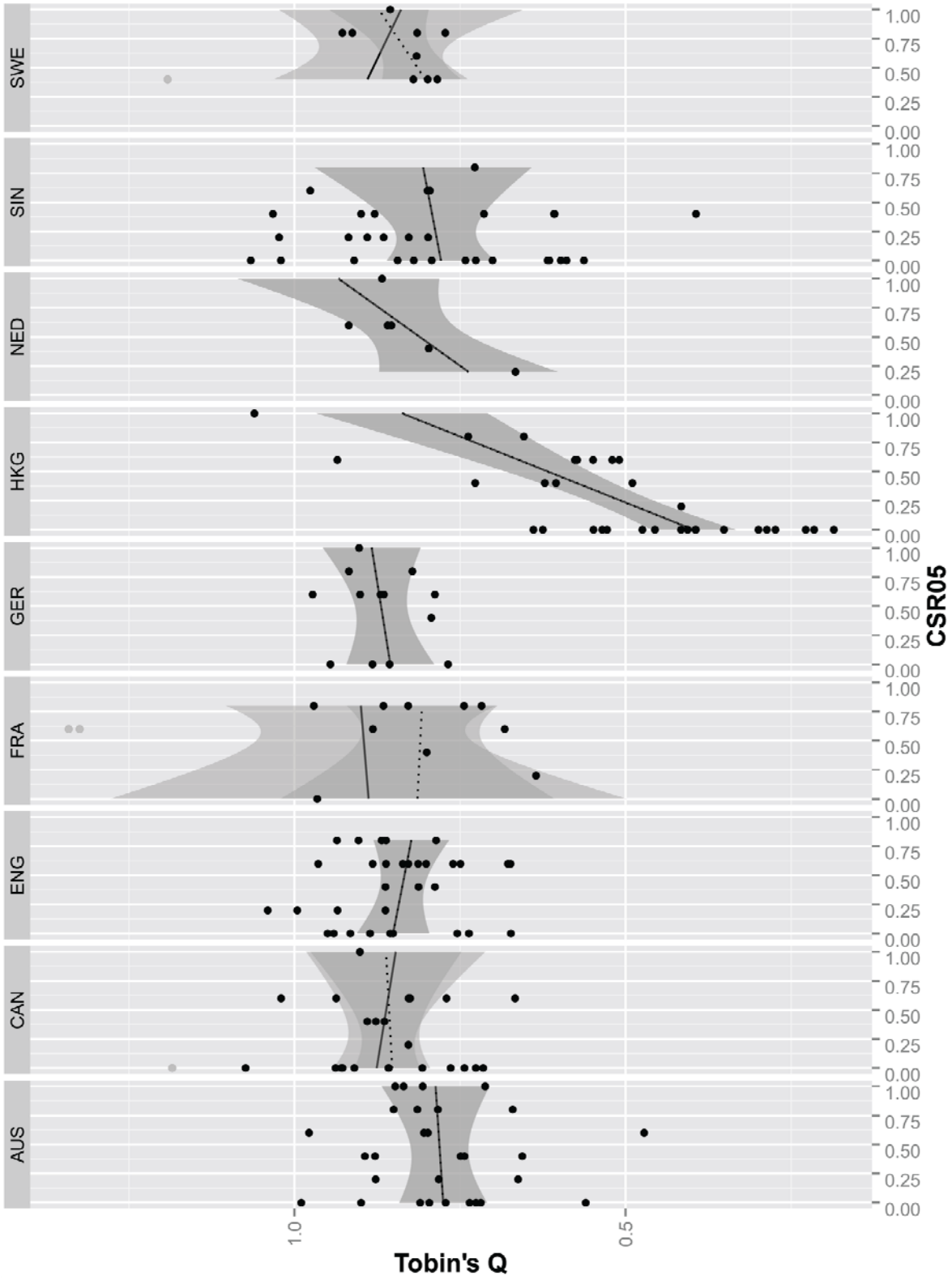
listed real estate investment company reporting on all five GRI-performance indicators is 0.169. This result confirms the findings from the CSR05 base model in column 1. For every additionally reported GRI-performance indicator, this difference becomes smaller. Except for CSR05_0.8, all relations to the reference group are statistically significant at the 10 %, 5 % or 1 % level.

A further regression, which is not reported in table 22, including the country variables as in model (6) yields largely unchanged results. Although the coefficient estimate for CSR05_0.0 decreases to a value of -0.132, it stays highly significant at the 1 % level.

5.4.2 Accounting for Special Country Effects

Figure 13shows the scatterplot of Tobin's Q against CSR05 by country.

Figure 13: Scatterplots of Tobin's Q against CSR05 by Country



Notes: The figure shows the scatterplots of Tobin's Q against CSR05 by country. Each dot denotes an individual firm. Solid lines show the regression lines for the univariate regression of Tobin's Q on CSR05 for each country. Dotted lines trace the regression lines for the univariate regression for Tobin's Q against CSR05 without outliers which are shown as grey dots.

As already seen in table 14, Hong Kong listed real estate investment companies show the lowest average values for Tobin's Q. Furthermore, the regression line for the Hong Kong subsample has the steepest positive slope. A glance at the other slopes of the (solid) linear regression lines reveals that there are also positive correlations between Tobin's Q and CSR05 for Australia, France, Germany, the Netherlands and Singapore. For Canada, the United Kingdom and Sweden, the slopes indicate a negative correlation. However, it must be noted that the country subsamples significantly vary in size. The effect of outliers can thus have an enormous impact on the slope of the linear regression line. For demonstration purposes, the dotted lines in the fields for Canada, France and Sweden depict the linear regression lines for the respective country subsamples when outliers are omitted (grey dots). It can be seen clearly that these omissions lead to an inverted slope. Due to the small sample sizes for each country, an analysis by country would not yield robust results. Thus, an analysis by regions is carried out below.

In order take regional and cultural differences into account, the sample is divided into three groups. The first group comprises all companies in the sample's Anglo-Saxon countries: Australia, Canada and the United Kingdom. Companies from Hong Kong and Singapore are assigned to the Asian group (ASIA) and the remaining companies from continental Europe, namely France, Germany, the Netherlands and Sweden constitute the third group (EU). Table 23 presents the corresponding models.

Table 23: Results of the Cross-Sectional Regression (OLS Estimation) of Tobin's Q on CSR05, Interactions and Control Variables

dependent Variable	Tobin's Q	Tobin's Q	Tobin's Q
model	(1)	(2)	(3)
CSR05	**0.090 ****	**0.423 *****	**0.079 ****
	(2.050)	(5.521)	(2.178)
non-HK		**0.251 *****	
		(6.091)	
ASIA	**-0.085 ****		
	(-2.280)		
EU	0.053		
	(1.433)		
CSR05 * non-HK		**-0.343 *****	
		(-4.607)	
CSR05 * EU	**-0.014 *****		
	(-0.278)		
CSR05 * ASIA	**0.180 *****		
	(2.467)		
log(ASSETS)	-0.020	-0.015	-0.015
	(-1.635)	(-1.407)	(-1.206)
REIT	**0.101 *****	**0.074 *****	**0.078 *****
	(5.499)	(4.317)	(4.407)
ROA(t)	**0.005 ***	0.003	0.003
	(1.820)	(1.225)	(1.115)
ROA(t-1)	**-0.006 *****	-0.002	0.001
	(-3.377)	(-1.156)	(0.595)
VOLA	**-0.016 *****	-0.008	-0.007
	(-2.909)	(-1.337)	(-1.183)
LEV	**0.404 *****	**0.356 *****	**0.379 *****
	(5.584)	(5.598)	(5.746)
Intercept	**0.917 *****	**0.605 *****	**0.821 *****
	(24.071)	(35.224)	(9.789)
N	191	191	159
F-Statistic	**24.071 *****	**35.224 *****	**9.789 *****
(p-vlaue)	(0.000)	(0.000)	(0.000)
Adjusted R^2	0.523	0.586	0.203

Notes: The table presents the estimators for the coefficients of the OLS regression of Tobin's Q on CSR05, interactions and control variables. T-values are calculated on the basis of White heteroscedasticity-robust standard errors and presented in parentheses below the respective estimates. Statistical significance at the 1 %, 5 % and 10 % level is indicated by ***, **, and *, respectively.

The first column of table 23 illustrates the results of the regression of Tobin's Q on CSR05, region dummies and the interaction effects between region and CSR05. Firms in Anglo-Saxon countries serve as the reference group. The coefficient estimate for CSR05 is 0.090 and is statistically significant at the 5 % level. Analogous to the interpretation of previous analyses, this suggests that a non-reporting Anglo-Saxon company's Tobin's Q is on average 0.090 lower than the Tobin's Q of a fully reporting Anglo-Saxon company.

On average, real estate investment companies listed in Asia have a lower Tobin's Q than the firms in the reference group, since the coefficient estimate for the ASIA dummy variable is negative and statistically significant at the 5 % level. Furthermore, for an Asian company, the

difference between Tobin's Q for non-reporting and fully reporting companies is larger than for companies in the reference group, since the coefficient estimate for CSR05*ASIA is 0.180 and statistically significant at the 1 % level. A fully reporting Asian company therefore has a Tobin's Q which is on average 0.270 (=0.180 + 0.090) higher than for non-reporting companies.

Although the coefficient estimate for CSR05*EU is negative, the overall association between Tobin's Q and CSR05 remains positive, since the magnitude of the coefficient estimate for CSR05 is larger than for CSR05*EU. The difference between non-reporting and fully reporting is therefore 0.076 for companies from continental Europe.

With regard to the particular case of Hong Kong, the second model distinguishes two groups, Hong Kong listed real estate investment companies and non-Hong Kong listed real estate investment companies. The binary variable non-HK takes on the value one when a company's shares are not listed in Hong Kong and zero otherwise. Besides the high adjusted R^2 of 0.586, the model delivers one main insight: the coefficient estimate for CSR05 is 0.423 and statistically significant at the 1 % level. This indicates a strong positive association between CSR05 and Tobin's Q for Hong Kong companies. For non-Hong Kong companies, the positive effect of CSR05 is significantly lower at 0.080 (=0.423 – 0.343), though still positive.

The third model bears no difference to the CSR05 base model other than that it uses only non-Hong Kong companies. As a consequence, the adjusted R^2 drops to 0.203 which suggests that the model fit decreases significantly with the omission of all Hong Kong firms. However, the coefficient estimate for CSR05 remains positive and statistically significant at the 5 % level.

As far as the control variables are concerned, the respective signs and magnitudes are similar to the results of the various regressions from the previous sections.

5.4.3 Addressing Endogeneity

The problem of endogeneity is being increasingly addressed in studies examining the link between CSP and CFP. Using the considerations put forward in section 4.3.3 as a point of departure, the following section introduces the application of instrumental variable regression analysis and 2SLS.[329] The specific approach which is used in this study is outlined and applied followed by a discussion of empirical results.

