Stakeholder relations and stock returns: on errors in investors' expectations and learning

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"… we believe that, in the long run, an investment approach that identifies and invests in companies with sustainable business models serves shareholders best. Towards that end, we have developed a process that combines thorough financial analysis with another, critically important set of factors that most investment managers ignore…"

(PAX World Investments[1])

I. Introduction

Financial institutions spend considerable time aligning their investment goals with the wellbeing of non-financial stakeholders and the community at large, by integrating environmental, social, and corporate governance (ESG) criteria with their investment decisions. Almost all institutions publicly justify those investments based on the argument that ESG information positively contributes to their investment performance. For example, more than 850 institutional investors worldwide, representing about $25 trillion assets under management, are signatories of the United Nations-backed Principles for Responsible Investing (PRI). According to PRI, institutional investors have a fiduciary duty to act in the long-term interests of beneficiaries, and ESG factors are relevant in this context because of their effect on the performance of investment portfolios. Many of these investors are enamored with the idea that when firms improve their stakeholder relations they create intangible long-run economic benefits

[1] http://www.paxworld.com/investment-approach/

that are neither adequately reflected in firms' financial statements nor properly valued by the capital market.

This performance-oriented motivation for integrating stakeholder information into investments is ambitious and remarkable. The notion that such information provides investors with a long-term competitive advantage goes against the predictions of the Efficient Markets Hypothesis and a large body of empirical evidence that active investors fail to beat the market consistently (e.g., Carhart 1997).[2] Even if better stakeholder relations are associated with higher future earnings in a manner that the market has not properly understood, economic logic predicts that such information provides investors with a competitive advantage *in the short-run, but not in the long-run.* Superior risk-adjusted returns that investors can earn by exploiting "mispriced" information, if any, should eventually cease to exist as the capital market learns and understands the earnings implications of this information.

Recent evidence provides plausible hints that investors' rising attention for corporate stakeholder information might influence their ability to predict returns. According to Bebchuk, Cohen, and Wang (forthcoming), corporate governance variables were previously able to predict risk-adjusted returns, but as soon as governance issues mainstreamed, investors came to understand the association between firms' governance structures and their earnings. The natural follow-up question is whether the learning hypothesis finds support in issues beyond corporate governance that have increasingly showed up on investors' agendas. The capital market not only paid more attention to governance issues in recent years but also expressed considerable interest

[2] Moreover, equilibrium models of asset prices predict that firms with strong stakeholder relations may even have lower expected returns if socially responsible investors drive up their stock prices (see, Heinkel, Kraus, and Zechner 2001, Hong and Kacperczyk 2009).

in stakeholder relations and their interaction with corporate governance (as can be seen from the ESG acronym).

This paper provides evidence that the quality of stakeholder relations originally did convey information about future risk-adjusted returns due to errors in investors' expectations, but less so as soon as the capital market paid more attention to stakeholder issues. The evidence on expectational errors is based on three common analyses that are considered complements in empirical studies on stock market anomalies (see Core, Guay, and Rusticus (2006); Edmans (2011); Bebchuk et al. (forthcoming)). We first construct an annual stakeholder-relations index (*SI*) for U.S. firms and then estimate risk-adjusted returns on stock portfolios that are formed using the SI over the period 1992-2009. We subsequently investigate whether stakeholder information predicts future earnings announcement returns. We complement these studies with an analysis of the association between stakeholder relations and errors in analysts' forecasts of firms' long-term earnings growth.

While our analyses suggest that stakeholder information was associated with risk-adjusted returns because of unexpected earnings, they also point out that evidence of errors in investors' expectations has weakened in recent times. While the *SI* positively related to risk-adjusted portfolio returns, earnings announcement returns, and analysts' long-term forecast errors over the period 1992-2004, these relationships diminished once stakeholder issues attracted substantially greater attention the capital market.

The conclusion that follows from the analyses is consistent with the learning hypothesis of Bebchuk et al. (forthcoming) and has implications for those institutional investors that pursue both financial and social goals. On the one hand, the results imply that a performance-oriented investment case for integrating stakeholder issues in investment decisions has weaker empirical foundations than before, at least when it is based on information that is easy to obtain. But the

conclusion that stakeholder management nowadays does not contribute to errors in expectations incentivizes company managers to place stakeholder issues higher on the corporate agenda. The results also add new insights to a growing number of studies on socially responsible investing (SRI), which have largely relied on risk-adjusted returns on socially and environmentally responsible equity portfolios to investigate mispricing of stakeholder information.[3] Because risk-adjusted returns may emerge for reasons other than mispricing, our study extends this body of research with sharper measures of errors in investors' expectations.

