Reexamination of the Relationship Between Institutional Ownership Horizon and Corporate Social Responsibility*

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Abstract

Institutional investors are increasingly short-term in their orientation, indicated by the record-short periods of time stocks are being held, rise of high-frequency trading, shortening average CEO tenures, and disproportionate Wall Street focus on quarterly earnings. While the increasing prevalence of short-termism has gained the attention of global forums and policy makers, the case for the long-term investment among institutional investors is far from settled in the academic community. Just like classic agency and stakeholder theories offer opposite views, empirical research on the relationship between institutional ownership and corporate social responsibility (CSR) has produced fragmented and contradictory results. Our paper seeks to address this situation by adopting a comprehensive empirical approach that reexamines the link between institutional ownership horizon and CSR. After reconciling theoretical perspectives and improving on the empirical methodology, we find that institutions with longer investment horizons promote CSR at the firm level, and that those with shorter horizons discourage it. These findings are consistent with the view that short-termism on the part of institutional investors places short-term pressure on companies, and therefore discourages long-term investments, such as environmentally and socially responsible investments. Our results are robust to using alternative measures for CSR and investment horizons, accounting for multidimensionality of CSR, and for reverse causality.

JEL Classification: A13, G23, M14

Keywords: Corporate social responsibility, institutional investors, investment horizon, short-termism, long-term investing

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“A long time investment horizon is a responsibility and an advantage. CalPERS encourage investee companies and external managers to consider the long-term impact of their actions and favor investment strategies that create long-term, sustainable value and recognize the critical importance of a strong and durable economy in the attainment of funding objectives. Long time horizon enables CalPERS to (i) invest in illiquid assets, provided an appropriate premium is earned for illiquidity risk, (ii) take advantage of factors that materialize slowly, and (iii) tolerate some volatility in asset values and returns, as long as sufficient liquidity is available.”

Investment Belief #2

CalPERS

(www.calpers.ca.gov/docs/forms-publications/calpers-beliefs.pdf)

Introduction

Institutional investors are increasingly short-term in their orientation, indicated by the record-short periods of time stocks are being held, rise of high-frequency trading (HFT), shortening average CEO tenures, and disproportionate Wall Street focus on quarterly earnings.¹ According to the New York Stock Exchange (NYSE) Factbook, the annualized

¹Advancements in trading technologies made very rapid placements of buy and sell orders possible. Trades can now be executed in micro-seconds, faster than a blink of an eye. As a result, HFT has become widespread, especially in equity markets. According to the TABB Group (www.tabbgroup.com), a securities market research firm, HFT was estimated to have accounted for 21% of all U.S. equity market volume in 2005. HFT market share increased to an all-time high of 61% in 2009. However, following the financial crisis, the rise of HFT came to a halt and its market share started to recede. As of June 2016, HFT accounted for 49% of daily trading volume. According to a 2016 Deutsche Bank research briefing (www.dbresearch.com/PROD/DBR_INTERNET_EN-PROD/PROD000000000406105/High-frequency-trading%3A-Reaching-the-limits.pdf), the decreasing HFT market share in total equity trading is due to factors such as a decline in revenues and profits in the industry and the rise of alternative trading platforms such as dark pools.

monthly turnover for NYSE stocks - the rate at which stocks are bought and sold - is 64% as of December 2016. With a 100% annual turnover rate equal to a holding period of one year, a 64% rate implies that investors are holding the average NYSE stock for 1.56 years (19 months) at a time.² A similar trend has been observed for most OECD stock markets, where average holding period has fallen between one and three years in selected OECD exchanges over the last 20 years. While this reflects investment transactions driven by both individuals and institutional investors, institutional investors now account for the largest share of investment activity. Another evidence of short-termism among institutional investors is provided in the 2010 report by the IRRIC Institute and Mercer, which examines the investment horizons of over 900 actively managed long-only equity funds.³ A key finding of this report is that the average annual turnover of the sample is 72% (average holding period of 1.39 years), with around 20% of strategies falling into greater than or equal to 100% turnover end of the spectrum. Further, nearly two-thirds of strategies have higher turnover than expected, with some strategies reporting turnover between 150% and 200% more than anticipated. Recent surveys of C-suite executives conducted by McKinsey & Company also suggest that pressure to deliver short-term results has increased since 2013. From 2013 to 2016, the share of respondents who reported feeling the most pressure to demonstrate strong financial performance within two years or less rose from 79% to 87%.⁴

The increasing prevalence of short-termism has gained the attention of global forums such as the OECD, the APEC, the G20, and the World Economic Forum, evidenced by the numerous task forces, round tables, conferences, and research reports by them.⁵ Generally,

²The NYSE Factbook also reveals that the average holding period for stocks in 1960 was 8.33 years. By 1970 it had dropped to 5.26 years. By 1980 it had dropped further to 2.78 years, by 1990 to 2.17 years, by 2000 to just 1.14 years, and during 2008-2009 period, the average holding period was just nine months. While the 2016 figure shows improvement over the recent recession numbers, it is still far shorter than the average holding period of 3.43 years in the 20th century.

³irricinstitute.org/reports/investment-horizons-do-managers-do-what-they-say

⁴www.fcltglobal.org/docs/default-source/default-document-library/fclt-global-rising-to-the-challenge.pdf

⁵www.oecd.org/finance/private-pensions/institutionalinvestorsandlong-terminvestment.htm

these initiatives call for more “responsible” and longer-term investment among institutional investors and a transformational change in investor behavior. However, the case for the long-term investment among institutional investors is far from settled in the academic community. On the one hand, the classic agency perspective on corporate social responsibility (CSR) argues that good social performance comes at the expense of good financial performance because valuable resources are misused instead of being spent on value-added projects or returned to shareholders. Therefore, firms’ primary goal should be to maximize shareholder wealth (Friedman, 1970). On the other hand, the stakeholder perspective argues that effective stakeholder management can enhance firms’ ability to achieve competitive advantage and long-term value creation, and therefore, firms should invest in CSR (Freeman, 1984). Just like these theories offer opposite views, empirical evidence on the relationship between institutional ownership and CSR has been mixed, making it difficult to advance the conversation. For example, Graves and Waddock (1994) find no relationship between the percentage of shares institutionally owned and CSR. In contrast, Johnson and Greening (1999) and Neubaum and Zahra (2006) find a strong, positive link.

Given the growing interest in addressing the problem of short-termism, the perceived lack of consensus in theoretical perspectives, and the lack of clear evidence on the link between institutional ownership horizon and long-term investments, we reexamine the relationship between institutional ownership horizon and CSR in this paper. Our study contributes to the current literature in several ways. We first address the perceived lack of consensus in theoretical perspectives and discuss how recent studies (e.g., Jensen, 2002) help reconcile the conflicting views. While the stakeholder theory has been the mainstay in examining the link between institutional ownership and CSR, we highlight how other perspectives such as the institutional theory (Meyer and Rowan, 1977; DiMaggio and Powell, 1983) and the resource dependence theory (Pfeffer and Salancik, 1978) can be applied in this context as well.

Next, we improve on the existing empirical studies (e.g., Neubaum and Zahra, 2006) by

using superior measures of investor horizon, and by accounting for the multidimensionality of CSR, as well as reverse causality. On the measurement front, we implement [Yan and Zhang’s \(2009\)](#) classification of institutional investors, which relies on the institutions’ portfolio turnover rather than their legal type (e.g., mutual funds, pension funds, etc.).⁶ This approach allows us to capture heterogeneity in investment horizon within each legal type in that some mutual funds will be classified as long-term (or short-term) and some pension funds will be classified as short-term (or long-term) based on their trading behavior. It also allows institutional investors to fall into different categories over time as their portfolio managers and portfolio turnover might change. Capturing the heterogeneity in investment horizon is important in that there is a disagreement on what “long-term” means even among pension funds, institutions typically regarded as long-term. According to a 2014 survey by IPE magazine, over three-quarters of respondents considered their fund to be a long-term investor.⁷ When asked to pin down their assumptions, a quarter defined long-term investing as taking a three to five-year view. A third saw it as a seven to ten-year view. In addition, a 2015 survey by CEM Benchmarking reports that while pension funds seem to have good policy intentions and strong beliefs that long-horizon investing is a potentially promising value-adding activity, survey respondents indicate they have considerable difficulties with such implementation activities as creating proper incentives for long-horizon investing, participating in environmental, social, and governance (ESG) related strategies, and designing effective performance monitoring and measurement systems.⁸ Moreover, pension funds are

⁶Using the ownership data from the Thomson Reuters Institutional Holdings File, we calculate investor churn rates from quarterly portfolio turnovers, and use them to proxy for the investment horizons of institutional investors as in [Yan and Zhang \(2009\)](#). A higher average churn rate implies a shorter investment horizon. For each year, we classify an institution as short-term (long-term) if it has an average churn rate that is above (below) the sample median for that year.

⁷www.ipe.com/news/esg/pension-funds-split-over-meaning-duration-of-long-termism/10004395.fullarticle

⁸www.cembenchmarking.com/Files/Documents/Research/Pension_Governance_and_LT_Investing.pdf Similarly, [Himick and Audousset-Coulier \(2016\)](#) find evidence of disconnect between the financial frame which dominated practices for compliance and evaluation, and the social frame of responsible investing as a source of change, based on their analysis of 60 public pension funds in Canada.

increasingly investing in hedge funds, contributing indirectly to the rapid increase in the frequency of trading observed in recent years. According to a July 2016 article in Financial Times, pension funds held \$839 billion of the \$3.1 trillion in hedge funds globally as of May, 2016. Their investments in hedge funds were 16% lower at \$721 billion in December 2013.⁹ Thus, heterogeneity in investment horizon among pension funds is lost in the simple classification used by Johnson and Greening (1999) and Neubaum and Zahra (2006).

In addition, we are able to offer new evidence on how strengths and concerns components of the firms' CSR score are affected by institutional ownership horizon. Neubaum and Zahra (2006) calculate overall CSR score for each firm by summing up scores from five dimensions in KLD database: employee relations, environment, community relations, product, and diversity. The overall CSR score in their study in effect is the sum of all strengths minus the sum of all concerns, which is equivalent to our raw CSR Net Score. Focusing on CSR Net Score alone results in missing on heterogeneity among firms, reducing variation in the CSR measure. In particular, a firm with a strengths score of four and a concerns score of two will have a same CSR Net Score of two with a firm with a strengths score of ten and a concerns score of eight, or a firm with a strength score of two and a concerns score of zero. More importantly, recent research shows that the KLD strengths and concerns measures are theoretically and empirically distinct and represent two independent constructs even though they may correlate with each other (e.g., Walls, Berrone, and Phan, 2012; Mishina, Dykes, Block, and Pollock, 2010; Strike, Gao, and Bansal, 2006).¹⁰

We also acknowledge that CSR is a multidimensional construct and that companies may treat environmental and social issues differently in practice. Aggregating all dimensions of CSR into a single composite score fails to account for cases where firms are responsible in

⁹www.ft.com/content/fcbdf88c-4f1f-11e6-88c5-db83e98a590a

¹⁰Strike et al. (2006) point out that aggregating concerns and strengths into a net strengths score fails to recognize irresponsible actions for which there are no responsible analogs. For example, violence against employees is irresponsible, but the absence of violence is not necessarily responsible.

some dimensions such as employee relations, and not in others, such as environment (e.g., Walls et al., 2012; Strike et al., 2006).¹¹ Failure to disaggregate responsible actions from irresponsible ones may partly explain the inconclusive findings in prior research between institutional ownership and CSR. Therefore, we examine how each of the CSR categories (environment, community relations, diversity, employee relations, human rights, product, and controversial business involvement) is affected by institutional ownership horizon. In contrast, Neubaum and Zahra (2006) make no distinction between these categories.

Finally, in an effort to account for reverse causality, we incorporate the findings of earlier research into a two-stage least squares framework where the first stage models the CSR preference of institutional owners (e.g., Graves and Waddock, 1994; Johnson and Greening, 1999; Cox, Brammer, and Millington, 2004), and the second stage models the effect of institutional ownership horizon on firm level CSR (e.g., Neubaum and Zahra, 2006). In particular, we use three different instrumental variables in the first stage: industry median ownerships of short-term and long-term investors, lagged firm level CSR, and a combination of lagged CSR and change in CSR. We find that even after accounting for reverse causality, the positive relation between investor horizon and firm CSR persists.

