

Effects of CSR Performance and Disclosure on Institutional Ownership

Daniel Fauser, University of St. Gallen, Switzerland
Andreas Grüner, University of St. Gallen, Switzerland

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Abstract

This study investigates correlations and lead-lag relationships between Corporate Social Responsibility (CSR) and the institutional ownership base of North American and European utility companies. The utility sector belongs to the best CSR performing sectors according to CSR scores and is generally seen as fairly “environmentally sensitive”. Two samples of 105 and 87 mid- to large-cap utility companies and a panel data regression are used to examine each of the CSR dimensions (environmental, social and governance) between 2011 and 2015. Additionally, a lead-lag analysis establishes causality between the variables. The study finds that while more socially responsible utility companies exhibit greater long-term institutional ownership (LIO), higher corporate governance disclosure and performance is accompanied by less long-term and greater short-term institutional ownership. The lead-lag analysis entirely supports a causal effect of CSR performance on LIO and a causal effect of LIO on CSR disclosure. The latter finding indicates that it is rather the long-term institutional investor influencing the CSR disclosure than the other way around. As for the short-term horizon, the lead-lag analysis shows a causal effect of CSR performance and disclosure on the short-term institutional ownership base of sample firms. This study contributes to scientific literature by using a recent data set, looking at both the performance and disclosure dimension of CSR. Furthermore, most prior studies have only looked at simple correlations, neglecting the causality issue. This study establishes causality between the variables with a lead-lag analysis.

Keywords: Corporate Social Responsibility (CSR); institutional ownership; CSR disclosure; CSR performance; lead-lag analysis; value relevance; utility companies

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1. Introduction

With the emergence of sustainability and responsibility issues in the 20th century, the term Corporate Social Responsibility (CSR) has quickly become a buzzword, uttered by everyone and intrinsically valued by (almost) no one. However, with global companies encroaching upon entire biospheres, destroying the livelihood of local communities and along the way possessing cash savings three to four times larger than the gross domestic product (GDP) of numerous countries, the discourse about CSR has even climbed to whole new heights with the beginning of the 21st century.

Slowly but finally, the environmental, social and governmental activities of companies (and their failures and frauds!) all over the world, are starting to gain their appropriate attention. Cases like the disastrous contamination of the Rio Doce in Brazil in 2015, wreaking havoc on the entire biosphere, making the survival of any biological organism around it impossible, show that companies do often – if not regularly – have substantive influence on the (social) environment surrounding them.

With companies constantly growing to global enterprises, this phenomenon gets even more severe for society. Recent studies like Heflin and Wallace (2017) show that negative shareholder wealth effects of oil spills are smaller for companies with more environmental disclosure. Not only institutional investors may be able to exert pressure on companies' CSR but a positive CSR may also attract long-term oriented investors looking for smooth and stable returns. The management of multinational companies slowly starts to realize that the concept of CSR does not know any boundaries and should have entered the corporate universe already a long time ago.

Therefore, this study investigates the effects of Corporate Social Responsibility (CSR) on the institutional ownership base of North American and European utility companies, applying a lead-lag analysis to establish causality between the variables. In doing so, the authors contend that *ceteris paribus*, higher CSR performing and disclosing companies should have a higher and more stable long-term institutional ownership base (i.e. attract long-term equity capital).

Accordingly, this hypothesized relationship is disputed along the two CSR dimensions, performance and disclosure, and based on several sub-hypotheses. Hence, the authors use two recent samples of 105 and 87 mid- to large-cap utility companies and a panel data regression, to examine the two CSR dimensions for the period of 2011 to 2015. Further providing sufficient robustness of results, the authors also include the short-term institutional ownership base as benchmark. A lead-lag analysis tests the correlations for causality.

The authors decided to investigate the North American and European utility sector due to two central reasons. Firstly, the utility sector is generally perceived as “environmentally sensitive” and secondly, utility companies belong to the best performing companies in terms of CSR – according to CSR performance scores.

2. Background Theory and Literature

Corporate Social Responsibility (CSR)

This study consistently follows the definition of CSR by van Marrewijk (2003), according to which Corporate Sustainability (CS) and Corporate Social Responsibility (CSR) are precisely “two sides of [the same] coin”. This implicates that the term CSR also includes the sustainability (environmental) and governance and not only the social dimension.

This notion also finds its expression in the term ESG (Environmental, Social and Governance). ESG describes the three relevant input factors to measure the CSR performance and disclosure¹ of companies. In this study, CSR and ESG are used as synonyms.

Besides, several studies exist dealing with sub-categories of CSR reporting mostly with regard to emissions reporting (e.g. Comyns, 2016; Depoers, Jeanjean, & Jérôme, 2016; Matsumura, Prakash, & Vera-Muñoz, 2014) or social disclosure (e.g. Anderson & Frankle, 1980; Cormier & Gordon, 2001; Patten, 1991; Qiu, Shaukat, & Tharyan, 2016; Richardson & Welker, 2001).

Principal-Agent-Theory (PAT) and CSR Engagement

Since this investigation focuses on institutional ownership, the Principal-Agent-Theory (PAT) plays a major role in understanding the possible relationship between a company’s CSR and an investor’s investment behavior. In general, the PAT assumes that regarding their informational level, investors are in entirely different (asymmetric) positions compared to management because they delegate the responsibility of daily business conduct. This *information asymmetry* and the two implications *adverse selection* and *moral hazard* were already research topic of many studies (Akerlof, 1970; Baber, Janakiraman, & Kang, 1996; Baiman, 1982, 1990; Bushman & Indjejikian, 1993; Clinch, 1991; Ely, 1991; Sloan, 1993; Watts & Zimmerman, 1986 as cited in Berthelot, Cormier, & Magnan, 2003).