This study proceeds as follows. The theoretical foundations of this study are discussed in Section 2 of the paper. Section 3 describes the data and variables that we use to measure the quality of stakeholder relations. Section 4 covers the main empirical analyses, and Section 5 discusses additional tests. Section 6 concludes this study.

II. Background

A. Stakeholder relations and investors' expectations

The idea that firms with better stakeholder relations have higher future earnings can be justified by both instrumental stakeholder theory (e.g., Cornell and Shapiro 1987, Zingales 2000) and the resource based-view of the firm (e.g., Wernerfelt 1984, Barney 1991, Hart 1995, Russo and Fouts 1997). The common thread that runs through these studies is the idea that firms can

[3] See Derwall, Guenster, Bauer, and Koedijk (2005), Kempf and Osthoff (2007), Galema, Plantinga, and Scholtens (2008), Statman and Glushkov (2009), Edmans (2011), Derwall, Koedijk, and Ter Horst (2011).

reap economic benefits from investing in stakeholder relations, through competitive advantages that are intangible in nature and evolve over time.

That these advantages are often intangible, not readily quantifiable, and materialize in the medium- to long-term provides investors in search of underpriced assets with one argument for integrating stakeholder information into investment decisions. In addition, conservative accounting in the U.S. requires most intangible investments to be expensed through the income statement instead of capitalized on the balance sheet. Although investors may undertake effort to assess the intangible economic value of stakeholder relations, they are hampered by the fact that the economic life of such stakeholder investments is uncertain, and associated expenses are rarely visible as stand-alone items in accounting reports (see Bassi, Harisson, Ludwig, McMurrer (2004); Pantzalis and Park (2009)). Furthermore, studies suggest that investors with short-term horizons are functionally too fixated on firms' short-term earnings (see Chan, Lakonishok, and Sougiannis (2001)), which together with the difficulties in valuing intangibles may cause firms with substantial intangible assets to trade at prices that are different from fundamental value.[4]

Not surprisingly, many institutional investors, such as various signatories of PRI, contend that financial markets do not appreciate these intangibles. For example, the Enhanced Analytics Initiative (EAI) is an investor initiative (now merged with PRI) that incentivizes analysts to routinely consider so-called "extra-financial information", so that their investment recommendations are improved (O'Loughlin and Thamotheram 2006). According to EAI, extra-

[4] Empirical evidence on the relation between intangible assets and risk-adjusted return mainly revolves around R&D, which is more visible to investors than is stakeholder information. Eberhart, Maxwell and Siddique (2004) find that R&D increases predict risk-adjusted returns. Beyond R&D, Pantzalis and Park (2009) document abnormal returns associated with human-capital intensive firms, and Madden, Fehle, and Fournier (2006) report that firms with strong brands have higher risk-adjusted returns.

financial information reflects fundamentals "that have the potential to impact companies' financial performance or reputation in a material way, yet are generally not part of traditional fundamental analysis", such as ". . . the quality of human resources management, risks associated with governance structures, the environment, branding, corporate ethics and stakeholder relations."

Whether the capital market systematically overlooks the association between firms' stakeholder relations and their earnings has yet to be fully understood. In order to test the hypothesis that the market undervalues firms with superior stakeholder relations, we present three complementary analyses of errors in investors' expectations that are common in studies on stock market anomalies.

The first analysis revolves around risk-adjusted returns on investment portfolios that are formed based on stakeholder information, following earlier studies that document positive risk-adjusted returns on trading rules based on firms' environmental performance, employee relations, community involvement, and diversity policies. However, it is well established that risk-adjusted portfolio returns alone do not prove that capital markets misreact to stakeholder information. Instead of reflecting mispricing, risk-adjusted stock returns can be interpreted as evidence that the market puts prices on risks that are overlooked by models that researchers use to determine expected returns (see, e.g., Fama and French (1993) and Carhart (1997)), the result of data snooping (Lo and MacKinlay (1990)) and inadequate benchmark factor construction (Cremers, Petajisto, and Zitzewitz 2010).

