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Investment Horizon and Corporate Social Performance: The Virtuous Circle of Long-Term Institutional Ownership and Responsible Firm Conduct

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Ioannis Oikonomou
ICMA Centre, Henley Business School, University of Reading

Chao Yin
ICMA Centre, Henley Business School, University of Reading

Lei Zhao
ESCP Europe Business School, Paris

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admin@icmacentre.ac.uk

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Abstract

We investigate the relationship between corporate social performance and institutional ownership. We distinguish between long-term and short-term institutional investors using holdings-based measures which directly capture the investment horizon of each institution. Our analysis shows that long term institutional investment is positively related to corporate social performance (mainly by an avoidance of investing in firms with significant controversies) whereas short-term institutional investment is negatively related to corporate social performance. Further investigation reveals that increased holdings of a firm by long-term investors are positively associated with its future corporate social performance. Hence, we provide evidence of a 'virtuous circle' between long term investment and social responsibility.

Keywords

corporate social responsibility; CSR; CSP; sustainability; institutional investors; investment horizon

JEL Classification

G23, G31, M14

Contacts

Ioannis Oikonomou: i.oikonomou@icmacentre.ac.uk

Chao Yin: c.yin@icmacentre.ac.uk

Lei Zhao: lzhao@escpeurope.eu

1 Introduction

Corporate social responsibility (CSR) is still on the rise. The notion has evolved from being an interesting yet peripheral issue mostly pushed for by business ethics academics and activists to being a key business practice. Companies increasingly recognise the importance of effective CSR practices that help in building trusting, cooperative long-term relationships with crucial stakeholders (Jones, 1995). Hence, CSR has moved from the sphere of moral philosophy to a strategic management consideration (Clarkson, 1995).

Credible business sources provide factual support to this evolution. According to a recent survey conducted by PwC and based on 1,409 (anonymised) interviews of CEOs across the world, 85% recognise that their companies are expected to address wider stakeholder issues, 67% state that 'our purpose is centred on creating value for wider stakeholders' and 64% claim that 'Corporate responsibility is core to everything we do' (PwC, 2016). The numbers become even higher when CEOs are asked to answer to what extent these statements will be true five years after the interviews, which signifies the acknowledgement of the rising strategic significance of CSR for business. Inevitably, the accounting and financial aspects of CSR have followed similarly increasing trends. More than 7,800 companies published CSR or sustainability reports in 2015, an increase of 30% compared to 2010 (Institutional Investor, 2015). As for socially responsible investing (SRI[1] – i.e. the practice of incorporating environmental, social, governance and ethical considerations into the mainstream investment process), the growth has been nothing short of remarkable. According to the latest report of the US SIF foundation,[2] more than $8.7 trillion assets under management in the US alone fell under the umbrella of sustainable, responsible and impact investing in 2016. This compares to a little more than $2 trillion in 2005 (a percentage increase of more than 400% in 11 years) and about $0.5 trillion in 1995 (an increase in excess of 1,700%).

In an attempt to investigate whether increased levels of measurable corporate social performance (CSP[3]) are aligned with improved firm profitability, market valuations and superior risk management (which would explain the above-mentioned trends in favour of CSR), a

[1] The acronym SRI is nowadays also used for sustainable and responsible investing. Though subtle differences can be argued to exist between the two terms, the concept is largely the same.

[2] US SIF: The Forum for Sustainable and Responsible Investment is a United States-based membership association that promotes environmentally and socially sustainable investment practices: http://www.ussif.org/about

[3] The term CSP is usually used to capture the outcome-based measurement of a firm's stance towards CSR-related issues. In this paper, we will use CSR as the acronym for the main concept and CSP for variables related to its measurement.

plethora of academic studies has focused on the links between CSP and various attributes of financial performance – paying particular attention to whether CSR is priced in the marketplace. The literature is now rich and diverse in regards to the facets of CSR that are studied, the datasets and methodologies employed, the operationalisations of both CSR and financial performance, the periods of operation, and the sectors and domicile countries of firms sampled. This variability makes the comparison of results of different studies a challenging task and means that unanimous conclusions are almost impossible to draw (Griffin & Mahon, 1997). Nevertheless, both vote-counting literature reviews (Margolis & Walsh, 2003) and statistical meta-analyses (Orlitzky, Schmidt & Rynes, 2003; Margolis, Elfenbein & Walsh, 2009; Schröder, 2014; Friede, Busch & Bassen, 2015) clearly point to modest, albeit positive, associations between CSR and increased financial performance (or reduced risk). Most recently, Friede et al (2015) statistically combined the results of about 2,200 individual papers in the area and found that 'Roughly 90% of studies find a nonnegative ESG–CFP[4] relation. More importantly, the large majority of studies reports positive findings'.

Yet, even though we now know a reasonable amount about the nature of the links between CSP and financial performance, we have uncovered very little about the characteristics of the people and organisations that have made the choice of investing in CSR (and divesting or avoiding investments in firms with socially and environmentally controversial track records). The number of studies that, directly or indirectly, investigate which investor traits act as drivers, moderators or mediators of the demand for CSR is very small (Bollen, 2007; Haigh, 2007; Bauer and Smeets, 2015 are notable exceptions) despite the academic and practical importance of this theme. In other words, we know very little about who, how and why invests in corporate social responsibility.

In this paper, we aim to fill part of this knowledge gap within this admittedly wide-ranging field by focusing on the role that investment horizon plays on the demand for CSR by institutional investors. Institutional ownership of stocks has long been shown to influence both the pricing and volatility of these assets (Bushee & Noe, 2000; Gompers & Metrick, 2001). But more specifically, within the framework of SRI, institutional ownership has become increasingly important. This is clearly reflected both in the overall magnitude of the assets under professional management invested in SRI funds (the US SIF data previously mentioned is indicative of this) –

[4] ESG stands for environmental, social and governance performance and is often used instead of CSR or CSP in recent literature. CFP stands for corporate financial performance and it is a generic term used in the literature to encapsulate all the financial metrics that researchers have employed to test whether they are correlated with CSP.

the demand for which comes primarily from institutional investors – and in the increasing number of signatories of the United Nations-backed Principles for Responsible Investment. This initiative has managed to secure the commitment of more than 1,600 asset owners, investment managers and financial service providers who pledge to 'incorporate environmental, social and governance issues into their investment analysis and decision making processes'.[5]

In focusing on institutional preferences for CSR, our aim is twofold. We first explore whether the widely used claim that the benefits of CSR tend to accrue in the long-run is convincing for market participants, which would mean that stocks of firms with high (low) corporate social performance tend to be preferred by institutions which have longer (shorter) investment horizons and keep their holdings unchanged for longer (shorter) periods. Secondly, previous studies have shown that a higher proportion of long-term institutional ownership decreases managerial myopia and reduces pressures on corporate executives to meet short-term goals (Bushee, 1998). Hence, it would be reasonable to assume that firms with higher levels of long-term institutional owners have a greater capacity to utilise corporate resources in an effort to increases the firm's CSP in the future – and that they manage to do so. We investigate if this is indeed the case.

Our work contributes to the existing literature in three significant ways. Firstly, it provides evidence in line with the frequently theorised but very rarely empirically tested hypothesis that the beneficial, value-creating or risk-reducing financial effects of high CSP accrue in the long-term – and hence, that firms with high CSP should be more attractive to more long-term investors. Secondly, it innovatively distinguishes between long-term and short-term investors in a direct way using holdings-based data instead of assuming which investor is de facto a long-term or short-term one according to its operational/legal identity. Thirdly, our study also investigates the extent to which long-term institutional ownership is associated with future improvements in the social, environmental and governance performance of their holding firms.

We show that long-term institutional investment is positively related to corporate social performance whereas short-term institutional investment is negatively related to corporate social performance. Further investigation reveals that increased holdings of a firm by long-term investors are positively associated with future levels of corporate social performance. Hence, we provide evidence of a 'virtuous circle' between long-term investment and CSP, in line with the more generic findings of Waddock and Graves (1997) regarding the CSP–financial performance

[5] For a full list of the PRI principles, see https://www.unpri.org/about/the-six-principles

link. Our results are useful for understanding what type of investor is attracted to CSR as well as pinpointing investment horizon as one of the factors that leads to an institutional shift towards CSR at the firm level. Consequently, our findings are useful for firm managers, investment funds, regulators and the wider activist community advocating for increases in CSR.

The remainder of the paper is structured as follows. Section 2 provides the details of the literature exploring the institutional demand for SRI and develops the framework of the hypotheses tested in the study. Section 3 describes the datasets we use and the methodology we employ. Section 4 reports and explains the empirical results of the study, and Section 5 provides a concluding discussion.

2 Related literature and development of hypotheses

The role of institutional ownership has become much more prominent in the last decades. Aggregated data demonstrative of the shift in the overall ownership of stocks from retail investors to institutions are not available, but various estimates suggest that US retail investors owned approximately 90% of the stock market up until 1950, whereas the relevant percentage in recent years is in the vicinity of just 30–35% (Evans, 2009). The percentage of institutional ownership must have therefore correspondingly increased by a huge amount (55% to 60%) over the same period. The importance of this evolution becomes evident when one considers academic findings that suggest that institutional investors are less influenced by 'attention grabbing' stocks (Barber & Odean, 2008), tend to be less myopic than individuals in terms of the strategies their holding firms are employing (Bushee, 1998), play an important role in determining executive compensation (Hartzell & Starks, 2003) and, ultimately, significantly influence equity prices (Gompers and Metrick, 2001; Boehmer & Kelley, 2009).

In spite of all the aforementioned evidence, very few aspects of the relationship between institutional equity ownership and CSR have been studied. Graves and Waddock (1994) are among the first to have looked into this in the early era of responsible investment and they could not find evidence that CSR has a discernible impact on the percentage of firm shares held by institutions. But this conclusion may very well be a result of the heterogeneity in the characteristics of institutional investors. Different types of investing entities have different priorities, preferences, risk tolerances and investment horizons, and hence they may have different attitudes towards CSR. Thus, when including all institutional investors in one category, irrespective of their very different characteristics, wrong conclusions, or no conclusions, can be

drawn. Recognising this, subsequent studies on the same field looked at different types of institutional investors separately.