The PAT seems to stand between investors and the company, and since institutions belong to the largest, most committed and seemingly ever-expanding group of investors, they are of substantial value to the enterprise as a whole. Research by Grossman (1981) and Milgrom (1981) suggests that companies (should) have incentives to disclose information beyond financial statements voluntarily. Other studies examine whether a companies’ management tends to withhold (potentially detrimental) information regarding a company’s CSR performance (e.g. Barth, McNichols, & Wilson, 1997; Bewley & Li, 2000; Dye, 1985; Li, Richardson, & Thornton, 1997; Verrecchia, 1983). In fact, they find several reasons why management is withholding information (e.g. sanction risk, proprietary costs, external group uncertainty). Hence, they argue in line with the PAT and its consequences.

¹ Whenever the authors write only “CSR”, they address both dimensions, performance and disclosure. If the authors address only one dimension, they state either “CSR performance or CSR disclosure”. CSR performance concerns the actual CSR activities. CSR disclosure comprises the extent of disclosure about those CSR activities.

Even though some recent studies find evidence that CSR-conscious companies suffer less from the implications of the PAT (e.g. Gao, Lisic, & Zhang, 2014; Graham, Harvey, & Rajgopal, 2005), the case for voluntary disclosure may not seem to be so strong by now.

Signaling and Legitimacy Theory as an Explanation for CSR

Even though management may be incentivized not to disclose certain CSR related information, companies apparently voluntarily report about their CSR activities. This study focuses on the two most important explanations for the disclosure of and engagement in CSR: *signaling* and *legitimacy* theory. *Signaling* is also commonly known as an approach to solving the various issues arising with the PAT. *Legitimacy* theory is of particular importance, as the environmentally sensitive business of utility companies seems to be under special observation by investors, politicians and the media.

Many studies are supporting *signaling* theory, according to which companies with a good CSR performance try to *signal* to their investors their superior CSR and financial performance (e.g. Blacconiere & Patten, 1994; Clarkson, Fang, Li, & Richardson, 2013; Cormier & Magnan, 1999; Healy & Palepu, 2001²; Mahoney, Thorne, Cecil, & LaGore, 2013; Skinner, 1994; Su, Peng, Tan, & Cheung, 2016; Verrecchia, 1983). Different studies show evidence that CSR performance is strongly associated with disclosure (i.e. the better the performance, the more the company signals to investors) (e.g. Clarkson, Li, Richardson, & Vasvari, 2008; Herbohn, Walker, & Loo, 2014; Iatridis, 2013).

Assuming that signaling theory holds, utility companies – according to CSR performance scores, belonging to the best CSR performing industries – are first to report their CSR activities, signaling superior performance to investors. Accordingly, signaling theory does already make a strong case for explaining the reporting of CSR activities in the utility industry.

Legitimacy theory refers to the social position in which each company operates and to the legitimizing nature of disclosure, thereby aiming at the prevention of sanctions by society or government (Berthelot, Cormier, & Magnan, 2003). Several studies exist, adopting *legitimacy* theory to explain voluntary CSR disclosure activity. Older studies did not find any consistent pattern in companies legitimizing their businesses by CSR reporting (e.g. Guthrie & Parker, 1989; Hogner, 1982; Wilmshurst & Frost, 2000). In contrast, others could verify that companies and its management are in fact inclined to legitimize their operational business in their CSR reporting decisions (e.g. Buhr, 1998; Deegan & Rankin, 1996; Deegan, Rankin, & Tobin, 2002; Gray, Kouhy, & Lavers, 1995; O'Donovan, 2002; O'Dwyer, 2002; Patten, 1991; Savage, Cataldo, & Rowlands, 2000).

More specifically, as Berthelot, Cormier and Magnan (2003) point out, several studies confirm that voluntary CSR disclosure increases with membership in environmentally

² Healy and Palepu (2001) further outline single voluntary disclosure (signaling) motives such as “capital markets transactions hypothesis”, “corporate control contest hypothesis”, “stock compensation hypothesis”, “litigation cost hypothesis”, “management talent signaling hypothesis”, and “proprietary cost hypothesis” (pp. 420–424).

sensitive industries (e.g. Barth et al., 1997; Bewley & Li, 2000; Cormier & Gordon, 2001; Neu, Warsame, & Pedwell, 1998; Patten, 1991), the risk of environmental accidents (e.g. Walden & Schwartz, 1997), raising concerns of lobby groups (e.g. Deegan & Gordon, 1996) and the exposure to media (e.g. Bewley & Li, 2000; Brown & Deegan, 1998; Li et al., 1997; Neu et al., 1998). These findings are crucial, since this study investigates the utility industry, it seems likely that all of the before mentioned CSR disclosure drivers are making a strong case for *legitimacy* theory as an explanation for CSR reporting in this industry.

Naturally, the utility sector is an environmentally sensitive industry. The risk of environmental disasters is business immanent (one has just to think of nuclear power plants). Non-governmental organizations (NGO) are frequently raising questions about the CSR performance of utility companies, and in case there is a critical incident, the media are on the spot immediately. Additionally, Villiers and van Staden (2011) prove the hypothesis that a higher environmental exposure fosters the disclosure of CSR activities. Going even a step further, Cormier and Magnan (2015) and Aerts and Cormier (2009) empirically witness an impact of a company's CSR disclosure on its legitimacy. In a nutshell, *legitimacy* theory (besides *signaling* theory) does indeed offer compelling explanations for the engagement in and reporting of CSR activities by companies in the utility sector.

Institutional Investment and CSR

Several studies point to an increasing role of institutional investors, not only due to institutional investors' increasing stakes and influence but simply due to massive amounts of equity assets they are responsible for (e.g. Binay, 2005; Denis & McConnell, 2003; Li & Lu, 2016). Institutional investors are large and remarkably professional such as pension funds, hedge funds or insurers³.

Institutional investors not only differ from other investors concerning their size but also when it comes to their demand behavior for stocks. Institutional investors invest in stocks which are large, more liquid and have had a relatively low (past-year) return (Gompers & Metrick, 2001). Besides, institutional investors' demand for stocks is more stable than that of other investor types (ibd.). While institutional investors may be homogenous in some ways (e.g. investing in large stocks) and to some degree (i.e. the ones more than others), they also show fundamental differences in their investment behavior, particularly as for their investment horizon (Yan & Zhang, 2009). The authors deal with the operationalization of an investor's investment horizon in a later stage of the paper.