Prior Research on Institutional Ownership and CSR

Institutional investors have become increasingly important as equity holders in the U.S. financial markets. Gompers and Metrick (2001) find that institutional ownership in equities nearly doubled from 1980 to 1996 to reach more than 50%. Blume and Keim (2012) report that institutional ownership in equities reached 67% by the end of 2010. In contrast to earlier research that found institutional investors preferred larger, more liquid stocks, they find that institutions, hedge funds in particular, have increased their holdings of smaller stocks and

¹¹Walls et al. (2012) mention that environmental practices tend to differ from other social practices since they require specific capabilities and significant capital investment, and are guided by regulation.

decreased their holdings of larger stocks. As institutions' ownership has increased, their role as shareholders has also evolved. Some institutional investors, particularly public pension funds and union pension funds, began to abandon their traditional passive shareholder role and become more active participants in the governance of their corporate holdings. Gillan and Starks (2000) argue that the constraints on selling under-performers imposed by the indexing strategy have provided an important motivation for shareholder activism by public pension funds. Proponents of the increased activism argue that a number of positive influences arise from such behavior. For example, Bebchuk, Brav, and Jiang (2015) find that hedge fund activism leads to long-term improvements in operating performance.

As the institutional ownership in equities becomes increasingly prominent, society's interest in corporate social responsibility (CSR) and socially responsible investing (SRI) is on the rise as well.¹² According to the US SIF Foundation, in the 21 years between its first Trends Report in 1995 and its 11th in 2016, responsibly managed asset pools have grown 14-fold, from \$639 billion to over \$8.72 trillion.¹³ Common strategies for SRI funds include incorporating various environmental, social, and governance (ESG) criteria into their investment analysis and portfolio selection, filing shareholder resolutions, or both. While there are parallel strands of literature on whether CSR creates value for companies, as well as on whether SRI funds outperform non-SRI funds, our focus is on the relationship between institutional ownership and CSR.¹⁴

¹²Modern SRI gained global traction in the 1980s with the movement to divest investments from South Africa in protest to its system of racial segregation known as Apartheid. Then, with the Bhopal, Chernobyl, Exxon Valdez oil spills, as well as the more recent Deepwater Horizon spill in the Gulf of Mexico and Fukushima nuclear disaster in Japan, the environment became the top concern for socially conscious investors. There has also been a resurgence of policies restricting investments in firearms due to mass shootings in Sandy Hook Elementary School in Newton, CT, Virginia Tech University in Blacksburg, VA, a Century 16 movie theater in Aurora, CO, etc.

¹³www.ussif.org/trends

¹⁴Various survey articles report that evidence on the link between CSP and CFP has been mixed, as some reporting positive, some reporting neutral, and some reporting negative relationship (e.g., Margolis and Walsh, 2003; Orlitzky, Schmidt, and Rynes, 2003; van Beurden and Goessling, 2008). As for the SRI literature, Woods and Urwin (2010) provide a comprehensive review in the context of growing public awareness of the concept of sustainability.

Theoretical Perspectives

There has been a long-standing debate on whether firms should pursue socially responsible investments. On the one hand, the classic agency perspective on CSR argues that good social performance comes at the expense of good financial performance because valuable resources are misused instead of being spent on value-added projects or returned to shareholders. Therefore, firms' primary goal should be to maximize shareholder wealth ([Friedman, 1970](#); [Jensen and Meckling, 1976](#)). On the other hand, the stakeholder perspective argues that managers should make decisions so as to take account of the interests of all the stakeholders in a firm – not only the shareholders, but also employees, customers, communities, the environment, etc. ([Freeman, 1984](#)). While the two theories seem to highlight competing interests of various stakeholders, resulting in multiple objectives, [Jensen \(2002\)](#) argues that having multiple objectives is equivalent to having no objective at all. According to [Jensen \(2002\)](#), firms cannot maximize long-term market value while ignoring or mistreating any important constituency. He proposes the idea of “enlightened value maximization” which utilizes much of the stakeholder theory but accepts maximization of the long-run value of the firm as the criterion for making the requisite tradeoffs among its stakeholders and specifies long-term value maximization as the firm's objective. This proposal therefore solves the problems that arise from having to meet multiple objectives.¹⁵ Based on this framework, we hypothesize that firms with higher a proportion of long-term investors will be able to make more long-term investments (such as socially responsible investments) to maximize long-term value. Firms with a higher proportion of short-term investors will not be able to make long-term investments because long-term value maximization will be at odds with the objectives of the short-term investors.

¹⁵The emerging integrative view on corporate sustainability (e.g., [Kleine and von Hauff, 2009](#); [Gao and Bansal, 2013](#); [Liu, 2013](#); [Hahn, Pinkse, Preuss, and Figge, 2015](#)), which stresses the need for simultaneous integration of economic, environmental and social dimensions, is consistent with the idea of “enlightened value maximization”.

Since Freeman published his seminal piece (Freeman, 1984), stakeholder theory development has centered around classifying stakeholders into categories that provide an understanding of how stakeholders influence firms’ operations, and how firms respond to those influences. According to Miles (2017), classification of stakeholder theory definitions include simple dichotomous groupings such as primary-secondary, active-passive, internal-external, and core-fringe, as well as more sophisticated systemizations such as Mitchell, Agle, and Wood (1997) theory of stakeholder salience, which sorts stakeholders according to the presence of the attributes of power, legitimacy and urgency.¹⁶ Although the framework was originally developed to perform intergroup stakeholder analysis, Ryan and Schneider (2003) argue that it can be applied equally effectively at the intragroup level. In particular, they show that the six categories of institutional investors have disparate roles and salience as stakeholders. Among the six categories of institutional investors, private multiemployer funds (e.g., TIAA) and public pension funds (e.g., CalPERS) are deemed as having high overall salience; private pension funds and mutual funds are deemed as having moderate overall salience; and insurance companies and banks are deemed as having low overall salience. Based on this framework, we hypothesize that institutional investors with longer investment horizon (such as public pension funds and private multiemployer funds) have higher salience relative to ones with shorter investment horizon (such as mutual funds, banks, and insurance companies). Therefore, firms with a higher proportion of long-term (short-term) investors would make more (less) long-term investments such as CSP, to meet the needs of their more salient investors.

In addition to the stakeholder theory, Oliver (1991) posits that both the resource dependence theory (Pfeffer and Salancik, 1978) and the institutional theory (Meyer and Rowan,

¹⁶Based on Mitchell et al. (1997), Kaler (2002) advocates that all definitions can be classified as ‘claimant’, ‘influencer’, or ‘combinatory’ definitions (capturing both attributes). Further advancing the work of Kaler (2002), Miles (2017) presents a systematic, multi-dimensional classification, which includes four stakeholder classes: ‘influencer’, ‘claimant’, ‘recipient’, and ‘collaborator’.

1977; DiMaggio and Powell, 1983) provide a worthwhile context for studying organizational responses to stakeholder pressures. She identifies a continuum of behaviors, ranging from passive compliance with external pressures (institutional theory) to active manipulation and control of external pressures (resource dependence theory). Frooman (1999) proposes that power and dependency are related: low stakeholder dependency and high firm dependency creates stakeholder power, and vice versa for firm power. Organizations are dependent on stakeholders for many reasons, from survival, the fulfillment of goals, success and value creation, to providing resources or a license to operate. In the context of CSR, firms are more likely to comply with pressures from institutional investors with longer investment horizon as they give a greater priority to their role as owners, and as principals and monitors. Moreover, Barnett (2007) argues that firms should view CSP as a long-term investment in creating the capacity to influence stakeholders. Stakeholder influence capacity (SIC) is defined as “the ability of a firm to identify, act on, and profit from opportunities to improve stakeholder relationships through CSR”. Firms with a weak history of social responsibility have little or no SIC and are not credible with stakeholders. Therefore, firms with higher proportion of long-term investors will either passively comply with their needs and make more long-term investments, or try to improve their relationship with these investors through investing more in CSR. In contrast, firms with a higher proportion of short-term investors will make less long-term investments.

Empirical Research

Earlier studies on institutional ownership and CSR include Graves and Waddock (1994), and Johnson and Greening (1999). These studies use institutional ownership as a dependent variable, and corporate social performance (CSP) as an explanatory variable. Graves and Waddock (1994) find that the relationship between the percentage of shares institutionally owned and CSP is positive but insignificant for S&P500 firms. Their composite CSP measure

was constructed from the KLD database. [Johnson and Greening \(1999\)](#) take a different approach and classify institutional investors into investment management funds (mutual funds and investment banks), and pension funds. They argue that investment management funds tend to pursue short-term gains due to the fact that investment managers' rewards are based on quarterly results. In contrast, pension fund managers may monitor management closely and press for needed changes because they cannot exit by selling large blocks of stock without driving the price down and suffering further losses. As a result, mutual funds may have much higher portfolio turnover, whereas public pension funds may hold some stocks for decades. For their sample of 250 US firms, Johnson and Greening report that pension fund equity (i.e., a proportion of a company owned by pension funds) is positively related to CSP, but equity ownership by investment management funds exhibits no direct relationship with CSP. The strong positive relationship between institutional ownership and CSP for pension funds was driven mostly by the product quality dimension (environment and product quality ratings) of CSP, not so much by the people dimension (community, employee relations, and diversity ratings).

In a sample of over 500 UK companies, [Cox et al. \(2004\)](#) find that the proportion of company owned by long-term institutional investors (pension funds, life assurance funds, and charitable funds) is positively related to CSP providing further support for [Johnson and Greening \(1999\)](#). [Cox and Wicks \(2011\)](#) use a larger sample of UK firms, and wider variations in types of institutional investors compared to [Cox et al. \(2004\)](#). In particular, they classify mutual funds, life insurance funds, externally managed pension funds as transient (short-term) institutions, and in-house-managed public and private sector pension funds as dedicated (long-term) institutions. [Cox and Wicks](#) find that CSP positively and significantly influences the demand for shares by dedicated institutional investors.¹⁷

¹⁷The notion of dedicated vs. transient investors in [Cox and Wicks \(2011\)](#) is from [Bushee \(1998\)](#), who classifies institutions based on their trading behavior. Transient institutions are characterized as having high portfolio turnover and highly diversified portfolio holdings. These traits reflect the fact that transient

While studies we mentioned so far mainly looked at what attracts institutional investors, there is a growing body of literature that looks at the effect of institutional ownership on firm behavior (Bushee, 1998; Derrien, Kecskés, and Thesmar, 2013; Harford, Kecskés, and Mansi, 2016).¹⁸ Because different stakeholders often have competing expectations, executives have to be attentive to the demands of their most important stakeholders (Johnson and Greening, 1999; Hillman and Keim, 2001). Stakeholders who have more power and more actively express themselves are likely to have a greater say in the firm’s strategic decisions. According to Holderness and Sheehan (1988), “block-shareholders do not merely monitor management teams, they lead them.”

Relying on the theory of stakeholder salience, Neubaum and Zahra (2006) suggest that institutional owners’ investment horizons, as well as the frequency and coordination of institutional owners’ activism, moderate the institutional ownership - CSP relationship. In particular, the authors suggest that demands of short-term investors may not become salient to senior executives who may pay greater attention to those institutional owners with longer and more established ties to the firm. Consistent with this argument, they find that the holdings by long-term institutional owners are significantly and positively associated with future CSP, and this positive relationship grows stronger as institutional owners’ activism and coordination increases.

While our paper is similar to Neubaum and Zahra (2006), we use superior measures of investor horizon and account for the multidimensionality of CSR, as well as reverse causality. In addition, it differs in the following aspects: (i) our sample period of 2003–2013 is

institutions tend to be short-term investors whose interest in the firm’s stock is based on short-term trading profits. Dedicated institutions are characterized by large average investments in portfolio firms and extremely low turnover, consistent with a relationship-investing role and a commitment to provide long-term patient capital.

¹⁸Bushee (1998) report that firms with shorter investor horizons reduce research and development expenditures to increase short-term earnings. Derrien et al. (2013) find that when a firm is undervalued, greater long-term investor ownership is associated with more investment and, more equity financing, and less payout to shareholders. Harford et al. (2016) find that long-term investors strengthen corporate governance and restrain managerial misbehavior such as earnings management and financial fraud.

more recent and includes a bear market compared to their 1993–2000 period, and (ii) we have a larger sample of 2,860 unique firms over the entire sample period (averaging 1,522 firms per year) which includes 373 large-cap, 845 mid-cap, and 1,642 small-cap companies compared to their sample of Fortune 500 firms.¹⁹ Finally, we draw from not only the theory of stakeholder salience, but also the enlightened value maximization theory (Jensen, 2002), resource dependence theory (Pfeffer and Salancik, 1978), and institutional theory (Meyer and Rowan, 1977; DiMaggio and Powell, 1983).