Johnson and Greening (1999) find that pension fund holdings are positively associated with increased levels of diversity in the workplace and have better relationships with local communities and employees whereas none of these occur for the holdings of mutual funds and investment banks. Similarly, Cox, Brammer & Millington (2004) focus on the UK market and split institutional investors into a group comprising of pension funds, assurance funds and charitable funds, and a group made up of unit trusts and investment trusts. They find that the majority of the investors in the former group (which they label as being long-term oriented investors) have holdings that are positively associated with CSP. These results are broadly verified by Cox & Wicks (2011) who use a similar de facto categorisation of institutional investors as 'dedicated' versus 'transient'.

Most recently, Harjoto, Jo and Kim (2015) go a step further by investigating the functional form of the link between institutional ownership and CSP and the potentially mediating role of institutional investment in influencing the association of CSP and financial risk. They find a curvilinear (reverse U shape) relationship between the two, meaning that there is a perceived optimal level of CSP above which institutional investors may not wish to increase their ownership in a firm. But the main takeaway from their study is that 'CSR decreases stock return volatility at a decreasing rate through its effect on institutional ownership' – a very interesting and novel observation.

Although all of the above-mentioned papers recognise the importance of institutional ownership in the constantly evolving field of SRI, they do not attempt to explicitly test the impact that the investment horizon of institutional owners has on their preferences for CSP. Earlier empirical studies simply make no distinction between different types of institutional owners. Cox et al (2004) as well as Cox & Wicks (2011) note the significance of making a distinction between short-term and long-term institutional investors but their categorisation is depended on the legal or operating nature of each institution instead of their actual investing and trading behaviours (i.e. how often and how much they tend to rebalance the assets in their portfolios).

To the best of our knowledge, the study of Li & Lu (2015) is the only other paper in this area that employs a direct measurement of institutional investor horizon based on actual holdings. However, the setting of this study is based on evidence from Chinese firms where a very large proportion of institutional ownership comes from the state and in fact the authors verify that

environmental performance seems to only be positively related to institutional ownership for state-owned enterprises. Our analysis also explicitly uses a direct measurement of institutional equity holdings and trading turnover to distinguish between short-term and long-term investors. However, it is based on US data where government/state ownership of publicly traded firms is much less important and hence institutional investment patterns are arguably more reflective of the true preferences for CSP in the marketplace.

Our ex ante hypotheses are that higher CSP will be positively associated with long-term institutional holdings and negatively associated with short-term institutional holdings. A significant body of conceptual academic work in strategic management has provided a framework that supports our assertions. Looking at corporate social responsibility from the perspective of the resource-based view of the firm, the work of Barney (1991) and Barney and Hansen (1994) suggests that corporate efforts to improve social welfare can create valuable reputational capital for the firm and add to its relational wealth with suppliers, employees, clients and other stakeholders. These efforts to increase CSP constitute complex social resources that are rare and hard to replicate; hence these efforts can lead to long–term, sustainable advantages. Barney and Hansen note that the networks of relations created via this avenue 'are developed over long periods of time' (1994: 184), so it would be sensible to assume that the relative impacts in the value of the firm also accrue in the long-run. Consequently, we would expect institutional investors with long term horizons to have a higher preference for higher CSP firms.

Jones (1995) looks at firms as a nexus of contracts and provides an extensive conceptual framework suggesting that opportunism and self-interest can prevent firms from developing and maintaining long-term mutually beneficial relationships with their stakeholders, thus leading to higher monitoring costs, inefficient contracting and, ultimately, a competitive disadvantage. Combining this work with Godfrey's (2005) arguments that CSR provides evidence of 'good corporate character' in favour of the firm and helps in building the aforementioned long-term relationship, further reinforces the point that the value of CSP is more relevant to long-run measurements of firm performance. Along very similar lines, Waddock and Graves (1997) note that 'such resource allocations may be strategically linked to improvements in long-term image and relationships with the communities with which it (the firm) must interact'. All of these arguments and positions are strongly reiterated in the work of Hillman and Keim (2001). The authors argue that at least some strategic aspects of high CSP can be value creating in the long-run as the firm builds strong links with its primary stakeholders:

> Relations with primary stakeholders… customers, employees, suppliers, community residents and the environment—can constitute intangible, socially complex resources that may enhance firms' ability to outperform competitors in terms of long-term value creation.
>
> (Hillman & Keim, 2001: 127)

Given all the above, we expect that higher CSP will be a desirable characteristic for institutional investors who anticipate their investments to reap benefits in the long-run and as such tend to hold on to their equity for longer periods (i.e. have a lower trading turnover). We also expect the opposite to be true for institutional stock owners with short-run investment horizons:

> Hypothesis 1: High (low) CSP is associated with longer (shorter) investment horizons and lower (higher) stock turnover.

The academic literature on the financial effects of CSP has often made the case that there is some variability in their magnitude according to the nature of social, governance and environmental actions (or inactions) on the part of the firm. More specifically, there are multiple studies that argue that a firm going the extra mile in terms of CSP and being proactively engaged in various socially beneficial initiatives is not necessarily significantly rewarded through the marketplace. On the other hand, firms associated with social/environmental controversies are highly likely to pay the price of their irresponsibility, both literally and figuratively. For example, Meijer and Schuyt (2005) show that consumers are willing to boycott a firm if its CSP is particularly low but, on the other hand, high levels of CSP do not bring about measurable increases in product sales. More broadly, Lankoski (2009) reiterates the existence of a negativity bias (the phenomenon according to which negative actions are perceived as more impactful and are weighed more heavily than positive actions) in the CSP–firm performance link. She argues and shows that 'the economic impacts of corporate responsibility are more positive for issues reducing negative externalities than for issues generating positive externalities' (2009: 218). More recently, Kappou and Oikonomou (2016) investigate the 'social index effect' and find that although deletions of stocks from a socially responsible index (caused by various social, environmental or ethical controversies) are associated with economically and statistically significant abnormal returns, additions to the index do not manifest in any measurable financial result. Motivated by the above findings we further posit:

> Hypothesis 2: The positive association of high CSP and longer investment horizons is predominantly driven by an avoidance or underweighting of firms with significant social/environmental controversies rather than an overweighting of firms with significant respective strengths.

The implications of our study are not restricted to the arena of capital markets but instead can spread into the field on corporate decision-making on the part of managers and can influence the way business is conducted. Due to this, we find it useful to investigate whether the relationship between institutional ownership and CSP also runs from the former to the latter. The often cited 'myopic institutions theory' (Hansen & Hill, 1991; Graves and Waddock, 1994) argues that higher institutional investment invariably creates pressures to meet short-term earnings and stock price goals. This, in turn, leads to reductions in innovative practices that require immediate investments but have long-term cash flow effects – such as R&D or practices increasing CSP. However, Bushee (1998) provides context to this theory and empirically demonstrates that it is true only for institutions who have a higher portfolio turnover and engage in momentum trading, i.e. they could be characterised de facto as short-term investors. Otherwise, institutional ownership is actually positively associated with corporate projects yielding long-term benefits. Based on the above we posit:

> Hypothesis 3: Long-term institutional ownership is positively related to subsequent increases in the CSP of the owned firms.

To our knowledge, the only previous study to have looked at a relationship running from institutional ownership to CSP is that of Dam and Scholtens (2012). The authors use data from one year (2005) and 16 different countries and provide mixed evidence regarding the sign of this relationship. Perhaps one reason for this is that there is no distinction made between long-term and short-term investors. Our study addresses this issue. In the following section we present the datasets, variables and methodologies we use in order to test our hypotheses.

3 Data and methodology

3.1 Data and sample construction

Our sample is constructed with a variety of data sources. We start with a sample of firms covered by the Kinder, Lydenberg and Domin (KLD) STATS database (now owned by MSCI) from 1991 to 2012. KLD contains detailed information on US firms' CSR activities and is arguably the most comprehensive and certainly the most widely used source of data for research in CSR. The database uses sources both internal to the firm (e.g. annual reports) and external (e.g. articles in the business press) to conduct yearly assessments of the social performance of the 3,000 largest

US publicly traded companies by market capitalisation.[6] We then merge the KLD data with the institutional ownership data obtained from Thomson Reuter's 13F database, which contains quarterly institutional holdings for all common stocks traded on NYSE, AMEX, and NASDAQ.[7] We delete observations with overall institutional ownership over 100%, which reduces the number of observations by less than 1%.[8] We obtain data on firms' characteristics from the Compustat database, and data on stock price, stock return, trading volume and firm age from the Centre for Research in Security Prices (CRSP) database. The final sample consists of 22,801 firm-year observations, representing 3,714 US firms over the 1991–2012 period.

3.2 Measuring CSR

We employ the KLD database to construct our CSP measures. KLD assesses firms with regard to their strengths and concerns on a variety of dimensions of CSR. More specifically, companies are rated on multiple categories, including seven 'qualitative issue areas' (these being community, diversity, employee relationship, environment, product, human rights and corporate governance) as well as six 'controversial business issues' (which examine the extent to which a firm is involved with military contracting, nuclear power, firearms, alcohol, tobacco or gambling). The qualitative dimension indicators include both strengths and concerns of the same category, whereas the controversial business issues by definition are only rated on concerns. All ratings are binary, with 1 representing the presence of a particular strength/concern and 0 representing its absence. Following much of the literature, including Hillman and Keim (2001) and Oikonomou, Brooks and Pavelin (2012), we do not consider the controversial business issues, but rather concentrate on the five main CSP qualitative issue areas:

[6] Starting with the S&P 500 Index firms and the Domini 400 Social Index firms in 1991, KLD has expanded its coverage to incorporate the largest 1,000 US companies by market value since 2001, an expansion which advanced further in 2003 with the inclusion of the 3,000 largest US firms.

[7] The Security and Exchange Commission (SEC) requires that all institutions operating in the US with discretion over 13F securities worth $100 million or more report all equity holdings greater than 10,000 shares (or $200,000) to the SEC at a quarterly frequency.