Characteristics of the North American and European Utility Sector

The focus on the utility sector is based on the relative outperformance of the utility sector in terms of CSR performance (cf. Figure 1), which makes this particular industry especially interesting to investigate (recall *signaling* and *legitimacy* theory). Apparently, utility companies already seem to exert themselves for being compliant with CSR expectations and standards, probably intensified by their business

³ By now, the *Vanguard Group Inc.* and *BlackRock Institutional Trust Company* – two of the largest professional investment companies – have already 4.0 and 5.1 trillion(!) equity assets under management (AUM), respectively.

immanent risk and exposure in an environmentally sensitive industry. Studies like Barth et al. (1997) further support that relation by stating that companies in the regulated utility industry may have fewer costs for disclosure, can pass on environmental costs to consumers on a regulatory basis and thus, have more incentives to disclose about CSR.

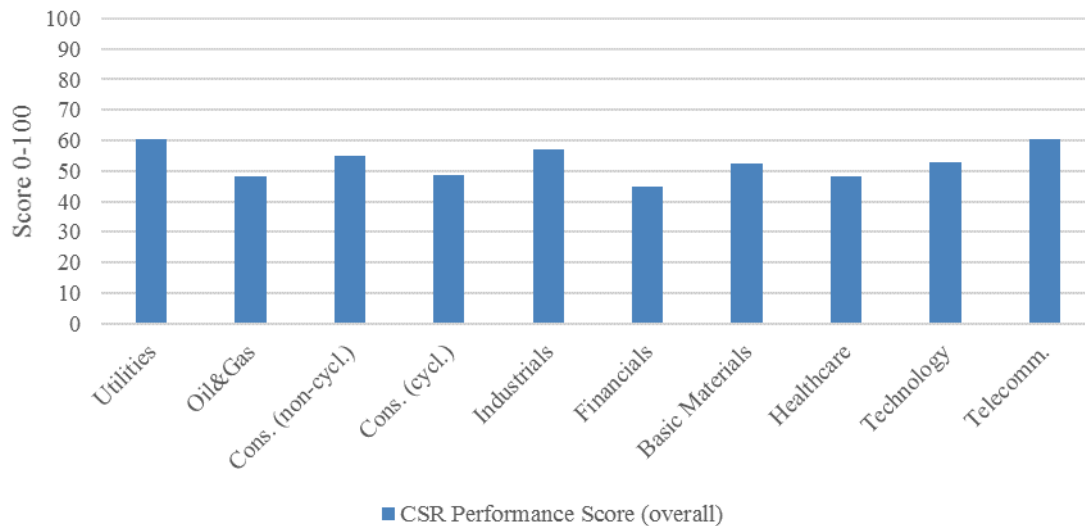


Figure 1: Industry Average CSR Performance

Note: averages of all companies (worldwide), covered by *ASSET4 Thomson Reuters*, in the respective industry, measured by a score of 0–100. Data Source: ESG *ASSET4 Thomson Reuters* database; own illustration.

Literature Review and Research Gap

There has been little but highly relevant research in the past, examining the relationship between CSR and institutional ownership. The presumably first study in this area by Graves and Waddock (1994) hypothesized that institutional holdings increase with stronger CSR performance. Results indicate that the number of institutional investors and the institutional holdings per investor increase with higher CSR performance, but with the former relationship being statistically significant and the latter statistically insignificant (ibd.). Graves and Waddock conclude that improving CSR performance does not invoke a penalty on institutional ownership at least.

Furthermore, Cox and Wicks (2011) and Cox, Brammer, and Millington (2004) substantiate this finding by incorporating the investment horizon and – in addition to CSR – market liquidity and portfolio theory as factors of institutional interest. Cox and Wicks exhibit that for most transient (= short-term) institutional investors market liquidity is the most and CSR the least important determinant of share demand, while for long-term institutional investors share demand is stronger influenced by CSR than market liquidity (ibd.). This finding assigns CSR an important role concerning its effects on institutional investment behavior, even though Cox and Wicks make no differentiation between the performance and disclosure dimension of CSR in their study.

Other studies support the evidence of an institutional ownership enhancing effect of CSR (e.g. Bistrova et al., 2014; Cormier & Magnan, 2015; Dhaliwal et al., 2012; Diamond & Verrecchia, 1991; Johnson & Greening, 1999; Li & Lu, 2016; Nielsen & Noergaard, 2011). Healy, Hutton, and Palepu (1999) explicitly examine the disclosure dimension of CSR and find that higher disclosure ratings come along with increases in institutional ownership. Chen and Gavius (2015) find recent evidence that only marginal and *not* long-term institutional investors do value CSR. Chen and Gavius explain their twofold result by moral sentiment of the former investor group and the exposure of corporate misbehavior through a superior informational level by the latter.

Studies like that of Graves and Waddock (1994) and Healy et al. (1999) have serious measurement problems since at the time when the studies were conducted, there haven't been adequate (technical) resources and data available to measure CSR performance and institutional ownership appropriately. Hence, this study closes the gap by using an operationalization approach for institutional ownership, which has been proved successful in previous studies but in other contexts.

Besides, Cox et al. (2004) and Cox and Wicks (2011) only look at extremely short periods of CSR (1 or 2 years) and its effects on institutional interest and exclusively for a sample in the *United Kingdom*. Chen and Gavius (2015) also very specifically use an *Israeli* sample and a unique CSR ranking system only applicable for *Israel*⁴.

Almost all studies either look at one dimension of CSR (performance or disclosure) or make no real differentiation between the two. For those reasons, results of prior studies are moderately robust, somehow outdated, certainly locally limited and therefore, only partially satisfying. Finally, research dealing with CSR, institutional ownership, and the highly relevant utility sector is scarce.