5.4.3.1 Employed Methodology

Since all empirical tests within this study rest on a cross-sectional data set, the only possibility to tackle the problem of endogeneity is the method of instrumental variable estimation and 2SLS. The basic OLS regression requires the explanatory variables to be uncorrelated with the error term. However, in the presence of endogeneity, this is not the case. The remainder of this

[329] According to Wooldridge (2002, p. 83), using 2SLS is the appropriate method for instrumental variables estimation of single-equation linear models. For the use of the method of 3SLS the establishment of a system of equations would be necessary which is not possible in the present case, because all other explanatory variables are deemed exogenous.

section explains the procedure of instrumental variable estimation by the method of 2SLS including several validity tests. The general equation of interest:

$$y = \beta_0 + \beta_1 x + u \tag{2}$$

is called structural form equation.

It is assumed that the explanatory variable x might be endogenous, i.e. x might be correlated with the error u. This is formally set out in equation (3):

$$Cov(x, u) \neq 0. \tag{3}$$

The rationale behind this assumption is derived from the various reasons outlined in section 4.3.3. Instrumental variable regression solves this problem by introducing an additional instrumental variable z which is able to isolate the part of the endogenous explanatory variable that is uncorrelated with the error u. An instrumental variable has to satisfy two requirements which are referred to as instrument relevance:

$$Cov(z, x) \neq 0 \tag{4}$$

and instrument exogeneity:

$$Cov(z, u) = 0. \tag{5}$$

The former requires the instrumental variable z to be correlated with the endogenous variable x. That is, z must be relevant for explaining variation in x. The latter requires the instrumental variable z to be uncorrelated with the error u, i.e. the instrumental variable would be exogenous when additionally used in the structural form equation (2). In summary, a strong instrumental variable z has to be able to explain much of the variation in the endogenous variable x and, at the same time, be uncorrelated with the error u.

The first requirement can be tested by regressing x on z. This equation is called the reduced form equation:

$$x = \pi_0 + \pi_1 z + v \tag{6}$$

In this way the endogenous explanatory variable x is broken down into a problematic part v which is correlated with the regression error u and an unproblematic part $\pi_0 + \pi_1 z$ which is able to predict x. When z is a relevant instrument for x, it is possible to reject the null hypothesis

$$H_0: \pi_1 = 0 \tag{7}$$

at a significance level of less than 5 %.[330] A so-called weak instrument is one that explains little of the variation in x. To determine whether the instrument is weak, it is necessary to compute the F-statistic in order to test the null hypothesis in equation (7). An F-statistic of less than 10 is evidence for a weak instrument.[331]

Given that the aim of instrumental variable regression is to use the unproblematic component of x, i.e. $\pi_0 + \pi_1 z$, and to neglect the part which is correlated with the regression error u, i.e. v, the importance of a strong instrument becomes obvious. The more the instrumental variable is able to explain variations in x, the more reliable the instrumental variable estimator is and the less of x is ignored.

When all coefficients are exactly identified, i.e. the number of endogenous explanatory variables equals the number of instrumental variables in a model, it is not possible to statistically test whether an instrument is exogenous or not. However, Jo and Harjoto (2011) argue that a non-correlation between the instrumental variable and the dependent variable from the structural equation provides some evidence for the exogeneity of the instrumental variable.[332]

Given that the instrument meets the two requirements, the coefficient β_1 of the structural equation (2) can be estimated using a 2SLS estimator. In a first step, using OLS, the endogenous variable is regressed on the instrumental variable and the other exogenous variables of the structural equation (2), if any. This step corresponds to the estimation of the reduced form equation (6). In a second step, the dependent variable is regressed on the predicted values of the endogenous variable $\hat{x}$ and, where applicable, any other exogenous explanatory variables.

It is necessary to test for the presence of endogeneity before interpreting the results of instrumental variable regression. Going back to Hausman (1978), the Hausman test examines whether the OLS and the 2SLS estimator are significantly different. Since the application is rather cumbersome, Wooldridge (2002) presents a regression-based version of the test which works as follows.[333] At first, the reduced form equation is estimated. Subsequently, the residuals from this regression are included in the structural form equation as additional

[330] See Wooldridge (2009), p 508.

[331] Stock / Watson (2007), pp. 441 and 466 provide justification of the critical value of 10. Different tests to check for instrument relevance are only possible in the case of more than one instrument.

[332] See Jo / Harjoto (2011), p. 358.

[333] See Wooldridge (2002), pp. 118-122.

explanatory variable. The extended model is estimated using OLS. Endogeneity is present when the coefficient estimate for the residuals is significantly different from zero.

With regard to the present problem, the structural form equation and the reduced form equation are:

$$Tobin's\ Q = \beta_0 + \beta_1 CSR05 + \beta_2\, log(ASSETS) + \beta_3 REIT + \beta_4 ROA(t) + \beta_5 ROA(t-1) + \beta_6 VOLA + \beta_7 LEV + u \quad (8)$$

and

$$CSR05 = \beta_0 + \beta_1 GRI\_yrs + \beta_2\, log(ASSETS) + \beta_3 REIT + \beta_4 ROA(t) + \beta_5 ROA(t-1) + \beta_6 VOLA + \beta_7 LEV + u, \quad (9)$$

respectively.

In the case at hand, the variable CSR05 is suspected to be endogenous. The reason for this assumption goes back to the potential correlation between CSR05 and the error due to reverse causality. It should be noted that as opposed to equation (2), the structural equation (8) includes control variables. The variable GRI_yrs is defined as described in table 10 (see section 5.2). It is assumed that after a listed real estate investment company has decided to address sustainability issues within the annual company reporting, the company's ability and willingness to report on CSR relevant matters increases over time. This means that the longer a company reports on CSR relevant issues, the higher the amount and quality of publicized CSR information. The variable GRI_yrs is thus taken to accurately predict CSR05 and in turn serves as an appropriate instrument for CSR05.

5.4.3.2 Specification of Tests

Table 24 shows the results of the 2SLS regression using GRI_yrs as the instrumental variable for CSR05 which is believed to be endogenous.

Table 24: Results of Instrumental Variable Regression Using GRI_yrs as an Instrument for CSR05

dependent Variable	Tobin's Q	CSR05	Tobin's Q	Tobin's Q
model	(1) structural form	(2) reduced form	(3) 2SLS	(4) Hausman test
CSR05	**0.167 *****		0.091	**0.091 ***
	(4.259)		(0.959)	(1.749)
GRI_yrs		**0.092 *****		
		(4.719)		
resid				0.090
				(1.547)
log(ASSETS)	**-0.022 ***	**0.119 *****	-0.011	**-0.011 *****
	(-1.759)	(8.276)	(-0.688)	(-0.780)
REIT	**0.100 *****	0.022	**0.103 *****	**0.103 *****
	(5.587)	(0.624)	(4.905)	(5.573)
ROA(t)	**0.006 *****	-0.002	**0.006 *****	**0.006 ** **
	(2.078)	(-0.526)	(-3.000)	(1.980)
ROA(t-1)	**-0.006 *****	**-0.005 ***	**-0.007 *****	**-0.007 *****
	(-3.849)	(-1.663)	(-3.500)	(-4.221)
VOLA	**-0.015 *****	0.005	**-0.015 *****	**-0.015 *****
	(-2.693)	(0.644)	(-3.750)	(-2.640)
LEV	**0.511 *****	0.157	**0.519 *****	**0.519 *****
	(9.196)	(1.477)	(8.238)	(9.410)
Intercept	**0.877 *****	**-1.479 *****	**0.740 *****	**0.740 *****
	(32.504)	(-7.495)	(3.579)	(4.122)
N	191	191	191	191
F-Statistic	**32.504 *****	**24.230 *****	**28.770 *****	**25.755 *****
(p-vlaue)	(0.000)	(0.000)	(0.000)	(0.000)
Adjusted R^2	0.509	0.438	0.508	0.516

Notes: The table presents the estimators for the coefficients of the OLS regression of both the structural form equation (8) and the reduced form equation (9). Model (3) illustrates the results of the 2SLS estimation. Model (4) gives test results for the regression-based Hausman test. T-values are calculated on the basis of White heteroscedasticity-robust standard errors and presented in parentheses below the respective estimates. Statistical significance at the 1 %, 5 % and 10 % level is indicated by ***, **, and *, respectively.

First of all it is to be noted that all regression models show an overall significance at the 1 % significance level as well as an adjusted R^2 of over 0.5. The only exception is model (2) which displays an adjusted R^2 of 0.438.

For the sake of clarity, model (1) illustrates the same model as model (1) in table 22 which equals the structural form equation (8) in this case. For an interpretation refer to the respective section 5.4.1.3.

Model (2) depicts the estimation results for the reduced form equation (9) using CSR05 as the dependent variable and GRI_yrs as the explanatory variable of interest or instrument, respectively. The coefficient estimate of GRI_yrs is 0.092 and is significant at the 1 % level. This result suggests that listed real estate investment companies which report in accordance with the GRI Guidelines for many years are more likely to report on CSR05 indicators. A glance at the estimator for log(ASSETS) reveals that larger firms show a higher propensity to report on the CSR05-indicators, as the coefficient estimate is positive and also significant at the 1 % level.

The F-statistic (which is not reported in the table) used to test the null hypothesis that the coefficient estimate of GRI_yrs is zero confirms the assumption of instrument relevance. It indicates a value of 22.264 which is well above the critical value of ten as proposed by Stock and Watson (2007) and therefore rejects the null hypothesis of a weak instrument.[334] With regard to the requirement of instrument exogeneity, it is not possible to conduct an empirical test since GRI_yrs is the only instrument and the model is therefore exactly identified. However, Jo and Harjoto (2011) and Schreck (2009) suggest that the instrumental variable should have no influence on the dependent variable (here Tobin's Q), except indirectly through the endogenous variable (here CSR05).[335] In line with this reasoning, table 25 shows a very low and insignificant correlation between the variables GRI_yrs and Tobin's Q and a high and significant correlation between GRI_yrs and CSR05. Based on these findings and the theoretical argumentation from the previous section, GRI_yrs is assumed to be a relevant and exogenous instrument for CSR05.

Table 25: Pearson Correlation Matrix of Tobin's Q, CSR05, and the Instrument GRI_yrs

Variables	Tobin's Q	CSR05
CSR05	**0.249 ***** (0.001)	1.000 (-----)
GRI_yrs	0.065 (0.374)	**0.490 ***** (0.000)

Notes: The table presents the Pearson correlation coefficients among Tobin's Q, CSR05 and GRI_yrs. Statistical significance at the 1 %, 5 % and 10 % level is indicated by ***, **, and *, respectively. The respective p-values are in parentheses.

Model (3) presents the results from the 2SLS estimation of model (1). While the coefficient estimates of the control variables are all significant at the 1 % level and show the same signs as model (1), the coefficient estimates of the explanatory variable of interest, CSR05, turns insignificant with a p-value of 0.339 which is not reported in the table. The lower t-value which is the prerequisite for such a high p-value is due to the following reason: the magnitude of the 2SLS estimator decreased considerably while, at the same time, the standard error more than doubled. As a result, the low and positive effect of CSR05 is insignificant under 2SLS estimation.