Sample

Data

We obtain corporate social responsibility (CSR) information from the KLD STATS database of MSCI ESG Research, Inc. The database contains annual data on the strength and concern ratings across seven CSR categories for more than 3,000 publicly held companies in the US. The CSR categories include the environmental, social (i.e., community, diversity, employee relations, human rights, and product), and governance (ESG) sub-categories. It also provides information on firm involvements in controversial business areas including alcohol, firearms, gambling, military, nuclear power, and tobacco.²⁰

Coverage of the KLD has expanded over time. The database started with roughly 650 unique firms during the 1990s. This number has increased to over 1,000 in 2001. According to the latest MSCI ESG Methodology Manual (June 2015, p. 46), the database covers more than 3,000 largest US companies by market capitalization starting from 2003. For the

¹⁹Cella, Ellul, and Giannetti (2013) show that during episodes of market turmoil, institutional investors with short trading horizons sell their stockholdings to a larger extent than institutional investors with longer trading horizons. Therefore, by including both bull and bear markets in our sample period, we are able to test whether investors and companies behave differently in various market environments.

²⁰MSCI ESG Research Inc. is a subsidiary of MSCI Inc. The MSCI ESG KLD STATS database was originally created by KLD Research & Analytics, Inc. (KLD) in 1991. Founded in 1988, the firm was later acquired by RiskMetrics in 2009, and then (together with RiskMetrics) by MSCI in 2010.

consistency in our sample size across time, our sample spans over the 11-year period from 2003 to 2013.

Ownership information of institutions are extracted from the 13F filings of investment managers (per the Securities Exchange Act of 1934) provided by Thomson Reuters (TFN; formerly CDA/Spectrum).²¹ The TFN S34 Institutional Holdings File contains information on common stock holdings and transactions of managers with \$100 million or more in assets under management. For firms in the KLD universe but not in TFN, we set their institutional equity holdings to 0% because it is likely that their equity ownerships do not meet the filing requirements of the SEC (Grinstein and Michaely, 2005).

Financial statement items are from the Compustat Annual Fundamentals File and are as of the fiscal year during which the KLD scores are computed. Market capitalization, equity returns, and shares outstanding data are from CRSP (Center for Research in Security Prices). Since the fundamentals of financial (SIC codes from 6000 to 6999) and utility (SIC codes from 4900 to 4999) firms are subject to heavy regulatory supervision, and therefore do not necessarily reflect the economic characteristics that we study, we exclude them from our analysis.

Measures of CSR

Our dependent variables are measures of CSR from MSCI ESG STATS database. MSCI ESG STATS evaluates companies on over 60 environmental, social, and governance (ESG) indicators in seven categories: community, environment, diversity, employee relations, human rights, products, and governance. Each category consists of binary indicators in “strength” and “concern” dimensions. If a company meets the criteria established for a rating (strength or concern), its score for that category is equal to 1; the score takes the value of 0 otherwise. We construct variables “CSR Strengths” as the sum of ESG indicators on attributes that

²¹The US Congress passed Section 13(f) of the SEC Act in 1975.

are identified as strengths and “CSR Concerns” in an analogous manner. Following [Hillman and Keim \(2001\)](#) and other recent studies, we assign equal importance to ESG categories and construct the variable CSR Net Score (also known as the KLD index), our measure of overall CSR, by subtracting “CSR Concerns” from “CSR Strengths.”

In addition to these raw “CSR Strengths” and “CSR Concerns” variables (which are count variables), we calculate “Adjusted CSR Strengths” and “Adjusted CSR Concerns” scores following [Servaes and Tamayo \(2013\)](#). The reason for adjusting the raw scores is that the number of possible strengths and concerns varies from year to year. Every year, some new indicators are introduced and/or other indicators get discontinued. Therefore, we scale the score for each category (community, environment, etc.) by the maximum value for that category in a given year. We then add up all adjusted strengths and concerns scores across all categories to calculate Adjusted CSR Strengths and Adjusted CSR Concerns. In order to calculate Adjusted CSR Net Scores, we first find adjusted net score for each category, and then add up the adjusted net scores across all categories.

[Servaes and Tamayo \(2013\)](#) exclude the corporate governance category from their CSR measures by arguing: “corporate governance is about the mechanisms that allow the principals (shareholders) to reward and exert control on agents (the managers)... CSR, on the other hand, deals with social objectives and stakeholders other than shareholders.” Accordingly, we also exclude corporate governance indicators from CSR Net Score, CSR Strengths, and CSR Concerns, as well as their adjusted counterparts.

Measures of Institutional Ownership Horizons

To empirically proxy for the investment horizons of institutional investors, we use investor churn rates calculated based on quarterly portfolio turnovers ([Gaspar, Massa, and Matos, 2005](#); [Yan and Zhang, 2009](#)). Specifically, for each calendar quarter, we define the churn rate

of investor k at quarter t as

$$\text{CR}_{k,t} \equiv \frac{\min \left(\text{Churn}_{k,t}^{\text{buy}}, \text{Churn}_{k,t}^{\text{sell}} \right)}{\frac{1}{2} \sum_{j \in J} (N_{j,k,t} P_{j,t} + N_{j,k,t-1} P_{j,t-1})}, \quad (1)$$

where

$$\text{Churn}_{k,t}^{\text{buy}} = \sum_{j \in J; N_{j,k,t} > N_{j,k,t-1}} |N_{j,k,t} P_{j,t} - N_{j,k,t-1} P_{j,t-1} - N_{j,k,t-1} \Delta P_{j,t}| \quad (2)$$

and

$$\text{Churn}_{k,t}^{\text{sell}} = \sum_{j \in J; N_{j,k,t} \leq N_{j,k,t-1}} |N_{j,k,t} P_{j,t} - N_{j,k,t-1} P_{j,t-1} - N_{j,k,t-1} \Delta P_{j,t}| \quad (3)$$

are aggregate purchases and sales, respectively. $N_{j,k,t} \geq 0$ denotes investor k 's shareholding of firm $j \in J$ for quarter t , with J being the set of all sample firms. $P_{j,t}$ presents the share price of firm j at the end of quarter t . The quarterly churn rate $\text{CR}_{k,t}$ above, specific to investor k at time t , is therefore the minimum of purchase- and sale-generated changes in number of shares valued using end-of-quarter prices at time t , and further scaled by average portfolio size during the past quarter from $t - 1$ to t .

For each December, institutional investor k 's horizon is determined using its average churn rate over the past four quarters, i.e.,

$$\text{avgCR}_{k,t} = \frac{1}{4} \sum_{t'=0}^3 \text{CR}_{k,t-t'}. \quad (4)$$

Intuitively, the higher the average churn rate during a given year for an institution, the higher its portfolio turnover, and therefore the more short-term oriented it is likely to be. For each year, we classify an institution as short-term (long-term) if it has an average churn rate that is above (below) the sample median for that year.

Turning to the firm level, a firm j would have a portion of its equity ownership held by institutions during each year. This portion ranges from 0% to 100% and is referred to as the

total institutional ownership (TIO) of the firm. Using the above categorization of investment horizons (i.e., short-term or long-term), we decompose this firm-level TIO into short-term institutional ownership (SIO) and long-term institutional ownership (LIO). Therefore, the sum of SIO and LIO would equal to TIO.

Control Variables and Final Sample

Based on earlier studies on CSR determinants, we control for firm characteristics (firm performance, firm size, firm size squared, firm age, R&D intensity, firm risk, leverage, likelihood of financial distress) and industry characteristics (new economy firms, industry concentration, and change in industry sales). Following [Erhemjamts, Li, and Venkateswaran \(2013\)](#), we use Tobin’s q as a measure of firm performance, natural logarithm of sales as a measure of firm size, number of years in CRSP as a proxy for firm age, R&D expenses scaled by total assets as a measure of R&D intensity, standard deviation of monthly returns in a fiscal year as a measure of firm risk, sum of long-term debt and debt in current liabilities as a percentage of total assets as a measure of book leverage, and modified [Altman’s \(1968\)](#) z -score as a proxy for the likelihood of financial distress.²² New economy firms are defined as companies competing in the business fields of computer, software, internet, telecommunications, or networking ([Murphy, 2003](#)).

Our final sample consists of 15,217 firm-year observations over the 2003 to 2013 period, with 2,860 unique firms. The empirical characteristics of our sample are reported in Table I. Panel A shows descriptive statistics of the main variables used, including the key dependent (CSR) and explanatory variables (short-term and long-term institutional ownership).

²²The original [Altman’s \(1968\)](#) z -score consists of five components, which includes the ratio of market value of equity to book value of long-term debt. Since we also control for a similar term, market-to-book, in our multivariate models as a separate variable, we follow [Graham, Li, and Qiu \(2008\)](#) and employ a modified z -score that does not include the term. Compared to the original z , while a higher modified z -score still indicates better financial health and thus lower default risk, the usual 1.81 and 2.99 cutoffs do not apply when using this measure.

[Insert Table I about here.]

Overall, we see figures that are consistent with prior literature. For instance, the mean (median) net CSR score for our sample is -0.2832 (-1.0000), suggesting that the mean (median) firm has slightly more concerns than strengths in terms of CSR-related issues. The mean (median) SIO and LIO are 0.3384 (0.3319) and 0.3911 (0.3987), respectively. It is worth noting that, due to our sample covering only firms in the KLD universe (i.e., the 3000 largest firms every year), institutional ownerships of our sample firms appear larger than those reported in earlier studies that examine the entire CRSP-Compustat (CCM) Universe (e.g., [Yan and Zhang, 2009](#)). Our numbers are more in line with those in studies that focus on, for instance, the markets for corporate bonds (e.g., [Huang and Petkevich, 2016](#)) or corporate control (e.g., the bidders in [Gaspar et al., 2005](#)).

The mean and median net CSR scores can be more clearly observed in Panel B, where we show the number of firm-year observations in our sample by the number of CSR strengths and concerns. Based on our data, 55.18% (25.48%) of the firm-years do not have CSR strengths (concerns), meaning that 44.82% (74.52%) have at least one strength (concern), in any category. Although firms have more concerns than strengths on average, this relation flips as we examine cumulatively. Specifically, at the count of four on either side, we see that 10.47% of the sample firm-years have at least four strengths, while only 8.29% have at least four concerns. This difference gradually widens as we move from the left to the right of Panel B. This highlights the importance of examining strength and concern components separately.

Analyses

Univariate Analyses

Table II presents the univariate relations between all variables used in this study. In Panel A, we present the correlation matrix. At first glance, we see from the bolded numbers that CSR is overall negatively (positively) correlated with SIO (LIO). The correlation coefficient between raw (adjusted) CSR and SIO is -0.07 (-0.05), while that between raw (adjusted) CSR and LIO is 0.12 (0.11), all statistically significant at the 1% level. These correlations are consistent with our argument that long-term institutions are more likely to encourage firm level CSR engagement, and that short-term institutions more likely discourage it. While this can be valid, the reverse may hold true as well. That is, different types of institutional investors are attracted to firms with higher CSR scores, and the correlations simply reflect such institutional preferences for securities. In Panel B, we make our initial attempt to disentangle these two arguments, provide some argument for the former, and more carefully address concerns regarding endogenous choices of institutions in the “Robustness Checks and Extensions” section.

[Insert Table II about here.]

The left sub-panel in Panel B shows the correlations between raw CSR and lagged, contemporary, and lead SIO/LIO (ordered from left to right), while the right sub-panel shows the same numbers derived using adjusted CSR. For the ease of comparison, we present the contemporary correlations in bold fonts (note that they are identical to the ones in Panel A, also reported in bold fonts, but with only two digits after the decimal). Overall, for both the raw and adjusted scores, the correlation of CSR with lead SIO/LIO is larger than with either contemporary SIO/LIO or lagged SIO/LIO (with the only exception being SIO with lagged CSR, which yields a relatively high correlation of -0.0817). When testing whether

the correlation matrix comprised of only one of SIO/LIO and any combination of two CSR scores of different timings (e.g., contemporary and lead) is compound symmetric, the null that all correlations are equal is rejected in all cases.