3. Empiricism

Hypotheses

In order to close the research gap and to add further evidence regarding the relation between CSR and institutional ownership, this study applies several hypotheses. The hypotheses of this thesis are consistent with those of previous studies (e.g. Girerd-Potin et al., 2014; Graves & Waddock, 1994; Johnson & Greening, 1999; W. Li & Lu, 2016; Serafeim, 2015). To test whether CSR has an influence on the *long-term* institutional ownership (LIO), the authors deploy the following null and alternative hypotheses H1 and H2⁵:

⁴ The non-profit organization called "Maala" (Hebrew for "virtue") was founded in *Israel* in 1998 and yearly issues a "Maala Ranking of Corporate Social Responsibility", on which the study of Chen and Gavius is based on.

⁵ Each hypothesis is applied to all CSR characteristics (environmental, social, and governance) separately. Thus, each CSR characteristic is investigated separately.

*H1₀: There is **no significant correlation** between CSR disclosure and the LIO base at all; i.e. significant partial correlation coefficients $\alpha_i = 0$*

*H1_a: CSR disclosure **significantly correlates** with the LIO base; i.e. significant partial correlation coefficients $\alpha_i > 0$ or $\alpha_i < 0$*

*H2₀: There is **no significant correlation** between CSR performance and the LIO base at all; i.e. significant partial correlation coefficients $\alpha_i = 0$*

*H2_a: CSR performance **significantly correlates** with the LIO base; i.e. significant partial correlation coefficients $\alpha_i > 0$ or $\alpha_i < 0$*

To further support H1 and H2, hypotheses H3 and H4 examine the relationship between the companies' CSR and short-term institutional ownership (SIO) base, thereby serving as benchmark, since according to theoretical expectations and if the null hypotheses are rejected, the relation should be opposite to the alternative hypotheses of H1 and H2:

*H3₀: There is **no significant correlation** between CSR disclosure and the SIO base at all; i.e. significant partial correlation coefficients $\alpha_i = 0$*

*H3_a: CSR disclosure **significantly correlates** with the SIO base; i.e. significant partial correlation coefficients $\alpha_i > 0$ or $\alpha_i < 0$*

*H4₀: There is **no significant correlation** between CSR performance and the SIO base at all; i.e. significant partial correlation coefficients $\alpha_i = 0$*

*H4_a: CSR performance **significantly correlates** with the SIO base; i.e. significant partial correlation coefficients $\alpha_i > 0$ or $\alpha_i < 0$*

All hypotheses are tested on the 95% confidence level throughout the whole study. The subsequent lead-lag analysis tries to establish causality between the variables but is not part of the hypothesis test.

Data and Sample

The authors collect data from different sources. First of all, *Thomson One* (also known as *Thomson Financial*) provides all the ownership data for all companies for the years 2011 to 2015. Ownership holdings data is aggregated on a yearly basis to correspond to the companies' ESG data.

In accordance with Bushee (1998), Gompers and Metrick (2001), Yan and Zhang (2009), and Li and Lu (2016) this study consistently follows the *US* classification of institutional investors, whereby only institutions investing at least \$100 million in

equity qualify as so-called qualified institutional investors (QII)⁶. Even though this study does not exclusively focus on *US* securities, it uses the classification of QIIs for *European* investors uniformly. The respective investor universe only includes QIIs. The total institutional ownership universe consists of 3'657 and 3'729 QIIs for the disclosure and performance dimension, respectively.

The required data regarding ESG Performance comes from *Thomson Reuters ASSET4* database, which offers comprehensive data concerning the environmental, social and, governance activities of a company, expressed by a score ranging from 0 to 100.⁷ ESG performance data is available for about 6'000+ global companies and reaches back until 2011, which is also the time constraint of this investigation. *Datastream* also provides data regarding dividend yield, price-earnings ratios, firm size (total assets) and market-to-book ratios of sample firms.

As the disclosure dimension of this study is concerned, *Bloomberg* database offers corporate ESG meta-data since 2009. The *Bloomberg* ESG disclosure scores are calculated with data of the companies' own verified ESG metrics, publicly disclosed via their corporate sustainability and integrated reports and range from 0 to 100. At the time of origination of this paper, the *Bloomberg* screening universe included about 11'000 global companies in more than 100 countries⁸.

One should definitely bear in mind that the disclosure score does not, in any sense, represent the quality of disclosure – like is the disclosed information really relevant or is it even true what the company is reporting – but the amount or extent to which the company is disclosing information regarding its environmental, social and governance activities. Besides, the authors obtained end-of-year financial and market data – like average of daily equity traded value, shares outstanding, return on assets, leverage ratio, annualized beta and sales growth ratio – for the period 2011 to 2015 from *Bloomberg*.

After excluding those observations with insufficient data and applying the screening criteria (*Europe and North America*; >1bn market capitalization; utility sector), the final sample for the disclosure and the performance dimension is 105 and 87 companies, respectively.

Operationalization

In order to determine the investment horizon of institutional investors for the period 2011 to 2015 and in accordance with a method used by Gaspar, Massa and Matos (2005), Yan and Zhang (2009) and a more recent study by W. Li and Lu (2016)⁹, this

⁶ This classification is based on the *United States Securities and Exchange Commission* (SEC) rule No. 13-F. More information about the filing process can be obtained from: <https://www.sec.gov/answers/form13f.htm>

⁷ The score consists of about 118 ESG criteria – like CO2 Equivalent Emission, Waste Total, Management Training or Compensation Policy.

⁸ According to *Bloomberg* the ESG score is “[a] measure of the amount of ESG data a company has reported for the latest fiscal year. The number of data points disclosed is presented as a percentage of total possible disclosure across the ESG fields available on Bloomberg, with a higher value representing fuller disclosure”. The information can be accessed via *Bloomberg* Terminal.