In order to check for the presence of endogeneity, model (4) presents the results of the regression-based Hausman test. As explained above, a statistically significant coefficient estimate for the residuals from the reduced form equation is proof of the presence of endogeneity. However, a glance at column (4) reveals that the relation between Tobin's Q and the explanatory variable resid is statistically not significant. As a consequence, the null hypothesis of no endogeneity cannot be rejected. This means that there is no evidence for the presence of reverse causality, measurement error in variables or omitted variable bias, given that GRI_yrs is a relevant and exogenous instrument for CSR05.

[334] See Stock / Watson (2007), pp. 441 and 466.

[335] See Jo / Harjoto (2011), p. 358; Schreck (2009), p. 80.

In the context of this result, Wooldridge (2002) suggests relying on the OLS coefficient estimates as long as the null hypothesis of no endogeneity cannot be rejected.[336] Based on this notion, the inference to be drawn is that OLS yields consistent and unbiased estimates since there is no evidence for simultaneous causality, omitted variable bias or measurement error. OLS yields more efficient estimates than 2SLS when the endogenous variables are in fact exogenous.[337]

[336] See Wooldridge (2002), p. 104.

[337] See Wooldridge (2009), p. 527.

5.5 Discussion of Empirical Findings

This section links the findings of the previous empirical analysis to the various hypotheses proposed in section 4.5. For the sake of convenience, the hypotheses are presented again and subsequently discussed in detail.

> H_{1a}: The amount of disclosed CSR information by a listed real estate investment company is positively related to its market valuation.

Overall, a positive association can be observed between the amount of disclosed overall CSR information of a listed real estate investment company and its market valuation. Hypothesis H_{1a} can thus be confirmed. The results of model (1) in table 18, table 20 and table 22 show that regardless of whether CSR83, CSR37 or CSR05 were used as a measure for CSP, the association between CSP and CFP stays invariably positive and statistically and economically significant.

> H_{1b}: The amount of disclosed CSR information regarding the environment by a listed real estate investment company is positively related to its market valuation.
>
> H_{1c}: The amount of disclosed CSR information regarding labor practices and decent work by a listed real estate investment company is positively related to its market valuation.
>
> H_{1d}: The amount of disclosed CSR information regarding human rights by a listed real estate investment company is positively related to its market valuation.
>
> H_{1e}: The amount of disclosed CSR information regarding society by a listed real estate investment company is positively related to its market valuation.
>
> H_{1f}: The amount of disclosed CSR information regarding product responsibility by a listed real estate investment company is positively related to its market valuation.

Hypotheses H_{1b}, H_{1c}, and H_{1f} can be fully confirmed. In the corresponding models in table 18 and table 20, the associations between the sub-indices for the GRI subsections "Environmental", "Labor Practices and Descent Work", and "Product Responsibility" and Tobin's Q are positive and statistically significant. This result does not depend on the use of the respective sub-indices of CSR83 or CSR37. Another pattern can be observed in the case of the sub-indices for "Society" and "Human Rights". While model (5) of table 18 indicates a positive but statistically insignificant relationship between SOI83 and Tobin's Q, this relationship emerges as statistically significant for SOI37 in model (4) of table 20. Hence, H_{1e} can only be confirmed when employing the respective sub-index of CSR37. HR83 reveals a positive but statistically insignificant association with Tobin's Q in model (4) of table 18. Based on these findings hypothesis H_{1d} cannot be confirmed.

The reason for these heterogeneous results is that CSR engagements are in some areas given lower priority by investors of listed real estate investment companies and are therefore also valued lower. In particular, the relationship between information about the CSR engagement in the area "Society" is not statistically significant until irrelevant information is removed (i.e. SOI37 is used instead of SOI83). With regard to information on engagements in the CSR area "Human Rights" the lack of statistical significance in the relationship between HR83 and

Tobin's Q is due to the virtually non-existence of risks for listed real estate investment companies which stem from human rights issues like compulsory labor or child labor. It is therefore a reasonable assumption that investors do not attach value to listed real estate investment companies' engagements in the CSR area "Human Rights". By contrast, CSR engagements in areas like "Environment", "Labor Practices and Descent Work" and "Product Responsibility" are much valued by investors because engagements in these areas are conducive to the economic success of listed real estate investment companies.

> H_2: A too comprehensive measurement of CSR mitigates the relationship between CSP and CFP for listed real estate investment companies.

In section 5.2 it was argued that a high CSR83 score may be explained by the explicit omission of certain GRI-performance indicators and the provision of rather unimportant information. For that reason, the explanatory variables CSR37 and CSR05 were developed. According to hypothesis H_2, concentrating on less and, with regard to listed real estate investment companies, potentially more value relevant CSR information yields a more robust association between the amount of disclosed CSR information and market valuation. Using CSR37 instead of CSR83 as a proxy for CSP results in a statistically more significant relationship of CSP and CFP, as can be seen in model (1) of table 18 and table 20. The same is true when the sub-indices of CSR37 are applied in lieu of the sub-indices of CSR83. As shown in model (1) of table 19 and table 21, the use of CSR37 is robust to the replacement of Tobin's Q by MTBV. This is not the case for CSR83. In addition, CSR37 is statistically more significant than CSR83 in model (2) of the same tables in which log(ASSETS) is replaced by log(SALES). However, with the inclusion of country dummies, the coefficient estimates for CSR83 as well as CSR37 emerge statistically insignificant. Employing the computationally derived CSP measure CSR05 provides further insights. The CSR05 base model (1) of table 22 shows the economically most relevant and statistically most significant CSP-CFP association. Furthermore, CSR05 remains statistically highly significant in all robustness checks, even though country dummies are included. On the basis of all of these results, there is clear and convincing evidence in favor of confirming Hypothesis H_2. Thus, a focused measurement of CSR information on relevant matters is positively associated with the financial performance of a real estate investment company. In contrast, the association between CSP and CFP is clearly mitigated when all GRI-performance indicators are taken into account for measuring CSP.

> H_3: There are no country-specific peculiarities regarding the association between the amount of disclosed CSR information by a listed real estate investment company and its market valuation.

In view of the results presented in table 23, the null hypothesis of regional and country-specific peculiarities regarding the association between the amount of disclosed CSR information by a listed real estate investment company and its market valuation cannot be rejected. Other than expected, there exist regional and country-specific differences. The positive association between CSR05 and Tobin's Q is strongest for companies from Asia followed by the Anglo-Saxon companies. Furthermore, the special position of Hong Kong, as documented inFigure 13, is statistically confirmed in model (2) of table 23.

As does the propensity to disclose CSRinformation between different countries and cultural regions[338], the relationship between the amount of CSR-disclosure and Tobin's Q varies. The high educational levels in the Asian city states and an enhanced level of environmental awareness as well as fair and non-discriminatory labor practices may create a business environment in which listed real estate investment companies' CSR engagements are more appreciated by investors than in other regions like Continental Europe or the Anglo-Saxon world. A separate investigation into the composition of investors, which is beyond the scope of this study, would, however, be necessary to gain further insights.

The specific reasons accounting for the special place occupied by Hong Kong companies is, however, not as clear. As already noted in section 5.1, many Hong Kong listed real estate investment companies are engaged in other lines of business, too. It is thus possible that the CFP in non-real-estate business lines is disproportionately positively affected by CSR reporting compared to the firms' CFP in the real estate business. As a consequence, this translates into an enhanced overall CFP as compared to listed real estate companies from other countries operating only in the real estate investment business. This explanation is in line with the empirical results obtained by Hoepner et al. (2010) who found that the CSP-CFP link is not homogenous across industries.[339] Nonetheless, the positive and significant association between CSR05 and Tobin's Q also holds when Hong Kong listed real estate investment companies are excluded from the sample as column 3 of table 23 shows.

> H_4: There is no difference in the association between the amount of disclosed CSR information by a listed real estate investment company and its market valuation for REITs and REOCs.

In general, it was shown throughout the analysis and across all model specifications that, on average, REITs show a higher Tobin's Q than REOCs. Based on the results of the robustness tests in table 19, table 21 and table 22, where regressions were conducted using the REITs and REOCs subsamples, Hypothesis H_4 cannot be confirmed. Nevertheless, it must be noted that the number of observations in these settings is fairly low and that in the case of REITs, the adjusted R^2 drops considerably. The latter finding is in line with Kohl (2009) who also reports a significantly lower adjusted R^2 for a REITs subsample as compared to a REOCs subsample.[340]

> H_5: Reverse causality is present in the relation between the amount of disclosed CSRinformation by a listed real estate investment company and its market valuation.

On the basis of the empirical results of section 5.4.3.2, it is not possible to substantiate any suspicion of endogeneity, given that GRI_yrs is a relevant and exogenous instrument for CSR05. The theory of a virtuous circle, therefore, cannot be confirmed. As a result, the null hypothesis of the absence of endogeneity cannot be rejected. The validity of GRI_yrs has been properly tested and verified. Thus, it can be assumed that OLS yields consistent and unbiased estimates. Apart from ceteris paribus statements, no causal relationship in the direction from CSR05 to

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338 See Orji (2010), p. 885.

339 See Hoepner et al. (2010), p. 30; See also section 4.3.1 for industry as a factor affecting the CSP-CFP link.

340 See Kohl (2009), p. 130.

Tobin's Q can be established. In other words, it is not possible to provide empirical evidence for the conclusion that a change in CSR05 automatically and invariably leads to a change in Tobin's Q.

In this context, Schreck (2011) criticizes that, in the case of only one instrumental variable, the exogeneity condition cannot be tested statistically. As a consequence, he argues that the results of the Hausman test might be misleading and that the problem of endogeneity therefore might ultimately not be eliminated. Furthermore, the author suggests that the large standard errors in the 2SLS estimators and the inference of a failure to establish a causal relationship which runs in the direction from CSP to CFP is largely due to a small sample size.[341] In this point, the study at hand is similar to Schreck's (2011).

Nevertheless, when following the same line of reasoning in this case and thus assuming that GRI_yrs passes the instrument relevance condition yet fails to fulfill the instrument exogeneity condition, there might still be some evidence for a causal relationship between CSR05 and Tobin's Q. The notion behind this proposition is based on the lagged variables approach to test for one-directional causality as has been done by Hillman and Keim (2001), Waddock and Graves (1997) and Callan and Thomas (2009).[342]

Taking into consideration the empirical design of this study, there are two reasons according to which this is the case. First, the measurement of CSP is, as opposed to the measurement of CFP, backward-looking in nature. CSR-reports exclusively contain information on past CSP. Second, as explained in section 5.2, the technical design of Tobin's Q ensures that at the point in time at which market valuation is measured, all recent CSR information has already been made public. This approach ensures that Tobin's Q is based on as much recent information as possible. However, these deliberations do not resolve the problem of the potential existence of other sources for endogeneity, namely omitted variable bias and measurement error in variables.

[341] See Schreck (2011), p. 183-184.

[342] See Callan / Thomas (2009), p. 65; Hillman / Keim (2001), p. 129; Waddock / Graves (1997), p. 312.