In Panel C, we examine more closely the relation between institutional investment horizons and individual CSR categories. The left sub-panel shows separately the correlations between SIO/LIO and CSR strengths and concerns. For CSR strengths, either raw or adjusted, we continue to see patterns that are consistent with those for the net scores reported in Panel A. CSR concerns appears to be inconsistent at the univariate level. Judging from the magnitude of these correlations, it seems that the univariate evidence provided by net scores is driven by CSR strengths. The middle sub-panel shows the correlations between SIO/LIO and the net scores of individual categories within CSR, including environmental and social issues. Social issues are further narrowed down to issues related more specifically to community, diversity, employee relations, human rights, and products. Consistent with the statistics reported earlier, we find that SIO (LIO) yields correlation coefficients with all components that are, at the very least, weakly negative (positive). In the right sub-panel of Panel C, we replace CSR scores with various forms of the “100 Best Companies to Work For” scorings (BCW) used in [Edmans \(2011, 2012\)](#) as an alternative measure.²³ We continue to see similar results.

²³ “BCW Score” is an annual ranking of firms, ranging from 0 to 100. For instance, the No. 1 ranked firm on the list would have a BCW score of 100, the No. 2 ranked firm would have a score of 99, so on and so forth. Companies that are not on the list would have a score of 0. The “BCW Dummy” takes the value of 1 if a firm is one of the “100 Best” for a given year, and 0 otherwise. The “BCW Accumulated Dummy” takes the value of 1 if a firm has been one of the “100 Best” during or prior to the year of a particular observation, and 0 otherwise.

Multivariate Analyses

We now perform multivariate analyses in testing the relation between lead CSR scores and SIO/LIO levels of firms. Our baseline model takes the following form:

$$\text{CSR}_{t+1} = \beta_S \text{SIO}_t + \beta_L \text{LIO}_t + \mathbf{X}'_t B_{\mathbf{X}} + \epsilon_t, \quad (5)$$

where CSR, our dependent variable, is one of the CSR scores (combination of net/strength/concern and raw/adjusted). SIO and LIO are vectors of institutional ownership categorized into short-term and long-term using Equation 4. $\mathbf{X}$ is the matrix of all control variables and ϵ is the error vector; β and B are the estimated coefficients for the ownership vectors and controls matrix, respectively. All models include year and industry (based on the two-digit SIC code) fixed effects. Further, all estimations are reported using two-way robust standard errors (clustered by firm and year) to simultaneously control for cross-sectional and time-series dependencies (Petersen, 2009; Cameron, Gelbach, and Miller, 2011).

The results are reported in Table III. Models 1, 3, and 5 (2, 4, and 6) show the estimations of lead raw (adjusted) CSR net score, strength, and concern, respectively. Given the characteristics of the dependent variables, Models 1, 3, and 5 are estimated using ordered logit models, and Models 2, 4, and 6 are estimated using OLS.

[Insert Table III about here.]

Models 1 and 2 estimate lead raw and adjusted CSR net scores, respectively. Consistent with the univariate results earlier, we find that SIO (LIO) is associated with lower (higher) one-year-ahead CSR scores. The estimated coefficients for SIO and LIO are -0.4508 and 0.9197 (-0.1533 and 0.2516), respectively, for the raw (adjusted) score. For Model 1, given a cutpoint estimate of 1.5135 at the net score of -1 (not reported, but available upon request), the probability of a 100% LIO firm to have a non-negative CSR score is 35.58%. The same

numbers for a 100% SIO firm and a non-IO firm (i.e., 0% for both SIO and LIO) are 12.30% and 18.04%, respectively. In addition, given that CSR net scores have a mean of -0.2832 and a standard deviation of 2.2971 (see Table I), the probability of a 100% LIO firm to have a score that is at least one standard deviation above the mean (roughly a net score of 2), based on a cutpoint estimate of 3.4442 at the score of 1, is 7.42%. Once again, the same numbers for a 100% SIO firm and a non-IO firm are 1.99% and 3.09%, respectively.²⁴ For Model 2, an increase in SIO from 0% to 100% lowers the adjusted CSR score by 0.1533, and an increase in LIO from 0% to 100% increases the adjusted CSR score by 0.2516. The two institutional holdings of our sample both have standard deviations of more than 15%, and as such, an increase from 0% to 100% ownership presents roughly an increase of six standard deviations. These estimated effects of institutional holdings on CSR scores are economically significant, considering that the 1st and 99th percentiles of the scores are -1.6405 and 1.8810 , respectively.

Models 3 through 6 yield quite interesting results that are overall consistent with, yet not completely identical to, those in Models 1 and 2. As shown in Model 3, the estimated coefficients for SIO and LIO in the estimation of CSR raw strengths are -0.6259 and 0.9784 , respectively. Both are statistically significant in the way we expect. However, when turning to the estimation of adjusted strengths in Model 4, the SIO and LIO coefficients are estimated to be -0.1877 and 0.0570 , respectively, with the latter being barely significant (p -value = 0.137). Therefore, there is some evidence suggesting that, once we address the potential effects from the year-to-year changes in CSR strength categories (Servaes and Tamayo, 2013),

²⁴CSR net scores, strengths, and concerns range from -9 to 18 , 0 to 21 , and 0 to 15 , respectively, for our sample. Therefore, the estimated cutpoints of all ordered logit estimations in this study are omitted from reporting due to space concerns, but are available upon request. In the examples in the text above, the three probabilities for non-negative scores are calculated as $1 - \frac{1}{1 + \exp\{-1.5135 - 0.4508\}} = 12.30\%$ for SIO, $1 - \frac{1}{1 + \exp\{-1.5135 + 0.9197\}} = 35.58\%$ for LIO, and $1 - \frac{1}{1 + \exp\{-1.5135\}} = 18.04\%$ for non-IO. Likewise, the three probabilities for scores at least 2 are calculated following the same logic, with a cutpoint of 3.4442.

SIO retains its adverse effect on one-year-ahead CSR strength, but LIO is not as effective in increasing it. For the estimation of CSR raw concerns, we see in Model 5 that the SIO and LIO coefficients are -0.2170 and -0.7570 , respectively, with the former being insignificantly different from zero. Qualitatively similar results are obtained when using adjusted concerns instead. That is, while LIO shows a beneficial effect in lowering the one-year-ahead CSR concerns in all cases, SIO does not have a significant effect. In sum, the negative (positive) effect of SIO (LIO) on lead CSR net scores appears to be driven primarily by SIO (LIO) lowering CSR strengths (concerns).

Components of CSR

Next, we examine more closely the individual components of CSR. Essentially, we are asking the empirical question: Where is our base finding coming from? The construction of the CSR net scores in KLD allows us to break the aggregated score down into its environmental and social components. Within the broad social category, we can further differentiate between the strengths and concerns attributed to the community, diversity, employee relations, human rights, and product aspects of firms.

In Table IV, we report results from estimating the adjusted net scores, strengths, and concerns for the environmental (in the left panel) and social (in the right panel) categories separately. For both scores, we continue to see negative estimated coefficients for SIO and positive ones for LIO, indicating that larger long-term ownerships encourage CSR engagement in both categories. The effect from SIO is relatively weaker in both models, but overall still significantly negative (only at the 10% level for the environmental category). Breaking down net scores into strengths and concerns, we see results that are consistent with those derived from the total CSR net scores. Specifically, SIO is the main force behind low strengths and LIO is more effective in driving down concerns.

[Insert Table IV about here.]

In Table V, we report estimations of lead scores for each of the five social categories. From the estimated SIO coefficients across all models, it appears that the key category where short-term investors are exerting adverse effects is employee relations. LIO covers a wider scope, with estimated coefficients being positively significant for all categories except employee relations (p -value = 0.112). Notably, despite statistical significance, the point estimates of SIO (LIO) coefficients are overall negative (positive).

[Insert Table V about here.]

Given that LIO shows a stronger effect in mitigating CSR concerns, we further examine how firm level engagement in controversial business issues can vary in institutional investment horizons. The KLD database provides information on business involvement in alcohol, firearms, gambling, military, nuclear, and tobacco products. Involvement in these business areas can include the licensing, manufacturing (either part or whole), operations or revenue generation (to a certain percent of total revenue), and large ownership by or of another involved firm, among many others.

We report these results in Table VI. In Panel A, we estimate an all-in-one model where the dependent variable is the lead indicator for involvement in any of the five controversial business areas. From our finding, we see that the estimated coefficient for SIO is insignificant, while that for LIO is negatively significant. Once again, LIO is effective in mitigating firm level engagement in negative CSR issues. In Panel B, we run six models, one for each of the six sins. All controls are included in each estimation, but we omit reporting their estimated coefficients due to space concerns (available upon request). Looking across the Panel, we observe that only the LIO coefficients in the firearms (Model 2) and military (Model 4) regressions are negatively significant. All other estimated coefficients, including those for SIO, are insignificantly different from zero.

[Insert Table VI about here.]

Robustness Checks and Extensions

We run a battery of robustness checks to ensure the empirical validity of our results. These include addressing endogeneity, reverse causality, and autocorrelation concerns, as well as using alternative measures for our key variables and employing alternative econometric specifications.

Endogeneity and Reverse Causality

Two-Stage Estimations

From our base results of estimating one-year-ahead CSR scores using proxies for institutional investment horizons, we argue that the existence of certain types of ownership can have an impact on CSR engagement at the firm level. However, our results may suffer from endogeneity, in that a certain set of firm characteristics may attract particular types of investors, and that given that set of firm characteristics, the firm simply more likely take CSR engagement to the direction that we find. Further, long-term oriented institutions may simply be attracted to firms that are consistently improving their CSR (i.e., reverse causality).²⁵ It is also possible that some unobserved idiosyncratic shocks simultaneously affect both the ownership and CSR variables in our sample, leading to spurious correlation. We now more formally address these potential concerns using instrumental variables (IVs) for ownership in a two-stage approach.

In all our two-stage models, we first estimate SIO and LIO as follows:

$$\begin{aligned} \text{SIO}_t &= \alpha_0^S + \mathbf{Z}_t' \Lambda^S + \mathbf{X}_t' \Theta^S + u_t^S \\ \text{LIO}_t &= \alpha_0^L + \mathbf{Z}_t' \Lambda^L + \mathbf{X}_t' \Theta^L + u_t^L, \end{aligned} \tag{6}$$

²⁵Li and Lu (2016) find that in the Chinese market, long-term institutional investors tend to invest in state-owned firms (SOEs) making environmental capital expenditures.

where $\mathbf{Z}$ and $\mathbf{X}$ are the matrices of the IVs and all other control variables, respectively. Λ and Θ are the vectors of estimated coefficients, and u in both equations are the vectors of first-stage errors. From the first stage estimation, we retrieve the predicted ownership values and use them in place of the actual ownership variables for our second stage estimation:

$$\text{CSR}_{t+1} = \beta_0 + \beta_S \widehat{\text{SIO}}_t + \beta_L \widehat{\text{LIO}}_t + \mathbf{X}'_t B_{\mathbf{X}} + \epsilon_{t+1}, \quad (7)$$

where CSR_{t+1} , as before, denotes the lead CSR adjusted net score. $\widehat{\text{SIO}}$ and $\widehat{\text{LIO}}$ present the predicted values of institutional ownership from Equation 6. $\mathbf{X}$, as in the previous stage, is the matrix of all control variables. β and B are the estimated coefficients for the ownership vectors and controls matrix, respectively. As in our base models, we employ year and industry fixed effects and robust standard errors clustered by firm and year.

In Table VII, we present two sets of two-stage estimations as outlined above. In Panel A, we allow for institutions to set preferences based on observable CSR scores at the time of their investments. Specifically, we use lagged CSR scores and lagged short-term and long-term ownerships in our first-stage estimations of ownership. The coefficient estimate for lagged CSR score is -0.0063 in the SIO and 0.0039 in the LIO estimation, both statistically significant at conventional levels, and thus confirming our concern regarding investor preferences for firm level CSR investments. When we employ these predicted ownerships in the second-stage lead CSR estimation, we find that the estimated coefficients for $\widehat{\text{SIO}}$ and $\widehat{\text{LIO}}$ are -0.4407 and 0.4972 , respectively; both are significant at the 1% level. That is, having controlled for investor preferences for existing CSR engagement and firm characteristics, we continue to see that our base results hold.

[Insert Table VII about here.]

To further ensure robustness, we use (i) contemporary CSR instead of the lagged and (ii) a decomposition of the contemporary CSR into a trend and a lagged CSR component and

use them as our instruments. The first alternative alleviates the concern that investors may be able to observe the contemporary CSR levels when making investment decisions. The second alternative addresses the logic that investors may pay more attention to the most recent trends in firm CSR engagement (e.g., whether it is increasing or decreasing) than to lagged scores. Our results remain qualitatively unchanged, therefore not reported. With these results, we continue to show that the channel through which investor heterogeneity affects firm CSR engagement remains at work, even after empirically controlling for reverse causality as much as we can.²⁶

For Panel B of Table VII, we employ two sets of instruments. As in [Michaely and Vincent \(2012\)](#), the first is the industry median ownerships of short-term and long-term investors based on the two-digit SIC code.²⁷ This is based on the empirical fact that institutions tend to herd within industries ([Choi and Sias, 2009](#)). Importantly, industry median ownerships are not likely to be related to the specific characteristics of an individual firm. Using the one-digit or three-digit codes do not change our results qualitatively. Following [Grinstein and Michaely \(2005\)](#), our second instrument is the lagged levels of short-term and long-term ownerships.