[8] There are several reasons which could lead to a nominal institutional ownership rate being higher than 100% for a given firm. First of all, when investors share investment discretion, the security may be double counted (once for each institution). Secondly, when investors short sell a security, it will be recorded as a holding for both the lender and the borrower (short-seller) which will also lead to an overstatement of ownership. Thirdly, sometimes a firm's financial reporting date and institutional investors reporting date will not match perfectly. In this case, if a firm's total shares outstanding changed dramatically during this time gap, the base of ownership calculation could cause some data errors (Striewe, Rottke & Zietz, 2013). To minimize the effects of these factors, we follow the same treatment as in Yan and Zhang (2009). Our results are robust when keeping those observations with more than 100% total institutional ownership in our sample.

community, diversity, employee relationship, environment and product.[9] The fact that the number of strengths and concerns within each CSP category has evolved over time, as KLD refined the database, makes it difficult to directly compare strengths (concerns) across years. Therefore, we scale the strengths and concerns of each category to obtain two indices that range from 0 to 1. To be more specific, within a particular qualitative dimension for each firm-year we calculate adjusted dimension-level strength (concern) scores by adding all the ratings of the indicators for the strengths (concerns) and then dividing the sum by the maximum possible number of strengths (concerns). Then we compute dimension-level CSP scores as the net difference between adjusted dimension-level strength and concern scores for all five qualitative dimensions studied in the paper. The five dimension-level CSP scores are denoted as Community score (**COM_CSP**), Diversity score (**DIV_CSP**), Employee score (**EMP_CSP**), Environment score (**ENV_CSP**) and Product score (**PRO_CSP**). Finally, we construct three aggregate CSP measures: overall strengths (**AGG_S**), overall concerns (**AGG_C**) and overall CSP (**AGG_CSP**). To calculate AGG_S (AGG_C), we simply sum the adjusted dimension-level strengths (concerns) across the five categories and then divide the sum by five.[10] To calculate AGG_CSP, we subtract the AGG_C from the AGG_S.

3.3 Measuring institutional ownership

We construct three institutional ownership measures. For a particular firm, we first measure its total institutional ownership (hereafter TIO) as the ratio between the number of shares held by institutional investors and the total number of shares outstanding. We then further classify institutional investors into short-term and long-term investors based on their portfolio turnover during the past four quarters. Short-term investors, by definition, buy and sell their investments frequently, which is reflected in high portfolio turnover. In contrast, long-term investors tend to hold their positions unchanged for a relatively long time period and thus are associated with low portfolio turnover. Therefore, portfolio turnover de facto serves as an intuitive criterion to distinguish long term investors from their short-term peers. Following Gaspar, Massa and Matos (2005), for each institutional investor i at time t we calculate churn rate ($CR_{i,t}$), a measure of

[9] Following Servaes and Tamayo (2013), we exclude corporate governance from our CSP construction because it is a mechanism that aligns the interest between shareholders and managers rather than a concern that deals with social objectives and stakeholders other than shareholders. Human rights has also historically been considered to be too broad of a category within KLD and not related to a particular group of stakeholders so it is also excluded from the analysis.

[10] Following Hillman and Keim (2001) and Oikonomou, Brooks and Pavelin (2012), we assume that each type of social action is given equal weighting so that employee programs, for example, are considered just as important as product safety and quality. Though not a perfect solution, in the absence of up-to-date data on the relative importance of each dimension, this is what the literature has been employing.

how frequently the investor rotates her positions on all the stocks of her portfolio. More precisely, in quarter t, investor i's churn rate is:

$$CR_{i,t} = \frac{\sum_{j \in Q} \left| N_{j,i,t} P_{j,t} - N_{j,i,t-1} P_{j,t-1} - N_{j,i,t-1} \Delta P_{j,t} \right|}{\sum_{j \in Q} \frac{N_{j,i,t} P_{j,t} + N_{j,i,t-1} P_{j,t-1}}{2}} \quad (1)$$

where Q represents the set of companies held by investor i. $P_{j,t}$ and $N_{j,i,t}$ are the price and the number of shares, respectively, of company j held by institutional investor i at time t. $\Delta P_{j,t}$ represents the price change of share j between time $t-1$ and t. At time t, if $N_{j,i,t} = N_{j,i,t-1}$ for all j, it means that investor i does not change her portfolio at all during the period and thus her churn ratio is equal to zero as the numerator of Equation (1) becomes zero, suggesting that she is a long-term investor.

Next, we calculate each investor's average churn rate over the past four quarters:

$$AVG\_CR_{i,t} = \frac{\sum_0^3 CR_{i,t-j}}{4} \quad (2)$$

Based on the average churn rate, at each year end we sort all investors into three tertiles. Those ranked in the top tertile with the highest $AVG\_CR_{i,t}$ (top 33%) are classified as short-term institutional investors and those ranked in the bottom tertile are categorised as long-term investors. Finally, short-term (long-term) institutional ownership (hereafter SIO and LIO) is constructed as the ratio between the number of shares held by short-term (long-term) investors and the total number of shares outstanding. Appendix 1 summarises definitions and data sources of various CSP and institutional ownership measures.

We have a total of 4,588 unique institutional investors with holdings in at least one firm in one year of our sample. It is worth noting that the average churn rate for short-term investors across all years is 15%, whereas for long-term investors it is just 2.2%. This essentially translates to short-term investors rebalancing their holding at a pace of nearly 7 times faster than their long-term peers – a truly sizable differential. In addition, an important observation that should be highlighted is that when splitting our sample of institutional investors according to their operations, it is clear that the dichotomies previously used in the literature are not necessarily accurate. For example, pension funds and insurance companies are thought of as being typical examples of long-term institutional owners. Yet when looking at their actual trading activity, it looks like a little over a half of them have churn ratios that would categorise them as long-term investors (54.4%). Nearly one third (32%) are hard to categorise as either long-term or short-

term owners, and the sizeable remainder of these pension and insurance funds (13.6%) actually reinvest so often that they are categorised as short-term investors! This demonstrates how important it is to apply a categorisation of institutional investors according to their investment horizon as that is calculated via their actual holdings instead of an ex ante classification according to their legal/operational entity.

3.4 Methodology

With the comprehensive firm-level data retrieved from multiple sources, we are interested in three main questions regarding the relationship between investment horizon and CSP. First, does heterogeneity in terms of investment horizon among institutional investors play a significant role in determining their preferences for CSP? Second, if long-term investors do prefer firms with a higher CSP score as the theory would suggest, do they have equal appetite for seeking strengths and for avoiding concerns? Lastly, if the benefit of activities improving CSP indeed accrues in the long-run as the literature claims, is there empirical evidence that long-term investors promote higher CSP once they become shareholders?

To examine the first question, we conduct regression analyses by employing three different institutional ownership (IO) measures as dependent variables. More specifically, our empirical framework is based on the estimation of the following prediction model:

$$IO_{i,t} = \alpha + \beta_1 \text{AGG\_CSP}_{i,t-1} + \boldsymbol{\gamma}\mathbf{X_{i,t-1}} + \varepsilon_{i,t} \quad (3)$$

In Equation (3), the subscripts i and t denote the firm and the time (year), respectively. IO is either TIO, SIO or LIO corresponding to total institutional ownership, short-term and long- term institutional ownership respectively.[11] Our variable of interest is AGG_CSP, our measure of overall CSP is constructed using KLD data. The sign and significance of the coefficient β_1 reveals the relationship between CSP and a particular IO measure. $\mathbf{X}$ is a vector of control variables and $\boldsymbol{\gamma}$ is a coefficient vector. The first control variable we include in $\mathbf{X}$ is the lagged dependent variable ($\boldsymbol{IO_{i,t-1}}$). Allowing for dynamics in IO is crucial for recovering consistent estimates of β_1 if IO is serially correlated. Prior research shows that certain firm characteristics are associated with institutional investors' investment preferences and thus should be controlled to mitigate the problem of a possible spurious relationship between IO and CSP (see Gompers & Metrick, 2001; Yan & Zhang, 2009; Harjoto et al, 2015). Specifically, institutional investors are documented to

[11] Analytical descriptions of all the key dependent and independent variables have been placed in Appendix 1 for the sake of parsimony.

take into account prudence, stock liquidity, transaction costs and expected future returns when they make their investment decisions. Therefore, following Yan and Zhang (2009), we include three groups of control variables in **X**:

1) Size (**MV**), firm age (**AGE**), dividend yield (**DY**), S&P 500 index membership (**S&PIDX**), leverage (**DTA**), stock risk (both systematic risk (**BETA**) and idiosyncratic risk (**IRISK**)) to control for prudence;

2) Share price (**PRC**) and stock turnover (**TOV**) to control for liquidity and transactions costs; and

3) Past returns (**RET**), earnings per share (**EPS**), and book-to-market ratio (**BM**) to control for expected future returns (see Fama & French, 1992).

To account for industry-specific factors that may affect the relationship between IO and CSP, we include industry dummy variables, which are constructed based on the two-digit Standard Industrial Classification (SIC) code. We also add year dummies in **X** to account for changing economic conditions and more importantly the observed evolution of CSP-related recognitions and practices. Appendix 2 summarises definitions and data sources for those control variables.

Equation (3) looks at the overall CSP indicator, which summarises strengths and concerns into one single figure and consequently prevents us from exploring investors' potentially different attitudes towards firms' socially beneficial and controversial activities. Thus, we replace the AGG_CSP variable with two variables, AGG_S and AGG_C, representing social strengths and concerns, respectively:

$$IO_{i,t} = \alpha + \beta_1 \text{AGG\_S}_{i,t-1} + \beta_2 \text{AGG\_C}_{i,t-1} + \boldsymbol{\gamma}\mathbf{X}_{\boldsymbol{i,t-1}} + \varepsilon_{i,t} \quad (4)$$

In Equation (4), we are interested in variables AGG_S and AGG_C, which enable us to breakdown overall CSP and allow for asymmetric effects of strengths and concerns on future institutional ownership.