6 Conclusion and Prospects

This study set out to investigate the relationship between CSP and CFP for a sample of 191 listed real estate investment companies from nine different countries. In general, the results from the empirical analysis conducted do not lend support to the neo-classical idea that the engagement in CSR activities and the implementation of a comprehensive CSR strategy destroy shareholder wealth. In fact, it is rather the opposite that is true. With regard to listed real estate investment companies, evidence shows that there is strong reason to suggest that a convincing business case for CSR can be made. Furthermore, if listed real estate investment companies decide to report on CSR matters, they decide to do so comprehensively. In line with legitimacy theory, CSR reporting is seen as an adequate channel through which to communicate CSR related information to stakeholders.

As opposed to numerous other studies, the analysis above is able to showcase a positive and statistically significant link between the provided amount of overall CSR information and the market valuation of a listed real estate investment company. In particular, the information provided in the CSR areas of "Environment", "Labor Practices and Descent Work" and "Product Responsibility" are shown to have a positive effect on market valuation. The results for the sub-categories "Society" and "Human Rights", however, are mixed.

With regard to the CSP-CFP link, the indicator selection process based on the method of component-wise gradient boosting revealed that especially those indicators are deemed value relevant by investors which are directly linked to the core business of listed real estate investment companies. Here, the efforts of companies to mitigate environmental impacts by reducing resource and energy consumption of buildings are identified as particularly value relevant. Based on this finding, it seems reasonable to infer that investors value initiatives which have a clear and coherent link to the enhancement of future value creation processes.

In the case of listed real estate investment companies, a sustainable approach towards strategic management is rewarded by the capital markets. It therefore makes sense for business executives of such companies to implement appropriate CSR strategies into their core business functions. In order to reap the benefits from these activities, a listed real estate investment company has to report on its CSR engagements in detail and make this information public in a structured way. With regard to the implemented CSR strategy, a focus should be put on areas which directly relate to the core business and entail future cost advantages such as the investment into sustainable buildings or the enhancement of energy efficiency in portfolio properties. Reporting such efforts effectively is then key to enjoying the benefits of an enhanced valuation by capital markets.

This study is able to make a valuable contribution to the existing body of literature with regard to sustainability in the real estate investment sector, as it responds to the claim for single-industry investigations on a global level. The results obtained are widely in accordance with previous CSR research from the real estate literature which is mostly based on U.S. samples. Taking into account the different accounting regimes in the U.S. and the countries included in this study, it is possible to replicate the finding that investments into green buildings or the engagement in energy-saving initiatives on the portfolio level translates into an increased

financial performance on a corporate level. Furthermore, as argued in other U.S. based study contexts, it is not possible to lend support to the contention that the CSR engagement of a listed real estate investment company is to the detriment its shareholders.

On the downside, focusing on a very distinct type of company, in this case listed real estate investment companies, makes a small sample size inevitable. Nevertheless, the sample basically covers all available significant REITs and REOCs of the nine different countries included in this study. As such, the current sample is hardly expandable other than through expanding it to include further countries. Another restraint of this study is that most of the CSR information provided by listed real estate investment companies is publicized in a rather unstructured manner which hampers and protracts the process of data collection significantly.

In order to remedy these problems, future research may increasingly draw on panel data approaches. However, the number of listed real estate investment companies worldwide which report on CSR issues using the GRI Guidelines is still rather low and has been even lower in the past. It is likely to take a few more years until a data base will be available which is large enough to allow for the use of more sophisticated statistical techniques while considering CSR engagements of listed real estate investment companies in detail. Furthermore, as long as the accounting rules for countries like the United States and Japan are not fully aligned to IFRS, the integration of these countries into cross-country analyses will remain difficult.

References

ABBOTT, W. F. / MONSEN, R. J. (1979): On the measurement of corporate social responsibility: Self-reported disclosures as a method of measuring corporate social involvement,in: Academy of Management Journal, Vol. 22, No. 3, pp. 501–515.

ADAMS, C. A. / NARAYANAN, V. (2007): The 'standardization' of sustainability reporting, in: Unerman, Jeffrey; Bebbington, Jan; O'Dwyer, Brendan (2007):Sustainability accounting and accountability (London & New York: Routledge), pp. 70–85.

AGLE, B. R. / MITCHELL, R. K. / SONNENFELD, J. A. (1999): Who matters to CEOs? An investigation of stakeholder attributes and salience, corporate performance, and CEO values, in: Academy of Management Journal, Vol. 42, No. 5, pp. 507–525.

ALAM, M. (2006): Stakeholder theory, in: Hoque, Zahirul (**2006):** Methodological issues in accounting research (London: Spiramus Press), pp. 207–222.

ALLOUCHE, J. / LAROCHE, P. (2005): A meta-analytical investigation of the relationship between corporate social and financial performance, in: Revue de Gestion des Ressources Humaines, Vol. 57, 18–40.

ANDERSEN, M. L. / DEJOY, J. S. (2011): Corporate social and financial performance: The role of size, industry, risk, R&D and advertising expenses as control variables, in: Business and Society Review, Vol. 116, No. 2, pp. 237–256.

ANDERSON, E. W. / FORNELL, C. / MAZVANCHERYL, S. K. (2004): Costumer satisfaction and shareholder value, in: Journal of Marketing, Vol. 68, No. 4, pp. 172–185.

ARVIDSSON, S. (2010): Communication of corporate social responsibility: A study of the views of management teams in large companies, in: Journal of Business Ethics, Vol. 96, No. 3,pp. 339–354.

ASHFORTH, B. E. / GIBBS, B. W. (1990): The double-edge of organizational legitimation, in: Organization Science, Vol. 1, No. 2, pp. 177–194.

BABIAK, K. / TRENDAFILOVA, S. (2011): CSR and environmental responsibility: motives and pressures to adopt green management practices, in: Corporate Social Responsibility and Environmental Management, Vol. 18, No. 1, pp. 11–24.

BACKHAUS, K. B. / STONE, B. A. / HEINER, K. (2002): Exploring the relationship between corporate social performance and employer attractiveness, in: Business & Society, Vol. 41,No. 3, pp. 292–318.

BANSAL, P. / CLELLAND, I. (2004): Talking trash: Legitimacy, impression management, and unsystematic risk in the context of natural environment, in: Academy of Management Journal, Vol. 47, No. 1, pp. 93–103.

BARNETT, M. L. (2007): Stakeholder influence capacity and the variability of financial returns to corporate social responsibility, in: Academy of Management Review, Vol. 32, No. 3,pp. 794–816.

BART, C. K. (1997): Industrial firms and the power of mission, in: Industrial Marketing Management, Vol. 26, No. 4, pp. 371–383.

BAUCUS, M. (1995): Halo-adjusted residuals: Prolonging the life of a terminally ill measure of corporate social performance, in: Business & Society, Vol. 34, No. 2, pp. 227–235.

BAUMGARTNER, R. J. (2010): Nachhaltigkeitsorientierte Unternehmensführung: Modell, Strategien und Managementinstrumente (Munich: Rainer Hampp Verlag).

BBP (BETTER BUILDINGS PARTNERSHIP) (2013): Green lease toolkit, Available at: www.betterbuildingspartnership.co.uk/download/bbp-gltk-2013.pdf, accessed: 07/05/2014.

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, Vol. 42, No. 5, pp. 488–506.

BERTHELOT, S. / COULMONT, M. / SERRET, V. (2012): Do investors value sustainability reports? A Canadian study, in: Corporate Social Responsibility and Environmental Management, Vol. 19, No. 6, pp. 355–363.

BHATTACHARYA, C. B. / SEN, S. / KORSCHUN, D. (2008): Using corporate social responsibility to win the war for talent, in: MIT Solan Management Review, Vol. 49, No. 2, pp. 36–44.

BICCHIERI, C. (2006): The grammar of society (Cambridge: Cambridge University Press).

BIRD, S. / HERNÁNDEZ, D. (2012): Policy options for the split incentive: Increasing energy efficiency for low-income renters, in: Energy Policy, Vol. 48, 506–514.

BLUME, M. E. / KEIM, D. B. (2012): Institutional investors and stock market liquidity: Trends and relationships, Available at: papers.ssrn.com/abstract=2147757, accessed: 05/10/2014.

BP (2013): Statistical review of world energy, Available at:www.bp.com/content/dam/bp/pdf/statistical-review/statistical_review_of_world_energy_2013.pdf, accessed: 02/21/2014.

BP (2014a): BP energy outlook 2035 booklet, Available at: www.bp.com/content/dam/bp/pdf/Energy-economics/Energy-Outlook/Energy_Outlook_2035_booklet.pdf, accessed: 03/30/2014.

BP (2014b): BP energy outlook 2035 Excel tables, Available at: www.bp.com/content/dam/bp/excel/Energy-Economics/BP_Energy_Outlook_2035_Summary_Tables_2014.xls, accessed: 03/30/2014.

BRAMMER, S. / MILLINGTON, A. / RAYTON, B. (2007): The contribution of corporate social responsibility to organizational commitment, in: The International Journal of Human Resource Management, Vol. 18, No. 10, pp. 1701–1719.

BROWN, A. D. (1998): Narrative, politics and legitimacy in an IT implementation, in: Journal of Management Studies, Vol. 35, No. 1, pp. 35–58.

BROWN, B. / PERRY, S. (1994): Removing the financial performance halo from Fortune's "most admired companies, in: Academy of Management Journal, Vol. 37, No. 5, pp. 1347–1359.

BROWN, H. S. / JONG, M. de / LESSIDRENSKA, T. (2009): The rise of the Global Reporting Initiative: A case of institutional entrepreneurship, in: Environmental Politics, Vol. 18, No. 2,pp. 182–200.

BSR (BUSINESS FOR SOCIAL RESPONSIBILITY) (2012): State of sustainable business poll 2012, Available at: https://www.bsr.org/reports/BSR_GlobeScan_State_of_Sustainable_ Business_Survey_2012.pdf, accessed: 02/26/2014.

CAJIAS, M. / BIENERT, S. (2011): Does sustainability pay off for European listed real estate companies? The dynamics between risk and provision of responsible information, in: Journal of Sustainable Real Estate, Vol. 3, No. 1, pp. 211–231.

CAJIAS, M. / FUERST, F. / MCALLISTER, P. / NANDA, A. (2011): Do responsible real estate companies outperform their peers?, Available at: papers.ssrn.com/abstract=1808701, accessed: 07/25/2012.

CAJIAS, M. / GEIGER, P. / BIENERT, S. (2012): Green agenda and green performance: Empirical evidence for real estate companies, in: Journal of Real Estate Research, Vol. 5, No. 2, pp. 135–155.

CAJIAS, M. / PIAZOLO, D. (2013): Green performs better: Energy efficiency and financial return on buildings, in: Journal of Corporate Real Estate, Vol. 15, No. 1, pp. 53–72.

CALLAN, S. J. / THOMAS, J. M. (2009): Corporate financial performance and corporate social performance: an update and reinvestigation, in: Corporate Social Responsibility and Environmental Management, Vol. 16, No. 2, pp. 61–78.