²⁶As an additional attempt to address reverse causality, we also employ a simultaneous equations system, where CSR scores and the two types of institutional ownerships are jointly determined in the following specification:

$$\begin{cases} \text{CSR}_t &= \beta_0^C & + \beta_S^C \text{SIO}_t & + \beta_L^C \text{LIO}_t & + \mathbf{X}_t B_C' + \epsilon_t^C \\ \text{SIO}_t &= \beta_0^S & + \beta_C^S \text{CSR}_t & & + \mathbf{X}_t B_S' + \epsilon_t^S \\ \text{LIO}_t &= \beta_0^L & + \beta_C^L \text{CSR}_t & & + \mathbf{X}_t B_L' + \epsilon_t^L \end{cases}$$

where CSR is the vector of adjusted CSR score and SIO and LIO are vectors of institutional ownership categorized into short-term and long-term. $\mathbf{X}$ is the matrix of all control variables and ϵ is the error vector; β and B are the estimated coefficients for the key variables and controls matrix, respectively. The estimated coefficients for CSR in the SIO and LIO equations are -0.0096 and 0.0141 , respectively. While both are strongly significant, the estimated coefficients for SIO and LIO in the CSR equation remains statistically and economically significant at -0.1568 and 0.2552 , respectively. Given that these results are qualitatively similar to those in the simultaneous equations system with lagged CSR scores incorporated as a part of our effort to address autocorrelation in the dependent variable (see Panel B of Table VIII), we do not tabulate them to conserve space.

²⁷[Michaely and Vincent \(2012\)](#) use the same instrument to address endogeneity concerns regarding total institutional ownership and firm leverage.

As in Panel A, the first-stage estimations of short-term and long-term ownerships are presented in Models 2a and 2b, respectively. The estimated coefficients for lagged ownerships are consistently high across all first-stage estimations, confirming the finding that institutional ownerships are stable through time (Gompers and Metrick, 2001). The estimated coefficients for industry median SIO (LIO) for the firm level SIO (LIO) estimation in Model 2a (2b) indicates evidence of institutional herding as shown in prior studies. Importantly, from Model 2, we continue to see the same patterns as those presented in our baseline regressions. The estimated coefficients for the predicted values of SIO and LIO are -0.2593 and 0.3341 , respectively. Both remain statistically significant at the 1% level.

Autocorrelation and Cross-Sectional Robustness

Since CSR scores are highly persistent, it is worth noting that our estimations employ two-way clustered errors that simultaneously control for cross-sectional and time-series dependencies (Petersen, 2009; Cameron et al., 2011). Further, the year fixed effects that we incorporate in all models also alleviate problems arising from time-series dependence. In this section, we continue to exert effort in addressing autocorrelation concerns in several ways.

First, when we include a lagged CSR term into our CSR estimation, as shown in Model 1 of Table VIII, our results remain qualitatively unchanged. Second, as an attempt to address both reverse causality and autocorrelation at the same time, we employ a simultaneous estimations system, where CSR scores and the two types of institutional ownerships are jointly determined (Zellner, 1962). The specification is as follows:

$$\begin{cases} \text{CSR}_t = \beta_0^C + \beta_{C_{t-1}}^S \text{CSR}_{t-1} + \beta_S^C \text{SIO}_t + \beta_L^C \text{LIO}_t + \mathbf{X}_t B'_C + \epsilon_t^C \\ \text{SIO}_t = \beta_0^S + \beta_{C_t}^S \text{CSR}_t + \beta_{C_{t-1}}^S \text{CSR}_{t-1} + \mathbf{X}_t B'_S + \epsilon_t^S \\ \text{LIO}_t = \beta_0^L + \beta_{C_t}^L \text{CSR}_t + \beta_{C_{t-1}}^L \text{CSR}_{t-1} + \mathbf{X}_t B'_L + \epsilon_t^L, \end{cases} \quad (8)$$

where CSR is the vector of adjusted CSR score and SIO and LIO are vectors of institutional ownership categorized into short-term and long-term. $\mathbf{X}$ is the matrix of all control variables and ϵ is the error vector; β and B are the estimated coefficients for the key variables and controls matrix, respectively. We report the results in Panel B of Table VIII. Model 2 estimates CSR scores; Model 2a estimates SIO; and Model 2b estimates LIO. In Model 2, the estimated coefficient for lagged CSR is 0.7951, indicating that average firm-level engagement in corporate social responsibility is highly persistent. Importantly, the estimated coefficients for SIO and LIO in the same model are -0.0398 and 0.0633 , which are both significant at conventional levels.

[Insert Table VIII about here.]

Third, we also estimate lead CSR using a Fama-MacBeth estimation, where each cross section is modeled separately while correcting for serial correlation through Newey-West errors with three lags (Fama and MacBeth, 1973; Newey and West, 1987).²⁸ We report this estimation in Model 3 of Panel C. As shown, the estimated coefficients for SIO and LIO are -0.2456 and 0.2749 , respectively, both remain economically and statistically significant.

Finally, in untabulated results, we re-estimate our base model (Model 2 in Table III) and two-stage least squares models (Table VII) by employing HAC standard errors that are robust to arbitrary heteroskedasticity and within panel autocorrelated disturbances (clustering on firm) and cross-panel autocorrelated disturbances that disappear after two lags (clustering on time combined with kernel-based HAC) (Cameron et al., 2011; Thompson, 2011). We obtain standard errors for SIO and LIO that are even lower than those reported earlier.

To sum up, in all attempts described above, we continue to find a significantly negative (positive) association between firm SIO (LIO) and CSR scores. Thus, our key finding remains qualitatively unchanged. The results from our Fama-MacBeth estimation also ensures the

²⁸Our results are robust to other choices of lags.

cross-sectional robustness of our study. In untabulated results, we find that SIO (LIO) yields a negative estimated coefficient in all ten out of the ten cross sections in our sample, in which six (nine) are statistically significant at the 5% level.

Alternative Measures for Key Variables

In this section, we employ alternative measures for both our dependent (CSR) and main independent (SIO/LIO) variables. The results are reported in Table IX.

Institutional Ownership Horizons

When computing our main explanatory variables, SIO and LIO, we apply three rules that factor into our presentation of results. First, we categorize total institutional ownership into short-term and long-term based on the annual investor level churn medians. Second, the investor level churn rates are based on Yan and Zhang (2009). Third, to combine quarterly data from TFN with annual data from KLD, we use only ownership data from December of each calendar year. To ensure that our results are not purely driven by these methodological choices, we apply different calculations, cuts, and filters to each of these aspects when computing our empirical proxy for institutional investment horizons.

[Insert Table IX about here.]

In Model 1, instead of using ownerships from December, we try using the March, June, and September figures. We also use the mean of all four ownership levels during the year. Doing so allows us to alleviate any seasonality-related concerns about our results. We report only results from using the mean ownerships in Model 1. As shown, the estimated coefficient for SIO (LIO) remains significantly negative (positive). Results from using the ownerships from the other three months are qualitatively similar. We omit reporting them due to space concerns.

In Model 2, instead of cutting the TFN investor universe based on churn medians, we do so based on terciles. As a result, there will be an additional medium-term institutional ownership (MIO) at the firm level in our model, presenting those between the short-term and the long-term. While doing so seems to bias towards finding results if the CSR-horizon relation is empirically monotonic, we will be able to observe such monotonicity if there indeed is one. If, oppositely, we observe any strictly non-monotonic relation (e.g., U- or inverted U-shape), our argument that longer investment horizons of institutions promote CSR cannot be generalized. From the estimation, not only do we find results that are consistent with those reported earlier, we also confirm that the CSR-horizon relation is at least weakly monotonic. Although the point estimate of the MIO coefficient is slightly lower than that of the LIO coefficient, a test of equality between the two yields an F -value of only 0.0007, suggesting that they are not statistically different.

Finally, in Model 3, we replace [Yan and Zhang’s \(2009\)](#) investment horizon measure, which is based on the minimum of aggregate buy and sell in calculating churn rates, with that of [Gaspar et al. \(2005\)](#); [Gaspar, Massa, Matos, Patgiri, and Rehman \(2012\)](#), which uses the sum of aggregate buys and sells. In short, Equation 1 is replaced by the following calculation:

$$CR_{k,t}^{GMM} \equiv \frac{|N_{j,k,t}P_{j,t} - N_{j,k,t-1}P_{j,t-1} - N_{j,k,t-1}\Delta P_{j,t}|}{\frac{1}{2} \sum_{j \in J} (N_{j,k,t}P_{j,t} + N_{j,k,t-1}P_{j,t-1})}. \quad (9)$$

The results are qualitatively similar to those reported earlier, and thus continues to provide support to our argument.

CSR

We use the list of “100 Best Companies To Work For In America (BCW)” as an alternative measure for CSR ([Edmans, 2011, 2012](#)). The list of firms in the BCW is published every January in the Fortune Magazine by the Great Place To Work (GPTW) Institute, which is

headquartered in San Francisco, CA. To make the interpretations of coefficients consistent between the BCW and the CSR, we calculate a score that is based on the annual rankings of the 100 Best. Specifically, the firm ranked No. 1 on the list would have a score of 100, the No. 2 firm would have a score of 99, so on and so forth. Firms not in the list have BCW scores of zero. We present results from this ordered logit in Model 4 of Table VII. Once again, we find results that are consistent with our arguments.

In untabulated results, we employ two variations of the BCW score. One is a simple BCW Dummy that takes the value of 1 if a firm is one of the 100 Best for a given year, and 0 otherwise. The other is a BCW Accumulated Dummy, which takes the value of 1 if a firm has been one of the 100 Best during or prior to the year of a particular observation, and 0 otherwise.

For the BCW Dummy, we find almost identical results with those produced by Model 4. Further estimation of a Heckman (1979) selection model confirms that, while SIO and LIO are associated with the likelihood of being in the 100 Best, they do not have an effect on the actual score (and therefore the exact rankings). For the BCW Accumulated Dummy, we continue to see consistent results.

Additional Discussions

Does Investment Horizon Matter in Bad Times?

As stated in the quote from CalPERS Beliefs at the very beginning of this paper, some institutional investors adapt a long-term view, tolerating a near-term volatility. Our analysis so far suggests that LIO (SIO) is associated with higher (lower) CSR. However, a related question is whether the effect of investor horizon still persists in bad times, i.e., does LIO (SIO) still encourage (discourage) investments in CSR during bad times?

To answer this question, we estimate the following regression model:

$$\text{CSR}_{t+1} = \beta_0 + \sum_{\mathbf{d} \in \{d_{\text{good}}, d_{\text{bad}}\}} \mathbf{d} (\beta_{\text{S}}^{\mathbf{d}} \text{SIO}_t + \beta_{\text{L}}^{\mathbf{d}} \text{LIO}_t) + \mathbf{X}_t B' + \epsilon_t,$$

where d_{good} and d_{bad} are dummy variables that indicate good and bad times, respectively.

We use two empirical proxies for bad times. The first is at the macro-level, i.e., the business cycle contraction periods published by the National Bureau of Economic Research (NBER).²⁹ The second is at the micro-level, where we determine whether a firm, at a given year, has a higher stock volatility than that of its industry median. Under both proxies, the LIO coefficient remains positive and significant during both good and bad times. In particular, when we use recessions to define bad times, the good time LIO coefficient is 0.2516 and the bad time LIO coefficient is 0.2534 (both are statistically significant at the 1 percent level). When we use high stock volatility to define bad times, the estimated good and bad time coefficients are 0.3324 and 0.1642, respectively (both are statistically significant at the 1 percent level). Therefore, LIO has a positive and significant effect on CSR in both good and bad times.

As for SIO, its' negative effect on CSR is not consistently significant. For example, when we use recessions to define bad times, the effect of SIO on CSR is negative but not significant during bad times (-0.1227), and negative and significant during good times (-0.1685). Similarly, when we use high stock volatility to define bad times, the effect of SIO is negative but not significant during bad times (-0.0684), and negative and significant during good times (-0.2387). On balance, the negative effect of SIO on CSR is driven by the good times.³⁰

²⁹ www.nber.org/cycles.html

³⁰ These results are not tabulated, but are available upon request.