Literature has established a positive relationship between CSP and firm financial performance. In particular, the benefits of responsible performance have been argued to accrue in the long term, and as such could be enjoyed mainly by long-term investors. This rationale provides incentives to these investors to promote CSR practices once they become shareholders so that they reap the respective financial rewards in the long-run. To empirically test this hypothesis, we estimate the following reduced-form model:

$$\mathrm{CSP}_{i,t} = \alpha + \beta_1 \mathrm{LIO}_{i,t-1} + \gamma \mathrm{Y}_{i,t-1} + \varepsilon_{i,t} \quad (5)$$

In Equation (5), the subscripts i and t denote firm and the time (year), respectively. CSP is either AGG_CSP, AGG_S, or AGG_C, representing overall CSP, overall strengths and overall concerns, respectively. Our variable of interest is LIO. It is calculated as yearend shareholdings of long-term institutional investors relative to total shares outstanding for a given firm on a given year. Y is a vector of control variables and $\boldsymbol{\gamma}$ is a coefficient vector. Following the literature, we include in Y, firm size (**MV**), book-to-market ratio (**BM**), leverage (**DTA**) and return on asset (**ROA**) as control variables[12]. We expect larger firms and more profitable firms to have more slack resources that can be allocated to CSR projects. In contrast, leverage is expected to have a negative effect on overall CSP because as leverage increases, firms pay more interest and have fewer resources available for CSR activities. If a firm's CSR policies reflect its culture, it is reasonable to assume that its CSP is autocorrelated and as a result the inclusion of lagged dependent variable ($AGG\_\boldsymbol{CSP_{i,t-1}}$) in Y is warranted. We also include TIO to capture the impact of total institutional ownership (including long-term, short-term and medium-term ownership) on future CSP. In addition, we control for industry fixed effects and year fixed effects as in equations (3) and (4). Appendix 2 summarises definitions and data sources of those control variables.

4 Empirical results

4.1 Descriptive statistics

Table 1 reports the descriptive statistics of key variables. Panel A contains the information on CSP indicators. The overall CSP score (AGG_CSP) is negative on average, indicating a relatively higher average concern score than strength score. Indeed, this is confirmed by the lower average of AGG_S compared to AGG_C (0.05 versus 0.08). Looking at the five CSP dimensions separately, five have negative (or zero) scores, ranging between −0.07 and 0. Community (COM_CSP), in contrast, has a positive average score of 0.02. Consistent with the findings in Bouslah, Kryzanowski and M'Zali (2013), the absolute mean values of all six dimensions are close to zero, revealing that the typical firm-year observation in our sample has a largely equal number of strengths and concerns. Panel B of Table 1 contains institutional ownership measures and it shows that the average total institutional ownership for firms in the sample is 65%, out of which 17% is short-term and 20% is long-term, according to our churn-rate based classification. Panel C of the same table reports descriptive statistics for our control variables. Over our sample period,

[12] See Waddock and Graves (1997), Neubaum and Zahra (2006), and Cao, Liang and Zhan (2016).

the average firm BETA is 1.066, which is almost the same as beta of the market portfolio, indicating our sample is comprehensive and representative. The typical firm in our sample has average leverage (DTA) of 0.254 and average book-to-market ratio (BM) of 0.561. 26.1% of our sample firms are included in the S&P 500 Index and the average firm age is about 22 years. In panel D, we report the mean values of our three aggregate CSP measures across tertiles of *LIO* and *SIO*, respectively. Consistent with our prediction, both average AGG_SMC and average AGG_S increase as *LIO* increases but decrease as *SIO* increases (from the bottom tertile to the top tertile). It is interesting that AGG_C increases with *LIO*, which is counterintuitive and warrants a formal regression analysis, controlling for other relevant factors. The different (actually opposite) patterns of the relation between CSP measures and the two types of institutional ownership (long-term and short-term) signal the importance of examining long-term and short-term investors separately.

Table 1 Summary statistics

VARIABLE	N	MEAN	STD	SKEW	KURT	Min	25%	50%	75%	MAX
Panel A: CSR										
AGG_CSP	22801	−0.023	0.105	1.520	7.318	−0.542	−0.083	−0.028	0.021	0.919
AGG_S	22800	0.054	0.096	3.386	14.921	0.000	0.000	0.021	0.065	0.919
AGG_C	22801	0.077	0.073	1.633	4.720	0.000	0.028	0.056	0.111	0.722
COM_CSP	21924	0.015	0.174	0.651	15.512	−1.000	0.000	0.000	0.000	1.000
DIV_CSP	22799	−0.072	0.290	0.064	0.784	−1.000	−0.333	0.000	0.125	1.000
EMP_CSP	22794	−0.020	0.167	0.155	3.334	−1.000	−0.033	0.000	0.000	1.000
ENV_CSP	22800	0.003	0.142	0.903	9.929	−0.833	0.000	0.000	0.000	1.000
PSQ_CSP	22184	−0.027	0.194	0.500	8.900	−1.000	0.000	0.000	0.000	1.000
Panel B: IO										
TIO	22795	0.646	0.221	−0.549	−0.348	0.000	0.501	0.675	0.819	1.000
SIO	22795	0.165	0.101	0.923	1.370	0.000	0.090	0.150	0.225	0.852
LIO	22795	0.201	0.102	1.214	3.982	0.000	0.130	0.187	0.257	0.943
Panel C: Control										
MV	22801	6395.07	20416.20	9.80	139.23	8.03	458.50	1400.21	4338.72	519815.79
BM	22801	0.561	0.607	−27.689	1879.880	−43.685	0.302	0.488	0.740	3.342
AGE	22801	22.168	15.908	0.733	−0.481	1.000	9.000	18.000	34.000	63.000
BETA	19752	1.066	0.637	1.016	2.354	−1.230	0.623	0.987	1.409	5.151
IRISK	19752	0.113	0.084	3.331	26.464	0.001	0.059	0.091	0.141	1.565
TOV	22801	0.170	0.175	6.544	118.455	0.001	0.071	0.125	0.211	6.196
PRC	22801	32.839	45.713	23.227	891.966	−5.059	14.863	26.430	41.783	2351.950
RET	22801	0.034	0.120	0.371	6.301	−0.828	−0.021	0.034	0.088	0.965
EPS	22644	0.380	1.309	24.027	1031.960	−19.130	0.083	0.328	0.605	71.160
S&PIDX	22801	0.261	0.439	1.091	−0.811	0.000	0.000	0.000	1.000	1.000
DY	22765	0.004	0.008	10.885	253.131	0.000	0.000	0.002	0.006	0.309
DTA	22801	0.254	0.196	0.986	0.943	0.000	0.098	0.225	0.361	1.000
ROA	22614	0.020	0.173	−22.028	1260.600	−12.331	0.008	0.032	0.070	2.170

Table 1 continued

Panel D			
LIOP TERCILE	AGG_CSP	AGG_S	AGG_C
1	−0.032	0.038	0.070
2	−0.020	0.062	0.081
3	−0.018	0.061	0.078
DIFF	0.014***	0.024***	0.008***
T	[8.7]	[16.44]	[7.21]
SIOP TERCILE	AGG_CSP	AGG_S	AGG_C
1	−0.016	0.056	0.074
2	−0.022	0.061	0.081

Table 2 presents the pairwise correlations among all variables used in the paper. Almost all of the correlation coefficients among control variables are quite low (less than 35%), suggesting that multicollinearity should not affect our analysis. The exception to this, expectedly so, comes from the high correlations between market value, log of stock price and index membership. Iteratively dropping each of these variables from our model specifications does not change our results.

Table 2 Correlation Matrix

Variables	AGG_CSP	AGG_S	AGG_C	TIO	SIO	LIO	LOGMV	BM	LOGAGE	BETA	IRISK	TOV	LOGPRC	RET	EPS	S&PIDX	DY	DTA	ROA
AGG_CSR	1.000																		
AGG_S	0.651	1.000																	
AGG_C	−0.405	0.191	1.000																
TIO	−0.031	0.047	0.065	1.000															
SIO	−0.102	−0.073	0.019	0.574	1.000														
LIO	0.096	0.159	0.055	0.532	−0.059	1.000													
LOGMV	0.138	0.358	0.243	0.216	0.054	0.151	1.000												
BM	−0.021	−0.024	−0.002	−0.022	−0.076	0.073	−0.160	1.000											
LOGAGE	0.094	0.193	0.115	0.039	−0.123	0.233	0.369	−0.009	1.000										
BETA	−0.061	−0.004	0.055	0.171	0.225	−0.014	−0.013	−0.037	−0.102	1.000									
IRISK	−0.091	−0.110	−0.026	−0.034	0.119	−0.143	−0.283	0.028	−0.207	0.285	1.000								
TOV	−0.056	0.027	0.093	0.293	0.326	0.020	0.040	−0.035	−0.090	0.297	0.353	1.000							
LOGPRC	0.104	0.154	0.060	0.198	0.049	0.149	0.632	−0.158	0.293	−0.227	−0.378	−0.070	1.000						
RET	0.010	−0.009	−0.021	0.015	0.158	−0.072	0.029	−0.159	−0.012	0.055	−0.059	−0.050	0.099	1.000					
EPS	0.021	0.048	0.040	0.008	−0.018	0.040	0.187	0.037	0.111	−0.075	−0.158	−0.098	0.391	0.101	1.000				

S&PIDX	0.108	0.280	0.189	0.053	−0.007	0.088	0.618	−0.070	0.355	0.036	−0.142	−0.040	0.337	−0.001	0.089	1.000		
DY	0.056	0.057	0.008	−0.144	−0.146	0.017	0.085	0.061	0.139	−0.180	−0.163	−0.112	0.073	−0.026	0.031	0.075	1.000	
DTA	−0.042	−0.003	0.048	0.056	0.080	−0.013	0.047	−0.078	−0.005	0.088	0.056	0.039	−0.092	−0.030	−0.083	0.022	0.174	1.000
ROA	0.034	0.054	0.030	0.111	0.034	0.092	0.202	0.007	0.123	−0.100	−0.239	−0.061	0.313	0.136	0.236	0.094	0.069	−0.092	1.000

4.2 Main results

This section presents our main empirical results. We first investigate the impact of a firm's overall CSP score on its future institutional ownership. We next zoom in on specific aspects of firms' CSR activities. More precisely, to further understand the mechanism through which CSP is associated with institutional ownership, we look at overall strengths, overall concerns and dimension-level CSR scores (e.g. COM_CSP, DIV_CSP, EMP_CSP, ENV_CSP and PRO_CSP), respectively. Lastly, we examine whether and how (e.g. through enhancing strengths or reducing concerns) long-term investors, as shareholders, promote future CSR activities.