Researchers on stock market anomalies have demonstrated that these caveats can be addressed by sharper tests of expectational errors; see for example Chan, Jegadeesh and Lakonishok (1996), Sloan (1996), La Porta, Lakonishok, Shleifer, and Vishny (1997), Doukas, Kim, and Pantzalis (2002), Core et al. (2006), and Bebchuk et al. (forthcoming). Building on

these studies, our second analysis infers investors' surprise about firms' realized profits from stock price changes around earnings announcements. If stakeholder information predicts long-term risk-adjusted returns because investors misunderstand the effect of stakeholder relations on future earnings, we would expect that stakeholder information is associated with abnormal stock returns around earnings announcements. Finally, a third analysis explores investors' expectations by means of analyst forecasts. To the extent that the expectations of analysts' are consistent with those of investors, we would expect that errors in analysts' forecasts of firms' future earnings (earnings surprises) are associated with corporate stakeholder relations if the errors in expectations hypothesis is true. Whether these explicit tests of expectational errors can justify the view that the stakeholder information predicts risk-adjusted returns is an underdeveloped research area. One exception is Edmans (2011), who shows that firms on "America's Best Companies to Work For" list produced on average a positive risk-adjusted stock return, and exhibited both higher earnings announcement returns and higher long-term earnings surprises.

B. Learning about errors in expectations

Conventional economic wisdom teaches us that the documentation of profitable investment opportunities attracts investor attention and eventually contributes to market efficiency. Using this logic, researchers question whether trading strategies that have historically delivered superior risk-adjusted returns will continue to do so after their discovery. Schwert (2003) points out that many widely publicized anomaly variables (such as the price-book ratio, firms' dividend yields, and firms' market values) were able to predict stock returns during the sample period in which they were first identified, but much less so thereafter.

The most recent anomaly that appears to have disappeared involves the index of corporate governance mechanisms described in Gompers, Ishii, and Metrick (2003). Their study documents positive risk-adjusted returns for a trading strategy based on an index of anti-takeover provisions over the period 1990-1999. Bebchuk et al. (forthcoming) show that the findings of Gompers et al. (2003), in conjunction with a surge in corporate scandals, raised investors' attention for corporate governance issues. Consistent with their "learning hypothesis", the corporate governance index originally contributed to risk-adjusted stock returns, analysts' earnings forecast errors, and abnormal earnings announcement returns—but not after 2001, when governance issues attracted structurally greater attention among financial media, academic studies, and shareholder proposals issued by institutional investors.

The conclusions of Bebchuk et al. (forthcoming) carry potentially important implications for our study because many investors learned about the value-relevance of governance issues in tandem with stakeholder issues. Industry surveys consistently conclude that the amount of assets managed by institutional investors that integrate ESG issues has grown considerably over the last decade, and continues to progress faster than the market does as a whole. For example, according to the U.S. social investment forum (2010), about 55 mutual funds (representing US$ 12 billion under management) integrated ESG factors into investment choices in 1995, while almost 500 funds with US$ 569 billion under management employed such investment criteria in 2010. Outside the U.S., several investor initiatives, such as EAI in 2004 and PRI in 2006 contributed to the worldwide mainstreaming of ESG, encouraging mainstream investors to routinely integrate stakeholder issues with investment decisions.[5]

[5] The "ESG" acronym became widespread due to summits involving large investment companies, and is an explicit outcome of investors seeking to "mainstream" the use of stakeholder information by the investment community. The

That investors' attention for both corporate governance and stakeholder issues has increased considerably over time can be witnessed from Figures 1a and 1b, which show yearly statistics on the number of shareholder proposals on these issues that were (co)sponsored by non-religious institutions from 1997 onwards. We derived these results from an analysis of the RiskMetrics database of shareholder proposals in the U.S., which involves mostly S&P 1500 constituents. What becomes apparent from Figures 1a and 1b is that firms received substantially more proposals not only on corporate governance issues but also on corporate stakeholder issues in recent years. Concerning stakeholder issues, the number of shareholder proposals in 2003 exceeded the historical average (over 1997-2008) and has continued to grow ever since.[6]

Also contributing to investors' attention for stakeholder issues is the increasing volume of information that U.S. companies disclose on stakeholder relations. Figure 2 summarizes the study of Dahliwal, Li, Tsang, Yang (2011), which investigated the number of U.S. firms that voluntarily disclosed CSR information. Their results suggest that aggregate CSR reporting increased substantially, first temporarily in 2001 and then more permanently from 2003 onwards.