Conclusion

Given the growing interest in addressing the problem of short-termism, the perceived lack of consensus in theoretical perspectives, and the lack of clear evidence on the link between institutional ownership horizon and long-term investments, we reexamine the relationship between institutional ownership horizon and CSR in this paper. We first address the perceived lack of consensus in theoretical perspectives (i.e., agency vs. stakeholder perspectives), and discuss how recent studies (e.g., [Jensen, 2002](#)) help reconcile the conflicting views. While the stakeholder theory has been the mainstay in examining the link between institutional ownership and CSR, we highlight how other perspectives such as the institutional theory ([Meyer and Rowan, 1977](#); [DiMaggio and Powell, 1983](#)) and the resource dependence theory ([Pfeffer and Salancik, 1978](#)) can be applied in this context as well.

Next, we empirically examine the link between institutional ownership horizon and firm policies on CSR, given the recent evidence on how institutional investors have the ability to impact corporate policies. While there are some existing studies on this topic, they have produced fragmented and contradictory results, making it difficult to advance the conversation in the academic community. For instance, [Graves and Waddock \(1994\)](#) find no relationship between the percentage of shares institutionally owned and CSR. In contrast, [Johnson and Greening \(1999\)](#) and [Neubaum and Zahra \(2006\)](#) find a strong, positive link. We address this situation by adopting a comprehensive empirical approach that improves on the previous studies. In particular, we improve on the previous studies by employing a superior horizon measure based on trading behavior rather than legal type, accounting for multidimensionality of CSR (strengths vs. concerns dimension, as well as CSR categories such as community relations, employee relations, human rights, diversity, environment, and product), and accounting for endogeneity, reverse causality and autocorrelation.

Consistent with [Neubaum and Zahra \(2006\)](#), we find that firms with higher percentage

of long-term (short-term) investors have higher (lower) CSR Net Scores. However, because our comprehensive approach accounted for multidimensionality of CSR, we have made some new discoveries. For example, the positive and significant effect of long-term ownership is driven by its negative and significant effect on the concerns dimension of CSR, whereas the short-term ownership has a negative and significant effect on the strengths dimension of CSR. When we examine the effect of institutional ownership horizon on the components of CSR, a similar picture emerges. Short-term institutional ownership has a negative and significant effect on both environmental strengths and social strengths scores. In contrast, long-term institutional ownership has a significant and negative effect on both environmental and social concerns scores. When we look deeper within social categories of CSR, the negative effect of short-term ownership on CSR seems to be driven by employee relations category, whereas the positive effect of long-term ownership on CSR is present in community relations, diversity, human rights, and product categories. Similarly, our examination of controversial business issues reveals that long-term institutional ownership has a significant negative effect on the likelihood of firm getting involved with any controversy (e.g., alcohol, firearms, gambling, military, nuclear, and tobacco-related issues). This negative effect seems to be mostly driven by the lower likelihood of controversies regarding firearms and military. Finally, the positive effect of long-term institutional ownership in CSR is present during both boom and bust cycles, while the negative effect of short-term institutional ownership is present only in bust cycles.

Our findings support the view that short-termism on the part of institutional investors places short-term pressure on companies, and therefore discourages long-term investments, such as environmentally and socially responsible investments. In addition, firms with long-term investors seem to be able to make the necessary investments to reduce environmental and social concerns, as well as controversial business practices. These findings highlight the importance of structuring the compensation incentives for investment managers so that they

are incentivized to have a long-term view. A 2008 compensation study of more than 1,100 investment management professionals conducted by the CFA Institute revealed that nearly 80 percent of investment managers have less than half of their compensation based on long-term performance measures.³¹ There is also an implication for monitoring investment managers in that they need to be held accountable for deviating too far from their stated objectives in regards to portfolio turnover. Recent studies show that investment managers with low portfolio turnover and concentrated positions outperformed managers without these two combined characteristics by a statistically significant 2.3%-3.5% per year over 20-plus year observation periods (e.g., [Harford et al., 2016](#); [Cremers and Pareek, 2016](#)). Pension funds in particular, with their high political profile, need to rethink their investment strategies and governance. If implementation is an issue despite having good policy intentions and long-term goals, the increasing availability of ESG data from a large number of data providers (e.g., Bloomberg, MSCI, Thomson Reuters, Sustainalytics, CDP, etc.) makes improvements in performance monitoring and measurement systems possible.

Finally, the link between long-term investments and long-term value creation need to be explored further as the empirical evidence is mixed at best (e.g., [Margolis and Walsh, 2003](#); [Orlitzky et al., 2003](#); [van Beurden and Goessling, 2008](#)). Recently, McKinsey Global Institute has released a new study showing that companies they classify as “long-term” outperform their shorter-term peers on a range of key economic and financial metrics. While calling it an “important topic”, Lawrence Summers responded to the report in the Harvard Business Review, arguing that the issue is still unresolved and that their findings deserve much discussion, debate, and attempts at replication.³²

³¹www.cfainstitute.org/Survey/short-termism_survey_report_may_2008.pdf

³²[www.mckinsey.com//media/McKinsey/Global Themes/Long term Capitalism/Where companies with a long term view outperform their peers/MGI-Measuring-the-economic-impact-of-short-termism.ashx](http://www.mckinsey.com//media/McKinsey/Global%20Themes/Long%20term%20Capitalism/Where%20companies%20with%20a%20long%20term%20view%20outperform%20their%20peers/MGI-Measuring-the-economic-impact-of-short-termism.ashx)

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Table II: Correlations

This table presents Pearson correlations between the variables used in this study. Panel A presents the correlation matrix of all key (CSR scores and SIO/LIO) and control variables (e.g., Tobin's q, firm size age, etc.). Panel B shows the univariate relation between institutional ownership and CSR scores of various timings (i.e., one-year lagged, contemporary, and one-year lead). Panel C presents the correlations between short-term/long-term institutional ownership and (i) separated strength and concern scores, for both raw and adjusted measures, (ii) detailed components of the KLD CSR raw scores (environmental and social, where the social component is further sub-categorized into community, diversity, employee relations, human rights, and product scores), as well as (iii) the BCW (i.e., best companies to work for) index from [Edmans \(2011, 2012\)](#), see also Fortune Magazine and the Great Place To Work Institute).

Panel A: Correlations Between Key Variables and Controls (Obs: 15,217 Firm-Years; 2860 Unique Firms)																								
	CSR Raw	CSR Adj.	SIO	LIO	q	Size	Size ²	Age	R/A	RD ϕ	SV	Lev.	z	NE.	HHI	Δ S Ind.								
CSR Score (Raw)	1.00																							
CSR Score (Adj.)	0.94	1.00																						
SIO	-0.07	-0.05	1.00																					
LIO	0.12	0.11	0.03	1.00																				
Tobin's q	0.09	0.09	0.07	-0.14	1.00																			
Size (Log of Sales)	0.22	0.16	-0.02	0.33	-0.26	1.00																		
Squared Size	0.24	0.17	-0.06	0.30	-0.22	0.98	1.00																	
Firm Age	0.14	0.10	-0.19	0.22	-0.15	0.45	0.47	1.00																
R&D/Assets	0.05	0.05	0.01	-0.17	0.34	-0.46	-0.37	-0.17	1.00															
Missing R&D	-0.11	-0.10	-0.04	0.02	-0.16	0.12	0.09	-0.01	-0.39	1.00														
Stk Volatility	-0.14	-0.12	0.02	-0.26	-0.03	-0.34	-0.32	-0.21	0.19	-0.04	1.00													
Leverage	-0.03	-0.02	0.04	0.06	-0.29	0.26	0.24	0.07	-0.24	0.20	0.02	1.00												
Modified z	0.07	0.06	0.04	0.24	-0.08	0.46	0.38	0.19	-0.55	0.12	-0.27	-0.09	1.00											
New Econ.	0.12	0.08	0.04	-0.10	0.12	-0.14	-0.14	-0.19	0.24	-0.18	0.06	-0.20	-0.15	1.00										
HHI	0.03	0.03	-0.07	0.08	-0.07	0.13	0.12	0.14	-0.17	0.00	-0.06	0.02	0.15	-0.15	1.00									
Chg in Sales (Ind.)	-0.04	-0.04	-0.02	0.02	0.07	-0.01	-0.01	-0.04	-0.01	0.04	-0.18	-0.02	0.03	0.01	-0.05	1.00								
Panel B: Correlations Between Ownership and CSR of Different Timings																								
CSR Score (Raw)																								
	Lag			Cont.			Lead			CSR Score (Adjusted)														
SIO	-0.0817			-0.0712			-0.0797			-0.0597			-0.0546											
p-val	(0.00)			(0.00)			(0.00)			(0.00)			(0.00)											
LIO	0.0890			0.1150			0.1339			0.0883			0.1064											
p-val	(0.00)			(0.00)			(0.00)			(0.00)			(0.00)											
Obs.	12,168			15,217			15,217			12,168			15,217											
Panel C: Correlations Between CSR Components and SIO/LIO (Obs: 15,217)																								
CSR Components																								
Str. (Raw)		Str. (Adj.)		Con. (Raw)		Con. (Adj.)		CSR Components																
								Envir.			Soc.		Comm.		Div.		Emp.		Hum.		Prod.		BCW Edmans	
SIO	-0.14	-0.14	-0.10	-0.09	-0.06	-0.04	-0.02	-0.02	-0.02	-0.06	0.00	-0.01	-0.04	-0.05	-0.07	-0.07								
LIO	0.15	0.15	0.05	0.03	0.09	0.09	0.03	0.03	0.09	0.05	0.01	0.02	0.03	0.05	0.07	0.07								

Table III: **Lead CSR Net Score, Strength, and Concern Estimations**

This table presents results from estimations of lead CSR (corporate social responsibility) using short-term and long-term institutional ownerships. The models take the following functional form:

$$CSR_{t+1} = \beta_S SIO_t + \beta_L LIO_t + \mathbf{X}'_t B \mathbf{X} + \epsilon_t,$$

where CSR is one of the CSR scores (combination of net/strength/concern and raw/adjusted). SIO and LIO are vectors of institutional ownership categorized into short-term and long-term. $\mathbf{X}$ is the matrix of all control variables and ϵ is the error vector; β and B are the estimated coefficients for the ownership vectors and controls matrix, respectively. All models include year and industry (based on the two-digit SIC code) fixed effects. All estimations are reported using robust standard errors clustered by firm and year to simultaneously control for cross-sectional and time-series dependencies (Petersen, 2009; Cameron et al., 2011). Models 1, 3, and 5 (2, 4, and 6) show the estimations of lead raw (adjusted) CSR net score, strengths, and concerns, respectively. Models 1, 3, and 5 are estimated using ordered logit models, and Models 2, 4, and 6 are estimated using OLS.