4.2.1 How do CSR activities affect institutional ownership?

Table 3 contains the results, focusing on overall CSP. The insignificant coefficient of the main CSP variable (*AGG_CSP*) in column 1 implies that institutional investors as a whole might not factor in CSP when they make investment decisions. However, this finding might just as well be the result of the opposite attitudes toward CSR of long-term and short-term investors, as we explained in Section 2. Specially, it is possible that mixing the two types of investors under the same umbrella buries the true effects of CSP and leads to the insignificant outcome. To disentangle the possibly differing attitudes towards CSR for long-term and short-term investors, we replace the independent variable *TIO* in specification 1 (representing total institutional ownership) with *SIO* and *LIO* in specifications 2 and 3 (representing long-term and short-term institutional ownership respectively). The negative and significant coefficient of *AGG_CSP* in column 2 indicates that short-term investors do consider CSR in their decision-making models and they tend to avoid firms with higher CSP. On the other hand, column 3 shows that long-term investors are attracted by CSR and prefer to invest in socially friendly firms. These findings are consistent with our prediction and more importantly, highlight the usefulness of recognizing the significant role that investment horizon plays in determining CSR effects on institutional ownership.

Table 3 Institutional investors' preference of aggregate CSP

Table 3 displays the regression results of various measures of institutional ownership on aggregate CSP and other control variables. Dependent variables TIO, SIO and LIO denote ownership of all institutional investors, short-term institutional investors and long-term institutional investors respectively, measured at year t+1. Long-term and short-term investors are defined following Yan and Zhang (2009) based on churn ratio. All independent variables are in the current year t. Main variable of interest is the overall CSP score based on the KLD database. Control variables include firm size (LOGMV), natural log of firm age (LOGAGE), natural log of stock price (LOGPRC), Book to market ratio (BM), CAPM beta of stock (BETA), idiosyncratic volatility (IRISK), quarterly stock turnover (TOV), earnings per share (EPS), index membership dummy (S&PIDX), dividend yield (DY), leverage (DTA). Detailed variable definition can be found in appendix 1 and 2. Time fixed effects (Year) and industry fixed effects (2 Digit SIC code) are included in all regressions. *, ** and *** denote significance at the 10%, 5% and 1% level respectively. Standard errors are clustered at firm level and robust t-statistics are reported in brackets.

VARIABLE	(1) TIO(t+1)	(2) SIO(t+1)	(3) LIO(t+1)
AGG_CSP	−0.010	−0.020***	0.012**
	[−1.34]	[−4.36]	[2.40]
TIO	0.882***		
	[152.19]		
SIO		0.590***	
		[55.24]	
LIO			0.710***
			[45.50]
LOGMV	0.004***	0.000	0.003***
	[5.31]	[0.25]	[5.53]
LOGAGE	−0.004***	−0.004***	0.001
	[−3.22]	[−4.00]	[1.33]
LOGPRC	0.001	−0.002*	0.007***
	[0.39]	[−1.80]	[6.44]
BM	0.005*	0.004***	0.005***
	[1.79]	[4.28]	[6.34]
BETA	0.001	0.006***	−0.001
	[0.70]	[4.95]	[−0.79]
IRISK	−0.052***	−0.027***	−0.038***
	[−3.64]	[−3.03]	[−4.01]
TOV	−0.012	0.047***	−0.004
	[−1.14]	[6.74]	[−1.00]

RET	0.072***	0.036***	0.004
	[7.02]	[5.54]	[0.80]
EPS	0.001	0.000	−0.001
	[0.86]	[0.46]	[−1.07]
S&PIDX	−0.005**	0.000	−0.002
	[−2.30]	[0.01]	[−1.36]
DY	−0.105	−0.079	−0.066
	[−0.76]	[−0.90]	[−0.81]
DTA	0.004	0.023***	−0.005
	[0.72]	[6.07]	[−1.42]
CONSTANT	−0.100***	0.061***	−0.080***
	[−6.14]	[5.56]	[−7.73]
OBSERVATIONS	19,504	19,504	19,504
R-SQUARED	0.786	0.508	0.607
TIME FE	YES	YES	YES
IND FE	YES	YES	YES

The negative bias in the CSP-firm performance link established in the literature and discussed in Section 2 of this paper suggests asymmetric effects of strengths and concerns on future institutional ownership. To empirically test the theory, we replace overall CSP with strengths (*AGG_S*) and concerns (*AGG_C*) and re-estimate our model. Indeed, results in Table 4 show that firms' positive and negative social actions affect investors' preference differently. The negative coefficients of *AGG_S* and *AGG_C* in column 1 imply that institutional investors as a whole (when not categorising them according to their investment horizon) dislike both strengths and concerns, which is in stark contrast with the finding in column 1 of Table 3 that institutional investors have an indifferent attitude toward CSR. The two contradicting results are consistent with Godfrey, Hatch and Hansen's (2010) argument that the process of netting a firm's social strengths and concerns 'obscures more than it reveals'. More importantly, when taking into consideration investor horizon, the results in columns 2 and 3 suggest that long-term investors' preference for firms with higher CSP, as displayed in Table 3, is mainly driven by an avoidance of firms with higher social controversies, whereas the negative relationship between CSP and short-term ownership is largely caused by short-term investors' avoidance of firms with higher social strengths.

Table 4 Institutional investors' preference of CSP strengths and concerns

Table 4 displays the regression results of various measures of institutional ownership on CSP Strengths, CSP Concerns and other control variables. Dependent variables TIO, SIO and LIO denote ownership of all institutional investors, short-term institutional investors and long term institutional investors respectively, measured at year t+1. Long term and short term investors are defined following Yan and Zhang (2009) based on churn ratio. All independent variables are in the current year t. AGG_S and AGG_C are the variables of interest and are measured as the standardized CSP Strengths score and Concerns score from the KLD database, respectively. Control variables include firm size (LOGMV), natural log of firm age (LOGAGE), natural log of stock price (LOGPRC), Book to market ratio (BM), CAPM beta of stock (BETA), idiosyncratic volatility (IRISK), quarterly stock turnover (TOV), earnings per share(EPS), index membership dummy (S&PIDX), dividend yield (DY), leverage (DTA). Detailed variable definitions can be found in appendix 1 and 2. Time fixed effects (Year) and industry fixed effects (2 Digit SIC code) are included in all regressions. *, ** and *** denote significance at the 10%, 5%, and 1% level respectively. Standard errors are clustered at firm level and robust t-statistics are reported in brackets.

	(1)	(2)	(3)
VARIABLES	TIO(t+1)	SIO(t+1)	LIO(t+1)
AGG_S	−0.017**	−0.022***	0.006
	[−2.13]	[−4.68]	[1.33]
AGG_C	−0.027**	0.000	−0.033***
	[−2.45]	[0.07]	[−4.90]
TIO	0.881***		
	[151.62]		
SIO		0.590***	
		[55.35]	
LIO			0.709***
			[45.52]
LOGMV	0.005***	0.000	0.003***
	[5.79]	[0.78]	[6.00]
LOGAGE	−0.004***	−0.004***	0.001
	[−3.12]	[−3.89]	[1.43]
LOGPRC	0.000	−0.002**	0.006***
	[0.17]	[−2.01]	[6.21]
BM	0.005*	0.004***	0.005***
	[1.91]	[4.34]	[6.57]
BETA	0.001	0.006***	−0.001
	[0.78]	[5.04]	[−0.74]
IRISK	−0.052***	−0.026***	−0.038***

	[−3.61]	[−2.96]	[−4.00]
TOV	−0.011	0.047***	−0.004
	[−1.11]	[6.78]	[−0.98]
RET	0.072***	0.037***	0.004
	[7.04]	[5.57]	[0.79]
EPS	0.001	0.000	−0.001
	[0.88]	[0.51]	[−1.02]
S&PIDX	-0.004*	0.001	−0.002
	[−1.89]	[0.34]	[−1.07]
DY	−0.104	−0.080	−0.063
	[−0.76]	[−0.91]	[−0.78]
DTA	0.004	0.023***	−0.005
	[0.76]	[6.07]	[−1.42]
CONSTANT	−0.110***	0.054***	−0.084***
	[−6.56]	[4.76]	[−7.83]
OBSERVATIONS	19,503	19,503	19,503
R-SQUARED	0.786	0.508	0.607
TIME FE	YES	YES	YES
IND FE	YES	YES	YES

The overall CSP of a firm is the combination of its performance in several dimensions, including community, diversity, employee relationship, environment and product. The aggregation of the five dimensions of CSR activities into a single measure, *AGG_CSP*, facilitates our analysis, which reveals the general relationship between CSR and institutional ownership. However, individual dimensions may offer additional informative content and enable us to investigate the difference between and relative importance of those dimensions in terms of their influence on firm performance and thus future institutional ownership. Table 5 shows that the impacts of the five dimensions are heterogeneous. Results in columns 1 through 6 indicate that, among the five dimensions, only firms with better employee relationship and higher product quality from a social perspective attract long-term investors. Short-term investors, on the other hand, seem to only pay attention to the environment and product dimensions of CSR activities, as the negative and significant coefficients of *ENV_CSP* and *PRO_CSP* in columns 11 and 12 suggest. In particular, our findings in columns 7 through 12 reveal that the previously discussed negative association

between short-term ownership and CSR largely reflects short-term investors' disfavour of firms with higher *ENV_CSP* and *PRO_CSP*. It is worth noting that the product dimension is the only common dimension that both long-term and short-term investors consider when they select their investment.