⁹ The method is adjusted by the authors to fit the used data format. The single adjustments are minor and therefore not stated in detail.

investigation classifies each QII k , based on their portfolio turnover in the respective year t , into either short- or long-term. In a first step, each QII k 's churn rate (for all 3'657 and 3'729 QIIs for the disclosure and performance dimension, respectively), $CR_{k,j}$, is calculated for each quarter j as follows:

$$CR_{k,j} = \frac{\left| \frac{VAL_Chg_{k,j}}{VAL_{k,j} + VAL_{k,j-1}} \right|}{2}$$

The variables $VAL_Chg_{k,j}$, $VAL_{k,j}$ and $VAL_{k,j-1}$ are defined as the change in holdings value (calculated as the *change in shares held times adjusted month-end US dollar price of filing date*) and holdings value of QII k at the end of quarter j and $j - 1$, respectively. Due to missing data for the holdings value of the 4th quarter of 2010, the authors adjust the formula in this case by replacing the two quarterly average $(VAL_{k,t} + VAL_{k,t-1})/2$ with the factor $1/(1+VAL_{k,t})$. With this adjustment, the authors account for an otherwise occurring design error for investors selling most of or all their stakes in the 1st quarter of 2011. In a second step, the authors calculate each QII k 's average churn rate, $ACR_{k,t}$, for each year t by taking the average of investor k 's four quarterly churn rates ($CR_{k,j}$) (Yan & Zhang, 2009):

$$ACR_{k,t} = \frac{1}{4} \sum_{j=1}^4 CR_{k,j}$$

After calculating the average churn rate for each year t and investor k , the overall average churn rate ($OACR_k$) is calculated for each investor k for the whole investigation period of 2011 to 2015:

$$OACR_k = \frac{1}{5} \sum_{t=1}^5 ACR_{k,t}$$

Institutional investors with an $OACR$ ranked in the *top* tertile of the distribution are classified as short-term; institutional investors with an $OACR$ ranked in the *bottom* tertile of the distribution are classified as long-term (Yan & Zhang, 2009)¹⁰. Finally, the regression variables short-term (long-term) institutional ownership (called SIO ratio and LIO ratio in the following) are calculated for each stock as "the ratio between the number of shares held by short-term (long-term) institutional investors and the total number of shares outstanding" (ibd.).

Control Variables

Since previous literature states several determinants for institutional ownership, the relationship between CSR and institutional ownership of *European* and *North American* utility companies needs to be controlled by numerous control variables. First of all, according to Hessel and Norman (1992) profitability and debt ratios determine demand for shares by institutional investors. Therefore and according to

¹⁰ The sample's strongest short-term and long-term investors do have an $OACR$ of 5.089544 and 0.000004. Hence, there are great differences between the investors' investment horizons.

Graves and Waddock (1994) and Li and Lu (2016), the *return on assets* (ROA) is used to control for profitability effects on institutional ownership.

Furthermore, the firm's leverage, measured by *debt ratio* (LEV), is deployed to account for firm risk and creditor power (Johnson & Greening, 1999). *Market-to-book ratio* (MKTB) and *price-earnings ratio* (PE) control for future (earnings) growth opportunities (W. Li & Lu, 2016). *Sales growth ratio* (SGR) proxies for intangible assets (Porter & van der Linde, 1995). Since according to prior research, institutional investors prefer large stocks, this study also controls for *firm size* (SIZE), defined as the natural logarithm of end-of-year total assets (Gompers & Metrick, 2001; Graves & Waddock, 1994; W. Li & Lu, 2016; Yan & Zhang, 2009).

Finally, prior studies find that nonbank institutions consider prudence in their investment decisions (e.g. Del Guercio, 1996) and thus, this study includes the dividend yield (DY) to account for prudence (Cox & Wicks, 2011; Gompers & Metrick, 2001). SIZE is calculated as the natural logarithm to reduce the impact of extreme values and heteroscedasticity in the data (Cox et al., 2004; Gompers & Metrick, 2001; W. Li & Lu, 2016).

Regression Results

Table 1 shows results of the multiple panel data regression models which are run on the disclosure dimension and sample (H1 and H3). As the LIO base is concerned, the authors can reject the null hypothesis ($H1_0$) for the social characteristic of CSR disclosure, as the correlation coefficient is significantly different from zero after controlling for multiple firm characteristics. The average social disclosure score across the 105 cross-sectional regressions significantly *positively correlates* with LIO. Thus, for the social disclosure characteristic, $H1_a$ is approved.

**Table 1: CSR Disclosure and Institutional Ownership -
Cross-Sectional Regressions: Correlation Matrix**

Notes: p-values in parentheses; * p<0.05, ** p<0.01, *** p<0.001. This table summarizes the results of the cross-sectional time-series GLS regressions of environmental-, social-, and governance disclosure on the long- and short-term institutional ownership base. Estimates are calculated as generalized least squares (GLS) with panel-specific autoregressive correlations *within* the panels, some degree of heteroscedasticity in the data and *no* autocorrelation *between* the panels.

Independent Variables	Dependent Variables	
	(1) LIO ratio	(2) SIO ratio
ENV D	-0.026 (0.221)	-0.026*** (0.000)
SOC D	0.047** (0.007)	-0.025*** (0.000)
GOV D	-0.066** (0.002)	0.038*** (0.000)
Control Variables		
ROA	-0.040 (0.507)	-0.042*** (0.002)
LEV	-0.309*** (0.000)	0.041*** (0.000)
SGR	0.007 (0.464)	-0.004 (0.151)
SIZE	0.031*** (0.000)	-0.002*** (0.000)
MKT B	0.002 (0.255)	0.004*** (0.000)
DY	-0.192 (0.107)	-0.037** (0.010)
PE	0.002 (0.896)	0.006*** (0.002)
Constant	0.164*** (0.000)	0.0115 (0.208)
N	524	524
Wald Chi ² Statistic	281.81	895.04
Prob > Chi ²	0.00	0.00

Higher social disclosure scores seem to be accompanied by a higher LIO base, indicating that disclosing about, for instance, employee safety, diversity or product responsibility attracts long-term institutional investors in utility companies. This result

is in line with Healy et al. (1999) finding that better CSR disclosure leads to higher institutional ownership. However, the authors cannot reject $H1_0$ for the environmental characteristic

In addition, $H1_0$ can be rejected for the governance characteristic of CSR disclosure, as the correlation coefficient is significantly different from zero. This finding indicates that a more extensive governance disclosure goes along with a *lower* LIO base. This result is contrary to theory, which rather suggests that higher governance disclosure should reduce information asymmetry and thereby rather foster LIO. It becomes even more interesting by looking at the results of the second multivariate panel data regression (2), which is testing $H3$. The correlation coefficient between governance disclosure and SIO, in this case, is significantly positive (rejecting $H3_0$, accepting $H3_a$).