	CSR Net Score				CSR Strengths				CSR Concerns			
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val
SIO	-0.4508	(0.034)	-0.1533	(0.017)	-0.6259	(0.005)	-0.1877	(0.000)	-0.2170	(0.318)	-0.0343	(0.441)
LIO	0.9197	(0.000)	0.2516	(0.000)	0.9784	(0.000)	0.0570	(0.137)	-0.7570	(0.002)	-0.1946	(0.000)
Tobin's q	0.1448	(0.000)	0.0452	(0.000)	0.2196	(0.000)	0.0390	(0.000)	-0.0281	(0.327)	-0.0061	(0.282)
Size (Log of Sales)	-0.3532	(0.008)	-0.0746	(0.150)	-0.5302	(0.000)	-0.2866	(0.000)	-0.7889	(0.000)	-0.2119	(0.000)
Squared Size	0.0523	(0.000)	0.0121	(0.020)	0.1023	(0.000)	0.0343	(0.000)	0.0897	(0.000)	0.0222	(0.000)
Firm Age	0.0005	(0.866)	0.0007	(0.419)	0.0051	(0.014)	0.0027	(0.000)	0.0081	(0.004)	0.0019	(0.004)
R&D/Assets	1.4271	(0.010)	0.5290	(0.001)	1.0240	(0.060)	0.0230	(0.801)	-2.3551	(0.000)	-0.5060	(0.000)
Missing R&D	-0.1732	(0.036)	-0.0619	(0.016)	-0.3902	(0.000)	-0.0858	(0.000)	-0.1133	(0.137)	-0.0239	(0.172)
Stk Volatility	-1.3839	(0.004)	-0.4804	(0.001)	-0.7326	(0.112)	-0.2111	(0.002)	1.3289	(0.093)	0.2693	(0.068)
Leverage	-0.0818	(0.603)	0.0445	(0.393)	-0.4033	(0.123)	-0.0473	(0.214)	-0.3471	(0.038)	-0.0918	(0.013)
Modified z	0.0337	(0.137)	0.0144	(0.018)	-0.0549	(0.009)	0.0002	(0.963)	-0.0901	(0.005)	-0.0142	(0.008)
New Econ.	0.3907	(0.000)	0.1100	(0.006)	0.6364	(0.000)	0.1509	(0.000)	0.1104	(0.354)	0.0410	(0.096)
HHI	0.1118	(0.464)	0.0613	(0.216)	-0.0450	(0.803)	0.0493	(0.233)	-0.1180	(0.425)	-0.0120	(0.738)
Chg in Sales (Ind.)	0.0100	(0.952)	0.0026	(0.959)	-0.5316	(0.045)	-0.0777	(0.336)	-0.3840	(0.133)	-0.0802	(0.199)
Intercept	Omit		-0.8040	(0.000)	Omit		0.8360	(0.000)	Omit		1.6400	(0.000)
(Pseudo-)R ²	0.0537		0.1819		0.1590		0.4712		0.108		0.3052	
N	15,217		15,217		15,217		15,217		15,217		15,217	

Table IV: **Environmental and Social Components of CSR**

This table presents results from estimations of lead environmental (left panel) and social (right panel) components of CSR (corporate social responsibility) using short-term and long-term institutional ownerships. The models take the following functional form:

$$CSR_{t+1} = \beta_S SIO_t + \beta_L LIO_t + \mathbf{X}'_t B \mathbf{X} + \epsilon_t,$$

where CSR is one of the adjusted CSR scores (net/strength/concern) in the corresponding category. SIO and LIO are vectors of institutional ownership categorized into short-term and long-term. $\mathbf{X}$ is the matrix of all control variables and ϵ is the error vector; β and B are the estimated coefficients for the ownership vectors and controls matrix, respectively. All models include year and industry (based on the two-digit SIC code) fixed effects. All estimations are reported using robust standard errors clustered by firm and year to simultaneously control for cross-sectional and time-series dependencies (Petersen, 2009; Cameron et al., 2011). Models 1, 2, and 3 (4, 5, and 6) show the estimations of lead adjusted environmental (social) net score, strengths, and concerns, respectively.

	Environmental Components of CSR (Adj.)						Social Components of CSR (Adj.)					
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val
SIO	-0.0235	(0.100)	-0.0263	(0.056)	-0.0028	(0.736)	-0.1298	(0.018)	-0.1614	(0.000)	-0.0315	(0.445)
LIO	0.0345	(0.012)	-0.0023	(0.844)	-0.0368	(0.002)	0.2171	(0.000)	0.0593	(0.066)	-0.1578	(0.001)
Tobin's q	0.0069	(0.000)	0.0061	(0.006)	-0.0008	(0.513)	0.0383	(0.000)	0.0329	(0.000)	-0.0054	(0.313)
Size (Log of Sales)	-0.0350	(0.000)	-0.0638	(0.000)	-0.0288	(0.000)	-0.0397	(0.389)	-0.2228	(0.000)	-0.1831	(0.000)
Squared Size	0.0038	(0.002)	0.0075	(0.000)	0.0038	(0.000)	0.0083	(0.060)	0.0268	(0.000)	0.0184	(0.000)
Firm Age	0.0000	(0.941)	0.0009	(0.000)	0.0009	(0.000)	0.0007	(0.323)	0.0018	(0.000)	0.0010	(0.072)
R&D/Assets	0.0512	(0.145)	-0.0882	(0.005)	-0.1394	(0.000)	0.4778	(0.000)	0.1112	(0.134)	-0.3666	(0.000)
Missing R&D	-0.0197	(0.003)	-0.0309	(0.000)	-0.0112	(0.014)	-0.0422	(0.054)	-0.0549	(0.000)	-0.0127	(0.419)
Stk Volatility	-0.1073	(0.000)	-0.0702	(0.049)	0.0371	(0.257)	-0.3732	(0.007)	-0.1409	(0.010)	0.2322	(0.070)
Leverage	0.0301	(0.022)	0.0067	(0.528)	-0.0233	(0.008)	0.0144	(0.756)	-0.0541	(0.083)	-0.0685	(0.046)
Modified z	0.0018	(0.091)	-0.0014	(0.127)	-0.0032	(0.000)	0.0126	(0.022)	0.0016	(0.614)	-0.0110	(0.030)
New Econ.	0.0342	(0.001)	0.0319	(0.000)	-0.0024	(0.574)	0.0757	(0.023)	0.1191	(0.000)	0.0434	(0.060)
HHI	0.0343	(0.020)	0.0309	(0.027)	-0.0034	(0.762)	0.0269	(0.531)	0.0184	(0.581)	-0.0086	(0.783)
Chg in Sales (Ind.)	0.0033	(0.902)	-0.0172	(0.361)	-0.0206	(0.036)	-0.0008	(0.989)	-0.0604	(0.513)	-0.0597	(0.337)
Intercept	-0.0546	(0.675)	0.1384	(0.008)	0.1930	(0.198)	-0.7494	(0.000)	0.6976	(0.000)	1.4470	(0.000)
R ²	0.2074		0.3531		0.4062		0.1562		0.4330		0.2278	
N	15,217		15,217		15,217		15,217		15,217		15,217	

Table V: Details of the Social Component

This table presents results from estimations of lead social components of CSR (corporate social responsibility) using short-term and long-term institutional ownerships. The models take the following functional form:

$$CSR_{t,t+1} = \beta_S SIO_t + \beta_L LIO_t + \mathbf{X}'_t B \mathbf{X} + \epsilon_t,$$

where CSR is one of the adjusted social component net scores (community/diversity/employee relations/human rights/product). SIO and LIO are vectors of institutional ownership categorized into short-term and long-term. $\mathbf{X}$ is the matrix of all control variables and ϵ is the error vector; β and B are the estimated coefficients for the ownership vectors and controls matrix, respectively. All models include year and industry (based on the two-digit SIC code) fixed effects. All estimations are reported using robust standard errors clustered by firm and year to simultaneously control for cross-sectional and time-series dependencies (Petersen, 2009; Cameron et al., 2011).

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val
SIO	-0.0175	(0.157)	-0.0311	(0.368)	-0.0697	(0.000)	0.0055	(0.484)	-0.0170	(0.201)
LIO	0.0314	(0.015)	0.1020	(0.007)	0.0295	(0.112)	0.0243	(0.006)	0.0299	(0.087)
Tobin's q	0.0044	(0.005)	0.0119	(0.013)	0.0120	(0.000)	0.0014	(0.193)	0.0086	(0.000)
Size (Log of Sales)	-0.0203	(0.066)	-0.0589	(0.003)	0.0148	(0.289)	0.0071	(0.349)	0.0177	(0.071)
Squared Size	0.0020	(0.070)	0.0101	(0.000)	-0.0008	(0.524)	-0.0007	(0.340)	-0.0022	(0.023)
Firm Age	-0.0004	(0.079)	0.0014	(0.000)	0.0001	(0.806)	-0.0001	(0.519)	-0.0002	(0.291)
R&D/Assets	0.1042	(0.001)	0.1488	(0.065)	0.1403	(0.003)	0.0471	(0.013)	0.0374	(0.264)
Missing R&D	-0.0048	(0.396)	-0.0361	(0.008)	-0.0091	(0.227)	0.0100	(0.085)	-0.0021	(0.746)
Stk Volatility	-0.0848	(0.000)	-0.1703	(0.022)	-0.1001	(0.226)	0.0272	(0.239)	-0.0451	(0.083)
Leverage	0.0065	(0.571)	-0.0091	(0.726)	0.0048	(0.770)	-0.0122	(0.139)	0.0244	(0.128)
Modified z	0.0037	(0.000)	-0.0032	(0.260)	0.0090	(0.001)	0.0010	(0.230)	0.0021	(0.066)
New Econ.	0.0160	(0.011)	-0.0140	(0.427)	0.0598	(0.000)	-0.0033	(0.651)	0.0173	(0.034)
HHI	0.0236	(0.072)	0.0166	(0.509)	-0.0141	(0.355)	-0.0060	(0.588)	0.0068	(0.588)
Chg in Sales (Ind.)	0.0291	(0.239)	-0.0128	(0.758)	0.0315	(0.294)	-0.0938	(0.250)	0.0452	(0.014)
Intercept	-0.1025	(0.254)	-0.2029	(0.186)	-0.1786	(0.017)	-0.0988	(0.053)	-0.1666	(0.191)
R ²	0.0860		0.2841		0.1556		0.0594		0.0951	
N	15,217		15,217		15,217		15,217		15,217	

Table VI: **Controversial Business Issues (Sins)**

This table presents results from logit estimations of controversial business involvement of firms (sins) using short-term and long-term institutional ownerships. The models take the following functional form:

$$CSR_{t+1} = \beta_S SIO_t + \beta_L LIO_t + \mathbf{X}'_t B \mathbf{X} + \epsilon_t.$$

In Panel A, CSR is the indicator variable for firm involvement in any one of the controversial business areas including alcohol, firearms, gambling, military, nuclear, and tobacco; in Panel B, CSR is the indicator variable for firm involvement in a particular one of the controversial business areas. SIO and LIO are vectors of institutional ownership categorized into short-term and long-term. $\mathbf{X}$ is the matrix of all control variables and ϵ is the error vector; β and B are vectors of estimated coefficients for the ownership vectors and controls matrix, respectively. All models include year and industry (based on the two-digit SIC code) fixed effects. All estimations are reported using robust standard errors clustered by firm and year to simultaneously control for cross-sectional and time-series dependencies (Petersen, 2009; Cameron et al., 2011).

Panel A: Aggregate Sin			Panel B: Individual Sins			
	Any "Sin"		Model 1: Alcohol		Model 2: Firearms	
	Coef.	p-val	Coef.	p-val	Coef.	p-val
SIO	-0.0943	(0.835)	SIO	-1.4212 (0.217)	SIO	1.7495 (0.380)
LIO	-1.4007	(0.003)	LIO	-0.9842 (0.349)	LIO	-4.3930 (0.013)
Tobin's q	-0.0617	(0.383)	All Ctrl/FE	YES	All Ctrl/FE	YES
Size (Log of Sales)	-0.0356	(0.900)				
Squared Size	0.0166	(0.368)				
Firm Age	0.0213	(0.000)				
R&D/Assets	-4.6017	(0.089)				
Missing R&D	-0.4612	(0.033)				
Stk Volatility	-2.4862	(0.003)				
Leverage	0.2757	(0.597)				
Modified z	0.0108	(0.842)				
New Econ.	-0.4191	(0.192)				
HHI	0.3669	(0.277)				
Chg in Sales (Ind.)	0.2958	(0.522)				
Intercept	4.0974	(0.010)				
Pseudo-R ²	0.2396					
N	15,217					
			Model 3: Gambling		Model 4: Military	
			Coef.	p-val	Coef.	p-val
			SIO	-1.1086 (0.295)	SIO	0.5032 0.4270
			LIO	-1.4131 (0.293)	LIO	-1.3017 0.0340
			All Ctrl/FE	YES	All Ctrl/FE	YES
			Model 5: Nuclear		Model 6: Tobacco	
			Coef.	p-val	Coef.	p-val
			SIO	0.9989 0.3060	SIO	-0.0954 0.9320
			LIO	-1.1764 0.2330	LIO	0.0430 0.9820
			All Ctrl/FE	YES	All Ctrl/FE	YES

Table VII: **Endogenous Investment Choices and Reverse Causality**

This table presents results from two-stage estimations of Lead CSR. In all models, short-term and long-term ownerships are first estimated as

$$\text{SIO}_t = \alpha_0^S + \mathbf{Z}'_t \Lambda^S + \mathbf{X}'_t \Theta^S + v_t^S; \text{LIO}_t = \alpha_0^L + \mathbf{Z}'_t \Lambda^L + \mathbf{X}'_t \Theta^L + u_t^L,$$

where $\mathbf{Z}$ and $\mathbf{X}$ are the matrices of the IVs and all other control variables, respectively. Λ and Θ are the vectors of estimated coefficients, and v in both equations are the vectors of first-stage errors. The first stage predictions of SIO and LIO are then used in place of the actual ownership variables in the second stage estimation:

$$\text{CSR}_{t+1} = \beta_0 + \beta_S \widehat{\text{SIO}}_t + \beta_L \widehat{\text{LIO}}_t + \mathbf{X}'_t B \mathbf{X} + \epsilon_{t+1},$$

where CSR_{t+1} denotes the lead CSR adjusted net score. $\widehat{\text{SIO}}$ and $\widehat{\text{LIO}}$ present the predicted values of institutional ownership from the first stage. $\mathbf{X}$ is the matrix of all control variables. β and B are the estimated coefficients for the ownership vectors and controls matrix, respectively. Year and industry fixed effects and robust standard errors clustered by firm and year are employed (Petersen, 2009; Cameron et al., 2011). Panel A uses lagged CSR scores and lagged ownerships as instruments; Panel B uses lagged ownerships and industry median ownerships as instruments (Choi and Sias, 2009; Michaely and Vincent, 2012). Both panels present the second-stage CSR estimation in Models 1 and 2 and the first-stage SIO and LIO estimations in Models 1a and 2a and Models 1b and 2b, respectively.