Table 5 Institutional investors' preference of specific CSP dimensions

Table 5 displays the regression results of various measures of institutional ownership on measures of specific CSP dimensions and other control variables. Dependent variables SIO and LIO denote ownership of short-term institutional investors and long term institutional investors respectively, measured at year t+1. Long-term and short-term investors are defined based on churn ratio as in Yan and Zhang (2009). All independent variables are in the current year t. Variables of interest are COM_CSP, DIV_CSP, EMP_CSP, ENV_CSP, PSQ_CSP, representing the standardized CSP scores of Community, Diversity, Employee, Environment and Product, from KLD database. Control variables include firm size (LOGMV), natural log of firm age (LOGAGE), natural log of stock price (LOGPRC), Book to market ratio(BM), CAPM beta of stock (BETA), idiosyncratic volatility (IRISK), quarterly stock turnover (TOV), earnings per share(EPS), index membership dummy (S&PIDX), dividend yield (DY), leverage (DTA). Detailed variable definitions can be found in appendix 1 and 2. Time fixed effects (Year) and industry fixed effects (2 Digit SIC code) are included in all regressions. *, ** and *** denote significance at the 10%, 5% and 1% level respectively. Standard errors are clustered at firm level and robust t-statistics are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	SIO1	SIO1	SIO1	SIO1	SIO1	LIO1	LIO1	LIO1	LIO1	LIO1
COM_CSP	−0.004					0.003				
	[−1.53]					[1.32]				
DIV_CSP		0.001					−0.002			
		[0.33]					[−1.32]			
EMP_CSP			−0.003					0.005**		
			[−1.00]					[2.04]		
ENV_CSP				−0.006*					0.001	
				[−1.93]					[0.28]	
PSQ_CSP					−0.008***					0.008***
					[−3.11]					[2.85]
LOGMV	−0.000	−0.000	−0.000	0.000	−0.000	0.003***	0.003***	0.003***	0.003***	0.003***
	[−0.04]	[−0.19]	[−0.05]	[0.01]	[−0.14]	[4.96]	[5.88]	[5.67]	[5.76]	[5.72]

BM	0.004***	0.004***	0.004***	0.004***	0.004***	0.005***	0.005***	0.005***	0.005***	0.005***
	[4.20]	[4.31]	[4.30]	[4.29]	[4.05]	[6.26]	[6.31]	[6.38]	[6.29]	[5.91]
LOGAGE	−0.003***	−0.004***	−0.004***	−0.004***	−0.004***	0.002*	0.001	0.001	0.001	0.002*
	[−3.63]	[−4.01]	[−4.03]	[−4.07]	[−3.85]	[1.72]	[1.42]	[1.39]	[1.35]	[1.77]
BETA	0.005***	0.006***	0.006***	0.006***	0.006***	−0.001	−0.001	−0.001	−0.001	−0.001
	[4.48]	[5.06]	[5.03]	[5.05]	[4.89]	[−0.77]	[−0.90]	[−0.79]	[−0.88]	[−0.66]
IRISK	−0.028***	−0.026***	−0.026***	−0.027***	−0.027***	−0.037***	−0.038***	−0.038***	−0.038***	−0.037***
	[−3.14]	[−2.99]	[−2.99]	[−3.01]	[−3.07]	[−3.88]	[−4.04]	[−4.04]	[−4.03]	[−3.88]
TOV	0.049***	0.047***	0.047***	0.047***	0.047***	−0.004	−0.004	−0.004	−0.004	−0.005
	[6.86]	[6.75]	[6.75]	[6.76]	[6.73]	[−1.04]	[−0.96]	[−0.96]	[−0.98]	[−1.19]
LOGPRC	−0.002*	−0.002*	−0.002*	−0.002*	−0.002*	0.007***	0.007***	0.007***	0.007***	0.007***
	[−1.66]	[−1.77]	[−1.81]	[−1.80]	[−1.78]	[6.41]	[6.32]	[6.44]	[6.43]	[6.26]
RET	0.038***	0.037***	0.037***	0.037***	0.037***	0.005	0.004	0.004	0.004	0.005
	[5.77]	[5.60]	[5.59]	[5.58]	[5.59]	[1.03]	[0.71]	[0.78]	[0.76]	[1.04]
EPS	0.000	0.000	0.000	0.000	0.000	−0.001	−0.001	−0.001	−0.001	−0.001
	[0.58]	[0.53]	[0.52]	[0.50]	[0.69]	[−1.06]	[−1.10]	[−1.08]	[−1.08]	[−0.99]
S&PIDX	−0.000	−0.000	−0.000	0.000	0.000	−0.002	−0.002	−0.002	−0.002	−0.003*
	[−0.06]	[−0.05]	[−0.05]	[0.02]	[0.01]	[−1.49]	[−1.29]	[−1.33]	[−1.32]	[−1.82]
DY	−0.124	−0.082	−0.081	−0.083	−0.113	−0.049	−0.063	−0.066	−0.064	−0.051
	[−1.35]	[−0.93]	[−0.92]	[−0.94]	[−1.25]	[−0.57]	[−0.78]	[−0.81]	[−0.79]	[−0.63]
DTA	0.025***	0.024***	0.024***	0.024***	0.025***	−0.006*	−0.005	−0.005	−0.005	−0.005*
	[6.22]	[6.12]	[6.10]	[6.12]	[6.33]	[−1.86]	[−1.47]	[−1.44]	[−1.48]	[−1.67]

CONSTANT	0.062*** [5.61]	0.065*** [5.62]	0.063*** [5.74]	0.063*** [5.74]	0.064*** [5.76]	−0.077*** [−7.48]	−0.085*** [−7.97]	−0.080*** [−7.74]	−0.081*** [−7.92]	−0.083*** [−8.18]
OBSERVATIONS	18,738	19,502	19,497	19,503	18,934	18,738	19,502	19,497	19,503	18,934
R-SQUARED	0.508	0.508	0.508	0.508	0.507	0.612	0.607	0.607	0.607	0.607
TIME FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
IND FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

4.2.2 Do long-term institutional investors promote CSR, and if so, how?

Rational long-term institutional investors would promote CSR of their invested firms if, as the literature argues, positive corporate social activities yielded long-run financial benefits. Table 6 reports the results of estimating Equation (5). More precisely, the dependent variable in specification 1 is overall CSP (*AGG_CSP*) one year after the investor bought shares of the firm, and the dependent variable in specification 2 is *AGG_CSP* five years after the purchase. As shown in column 1 of Table 6, LIO enters into the regression with a positive and significant coefficient, confirming the intuition that long-term investors promote overall CSP. Interestingly, comparing the results in columns 1 and 2, the positive association between LIO and overall CSP is enhanced both statistically and economically as we increase horizon from one year to five years. This finding may suggest that it takes time for institutional ownership to materially impact the culture of a firm and lead to higher levels of CSP. It is worth noting that the lagged dependent variable (AGG_CSP) has a positive and significant coefficient in both columns 1 and 2, providing evidence that a firm's CSP is persistent over time and supporting the argument that CSP activities are rooted in corporate culture.

We look at the asymmetry between strengths and concerns by regressing overall strengths and concerns, separately, on LIO and control variables. Columns 3 through 6 in Table 6 contain the results. We employ *AGG_S* (*AGG_C*) one year after the investor's purchase of the firm's shares as the dependent variable in column 3 (5), and *AGG_S* (*AGG_C*) for the respective five year point as the dependent variable in column 4 (6). Overall, it appears that as shareholders, long-term investors not only increase positive social activities but also decrease social controversies. Interestingly, our analysis further reveals a certain asymmetry between the two types of activities. Specifically, the insignificant coefficient of LIO in column 3 combined with the significant coefficient in column 4 indicate that long-term investors promote social strengths rather slowly. In contrast, results in column 5 suggest that long-term investors almost immediately reduce controversies after becoming shareholders. This may have to do either with the asymmetric financial effects of concerns versus strengths, as we previously noted (greater for the former), or it may be that it simply takes more time, know-how and overall resources for a firm to proactively do good than to reduce its socially/environmentally harmful activities.

Table 6 Institutional investors' influence on future overall CSP

Table 6 displays the regression results of CSP measures on measures of institutional ownership and other control variables. Dependent variables AGG_CSP, AGG_C and AGG_S denote standardised overall CSP score, CSP concerns score and CSP strengths score respectively. Dependent variables in columns 1, 3 and 5 are measured at t+1 year while dependent variables in columns 2, 4 and 6 are measured at t+5 years. All independent variables are in the current year t. The variable of interest, Long term institutional ownership (LIO), is defined based on churn ratio as in Yan and Zhang (2009). Control variables include total institutional ownership (TIO), firm size (LOGMV), Book to market ratio(BM), Return on assets (ROA) and leverage ratio (DTA). Detailed variable definitions can be found in Appendices 1 and 2. Time fixed effects (Year) and industry fixed effects (2-Digit SIC code) are included in all regressions. *, ** and *** denote significance at the 10%, 5% and 1% level respectively. Standard errors are clustered at firm level and robust t-statistics are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	AGG_CSP(t+1)	AGG_CSP(t+5)	AGG_C(t+1)	AGG_C(t+5)	AGG_S(t+1)	AGG_S(t+5)
LIO	0.010*	0.039**	−0.008*	0.010	0.000	0.036**
	[1.64]	[1.95]	[−1.74]	[0.81]	[0.08]	[2.02]
TIO	−0.003	−0.046***	−0.002	0.002	−0.006**	−0.023***
	[−0.94]	[−4.83]	[−1.10]	[0.36]	[−2.19]	[−2.92]
AGG_CSP	0.816***	0.403***	−0.051***	−0.120***	0.097***	0.231***
	[89.42]	[13.72]	[−8.60]	[−6.03]	[9.33]	[8.05]
AGG_C			0.612***	0.125***		
			[51.36]	[5.99]		
AGG_S					0.691***	0.267***
					[43.02]	[8.36]
LOGMV	0.008***	0.024***	0.006***	0.013***	0.012***	0.038***
	[18.00]	[14.55]	[15.03]	[12.01]	[24.28]	[26.90]
BM	0.000	0.011*	0.002**	0.007**	0.002**	0.018***
	[0.03]	[1.88]	[2.08]	[2.14]	[1.99]	[3.67]
ROA	0.003	−0.004	−0.007***	−0.007	−0.005	−0.014
	[1.28]	[−0.33]	[−2.70]	[−1.11]	[−1.64]	[−1.62]
DTA	−0.003	−0.005	0.002	0.003	−0.002	−0.014*
	[−1.16]	[−0.51]	[1.16]	[0.42]	[−0.64]	[−1.70]
CONSTANT	−0.177***	−0.515***	−0.086***	−0.234***	−0.244***	−0.770***
	[−19.21]	[−14.23]	[−11.01]	[−10.20]	[−22.42]	[−25.58]
Observations	19,781	9,889	19,272	9,812	19,271	9,811
Number of tic	3,363	1,965	3,291	2,036	3,291	2,036

Time FE	YES	YES	YES	YES	YES	YES
IND FE	YES	YES	YES	YES	YES	YES

4.3 Accounting for endogeneity

A common criticism in studies investigating market reactions to CSP is the potential endogeneity between the CSP proxies and financial metrics of interest. Our use of lagged independent variables in our baseline regressions allows us to alleviate this issue as we do not explore a contemporaneous link between institutional ownership and corporate social performance. Instead, we posit, investigate and find a bidirectional, lead-lag relationship between the two, where CSP and institutional ownership influence each other, albeit with some time needed for this feedback process to occur. This seems intuitive enough as we would not expect immediate changes of institutional ownership due to changes in CSP, as this would entail significant transaction costs in rebalancing the portfolios of institutional investors. We would expect to an even lesser extent an immediate change in CSP, given changes in the profile of the institutional owners of a firm. This is due to the sizeable upfront costs and time constraints that are frequently associated with changing the social and environmental output of a given firm.