The results of both long- and short-term correlation coefficients for the governance metric are in line with the findings of Chen and Gavius (2015), suggesting that long-term institutional investors do *not* value governance disclosure, while short-term institutional investors do value it. However, the major part of prior literature would still rather suggest the opposite direction of correlation.

Table 2 presents the results of the multiple panel data regressions for the performance dimension and sample (H2 and H4). As is already the case in the disclosure dimension, the null hypothesis $H2_0$ cannot be rejected for the environmental performance characteristic (regression (1)). A possible explanation could be that CSR performance and disclosure are already quite high in the utility sector so that further environmental disclosure or performance is not of notably importance to investors. In contrary, results offer compelling evidence for a significant positive relation between social performance and LIO and a significant negative relation between governance performance and LIO.

**Table 2: CSR Performance and Institutional Ownership -
Cross-Sectional Regressions: Correlation Matrix**

Notes: p-values in parentheses; * p<0.05, ** p<0.01, *** p<0.001. This table summarizes the results of the cross-sectional time-series GLS regressions of environmental-, social-, and governance performance on the long- and short-term institutional ownership base. Estimates are calculated as generalized least squares (GLS) with panel-specific autoregressive correlations *within* the panels, some degree of heteroscedasticity in the data and *no* autocorrelation *between* the panels.

Independent Variables	Dependent Variables	
	(1) LIO ratio	(2) SIO ratio
ENVP	0.004 (0.823)	-0.005 (0.333)
SOCP	0.117*** (0.000)	-0.001 (0.915)
GOVP	-0.108*** (0.000)	0.038*** (0.000)
Control Variables		
ROA	0.164* (0.038)	-0.022 (0.219)
LEV	-0.113** (0.002)	0.045*** (0.000)
SGR	-0.000 (0.978)	-0.002 (0.506)
SIZE	0.02*** (0.000)	-0.004*** (0.000)
MKTB	0.001 (0.597)	0.002** (0.002)
DY	-0.241* (0.021)	-0.016 (0.393)
PE	0.014 (0.178)	0.003 (0.291)
Constant	0.217** (0.002)	0.058*** (0.000)
N	435	435
Wald Chi ² Statistic	225.48	286.94
Prob > Chi ²	0.00	0.00

The correlation coefficients are comparably high (>0.1) and significant at the confidence level of this study. Hence, the authors reject the null hypothesis $H2_0$ for the social and governance characteristics (accepting $H2_a$). In particular, the negative relation between governance performance and LIO is interesting, as it corresponds to the finding for the disclosure dimension.

Apparently, long-term institutional investors in the utility sector do neither positively value governance disclosure nor performance. While this finding is in line with the implications of Endrikat (2016) and Krüger (2015), it clearly deviates from Bistrova et al. (2014). Probably this anomaly is also explained by the sensitivity of the utility sector to CSR issues.

As the highly significant positive relation between social performance and LIO indicates, long-term institutional investors do indeed value social efforts like employee safety, training and development, product responsibility or the like, by increasing their stakes. At least up to the social characteristic of CSR performance, this finding complements the results of Graves and Waddock (1994) that higher CSR performance not only leads to a greater number of institutional investors but that institutional investors also increase their stakes with higher social performance.

Furthermore, this finding is in line with Johnson and Greening (1999) who find that investments of pension funds (supposed to be rather long- than short-term investors) increase with the people (= social) characteristic of CSR performance, while investments by rather short-term investors (like hedge funds and investment banks) do not. The result of a significantly positive relation between social performance and LIO is also perfectly supported by Cox et al. (2004), finding that CSR performance, in general, is positively correlated with LIO.

For the second multiple panel data regression (2), results show again a positive and significant correlation between governance performance and SIO. The null hypothesis $H4_0$ can only be rejected for the governance performance characteristic (accepting $H4_a$), while results offer no evidence to reject $H4_0$ for the environmental and social performance characteristics.

Apparently, short-term institutional investors positively value governance performance but the correlation coefficient is rather weak. Long-term institutional investors might fear that companies with a good corporate governance performance and disclosure might not possess enough persistence in the long-term (e.g. if governments seize additional regulatory measures).

However, merely looking at correlations does not provide any evidence regarding a possible causal relationship between the variables. With this in mind, the authors try to establish causality between the independent and dependent variables by a *lead-lag* analysis in the following.

Lead-Lag Analysis

While results in previous chapters show a significant and distinct relationship between certain CSR dimensions and institutional ownership, it would be a foregone conclusion that, for instance, CSR activities influence the institutional ownership base

(even though, *legitimacy* and *signaling* theory suggest). It could also be the case that companies with an already strong LIO base are being forced to disclose more CSR information and to perform better in terms of CSR (e.g. due to high monitoring power and influence of large institutional investors). Put differently, a large LIO base could well influence a company's CSR activities and not the other way around.

In order to establish causality between CSR and institutional ownership, this study applies a *lead-lag* analysis in accordance to Serafeim (2015). Therefore, one-year and two-year changes in all variables are calculated. Subsequently, lagged values for the changes in all three ESG metrics (ENV, SOC, and GOV) and the changes in the two dependent variables, LIO ratio and SIO ratio, are calculated for both samples. The authors choose to calculate one-year and two-year changes to account for a reasonable lagged effect and still include sufficient observations.