	Panel A: Endogenizing Investor Preferences for CSR						Panel B: Lagged and Ind. Med. IO as IV					
	Model 1		Model 1a		Model 1b		Model 2		Model 2a		Model 2b	
	Stage Two	Stage One	Stage One	Stage One	Stage One	Stage One	Stage Two	Stage One	Stage One	Stage One	Stage One	Stage One
	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val
$\widehat{\text{SIO}}$	-0.4407	(0.000)					-0.2593	(0.004)				
$\widehat{\text{LIO}}$	0.4972	(0.000)					0.3341	(0.000)				
Lagged CSR			-0.0063	(0.000)	0.0039	(0.001)			0.7354	(0.000)	0.1285	(0.000)
Lagged SIO			0.7382	(0.000)	0.1272	(0.000)			0.0793	(0.000)	0.7380	(0.000)
Lagged LIO			0.0792	(0.000)	0.7401	(0.000)			0.3460	(0.000)	-0.1394	(0.000)
Ind Med SIO									-0.1324	(0.000)	0.3079	(0.000)
Ind Med LIO									0.0072	(0.000)	-0.0010	(0.581)
Tobin's q	0.0565	(0.000)	0.0075	(0.000)	-0.0012	(0.524)	0.0540	(0.000)	0.0161	(0.000)	-0.0043	(0.179)
Size (Log of Sales)	-0.0545	(0.333)	0.0161	(0.000)	-0.0041	(0.187)	-0.0601	(0.287)	-0.0012	(0.000)	0.0003	(0.273)
Squared Size	0.0118	(0.028)	-0.0011	(0.000)	0.0002	(0.333)	0.0123	(0.023)	-0.0004	(0.000)	0.0002	(0.012)
Firm Age	0.0004	(0.656)	-0.0004	(0.000)	0.0001	(0.018)	0.0007	(0.419)	-0.0004	(0.000)	-0.0293	(0.203)
R\&D / Assets	0.6543	(0.000)	0.0416	(0.214)	-0.0315	(0.148)	0.6376	(0.000)	0.0377	(0.277)	0.0011	(0.459)
Missing R\&D	-0.0712	(0.011)	-0.0039	(0.268)	0.0015	(0.328)	-0.0687	(0.014)	-0.0034	(0.338)	-0.1625	(0.000)
Stk Volatility	-0.3076	(0.009)	0.0098	(0.779)	-0.1659	(0.000)	-0.3664	(0.004)	0.0143	(0.696)	-0.0112	(0.032)
Leverage	0.0902	(0.130)	0.0397	(0.000)	-0.0109	(0.031)	0.0719	(0.227)	0.0408	(0.000)	0.0025	(0.000)
Modified z	0.0101	(0.068)	-0.0004	(0.634)	0.0024	(0.000)	0.0110	(0.047)	-0.0005	(0.611)	-0.0047	(0.164)
New Econ.	0.1351	(0.001)	0.0024	(0.471)	-0.0049	(0.144)	0.1314	(0.002)	0.0019	(0.562)	0.0046	(0.285)
HHI	0.0569	(0.299)	-0.0139	(0.001)	0.0043	(0.344)	0.0628	(0.253)	-0.0148	(0.001)	0.0113	(0.000)
Chg in Sales (Ind.)	-0.0051	(0.921)	0.0413	(0.028)	0.0052	(0.559)	-0.0144	(0.782)	0.0350	(0.057)	0.0102	(0.645)
Intercept	-0.8206	(0.000)	-0.0091	(0.727)	0.0963	(0.000)	-0.8122	(0.000)	-0.0608	(0.000)		
R ²	0.2665						0.2706					
N	12,112						12,112					

Table VIII: Autocorrelation and Cross-Sectional Robustness

This table further addresses serial correlation concerns. Panel A reports the results from the base CSR model when including a lagged CSR term (analogous to Model 2 in Table III); Panel B includes a lagged CSR term in a simultaneous estimations system, where CSR scores and short-term and long-term ownership levels are jointly determined (Zellner, 1962):

$$\begin{cases} \text{CSR}_t = \beta_0^C + \beta_{C,t-1}^S \text{CSR}_{t-1} + \beta_S^C \text{SIO}_t + \beta_L^C \text{LIO}_t + \mathbf{X}_t \mathbf{B}'_C + \epsilon_t^C \\ \text{SIO}_t = \beta_0^S + \beta_{C,t}^S \text{CSR}_t + \beta_{C,t-1}^S \text{CSR}_{t-1} + \mathbf{X}_t \mathbf{B}'_S + \epsilon_t^S \\ \text{LIO}_t = \beta_0^L + \beta_{C,t}^L \text{CSR}_t + \beta_{C,t-1}^L \text{CSR}_{t-1} + \mathbf{X}_t \mathbf{B}'_L + \epsilon_t^L \end{cases}$$

where CSR is the vector of adjusted CSR score and SIO and LIO are vectors of institutional ownership categorized into short-term and long-term. $\mathbf{X}$ is the matrix of all control variables and ϵ is the error vector; β and B are the estimated coefficients for the key variables and controls matrix, respectively. All models include year and industry (based on the two-digit SIC code) fixed effects and clustered errors. In Panel B, Model 2 estimates CSR scores, Model 2a estimates SIO, and Model 2b estimates LIO. Panel C presents results obtained under the Fama-MacBeth setting, where each cross section is modeled separately while correcting for serial correlation (Fama and MacBeth, 1973; Newey and West, 1987)

	Panel A: CSR Est.			Panel B: Simultaneous Est. of CSR and SIO/LIO				Panel C: FM Reg	
	Model 1			Model 2		Model 2a		Model 2b	
	Coef.	p-val		Coef.	p-val	Coef.	p-val	Coef.	p-val
SIO	-0.0435	(0.042)		-0.0398	(0.044)			-0.2456	(0.000)
LIO	0.1133	(0.002)		0.0633	(0.003)			0.2749	(0.000)
CSR						-0.0057	(0.066)	0.0080	(0.005)
Lagged CSR	0.6297	(0.000)		0.7951	(0.000)	-0.0071	(0.028)	0.0070	(0.018)
Tobin's q	0.0263	(0.000)		0.0131	(0.000)	0.0106	(0.000)	-0.0046	(0.016)
Size (Log of Sales)	-0.0675	(0.000)		-0.0496	(0.000)	0.0823	(0.000)	0.0647	(0.000)
Squared Size	0.0098	(0.000)		0.0060	(0.000)	-0.0054	(0.000)	-0.0037	(0.000)
Firm Age	0.0005	(0.258)		0.0002	(0.334)	-0.0013	(0.000)	0.0006	(0.000)
R\&D / Assets	0.2192	(0.010)		0.0838	(0.073)	0.1601	(0.000)	0.0795	(0.029)
Missing R\&D	-0.0258	(0.059)		-0.0080	(0.295)	-0.0208	(0.002)	-0.0030	(0.649)
Stk Volatility	-0.1926	(0.036)		-0.0106	(0.820)	-0.0386	(0.245)	-0.3743	(0.000)
Leverage	0.0291	(0.364)		0.0083	(0.646)	0.1044	(0.000)	0.0072	(0.622)
Modified z	0.0013	(0.678)		0.0036	(0.026)	0.0021	(0.169)	0.0069	(0.000)
New Econ.	0.0646	(0.000)		0.0345	(0.001)	-0.0014	(0.875)	-0.0226	(0.007)
HHI	0.0240	(0.388)		0.0116	(0.463)	-0.0353	(0.009)	-0.0043	(0.757)
Chg in Sales (Ind.)	-0.0923	(0.154)		-0.1137	(0.017)	0.0275	(0.051)	-0.0113	(0.403)
Intercept	-0.0951	(0.681)		-0.1008	(0.296)	0.0510	(0.446)	0.1234	(0.000)
R ²	0.5045			0.6670		0.1924		0.2340	
N	12,168			14,029		14,029		14,029	
								0.1978	
								15,217	

Table IX: **Other Robustness Checks**

This table presents results from variations of the our base model as robustness checks. All models estimate some form lead CSR (corporate social responsibility) proxy using short-term and long-term institutional ownerships. The models take the following functional form:

$$CSR_{t+1} = \beta_S SIO_t + \beta_L LIO_t + \mathbf{X}'_t B \mathbf{X} + \epsilon_t,$$

where CSR is one of the CSR scores. SIO and LIO are vectors of institutional ownership categorized into short-term and long-term. $\mathbf{X}$ is the matrix of all control variables and ϵ is the error vector; β and B are the estimated coefficients for the ownership vectors and controls matrix, respectively. All models include year and industry (based on the two-digit SIC code) fixed effects. Models 1 through 4 are reported using robust standard errors clustered by firm and year to simultaneously control for cross-sectional and time-series dependencies (Petersen, 2009; Cameron et al., 2011). Model 1 uses mean ownership for each calendar year in place of the December figures; Model 2 uses a tercile cut for ownership in place of a median cut; Model 3 uses Gaspar et al.'s (2005) horizon measures instead of Yan and Zhang's (2009); Model 4 employs BCW scores calculated using the list of "100 Best Companies To Work For In America" published by the Fortune Magazine as an alternative measure for CSR (Edmans, 2011, 2012).

	Model 1		Model 2		Model 3		Model 4	
	Mean IO		Tercile Cuts		Gaspar Hor.		BCW as CSR	
	Coef.	p-val	Coef.	p-val	Coef.	p-val	Coef.	p-val
SIO Mean	-0.1744	(0.007)						
LIO Mean	0.2692	(0.000)						
SIO (Tercile)			-0.2963	(0.000)				
MIO (Tercile)			0.1374	(0.021)				
LIO (Tercile)			0.1590	(0.038)				
SIO (GMM)					-0.1639	(0.014)		
LIO (GMM)					0.1592	(0.010)		
SIO							-3.5821	(0.007)
LIO							2.1560	(0.018)
Tobin's q	0.0453	(0.000)	0.0439	(0.000)	0.0432	(0.000)	0.5732	(0.000)
Size (Log of Sales)	-0.0754	(0.141)	-0.0768	(0.138)	-0.0775	(0.132)	5.3102	(0.000)
Squared Size	0.0121	(0.019)	0.0121	(0.021)	0.0123	(0.018)	-0.2618	(0.000)
Firm Age	0.0006	(0.488)	0.0009	(0.353)	0.0009	(0.340)	-0.0300	(0.003)
R&D / Assets	0.5222	(0.001)	0.5125	(0.001)	0.5121	(0.001)	3.8454	(0.146)
Missing R&D	-0.0620	(0.016)	-0.0620	(0.015)	-0.0618	(0.015)	-0.9650	(0.005)
Stk Volatility	-0.4750	(0.000)	-0.4613	(0.001)	-0.4810	(0.001)	-4.8922	(0.019)
Leverage	0.0442	(0.396)	0.0370	(0.474)	0.0414	(0.422)	-2.3938	(0.042)
Modified z	0.0143	(0.018)	0.0141	(0.018)	0.0143	(0.016)	0.0473	(0.759)
New Econ.	0.1105	(0.006)	0.1095	(0.006)	0.1086	(0.006)	1.5301	(0.031)
HHI	0.0613	(0.214)	0.0621	(0.209)	0.0623	(0.208)	1.4449	(0.086)
Chg in Sales (Ind.)	0.0047	(0.925)	0.0065	(0.899)	0.0000	(1.000)	-1.7594	(0.007)
Intercept	-0.8047	(0.000)	-0.7891	(0.000)	-0.7926	(0.000)	Omit	
R ²	0.1821		0.1812		0.1804		0.2202	
N	15,217		15,217		15,217		15,217	