Nevertheless, it needs to be recognised that every feedback process like the one we have found is dynamic and as such there may be a part of the interaction between the two variables that occurs in a contemporaneous fashion. A further concern arises from the potential omitted variable bias. Specifically, there may be some firm characteristics beyond what we have controlled in our baseline regressions that are correlated with both the dependent variable and independent variables of interest. To address the potential endogeneity issue and reinforce the result of existence of the virtuous circle of long-term institutional ownership and responsible firm conduct, we perform several robustness tests in the context of instrumental variable (IV) estimations.

We first look at the causality that goes from CSP to institutional ownership (our Hypothesis 1). Following Benlemlih and Bitar (2016), we use as instruments the initial level of the firm's overall CSR score (AGG_CSP_INI) and the industry-year average of overall CSR scores (AGG_CSP_IY). These two instruments are likely to be correlated with the firm's contemporaneous CSR score (the relevancy condition) and are unlikely to be endogenous to the firm's contemporaneous institutional ownership (the exclusion restriction). Our IV approach consists of two steps. AGG_CSP_INI and AGG_CSP_IY are used as instruments in the first stage regression:

$$AGG\_CSP_{i,t} = \alpha + \beta_1 \text{AGG\_CSP\_INI}_{i,t} + \beta_2 \text{AGG\_CSP\_IY}_{i,t} + \boldsymbol{\gamma}\mathbf{X}_{\boldsymbol{i,t}} + \varepsilon_{i,t} \quad (6)$$

where we include in **X** the same control variables as in Equation (3). In the second stage regression, we re-estimate Equation (3) by replacing AGG_CSP with $\widehat{AGG\_CSP}$, the predicted value of overall CSP from Equation (6).

The two-stage lease squares (2SLS) regression results are contained in Table 7. We find in the first stage regression estimates that the two IVs are highly significant with expected signs (column 1). The results of the second stage regressions are presented in columns 2 through 4. The insignificant (column 2), negatively significant (column 3) and positively significant (column 4) coefficients of AGG_CSP clearly show that investment horizon matters and short-term investors tend to avoid firms with higher CSP, whereas long-term investors tend to do the opposite, reinforcing our earlier baseline regression findings regarding Hypothesis 1.

Table 7 Institutional investors' preference of aggregate CSP: 2SLS

Table 7 displays the 2SLS regression results of various measures of institutional ownership on overall CSP and other control variables. The first column displays the regression of AGG_CSP on the instrumental variables AGG_CSP_INT (the initial value of CSP) and AGG_CSP_IY (the average CSP of firms in the same industry at the same year) and other control variables. The fitted values of AGG_CSP from the first stage regression are then used in the second stage regressions displayed in columns 2 through 4. The dependent variables TIO, SIO and LIO denote ownership of all institutional investors, short-term institutional investors and long term institutional investors respectively, measured at the year t+1. Long term and short term investors are defined following Yan and Zhang (2009) based on churn ratio. All independent variables are measured in the current year t. The variable of interest is the overall CSP score (AGG_CSP) based on the KLD database. Control variables include firm size (LOGMV), natural log of firm age (LOGAGE), natural log of stock price (LOGPRC), Book to market ratio (BM), CAPM beta of stock (BETA), idiosyncratic volatility (IRISK), quarterly stock turnover (TOV), earnings per share (EPS), index membership dummy (S&PIDX), dividend yield (DY), leverage (DTA). Detailed variable definition can be found in Appendices 1 and 2. Time fixed effects (Year) and industry fixed effects (2-Digit SIC code) are included in all regressions. *, ** and *** denote significance at the 10%, 5% and 1% level respectively. Standard errors are clustered at firm level and robust t-statistics are reported in brackets.

VARIABLES	(1) AGG_CSP	(2) TIO (t+1)	(3) SIO (t+1)	(4) LIO (t+1)
AGG_CSP_INT	0.544*** [19.04]			
AGG_CSP_IY	0.887*** [16.82]			
AGG_CSP		−0.008 [−0.40]	−0.027** [−1.99]	0.036*** [2.87]
TIO		0.882*** [151.15]		
SIO				0.709*** [45.38]
LIO			0.591*** [55.44]	
LOGMV	0.008*** [5.11]	0.004*** [5.24]	0.000 [0.33]	0.003*** [5.20]
LOGAGE	0.002 [0.79]	−0.004*** [−3.07]	−0.004*** [−3.96]	0.001 [1.36]
LOGPRC	−0.002 [−0.94]	0.000 [0.20]	−0.002* [−1.86]	0.007*** [6.05]
BM	−0.002 [−1.52]	0.005* [1.85]	0.004*** [4.26]	0.005*** [6.49]
BETA	−0.006*** [−3.22]	0.001 [0.66]	0.005*** [4.87]	-0.001 [-0.68]
IRISK	−0.017* [−1.80]	−0.053*** [−3.71]	−0.027*** [−3.05]	−0.038*** [−4.05]
TOV	0.007 [0.85]	−0.011 [−1.08]	0.047*** [6.77]	−0.004 [−0.99]
RET	−0.014*** [−2.58]	0.073*** [7.19]	0.037*** [5.59]	0.005 [1.00]
EPS	−0.001 [−0.72]	0.001 [0.86]	0.000 [0.50]	−0.001 [−0.97]
S&PIDX	0.009* [1.94]	−0.005** [−2.33]	0.000 [0.09]	−0.002 [−1.64]

DY	0.209*	−0.105	−0.079	−0.068
	[1.73]	[−0.76]	[−0.90]	[−0.84]
DTA	−0.009	0.004	0.023***	−0.005
	[−1.43]	[0.75]	[6.04]	[−1.40]
CONSTANT	−0.166***	−0.101***	0.060***	−0.080***
	[−5.47]	[−6.21]	[5.44]	[−7.56]
OBSERVATIONS	19,704	19,526	19,526	19,526
R-SQUARED	0.325	0.784	0.508	0.606
TIME FE	YES	YES	YES	YES
IND FE	YES	YES	YES	YES

To robust check Hypothesis 3 and reassure the causality that goes from long-term institutional ownership to CSP, we exploit the nature of the Russell index composition and annual reconstitution, following Fich, Harford and Tran (2015) and Crane, Michenaud and Weston (2016). The Russell 1000 and 2000 indexes are reconstituted in June every year. Based on the market capitalisation of US firm common stocks as of 31 May, the largest 1,000 firms are included in the Russell 1000 index and the subsequent 2,000 firms are included in the Russell 2000 index.[13] Both indexes are value-weighted and no other criteria besides the market capitalization are used in the index reconstitution. Therefore, when a stock drops from the Russell 1000 to the Russell 2000 index or gets newly added in the Russell 2000 index, the index-tracking (long-term) institutional ownership of the stock will increase exogenously. On the other hand, there is a negative and exogenous shock on a firm's index-tracking (long-term) institutional ownership when a stock moves up from the Russell 2000 to the Russell 1000 index or gets excluded from the Russell 2000 index.

Our IV approach consists of two steps. The switch of firms between the two Russell indexes and the inclusion/exclusion of firms in the Russell 2000 index are used as the IVs in our first stage regression:

$$LIO_{i,t} = \alpha + \beta_1 \mathrm{R1TR2}_{i,t} + \beta_2 \mathrm{R2TR1}_{i,t} + \beta_3 \mathrm{R2TN}_{i,t} + \beta_4 \mathrm{NTR2}_{i,t} + \gamma \mathrm{Y}_{i,t} + \varepsilon_{i,t} \qquad (7)$$

[13] For the detailed explanations of the Russell Index reconstitution, please refer to www.ftserussell.com/research-insights/russell-reconstitution.

where $\mathrm{R1TR2}_{i,t}$ ($\mathrm{R2TR1}_{i,t}$) is an indicator variable equal to 1 if firm i switches from the Russell 1000 (2000) index to the Russell 2000 (1000) index in year t and 0 otherwise. $\mathrm{R2TN}_{i,t}$ ($\mathrm{NTR2}_{i,t}$) is a dummy equal to 1 if firm i leaves (enters) the Russell 2000 index and 0 otherwise. The relevancy condition of our IVs is satisfied because the index reconstitution apparently affects the long-term institutional ownership in all firms. At the same time, the exclusion restriction is also satisfied because the only index assignment rule is mechanically based on the rank of stock market capitalisation, which is random, conditional on firm size. To put it differently, switching between the two Russell indexes itself should not have any direct effect on their CSR activities. We include in $\boldsymbol{Y}$ the same control variables as in Equation (5). In the second stage regression, we re-estimate Equation (5) by replacing LIO with $\widehat{LIO}$, the predicted value of long-term institutional ownership from Equation (7).

Table 8 reports the 2SLS regression results. Looking at the first stage regression estimates in column 1, all IVs are statistically significant, confirming that the relevancy condition is satisfied. The results of the second stage regressions are presented in columns 2 through 7. It is clear that the results are consistent with those contained in Table 6, supporting our baseline analysis conclusion regarding Hypothesis 3, that long-term investors improve overall CSP of their owned firms (columns 2 and 3) by reducing controversies (columns 4 and 5) and promoting social strengths (columns 6 and 7).