Overall evidence of the lead-lag analysis rather speaks for long-term institutional investors *influencing* the CSR disclosure of utility companies and not the other way around (i.e. lagged changes in LIO lead lagged changes in CSR disclosure) (Table 3). Contrary to the authors' expectations, it is rather the long-term institutional investor having the power to influence CSR disclosure decisions of companies. According to lead-lag results, this is not the case for short-term institutional investors. Short-term institutional investors rather react to changes in CSR disclosure than influencing the very same.

Findings do not point to such a causal relationship for the performance dimension of CSR (Table 4). Numbers clearly indicate that it is rather the CSR performance *influencing* the long-term institutional investor than the other way around (i.e. lagged changes in CSR performance lead lagged changes in LIO). Overall, results point to an (no) *influencing role* of long-term (short-term) institutional investors as the CSR disclosure is concerned, but to an *influencing role* of CSR performance as the long- and short-term institutional investors are concerned.

Table 3: Lead-Lag Analysis - Disclosure Dimension

Note: p-values in parentheses; * p<0.05, ** p<0.01, *** p<0.001. OLS regressions with robust and clustered standard errors at the firm level. Estimates of independent variables in bold are statistically significant at least on a 10% significance level. The dependent variable is either change in LIO ratio or SIO ratio, calculated as either a 1-year or 2-year change. All remaining variables are calculated as changes. The first, third, fifth and seventh regressions use changes for all variables over one year. The second, fourth, sixth and eighth regressions use changes for all variables over two years. For the first four regressions, change in ENVD, SOCD and GOVD (= ESG disclosure metrics) is calculated on a 1-year, and 2-year lagged basis, while change in LIO ratio and SIO ratio is calculated on a non-lagged basis. For the last four regressions, change in the ESG disclosure metrics is calculated on a non-lagged basis, while change in LIO ratio and SIO ratio is calculated on a 1-year and 2-year lagged basis. Estimates are rounded to 3 decimals.

Independent Variables	Differences lagged ESG disclosure metrics				Differences lagged LIO and SIO ratio			
	LIO ratio		SIO ratio		LIO ratio		SIO ratio	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1-year	2-year	1-year	2-year	1-year	2-year	1-year	2-year
ENVD	0.077 (0.093)	-0.054 (0.541)	0.004 (0.808)	0.043* (0.038)	-0.041 (0.486)	0.166* (0.034)	-0.015 (0.369)	0.037 (0.184)
SOCD	-0.090 (0.091)	0.082 (0.355)	0.003 (0.827)	0.043 (0.081)	0.079 (0.257)	0.099 (0.266)	0.013 (0.619)	0.028 (0.414)
GOVD	0.037 (0.375)	-0.034 (0.718)	-0.010 (0.478)	-0.077* (0.016)	-0.024 (0.695)	0.260* (0.041)	0.008 (0.703)	-0.076 (0.055)
Control Variables								
ADETV	0.025*** (0.000)	-0.021 (0.081)	0.008*** (0.000)	0.003 (0.553)	0.007** (0.002)	0.037* (0.013)	0.004** (0.001)	0.005 (0.317)
ROA	0.028 (0.728)	-0.088 (0.528)	-0.038 (0.303)	0.045 (0.321)	0.080 (0.449)	0.305 (0.253)	0.086* (0.010)	0.143 (0.152)
LEV	-0.246 (0.177)	0.473* (0.049)	-0.054 (0.357)	0.041 (0.316)	0.312 (0.221)	0.670 (0.076)	0.191** (0.004)	0.300* (0.025)
BETA	-0.006 (0.751)	-0.042 (0.402)	0.004 (0.533)	0.023 (0.274)	-0.007 (0.703)	-0.024 (0.683)	-0.015 (0.082)	0.022 (0.296)
SGR	0.017 (0.321)	0.002 (0.965)	-0.012 (0.214)	-0.033** (0.002)	-0.007 (0.699)	0.048 (0.258)	0.004 (0.733)	-0.006 (0.736)
SIZE	0.001 (0.977)	0.085 (0.111)	0.002 (0.917)	-0.002 (0.833)	0.118* (0.015)	0.068 (0.179)	0.007 (0.723)	-0.002 (0.891)
MKTB	0.002 (0.208)	0.007 (0.176)	0.002 (0.115)	-0.001 (0.607)	0.002 (0.465)	-0.012 (0.111)	0.001 (0.611)	0.000 (0.996)
DY	0.340* (0.020)	0.485 (0.080)	0.044 (0.387)	0.031 (0.665)	0.032 (0.835)	0.460 (0.108)	-0.041 (0.497)	-0.132 (0.162)
PE	0.033 (0.156)	0.055 (0.231)	-0.006 (0.532)	0.002 (0.867)	0.004 (0.813)	0.003 (0.946)	-0.008 (0.458)	-0.001 (0.974)
Constant	0.01** (0.004)	0.009 (0.168)	0.004** (0.003)	0.009*** (0.000)	0.004 (0.188)	0.008 (0.443)	0.002 (0.149)	-0.002 (0.373)
N	315	105	315	105	315	105	315	105
adj. R-squared	23.1%	7.8%	16.0%	10.3%	10.7%	26.2%	9.7%	21.8%

Table 4: Lead-Lag Analysis - Performance Dimension

Note: p-values in parentheses; * p<0.05, ** p<0.01, *** p<0.001. OLS regressions with robust and clustered standard errors at the firm level. Estimates of independent variables in bold are statistically significant at least on a 10% significance level. The dependent variable is either change in LIO ratio or SIO ratio, calculated as either a 1-year or 2-year change. All remaining variables are calculated as changes. The first, third, fifth and seventh regressions use changes for all variables over one year. The second, fourth, sixth and eighth regressions use changes for all variables over two years. For the first four regressions, change in ENVP, SOCP and GOVP (= ESG performance metrics) is calculated on a 1-year, and 2-year lagged basis, while change in LIO ratio and SIO ratio is calculated on a non-lagged basis. For the last four regressions, change in the ESG performance metrics is calculated on a non-lagged basis, while change in LIO ratio and SIO ratio is calculated on a 1-year and 2-year lagged basis. Estimates are rounded to 3 decimals.