CARROLL, A. B. (1979): A three-dimensional conceptual model of corporate social performance, in: Academy of Management Review, Vol. 4, No. 4, pp. 497–505.

CARROLL, A. B. (1991): The pyramid of corporate social responsibility: toward the moral management of organizational stakeholders, in: Business Horizons, Vol. 34, No. 4, pp. 39–48.

CARROLL, A. B. (1999): Corporate social responsibility: Evolution of a definitional construct, in: Business & Society, Vol. 38, No. 3, pp. 268–295.

CARROLL, A. B. (2000): A commentary and an overview of key questions on corporate social performance measurement, in: Business & Society, Vol. 39, No. 4, pp. 466–478.

CARROLL, A. B. / SHABANA, K. M. (2010): The business case for corporate social responsibility: a review of concepts, research and practice, in: International Journal of Management Reviews, Vol. 12, No. 1, pp. 85–105.

CEC (COMMISSION OF THE EUROPEAN COMMUNITIES) (2001): Green paper: Promoting a European framework for corporate social responsibility, Available at: http://eur-lex.europa.eu/LexUriServ/site/en/com/2001/com2001_0366en01.pdf, accessed: 02/11/2014.

CHAND, M. (2006): The relationship between corporate social performance and corporate financial performance: Industry type as a boundary condition, in: The Business Review, Vol. 5, No. 1, pp. 240–245.

CHATTERIJ, A. K. / LEVINE, D. I. / TOFFEL, M. W. (2009): How well do social ratings actually measure corporate social responsibility?, in: Journal of Economics & Management Strategy, Vol. 18, No. 1, pp. 125–169.

CLARKSON, M. B. E. (1995): A stakeholder framework for analyzing and evaluating corporate social performance, in: Academy of Management Review, Vol. 20, No. 1, pp. 92–117.

CLARKSON, P. M. / FANG, X. / LI, Y. / RICHARDSON, G. (2010): The relevance of environmental disclosures for investors and other stakeholder groups: Are such disclosures incrementally informative?, Available at: papers.ssrn.com/abstract=1687475, accessed: 10/27/2013.

CLARKSON, P. M. / LI, Y. / RICHARDSON, G. D. / VASVARI, F. P. (2008): Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis, in: Accounting, Organizations and Society, Vol. 33, No. 4-5, pp. 303–327.

CONRADI, J. / BINKOWSKI, S. / SPENKE, C. (2012): Green Lease – Der grüne Mietvertrag für Deutschland: Regelungsempfehlungen zur nachhaltigen Nutzung und Bewirtschaftung von Immobilien. Available at: www.zia-deutschland.de/index.php/tools/required/download.php?fID=1205, accessed: 07/27/2014.

DAHLSRUD, A. (2008): How corporate social responsibility is defined: an analysis of 37 definitions, in: Corporate Social Responsibility and Environmental Management, Vol. 15, No. 1, pp. 1–13.

DAM, L. (2006): Corporate social responsibility in a general equilibrium stock market model: Solving the financial performance puzzle, Available at: ccso.eldoc.ub.rug.nl/FILES/root/2006/200603/200603.pdf, accessed: 01/31/2013.

DAVIS, K. (1973): The Case for and Against Business Assumption of Social Responsibilities, in: Academy of Management Journal, Vol. 16, No. 2, pp. 312–322.

DECLOURE, N. / DICKENS, R. (2004): REIT and REOC systematic risk sensitivity, in: Journal of Real Estate Research, Vol. 26, No. 3, pp. 237–254.

DEEGAN, C. (2002): Introduction: The legitimising effect of social and environmental disclosures – a theoretical foundation, in: Accounting, Auditing & Accountability Journal, Vol. 15, No. 3, pp. 282–311.

DEEGAN, C. (2006): Legitimacy theory, in: Hoque, Zahirul (2006):Methodological issues in accounting research (London: Spiramus Press), pp. 161–181.

DEEGAN, C. / BLOMQUIST, C. (2006): Stakeholder influence on corporate reporting: An exploration of the interaction between WWF-Australia and the Australian minerals industry, in: Accounting, Organizations and Society, Vol. 31, No. 4-5, pp. 343–372.

DEEGAN, C. / UNERMAN, J. (2011): Financial Accounting Theory (London: McGraw-Hill).

DEEPHOUSE, D. L. (1996): Does isomorphism legitimate?, in: Academy of Management Journal, Vol. 39, No. 4, pp. 1024–1039.

DEEPHOUSE, D. L. / SUCHMANN, M. C. (2008): Legitimacy in organizational institutionalism, in: Greenwood, R. / Oliver, C. / Suddaby, R. / Sahlin, K. (2008): The Sage handbook of organizational institutionalism (Los Angeles: Sage), pp. 49–77.

DERMISI, S. V. (2009): Effect of LEED ratings and levels on office property assessed and market values, in: Journal of Sustainable Real Estate, Vol. 1, No. 1, pp. 23–47.

DHALIWAL, D. S. / LI, O. Z. / TSANG, A. / YANG, Y. G. (2011): Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting, in: The Accounting Review, Vol. 86, No. 1, pp. 59.

DIMBATH, O. (2011): Einführung in die Soziologie (Munich: Fink).

DONALDSON, T. / PRESTON, L. E. (1995): The stakeholder theory of the corporation: Concepts, evidence and implications, in: Academy of Management Review, Vol. 20, No. 1, pp. 65–91.

DOWELL, G. / HART, S. / YEUNG, B. (2000): Do corporate global environmental standards create or destroy market value?, in: Management Science, Vol. 46, No. 8, pp. 1059–1074.

DOWLING, J. / PFEFFER, J. (1975): Organizational legitimacy: Social values and organizational behaviour, in: The Pacific Sociological Review, Vol. 18, No. 1, pp. 122–136.

DU, S. / BHATTACHARYA, C. / SEN, S. (2010): Maximizing business returns to corporate social responsibility (CSR): The role of CSR communication, in: International Journal of Management Reviews, Vol. 12, No. 1, pp. 8–19.

DYCKHOFF, H. / SOUREN, R. (2008): Nachhaltige Unternehmensführung: Grundzüge industriellen Umweltmanagements (Berlin: Springer).

EDMANS, A. (2012): The link between job satisfaction and firm value, with implications for corporate social responsibility, in: Academy of Management Perspectives, Vol. 26, No. 4, pp. 1–19.

EICHHOLTZ, P. / KOK, N. / QUIGLEY, J. M. (2009): Why companies rent green: CSR and the role of real estate, in: Academy of Management Annual Meeting Proceedings, Vol. 2009, No. 1, pp. 1–6.

EICHHOLTZ, P. / KOK, N. / QUIGLEY, J. M. (2010): Doing well by doing good?, Green office buildings, in: American Economic Review, Vol. 100, No. 5, pp. 2492–2509.

EICHHOLTZ, P. / KOK, N. / QUIGLEY, J. M. (2013): The economics of green buildings, in: The Review of Economics and Statistics, Vol. 95, No. 1, pp. 50–63.

EICHHOLTZ, P. / KOK, N. / YONDER, E. (2012): Portfolio greenness and the financial performance of REITs, in: Journal of International Money and Finance, Vol. 31, No. 7, pp. 1911–1929.

EL GHOUL, S. / GUEDHAMI, O. / KWOK, C. C. / MISHRA, D. R. (2011): Does corporate social responsibility affect the cost of capital?, in: Journal of Banking & Finance, Vol. 35, No. 9, pp. 2388–2406.

EPCEU (EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION) (2010): Directive 2010/31/EU of the European Parliament and the Council on the Energy Performance of Buildings, Available at: new.eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010L0031&qid=1392750352808&from=EN, accessed: 01/05/2014.

EPRA (EUROPEAN PUBLIC REAL ESTATE ASSOCIATION) (2011a): EPRA reporting: Best practices recommendations, Available at: http://www.epra.com/media/EPRA_BPR_2011.pdf, accessed: 07/17/2012.

EPRA (EUROPEAN PUBLIC REAL ESTATE ASSOCIATION) (2011b): Best practices recommendations on sustainability reporting, Available at: www.epra.com/index.php/download_file/view/6993/261/, accessed: 10/16/2013.

EPRA (EUROPEAN PUBLIC REAL ESTATE ASSOCIATION) (2012): Monthly statistical bulletin - May 2012, Available at: www.epra.com/media/Monthly_Statistical_Bulletin_May_2012_1339509565222.pdf, accessed: 08/07/2013.

EPRA (EUROPEAN PUBLIC REAL ESTATE ASSOCIATION) (2013): Global REIT survey 2013 - A comparison of the major REIT regimes around the world, Available at: www.epra.com/media/EPRA_Global_REIT_Survey_2013_-_all_countries_1381493909349.pdf, accessed: 01/10/2014.

EPSTEIN, E. M. (1972): The historical enigma of corporate legitimacy, in: California Law Review, Vol. 60, No. 6, pp. 1701–1717.

EPSTEIN, M. J. / REJC BUHOVAC, A. (2014): Making sustainability work: Best practices in managing and measuring corporate social, environmental, and economic impacts (San Francisco: Berrett-Koehler Publishers).

ERHEMJAMTS, O. / LI, Q. / VENKATESWARAN, A. (2013): Corporate social responsibility and its impact on firms' investment policy, organizational structure, and performance, in: Journal of Business Ethics, Vol. 118, No. 2, pp. 395–412.

FULCHER, J. / SCOTT, J. (2011): Sociology (Oxford: Oxford University Press).

FOMBRUN, C. J. / SHANLEY, M. (1990): What's in a name? Reputation building and corporate strategy, in: Academy of Management Journal, Vol. 33, No. 2, pp. 233-258.

FORTANIER, F. / KOLK, A. / PINKSE, J. (2011): Harmonization in CSR reporting: MNEs and global CSR standards, in: Management International Review, Vol. 51, No. 5, pp. 665–697.

FREEMAN, R. E. (1984): Strategic Management: A stakeholder approach (Boston: Pitman).

FREEMAN, R. E. / HARRISON, J. S. / WICKS, A. C. / PARMAR, B. L. / De COLLE, S. (2010): Stakeholder theory: The state of the art (Cambridge, UK: Cambridge University Press).

FRIEDMAN, M. (1970): The social responsibility of business is to increase its profits, in: New York Times Magazine, September 13, pp. 32–33.

FROOMAN, J. (1997): Socially irresponsible and illegal behavior and shareholder wealth: A meta-analysis of event studies, in: Business & Society, Vol. 36, No. 3, pp. 221–249.

FUERST, F. / MCALLISTER, P. (2009): An investigation of the effect of eco-labeling on office occupancy rates, in: Journal of Sustainable Real Estate, Vol. 1, No. 1, pp. 49-64.

FUERST, F. / MCALLISTER, P. (2011): Green noise or green value?, Measuring the effects of environmental certification on office values, in: Real Estate Economics, Vol. 29, No. 1, pp. 46–69.