Table 8 Institutional investors' influence on future CSP: 2SLS

Table 8 displays the 2SLS regression results of CSP measures on long-term institutional ownership and other control variables. The dependent variable in the first stage regression (reported in column 1) is the variable of interest, long-term institutional ownership (LIO), defined based on churn ratio as in Yan and Zhang (2009). Instrumental variables used are dummy variables indicating the stock switching from the Russell 1000 index into the Russell 2000 index (R1TR2), switching from the Russell 2000 index into the Russell 1000 index (R2TR1), dropping out of the Russell 2000 index due to a market value decrease (R2TN) and getting included in the Russell 2000 index due to a market value increase (NTR2). The fitted values of LIO from the first stage regression are then used in the second stage regressions displayed in columns 2 through 7. The dependent variables in the second stage regressions AGG_CSP, AGG_C and AGG_S denote standardized overall CSP score, CSP concerns score and CSP strengths score respectively. The dependent variables in columns 2, 4 and 6 are measured at the t+1 year while the dependent variables in columns 3, 5 and 7 are measured at the t+5 year. All independent variables are in the current year t. Control variables include total institutional ownership (TIO), firm size (LOGMV), book to market ratio (BM), return on assets (ROA), and leverage ratio (DTA). Detailed variable definitions can be found in appendix 1 and 2.Time fixed effects (Year) and industry fixed effects (2 Digit SIC code) are included in all regressions. *, ** and *** denote significance at the 10%, 5%, and 1% level respectively. Standard errors are clustered at firm level and robust t-statistics are reported in brackets.

VARIABLES	(1) LIO	(2) AGG_CSP (t+1)	(3) AGG_CSP (t+5)	(4) AGG_C (t+1)	(5) AGG_C (t+5)	(6) AGG_S (t+1)	(7) AGG_S (t+5)
R1TR2	0.031*** [5.12]						
R2TN	−0.022*** [−3.92]						
R2TR1	−0.014* [−1.89]						
NTR2	−0.023*** [−5.40]						
LIO		0.198** [2.55]	0.451** [2.29]	−0.078 [−1.37]	−0.031 [−0.27]	0.059 [0.80]	0.382** [2.10]
TIO	0.234*** [40.84]	−0.047*** [−2.58]	−0.125*** [−2.67]	0.014 [1.01]	0.010 [0.37]	−0.020 [−1.13]	−0.098** [−2.27]
AGG_CSP	0.034*** [3.94]	0.810*** [85.81]	0.608*** [21.58]	−0.049*** [−7.72]	−0.130*** [−6.62]	0.094*** [8.82]	0.212*** [7.37]
AGG_C				0.610*** [50.97]	0.242*** [10.48]		
AGG_S						0.691*** [43.08]	0.354*** [10.48]
LOGMV	0.004*** [5.94]	0.007*** [12.27]	0.022*** [12.98]	0.006*** [13.02]	0.013*** [10.96]	0.012*** [19.59]	0.036*** [22.58]

BM	0.007** [2.45]	−0.001 [−1.35]	0.010* [1.69]	0.003** [2.35]	0.011*** [3.17]	0.002 [1.58]	0.020*** [4.14]
ROA	0.010** [2.43]	0.002 [0.58]	0.004 [0.30]	−0.006** [−2.42]	−0.006 [−0.84]	−0.005* [−1.83]	−0.014 [−1.56]
DTA	−0.022*** [−3.75]	0.001 [0.34]	−0.004 [−0.36]	0.001 [0.33]	0.006 [0.83]	−0.000 [−0.08]	−0.008 [−0.83]
CONSTANT	0.063*** [4.13]	−0.188*** [−18.23]	−0.544*** [−15.36]	−0.082*** [−9.75]	−0.237*** [−9.88]	−0.247*** [−21.39]	−0.764*** [−23.52]
OBSERVATIONS	23,288	19,858	9,929	19,451	9,871	19,450	9,870
R-SQUARED	0.440	0.613	0.355	0.563	0.336	0.572	0.386
TIME FE	YES	YES	YES	YES	YES	YES	YES
IND FE	YES	YES	YES	YES	YES	YES	YES

5 Conclusions

Our study investigates the impact that investment horizon has on institutional investors' preference for corporate social performance. Unlike previous literature, we use a direct measure of institutional investors' trading frequency and, consequently, the average duration of their holdings, in order to distinguish between long-term and short-term investors. In addition, we explore to what extent the well-established asymmetry in stakeholder perception (and financial impact) between positive and negative CSP outcomes also influences institutional demand for the associated firms. Finally, we expand our exploration in order to identify whether there is also a link running in the opposite direction, i.e. if long-term/short-term investors also attempt (and manage) to influence corporate culture and change the levels of corporate social performance of the firms in their portfolios.

Our results are revealing and intuitive as they are highly aligned with the predictions that stakeholder theory makes regarding the value-relevant impacts of stronger CSP – which should manifest in the long-run (Jones, 1995). Indeed, we show that although institutional ownership as a whole appears to be unrelated to the CSP of invested firms, long-term investors prefer higher CSP and short-term investors tend to avoid it. These results are also in line with the conclusions of Bushee (1998), who finds that the levels by which firms are held by long-term investors are inversely associated with 'managerial myopia'. Such companies tend to be less pressed to provide immediate results to their investors and hence appreciate resources that are more likely to generate rather delayed returns (such as R&D investments or improved CSP).

Additional exploratory analysis reveals that long-term investors' preference for higher CSP is mainly driven by a significant avoidance of firms associated with more controversies whereas the negative link between short-term owners and CSP is primarily a result of their dislike for corporations with more social/environmental strengths. Lastly, long term investors seem to promote an overall betterment of the social performance of the firms they own but this improvement takes time – as results are stronger when we look at 5-year horizons. Hence, the picture that emerges is one of a 'virtuous circle' between long-term institutional ownership and CSP, where one pushes the other to higher levels.

The results are of tremendous importance for firm managers. Executives who are proponents of the ethical and financial incentives for better CSP (especially via the avoidance of any controversial practices) can rest assured that their initiatives will be appreciated by long-term investors who will also, in turn, push for further improvements in this direction. Individual

responsible investors can also be reassured that their interest in good social corporate performers is shared by institutional investors who will *ceteris paribus* hold these firms for longer periods of time and thus help in retaining their prices to certain levels and reducing their downside risk. Lastly, policy makers who wish to promote corporate and market sustainability will now be more definitively informed that it is long-term investing institutions who most appreciate such characteristics and thus, it is they who should be appropriately incentivised.

Though we make some novel contributions to the literature, more work needs to be done in this direction. KLD STATS is the most widely used database in this field, yet it is not without its limitations and drawbacks. Alternative sources of CSP data are required in order to offer convergent validity to our conclusions. Our analysis is also entirely limited to the US market. Given the increased popularity and importance of SRI in Europe as well as in other areas around the globe, our methodology could be replicated to see if our main conclusions hold or whether there is a geographic element to them. Lastly, it would be really interesting for future research to explore whether the relationships we uncover also hold outside of the equity market (particularly for bonds where there is now substantial relevant literature).

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Appendices

Appendix 1

Definitions and data sources of CSR and institutional ownership measures

Variable	Definition	Source
AGG_CSP	Overall CSP score, calculated as the sum of yearly adjusted individual CSP scores of the five main qualitative issue areas: community, diversity, employee relationship, environment, and product. For each dimension, adjusted CSP is computed by taking the net difference between adjusted strength and concern scores.	KLD Database
AGG_S	Overall Strength index, calculated as the sum of yearly adjusted individual Strength scores of the five main qualitative issue areas: community, diversity, employee relationship, environment, and product.	KLD Database
AGG_C	Overall Concern index, calculated as the sum of yearly adjusted individual Concern scores of the five main qualitative issue areas: community, diversity, employee relationship, environment, and product.	KLD Database
COM_CSP	Community score, calculated by taking the net difference between adjusted community strength and concern scores.	KLD Database
DIV_CSP	Diversity score, calculated by taking the net difference between adjusted diversity strength and concern scores.	KLD Database
EMP_CSP	Employee score, calculated by taking the net difference between adjusted employee strength and concern scores.	KLD Database
ENV_CSP	Environment score, calculated by taking the net difference between adjusted environmental strength and concern scores.	KLD Database
PRO_CSP	Product score, calculated by taking the net difference between adjusted product strength and concern scores.	KLD Database
TIO	Total institutional ownership, calculated as yearend shareholdings of all institutional investors relative to total shares outstanding.	13F Database
LIO	Long-term institutional ownership, calculated as yearend shareholdings of long-term institutional investors relative to total shares outstanding. At each year end, institutional investors are classified as long-term or short-term based on their churn rates.	13F Database
SIO	Short-term institutional ownership, calculated as yearend shareholdings of long-term institutional investors relative to total shares outstanding. At each year end, institutional investors are classified as long-term or short-term based on their churn rates.	13F Database

Appendix 2

Definitions and data sources of control variables

Variable	Definition	Source
MV	Market capitalization, calculated as the log of the product of the stock price and number of shares outstanding at year end.	CRSP Database
AGE	Firm age, calculated as the log of the number of quarters since first return appears in CRSP.	CRSP Database
DY	Dividend yield, calculated as quarterly total dividends per share divided by stock price of the previous quarter.	CRSP Database & Compustat
S&PIDX	Dummy variable that equals one if a firm is listed in the S&P 500 index and zero otherwise.	CRSP Database
DTA	Leverage, calculated as total debt divided by total asset.	Compustat
BETA	Systematic risk ($\beta_{1,i}$), estimated from the following regression: $R_{i,t} - R_f = \alpha_i + \beta_{1,i}(R_m - R_f) + \beta_{2,i}SMB + \beta_{3,i}(HML) + \epsilon_{i,t}$ Using the previous 5-year monthly returns.	CRSP Database
IRISK	Idiosyncratic risk, calculated as $\sqrt{var(\epsilon_{i,t}) * 3}$, where $var(\epsilon_{i,t})$ is the variance of the error term derived from the above equation using previous 5-year monthly returns.	CRSP Database
PRC	Share price	CRSP Database
TOV	Turnover of stock holdings, calculated as quarterly trading volume divided by total shares outstanding.	CRSP Database
RET	Cumulative gross stock return over the past three months.	CRSP Database
EPS	Earnings per share.	Compustat
BM	Book-to-market ratio, calculated as book value of equity divided by market value of equity.	Compustat
ROA	Return on assets, calculated as net income divided by total assets.	Compustat