Independent Variables	Differences lagged ESG performance metrics				Differences lagged LIO and SIO ratio			
	LIO ratio		SIO ratio		LIO ratio		SIO ratio	
	(1) 1-year	(2) 2-year	(3) 1-year	(4) 2-year	(5) 1-year	(6) 2-year	(7) 1-year	(8) 2-year
ENVP	-0.0393 (0.606)	0.174 (0.058)	0.0323 (0.220)	0.0339 (0.420)	0.0963 (0.137)	0.0208 (0.880)	0.0437 (0.102)	-0.0511 (0.101)
SOCP	-0.063 (0.529)	-0.265 (0.077)	-0.009 (0.615)	-0.009 (0.672)	-0.023 (0.561)	0.088 (0.394)	-0.021 (0.293)	0.050 (0.110)
GOVP	0.135* (0.043)	0.396 (0.191)	-0.043 (0.098)	-0.064* (0.033)	-0.052 (0.268)	0.016 (0.775)	-0.002 (0.862)	-0.007 (0.539)
Control Variables								
ADETV	0.023*** (0.000)	0.059* (0.040)	0.011*** (0.000)	0.009 (0.174)	0.012 (0.134)	0.017 (0.437)	0.000 (0.916)	0.012* (0.032)
ROA	0.226 (0.285)	0.103 (0.695)	0.226 (0.388)	0.021 (0.691)	0.165 (0.406)	0.558* (0.013)	-0.413 (0.392)	0.110 (0.110)
LEV	0.020 (0.941)	-0.141 (0.710)	-0.049 (0.583)	-0.087 (0.178)	0.412 (0.159)	0.903** (0.002)	0.209 (0.074)	0.368*** (0.001)
BETA	-0.011 (0.599)	-0.160 (0.173)	-0.002 (0.856)	0.035 (0.218)	-0.047 (0.347)	0.103 (0.191)	-0.011 (0.306)	0.020 (0.408)
SGR	0.020 (0.510)	0.019 (0.807)	-0.011 (0.316)	-0.020 (0.202)	-0.005 (0.806)	0.034 (0.633)	0.004 (0.840)	0.006 (0.703)
SIZE	-0.070 (0.404)	-0.003 (0.972)	0.011 (0.509)	-0.007 (0.201)	0.071 (0.098)	0.079* (0.048)	0.017 (0.335)	0.015 (0.081)
MKTB	-0.002 (0.489)	0.009 (0.290)	0.001 (0.694)	0.001 (0.872)	0.000 (0.935)	-0.014 (0.130)	0.002 (0.403)	-0.001 (0.762)
DY	0.224 (0.286)	0.090 (0.876)	-0.039 (0.587)	-0.014 (0.892)	0.136 (0.538)	0.469 (0.390)	0.147 (0.376)	-0.049 (0.635)
PE	0.010 (0.555)	0.008 (0.899)	-0.002 (0.903)	-0.016 (0.421)	0.017 (0.289)	0.053 (0.213)	0.002 (0.932)	0.009 (0.683)
Constant	0.015*** (0.000)	0.034* (0.020)	0.001 (0.849)	0.007* (0.018)	0.015** (0.001)	0.030 (0.097)	0.002 (0.088)	0.003 (0.480)
N	261	87	261	87	261	87	261	87
adj. R-squared	10.4%	11.6%	4.0%	4.8%	4.2%	21.8%	4.1%	39.7%

Conclusions

This study investigates the relation between CSR and institutional ownership and arrives at interesting and to some extent surprising answers. Based on *signaling* and *legitimacy* theory, the authors contend that *ceteris paribus*, higher CSR performing and disclosing companies should have a higher and more stable long-term institutional ownership base (i.e. attracting long-term equity capital). By using two samples of 105 and 87 large-cap utility companies, the authors find that more socially responsible companies exhibit greater long-term institutional ownership and that higher corporate governance disclosure *and* performance goes along with *less* long-term and *greater* short-term institutional ownership.

The lead-lag analysis shows that it is rather the long-term institutional investor influencing CSR disclosure decisions of companies than the other way around. While this study does not posit this direction of causality, it is well known in other contexts of institutional ownership (e.g. financial disclosure). However, the *lead-lag* analysis suggests that social and governance performance indeed rather *causally influences* long-term institutional ownership than the other way around. A possible explanation is that investors may rather be able to influence the disclosure of CSR activities than the engagement in such activities itself.

Social performance apparently seems to raise the investment attractiveness for long-term institutional investors, seeking for smooth and stable income stocks. The negative relation between governance performance and LIO may be justified by the fear of long-term investors that companies might not possess enough persistence in the future (e.g. if governments seize stricter regulatory measures), while short-term investors will divest in the short-run anyway. Findings of this study furthermore suggest that large and powerful institutional investors are able to influence CSR disclosure decisions of utility companies¹¹.

After all, this study contributes to literature by closing the research gap of rather weak measurement methods (e.g. Graves & Waddock, 1994; Healy et al., 1999), extremely short investigation periods (e.g. Cox et al., 2004; Cox & Wicks, 2011), the negligence of the institutional ownership stakes (e.g. Graves & Waddock, 1994) and most importantly, the lack of addressing the causality issue.

However, results of this study may come with several limitations. Firstly, this study looks at the performance and disclosure dimension separately. This separation may have some advantages but also the disadvantage that interdependency is neglected. Secondly, general (financial) disclosure metrics are not included, although, they could explain some of the variation in the results. Thirdly, the CSR disclosure metric of *Bloomberg* does only address the extent and *not* the quality of disclosure. Finally, the utility sector in different countries is partially affected by diverging regulatory rules which impede comparability (Cormier & Gordon, 2001, p. 607). However, since this study does not investigate profitability or purely financial issues, the different rules – mostly regarding financial topics – should not represent such a significant limitation.

¹¹ This direction of causality is commonly known with regards to financial disclosure and institutional ownership.

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