GAMERSCHLAG, R. / MÖLLER, K. / VERBEETEN, F. (2011): Determinants of voluntary CSR disclosure: empirical evidence from Germany, in: Review of Managerial Science, Vol. 5, No. 2-3, pp. 233–262.

GARCIA-CASTRO, R. / ARIÑO, M. A. / CANELA, M. A. (2010): Does social performance really lead to financial performance?, Accounting for endogeneity, in: Journal of Business Ethics, Vol. 92, No. 1, pp. 107–126.

GATTO, M. (1995): Sustainability: Is it a well defined concept?, in: Ecological Applications, Vol. 5, No. 4, pp. 1181–1183.

GELTNER, D. M. / MILLER, N. G. / CLAYTON, J. / EICHHOLTZ, P. (2007): Commercial real estate: Analysis and investments (Mason: Thomson South-Western).

GUTHRIE, J.E. / PARKER, L.D. (1990): Corporate social disclosure practice: A comparative international analysis, Advances in Public Interest Accounting, Vol. 3, pp. 159–76.

GIETL, S. / GÖTTSCHE, M. / HABISCH, A. / ROLOFF, M. / SCHAUER, M. (2013): Does CSR reporting destroy firm value? Empirical Evidence on GRI-aligned European firms, in: Zeitschrift für Umweltpolitik und Umweltrecht, Vol. 36, No. 1, pp. 58–86.

GRAAFLAND, J. J. / EIJFFINGER, S. C. / SMID, H. (2004): Benchmarking of corporate social responsibility: Methodological problems and robustness, in: Journal of Business Ethics, Vol. 53, No. 1–2, pp. 137–152.

GRAY, R. / KOUHY, R. / LAVERS, S. (1995): Corporate social and environmental reporting: A review of the literature and a longitudinal study of UK disclosure, in: Accounting, Auditing & Accountability Journal, Vol. 8, No. 2, pp. 47–77.

GRAY, R. / OWEN, D. / ADAMS, C. A. (1996): Accounting and accountability: Changes and challenges in corporate social environmental reporting (London: Prentice Hall).

GREENE, W. H. (2012): Econometric analysis (Boston: Pearson).

GREENING, D. W. / TURBAN, D. B. (2000): Corporate social performance as a competitive advantage in attracting a quality workforce, in: Business & Society, Vol. 39, No. 3, pp. 254–280.

GRI (GLOBAL REPORTING INITIATIVE) (2011): Sustainability reporting guidelines and construction and real estate sector supplement, Available at: https://www.globalreporting.org/resourcelibrary/CRESS-Complete.pdf, accessed: 03/03/2012.

GRI (GLOBAL REPORTING INITIATIVE) (2012): Annual report 2011/2012, Available at: https://www.globalreporting.org/resourcelibrary/GRI-Annual-Report-2011-2012.pdf, accessed: 10/11/2013.

GRI (GLOBAL REPORTING INITIATIVE) (2014): GRI sustainability disclosure database, Available at: database.globalreporting.org, accessed: 03/23/2014.

GRIFFIN, J. J. / MAHON, J. F. (1997): The corporate social performance and corporate financial performance debate: Twenty-five years of incomparable research, in: Business & Society,Vol. 36, No. 1, pp. 5–31.

GSIA (GLOBAL SUSTAINABLE INVESTMENT ALLIANCE) (2013): Global sustainable investment review 2012, Available at: http://ussif.org/resources/req/?fileID=16, accessed: 02/14/2013.

GUENSTER, N. / BAUER, R. / DERWALL, J. / KOEDIJK, K. (2011): The economic value of corporate eco-efficiency, in: European Financial Management, Vol. 17, No. 2, pp. 679–704.

GUKENBIEHL, H. L. (2008): Institutionen und Organisationen, in: KORTE, H. / SCHÄFERS, B. (2008): Einführungskurs Soziologie (Wiesbaden: VS Verlag für Sozialwissenschaften), pp. 145–161.

HAUSMAN, J. A. (1978): Specification tests in econometrics, in: Econometrica: Journal of the Econometric Society, Vol. 46, No. 6, pp. 1251–1271.

HENECKA, H.-P. (2006): Grundkurs Soziologie (Konstanz: UVK-Verlagsgesellschaft).

HESS, R. / LIANG, Y. (2002): A sector view of public market ownership of commercial real estate in the United States, Journal of Real Estate Portfolio Management, Vol. 8, No. 3, pp. 271–284.

HEUGENS, P. P. / VAN DEN BOSCH, F. A. / VAN RIEL, C. B. (2002): Stakeholder integration: building mutually enforcing relationships, in: Business & Society, Vol. 41, No. 1, pp. 36–60.

HILLMAN, A. J. / KEIM, G. D. (2001): Shareholder value, stakeholder management, and social issues: What's the bottom line?, in: Strategic Management Journal, Vol. 22, No. 2, pp. 125–139.

HKGBC (HONG KONG GREEN BUILDING COUNCIL) (2011): Hong Kong report on the state of sustainable building 2011, Available at: http://www.hkgbc.org.hk/ebook/HKGBC_Hong KongReport_2011/files/assets/downloads/HKGBC_SB_2011.pdf, accessed: 09/09/2013.

HOEPNER, A. G. / YU, P. S. / FERGUSON, J. (2010): Corporate social responsibility across industries: When can who do well by doing good?, Available at: papers.ssrn.com/ abstract=1284703, accessed: 01/29/2014.

HOFNER, B. / MAYR, A. / ROBINZONOV, N. / SCHMID, M. (2014): Model-based boosting in R: A hands-on tutorial using the R package mboost, in: Computational statistics, Vol. 29, No. 3, pp. 3–35.

HOLDER-WEBB, L. / COHEN, J. R. / NATH, L. / WOOD, D. (2009): The supply of corporate social responsibility disclosures among U.S. firms, in: Journal of Business Ethics, Vol. 84, No. 4, pp. 497–527.

HURST, J. W. (1970): The legitimacy of the business corporation in the law of the United States 1780-1970 (Charlottesville: The University Press of Virginia).

HUSTED, B. W. / JESUS SALAZAR, J. de (2006): Taking Friedman seriously: Maximizing profits and social performance, in: Journal of Management Studies, Vol. 43, No. 1, pp. 75–91.

INGLEHART, R. (2008): Changing values among Western publics from 1970 to 2006, in: West European Politics, Vol. 31, No. 1-2, pp. 130–146.

INGLEHART, R. / WELZEL, C. (2006): Modernization, cultural change, and democracy: The human development sequence (New York: Cambridge University Press).

ISO (INTERNATIONAL ORGANIZATION FOR STANDARDIZATION) (2009a): Environmental management - The ISO 14000 family of international standards, Available at: www.iso.org/iso/theiso14000family_2009.pdf, accessed 10/19/2013.

ISO (INTERNATIONAL ORGANIZATION FOR STANDARDIZATION) (2009b): Draft international standard ISO 26000, Available at: www.lsd.lt/typo_new/fileadmin/Failai/N172_ISO_DIS_26000__E_.pdf, accessed: 10/19/2013.

IVG (2012): Corporate Sustainability Report 2012, Available at: www.ivg.de/fileadmin/internet/daten/redakteur/dokumente/2012/IVG_Nachhaltigkeit_2012_EN_ES.PDF, accessed: 07/02/2014.

JO, H. / HARJOTO, M. A. (2011): Corporate governance and firm value: The impact of corporate social responsibility, in: Journal of Business Ethics, No. 103, pp. 351–383.

KING, A. A. / LENOX, M. J. (2001): Does it really pay to be green? An empirical study of firm environmental and financial performance, in: Journal of Industrial Ecology, Vol. 5, No. 1, pp. 105–116.

KOHL, N. (2009): Corporate governance and market valuation of publicly traded real estate companies (Köln: Immobilien Manager Verlag).

KOHL, N. / SCHAEFERS, W. (2012): Corporate governance and market valuation of publicly traded real estate companies: Evidence from Europe, in: The Journal of Real Estate Finance and Economics, Vol. 44, No. 3, pp. 362–393.

KOK, N. / EICHHOLTZ, P. / BAUER, R. / PENEDA, P. (2010): Environmental performance: A global perspective on commercial real estate, Available at: papers.ssrn.com/abstract=1557409, accessed: 06/26/2014.

KOK, P. / VAN DER WIELE, T. / MCKENNA, R. / BROWN, A. (2001): A corporate social responsibility audit within a quality management framework, in: Journal of Business Ethics, Vol. 31, No. 4, pp. 285–297.

KONAR, S. / COHEN, M. A. (2001): Does the market value environmental performance?, in: Review of Economics and Statistics, Vol. 83, No. 2, pp. 281–289.

KURTZ, L. (2008): Socially responsible investment and shareholder activism, in: CRANE, A. / MCWILLIAMS, A. / MATTEN, D. / MOON, J. / SIEGEL, D. S. (2008):The Oxford handbook of corporate social responsibility (Oxford: Oxford University Press), pp. 249–280.

KURUCZ, E. C. / COLBERT, B. A. / WHEELER, D. (2008): The business case for corporate social responsibility, in: CRANE, A. / MCWILLIAMS, A. / MATTEN, D. / MOON, J. / SIEGEL, D. S. (2008):The Oxford handbook of corporate social responsibility (Oxford: Oxford University Press), pp. 83–112.

LAPOSA, S. P. / VILLUPURAM, S. (2010): Corporate real estate and corporate sustainability reporting: An examination and critique of current standards, in: Journal of Sustainable Real Estate, Vol. 2, No. 1, pp. 23–49.

LEE, M.-D. (2008): A review of the theories of corporate social responsibility: Its evolutionary path and the road ahead, in: International Journal of Management Reviews, Vol. 10, No. 1, pp. 53–73.

LEHNER, F. (2011): Sozialwissenschaft (Wiesbaden: VS Verlag für Sozialwissenschaften).

LINDBLOM, C. K. (1994): The implications of organizational legitimacy for corporate social performance and disclosure, paper presented at the Critical Perspectives on Accounting Conference, New York.

LINNENLUECKE, M. K. / GRIFFITHS, A. (2010): Corporate sustainability and organizational culture, in: Journal of World Business, Vol. 45, No. 4, pp. 357–366.

LUO, X. / BHATTACHARYA, C. B. (2006): Corporate social responsibility, customer satisfaction, and market value, in: Journal of Marketing, Vol. 70, No. 1, pp. 1–18.

MAHONEY, L. / ROBERTS, R. W. (2007): Corporate social performance, financial performance and institutional ownership in Canadian firms, in: Accounting Forum, Vol. 31, No. 3, pp. 233–253.

MAKNI, R. / FRANCOEUR, C. / BELLAVANCE, F. (2009): Causality between corporate social performance and financial performance: Evidence from Canadian firms, in: Journal of Business Ethics, Vol. 89, No. 3, pp. 409–422.

MARGOLIS, J. D. / ELFENBEIN, H. A. / WALSH, J. P. (2009): Does it pay to be good…and does it matter? A meta-analysis and redirection of research on the relationship between corporate social and financial performance, Available at: papers.ssrn.com/abstract=1866371, accessed: 09/27/2011.

MÁRQUEZ, A. / FOMBRUN, C. J. (2005): Measuring corporate social responsibility, in: Corporate Reputation Review, Vol. 7, No. 4, pp. 304–308.

MAURER, J. G. (1971): Readings in organization theory: open-systems approaches (New York: Random House).

MCGUIRE, J. B. / SCHNEEWEIS, T. / BRANCH, B. (1990): Perceptions of firm quality: A cause or result of firm performance, in: Journal of Management, Vol. 16, No. 1, pp. 167–180.

McGuire, J. B. / Sundgren, A. / Schneeweis, T. (1988): Corporate social responsibility and firm financial performance, in: Academy of Management Journal, Vol. 31, No. 4, pp. 854–872.

McGuire, J. W. (1963): Business and Society (New York: McGraw-Hill).

McKinsey & Company (2007): Shaping the new rules of competition: UN Global Compact participant mirror, Available at: http://www.unglobalcompact.org/docs/summit2007/mckinsey_embargoed_until020707.pdf, accessed: 07/19/2011.

McWilliams, A. / Siegel, D. (2000): Corporate social responsibility and financial performance: Correlation or misspecification, in: Strategic Management Journal, Vol. 21, No. 5, pp. 603–609.

McWilliams, A. / Siegel, D. S. / Wright, P. M. (2006): Corporate social responsibility: Strategic implications, in: Journal of Management Studies, Vol. 43, No. 1, pp. 1–18.

Melé, D. (2008): Corporate social responsibility theories, in: Crane, A. / McWilliams, A. / Matten, D. / Moon, J. / Siegel, D. S. (2008):The Oxford handbook of corporate social responsibility (Oxford: Oxford University Press), pp. 47–82.

Meulemann, H. (2006): Soziologie von Anfang an (Wiesbaden: VS Verlag für Sozialwissenschaften).

Mitchell, R. / Agle, B. R. / Wood, D. J. (1997): Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts, in: Academy of Management Review, Vol. 22, No. 4, pp. 853–886.

Moon, J. (2007): The contribution of corporate social responsibility to sustainable development, in: Sustainable Development, Vol. 15, No. 5, pp. 296–306.

Morhardt, J. E. / Baird, S. / Freeman, K. (2002): Scoring corporate environmental and sustainability reports using GRI 2000, ISO 14031 and other criteria, in: Corporate Social Responsibility and Environmental Management, Vol. 9, No. 4, pp. 215–233.

Moroney, R. A. / Windsor, C. / Aw, Y. T. (2012): Evidence of assurance enhancing the quality of voluntary environmental disclosures: An empirical analysis, in: Accounting & Finance, Vol. 52, No. 3, pp. 903–939.

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, Vol. 19, No. 2, pp. 228-255.

Näsi, J. / Näsi, S. / Phillips, N. / Zyglidopoulos, S. (1997): The evolution of corporate social responsiveness: An exploratory study of Finnish and Canadian forestry companies, in: Business & Society, Vol. 36, No. 3, pp. 296–321.

NBS (Network for Business Thinking) (2010): Embedding sustainability in organizational culture: A systematic review of the body of knowledge, Available at: www.nbs.net/wp-content/uploads/dec6_embedding_sustainability.pdf, accessed: 06/21/2014.

NELLING, E. / WEBB, E. (2009): Corporate social responsibility and financial performance: the "virtuous circle" revisited, in: Review of Quantitative Finance and Accounting, Vol. 32, No. 2, pp. 197–209.

OBERLE, K. / SLOBODA, M. (2010): The importance of 'greening' your commercial lease, in: Real Estate Issues, Vol. 35, No. 1, pp. 32–41.

O'DONOVAN, G. (2000): Legitimacy theory as an explanation for corporate environmental disclosures, in: PhD thesis, Victoria University of Technology.

O'DONOVAN, G. (2002): Environmental disclosures in the annual report: Extending the applicability and predictive power of legitimacy theory, in: Accounting, Auditing & Accountability Journal, Vol. 15, No. 3, pp. 344–371.

OESTERDIEKHOFF G. W. / JEGELKA N. (2001): Einführung, in: OESTERDIEKHOFF G. W. / JEGELKA N. (2001): Werte und Wertewandel in westlichen Gesellschaften: Resultate und Perspektiven der Sozialwissenschaften (Oplanden: Leske + Budrich), pp. 7–14.

OHLSON, J. A. (1995): Earnings, book values, and dividends in equity valuation, in: Contemporary Accounting Research, Vol. 11, No. 2, pp. 661–687.

ORJI, R. (2010): Corporatesocial disclosures in the context of national cultures and stakeholder theory, in: Accounting, Auditing & Accountability, Vol. 23, No. 7, pp. 868-889.

ORLITZKY, M. / SCHMIDT, F. L. / RYNES, S. L. (2003): Corporate social and financial performance: A meta-analysis, in: Organization Studies, Vol. 24, No. 3, pp. 403–441.

PAPAGIANNAKIS, G. / VOUDOURIS, I. / LIOUKAS, S. (2014): The road to sustainability: Exploring the process of corporate environmental strategy over time, in: Business Strategy and the Environment, Vol. 23, No. 4, pp. 254–271.

PETERSON, D. K. (2004): The relationship between perceptions of corporate citizenship and organizational commitment, in: Business & Society, Vol. 43, No. 3, pp. 296–319.

PFEFFER, J. / SALANCIK, G. R. (1978): The external control of organizations: A resource dependence perspective (Harper and Row, Publishers: New York).

PHILLIPS, R. / FREEMAN, R. E. / WICKS, A. C. (2003): What stakeholder theory is not, in: Business Ethics Quarterly, Vol. 13, No. 4, pp. 479–502.

PITT, M. / KOUFOPOULOS, D. N. (2012): Essentials of strategic management (London: Sage).

PIVATO, S. / MISANI, N. / TENCATI, A. (2008): The impact of corporate social responsibility on consumer trust: the case of organic food, in: Business Ethics: A European Review, Vol. 17, No. 1, pp. 3–12.

PLUMLEE, M. / BROWN, D. / HAYES, R. M. / MARSHALL, R. S. (2010): Voluntary environmental disclosure quality and firm value: Further evidence, Available at: papers.ssrn.com/abstract=1744114, accessed: 04/12/2012.

PLUMLEE, M. / BROWN, D. / MARSHALL, R. S. (2008): The impact of voluntary environmental disclosure quality on firm value, Available at: papers.ssrn.com/abstract=1140221, accessed: 03/12/2012.

PORTER, M. E. (1996): What is strategy?, in: Harvard Business Review, Vol. 74, No. 6, pp. 61–78.

PORTER, M. E. / KRAMER, M. R. (2006): Strategy and society: The link between competitive advantage and corporate social responsibility, in: Harvard Business Review, Vol. 84, No. 12, pp. 78-92.

PORTER, M. E. / KRAMER, M. R. (2011): Creating shared value, in: Harvard Business Review, Vol. 89, No. 1/2, pp. 62–77.

PRESTON, L. E. / O'BANNON, D. P. (1997): The corporate social-financial performance relationship: A typology and analysis, in: Business & Society, Vol. 36, No. 4, pp. 419–429.

PWC (PRICEWATERHOUSECOOPERS) (2011): Compare and contrast: Worldwide Real Estate Investment Trust (REIT) regimes, Available at: www.pwc.com/en_GX/gx/asset-management/assets/PwC-REITS–2011–optimised.pdf, accessed: 01/11/2014.

PWC (PRICEWATERHOUSECOOPERS) (2013): World in 2050: The BRICs and beyond - prospects, challenges and opportunities, Available at: www.pwc.com/en_GX/gx/world-2050/assets/pwc-world-in-2050-report-january-2013.pdf, accessed: 02/21/2014.

R CORE TEAM (2013): R: A language and environment for statistical computing (Vienna: R Foundation for Statistical Computing).

RAMUS, C. / MONTIEL, I. (2005): When are corporate environmental policies a form of greenwashing?, in: Business & Society, Vol. 44, No. 4, pp. 377–414.

REED, R. / BILOS, A. / WILKINSON, S. / SCHULTE, K.-W. (2009): International comparison of sustainable rating tools, in: Journal of Sustainable Real Estate, Vol. 1, No. 1, pp. 1–22.

REICHARDT, A. / FUERST, F. / ROTTKE, N. B. / ZIETZ, J. (2012): Sustainable building certification and rent premium: A panel data approach, in: The Journal of Real Estate Research, Vol. 34, No. 1, pp. 99–126.

REVERTE, C. (2012): The impact of better corporate social responsibility disclosure on the cost of equity capital, in: Corporate Social Responsibility and Environmental Management, Vol. 19, No. 5, pp. 253–272.

RICS (ROYAL INSTITUTION OF CHARTERED SURVEYORS) (2005): Green value: Green buildings, growing assets, Available at: http://www.realpac.ca/resource/resmgr/industry_sustainability_–_research_reports/rgreenvaluecasestudy.pdf, accessed: 04/02/2014.

ROUNTREE, B. / WESTON, J. / ALLAYANNIS, G. (2008): Do investors value smooth performance?, in: Journal of Financial Economics, Vol. 90, No. 3, pp. 237–251.

ROWLEY, T. / BERMAN, S. (2000): A brand new brand of corporate social performance, in: Business & Society, Vol. 39, No. 4, pp. 397–418.

RUEF, M. / SCOTT, W. R. (1998): A multidimensional model of organizational legitimacy: Hospital survival in changing institutional environments, in: Administrative Science Quarterly, Vol. 43, No. 4, pp. 877–904.

SAH, V. / MILLER, N. G. / GHOSH, B. (2013): Are green REITs valued more?, in: Journal of Real Estate Portfolio Management, Vol. 19, No. 2, pp. 169–177.

SALEH, M. / ZULKIFLI, N. / MUHAMAD, R. (2010): Corporate social responsibility disclosure and its relation on institutional ownership: Evidence from public listed companies in Malaysia, in: Managerial Auditing Journal, Vol. 25, No. 6, pp. 591–613.

SCHADEWITZ, H. / NISKALA, M. (2010): Communication via responsibility reporting and its effect on firm value in Finland, in: Corporate Social Responsibility and Environmental Management, Vol. 17, No. 2, pp. 96–106.

SCHÄFERS, B. (2008): Soziales Handeln und seine Grundlagen: Normen, Werte, Sinn, in: Korte, Hermann; Schäfers, Bernhard (2008): Einführungskurs Soziologie (Wiesbaden: VS Verlag für Sozialwissenschaften), pp. 23–44.

SCHLEICH, H. (2012): Sustainable property portfolio management: With special consideration of energy efficiency improvements in the property portfolio stock (Köln: Immobilien Manager Verlag).

SCHMIDT-ALBINGER, H. / FREEMAN, S. J. (2000): Corporate social performance and attractiveness as an employer to different job seeking populations, in: Journal of Business Ethics, Vol. 28, No. 3, pp. 243–253.

SCHRECK, P. (2009): The business case for corporate social responsibility: Understanding and measuring economic impacts of corporate social performance (Heidelberg: Physica-Verlag).

SCHRECK, P. (2011): Reviewing the business case for corporate social responsibility: New evidence and analysis, in: Journal of Business Ethics, Vol. 103, No. 2, pp. 167–188.

SCHULTE, K.-W. / SCHÄFERS, W. (2008): Immobilienökonomie als wissenschaftliche Disziplin, in: Schulte, Karl-Werner (2008): Immobilienökonomie – Band 1 Betriebswirtschaftliche Grundlagen (Munich: Oldenburg Verlag), pp. 47–69.

SCHULTZE, W. / TROMMER, R. (2012): The concept of environmental performance and its measurement in empirical studies, in: Journal of Management Control, Vol. 22, No. 4, pp. 375–412.

SCHWARTZ, B. / TILLING, K. (2009): 'ISO-lating' corporate social responsibility in the organizational context: A dissenting interpretation of ISO 26000, in: Corporate Social Responsibility and Environmental Management, Vol. 16, No. 5, pp. 289–299.

SCHWARZ-HERION, O. (2005): Die Integration des Nachhaltigkeitsgedankens in die Unternehmenskultur und dessen Umsetzung in die betriebliche Praxis: Eine empirische Studie zur ökologischen und sozialen Verantwortung von Privatunternehmen (Aachen: Shaker Verlag).

SETHI, P. S. (1975): Dimensions of corporate social performance: An analytical framework, in: California Management Review, Vol. 17, No. 3, pp. 58–64.

SETHI, P. S. (1978): Advocacy advertising: The American experience, in: California Management Review, Vol. 21, No. 1, pp. 55–67.

SHEN, C.-H. / CHANG, Y. (2009): Ambition versus conscience, does corporate social responsibility pay off? The application of matching methods, in: Journal of Business Ethics, Vol. 88, No. S1, pp. 133–153.

SHOCKER, A. D. / SETHI, P. S. (1973): An approach to developing societal preferences in developing corporate action strategies, in: California Management Review, Vol. 15, No. 4, pp. 97–105.

SPECTOR, B. (2008): Business responsibilities in a divided world: The cold war roots of the corporate social responsibility movement, in: Enterprise and Society, Vol. 9, No. 2, pp. 314–336.

STANWICK, P. A. / STANWICK, S. D. (1998): The relationship between corporate social performance, and organizational size, and environmental performance: An empirical examination, in: Journal of Business Ethics, Vol. 17, No. 2, pp. 195–204.

STOCK, J. H. / WATSON, M. W. (2007): Introduction to econometrics (Boston: Pearson Addison-Wesley).

STOCKLAND (2013): Annual review 2013: A clear vision, Available at: www.stockland.com.au/assets/investor-centre/STO0031_Annual_Review_2013_ DR5_WEB.pdf, accessed: 07/02/2014.

SUCHMAN, M. C. (1995): Managing legitimacy: Strategic and institutional approaches, in: Academy of Management Review, Vol. 20, No. 3, pp. 571–610.

SUMNER, W. G. (1906): Folkways: A study of the importance of usages, manners, customs, mores and morals (Boston: Ginn).

SUNDARAM, A. K. / INKPEN, A. C. (2004): The corporate objective revisited, in: Organization Science, Vol. 15, No. 3, pp. 350–363.

SURROCA, J. / TRIBÓ, J. A. / WADDOCK, S. (2010): Corporate responsibility and financial performance: the role of intangible resources, in: Strategic Management Journal, Vol. 31, No. 5, pp. 463–490.

TOPPINEN, A. / LI, N. / TUPPURA, A. / XIONG, Y. (2012): Corporate responsibility and strategic groups in the forest-based industry: Exploratory analysis based on the Global Reporting Initiative (GRI) framework, in: Corporate Social Responsibility and Environmental Management, Vol. 19, No. 4, pp. 191–205.

TURBAN, D. B. / GREENING, D. W. (1996): Corporate social performance and the attractiveness to prospective employees, in: Academy of Management Journal, Vol. 40, No. 3, pp. 658–672.

ULLMANN, A. A. (1985): Data in search of a theory: A critical examination of the relationships among social performance, social disclosure, and economic performance of U.S. firms, in: Academy of Management Review, Vol. 10, No. 3, pp. 540–557.

UNDESA(UNITED NATIONS DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS) (2013): World population prospects: The 2012 revision, Available at: esa.un.org/wpp/Documentation/pdf/WPP2012_Volume-I_Comprehensive-Tables.pdf, accessed: 02/21/2014.

UNEP (UNITED NATIONS ENVIRONMENT PROGRAMME) (2009): Buildings and climate change: Summary for decision-makers, Available at: http://www.unep.org/SBCI/pdfs/SBCI-BCCSummary.pdf, accessed: 04/16/2012.

UNEPFI (UNITED NATIONS ENVIRONMENT PROGRAMME FINANCE INITIATIVE) (2008): Building responsible property portfolios: A review of current practice by UNEP FI and PRI signatories, Available at: http://www.unepfi.org/fileadmin/documents/building_ responsible_property_portfolios.pdf, accessed: 07/02/2014.

UNEPFI (UNITED NATIONS ENVIRONMENT PROGRAMME FINANCE INITIATIVE) (2009): Committing and engaging: First in a series of toolkits on responsible property investing, Available at: www.unepfi.org/fileadmin/documents/responsible_property_ toolkit1.pdf, accessed: 06/23/2014.

UNEPFI (UNITED NATIONS ENVIRONMENT PROGRAMME FINANCE INITIATIVE) (2010): Responsible property investing: Metrics for performance measurement: Second in a series of toolkits on responsible property investing, Available at: www.unepfi.org/fileadmin/documents/responsible_property_toolkit2.pdf, accessed: 07/06/2014.

UNEPFI (UNITED NATIONS ENVIRONMENT PROGRAMME FINANCE INITIATIVE) (2014): Sustainability metrics: Translation and impact on property investment and management, Available at: http://www.unepfi.org/fileadmin/documents/UNEPFI_ Sustainability Metrics_Web.pdf, accessed: 06/20/2014.

UNERMAN, J. (2000): Methodological issues: Reflections on quantification in corporate social reporting content analysis, in: Accounting, Auditing & Accountability Journal, Vol. 13, No. 5, pp. 667–680.

UNGCO (UNITED NATIONS GLOBAL COMPACT OFFICE) (2013a): Global corporate social responsibility report 2013, Available at: www.unglobalcompact.org/docs/about_the_ gc/Global_Corporate_Sustainability_Report2013.pdf, accessed: 10/17/2013.

UNGCO (UNITED NATIONS GLOBAL COMPACT OFFICE) (2013b): Corporate sustainability in the world economy: United Nations Global Compact, Available at: www.unglobalcompact.org/docs/news_events/8.1/GC_brochure_FINAL.pdf, accessed: 10/18/2013.

UNGCO (UNITED NATIONS GLOBAL COMPACT OFFICE) (2012): After the signature: A guide to engagement in the United Nations Global Compact, Available at: www.unglobalcompact.org/docs/news_events/8.1/after_the_signature.pdf, accessed: 10/17/2013.

UNPRI (UNITED NATIONS PRINCIPLES FOR RESPONSIBLE INVESTMENT) (2013): PRI annual report 2013, Available at: d2m27378y09r06.cloudfront.net/viewer/?file=wp-content/uploads/AnnualReport20131.pdf, accessed: 02/19/2014.

USGBC (UNITED STATES GREEN BUILDING COUNCIL) (2008): A national green building agenda, Available at: www.usgbc.org/sites/default/files/Docs3402.pdf, accessed: 02/21/2014.

VAN BEURDEN, P. / GÖSSLING, T. (2008): The worth of values - A literature review on the relation between corporate social and financial performance, in: Journal of Business Ethics, Vol. 82, No. 2, pp. 407–424.

VAN MARREWIJK, M. (2003): Concepts and definitions of CSR and corporate sustainability: Between agency and communion, in: Journal of Business Ethics, Vol. 44, No. 2-3, pp. 95–105.

WADDOCK, S. A. / GRAVES, S. B. (1997): The corporate social performance - financial performance link, in: Strategic Management Journal, Vol. 18, No. 4, pp. 303–319.

WARTICK, S. L. / COCHRAN, P. L. (1985): The evolution of the corporate social performance model, in: Academy of Management Review, Vol. 10, No. 4, pp. 758-769.

WARTICK, S. L. / MAHON, J. F. (1994): Toward a substantive definition of the corporate issue construct: A review and synthesis of the literature, in: Business & Society, Vol. 33, No. 3, pp. 293–311.

WCED (WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT) (1987): Our common future (Oxford: Oxford University Press).

WGBC (WORLD GREEN BUILDING COUNCIL) (2013): The business case for green building, Available at: www.worldgbc.org/files/1513/6608/0674/Business_Case_For_Green_Building_Report_WEB_2013-04-11.pdf, accessed 10/30/2013.

WHEELER, D. / COLBERT, B. / FREEMAN, R. E. (2003): Focusing on value: reconciling corporate social responsibility, sustainability and a stakeholder approach in a network world, in: Journal of General Management, Vol. 28, No. 3, pp. 1–28.

WINDOLPH, S. E. (2011): Assessing corporate sustainability through ratings: Challenges and their causes, in: Journal of Environmental Sustainability, Vol. 1, No. 1, pp. 61–80.

WINDSOR, D. (2006): Corporate social responsibility: Three key approaches, in: Journal of Management Studies, Vol. 43, No. 1, pp. 93–114.

WOOD, D. J. (1991): Corporate social performance revisited, in: Academy of Management Review, Vol. 16, No. 4, pp. 691–718.

WOOD, D. J. (1995): Introduction: The Fortune database as a CSP measure, in: Business & Society, Vol. 34, No. 2, pp. 197–198.

WOOD, D. J. (2010): Measuring corporate social performance: A review, in: International Journal of Management Reviews, Vol. 12, No. 1, pp. 50–84.

WOOD, D. J. / JONES, R. E. (1995): Stakeholder mismatching: a theoretical problem in empirical research on corporate social performance, in: The International Journal of Organizational Studies, Vol. 3, No. 3, pp. 229–267.

WOOD, G. / ONG, R. / MCMURRAY, C. (2012): Housing tenure, energy consumption and the split-incentive issue in Australia, in: International Journal of Housing Policy, Vol. 12, No. 4, pp. 439–469.

WOOLDRIDGE, J. M. (2002): Econometric analysis of cross section and panel data (Cambridge: MIT Press).

WOOLDRIDGE, J. M. (2009): Introductory econometrics: A modern approach (Mason: South-Western Cengage Learning).

WORLD BANK (2013): World population data, Available at: http://data.worldbank.org/indicator/SP.POP.TOTL, accessed: 08/09/2013.

WU, M.-L. (2006): Corporate social performance, corporate financial performance, and firm size: A meta-analysis, in: Journal of American Academy of Business, Vol. 8, No. 1, pp. 163–171.