In summary, the growth of investors who employ corporate stakeholder information for pursuing the goal of superior returns raises two empirical questions. The first question addressed

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"Who Cares Wins" initiative, involving regular summits, was launched in early 2004 as a joint effort of the financial industry and the UN Global Compact, International Finance Corporation (IFC) and the Swiss Government. Its goal is to support the financial market's efforts to integrate environmental, social and governance (hence, ESG) issues into mainstream investment decisions and shareholder engagement. For a review of alternative terminologies, see also Bessire and Onnée (2010).

[6] Note that while Bebchuk et al.(forthcoming) derive investors' attention for corporate governance from institutions' shareholder proposals collected from Georgeson Shareholder, Figure 1a confirms a steep rise in corporate governance proposals during and after 2003 based on RiskMetrics data.

in this paper is whether there is justification for the belief that errors in expectations causes firms' stock returns to be associated with the quality of stakeholder relations ("the errors-in-expectations hypothesis"). If so, the natural follow-up question is whether risk-adjusted stock returns stemming from errors in investors' expectations eventually cease to exist following investors' heightened attention for stakeholder information, in the spirit of the "learning hypothesis" of Bebchuk et al. (forthcoming). The goal of this study is to investigate whether both hypotheses find support in analyses of risk-adjusted portfolio returns, earnings announcement returns, and errors in analysts' earnings forecasts.

III. Evaluating corporate stakeholder relations

We evaluate annually firms' stakeholder relations using the STATS database from Kinder, Lydenberg and Domini and co. (KLD), which is the longest-running source of stakeholder information and used extensively by investors. STATS summarizes this information for mostly Standard & Poor's (S&P) 500 constituents as of 1991, the 1,000 largest publicly traded U.S. companies from 2001 to 2002, and the 3,000 largest publicly traded U.S. companies every year thereafter.

KLD specializes in evaluating firms regarding issues such as environmental performance (e.g., hazardous waste, regulatory problems, emissions and pollution prevention, and environmental management systems), community involvement (e.g., charitable and innovative giving, support for housing and education, and volunteer programs), diversity (e.g., women on the board of directors, CEO gender, the promotion or contracting of women and minorities, and work/life benefits), employee relations (e.g., workplace health and safety issues, workforce reductions, retirement benefits, worker involvement programs, and union relations), product

quality (e.g., marketing-contracting concerns, product safety, and benefits to the economically disadvantaged), and human rights issues.[7] For each category, KLD subjects every firm to a number of "strengths" and "concerns" indicators, with "1" ("0") indicating the presence (absence) of a strength or concern.[8]

We develop for every firm an aggregate stakeholder-relations index (henceforth, *SI*) on a yearly basis, using the strengths and concerns indicators from KLD. To construct the *SI*, we follow the common practice of adding all strengths and subtracting all concerns in a given year (see, e.g, Hong and Kostovetsky (2010) and Jiao (2010)). We omit from this procedure the indicators of human rights issues, because KLD did not cover these issues consistently throughout the sample period. Moreover, we industry adjust these scores by subtracting the mean score within an industry from the firms' score.[9]

From a statistical standpoint, the aggregate of the individual indicators has the most desirable distributional characteristics compared to disaggregate measures. For example, around 80 percent of all firm-year observations do not experience a single strength or concern in the areas of community involvement or environment, whereas this occurs only in 14 percent of the cases when all stakeholder categories are aggregated. Therefore, undesirable distributional features makes the use of too disaggregate measures problematic in common tests of errors in expectations.

[7] We adjusted the diversity measure to correct for KLD's overweighting of issues related to female representation by setting a maximum of 1 for the sum all diversity issues related to female representation.

[8] Next to covering these strengths and concerns indicators, KLD offers a separate analysis of firms' involvement in controversial sectors, specifically, alcohol, gambling, firearms, military, nuclear power, and tobacco.

[9] We use the Fama French 10 industry definition to have sufficient within industry variation.

Table 1 reports correlations between the *SI* (and its main components) and a number of elementary financial variables based on data from Compustat, which creates a basic impression of the financial characteristics of firms with stronger stakeholder relations relative to those with weaker relations. These basic statistics support the popular belief that firms with better stakeholder relations tend to have higher Tobin's *q* values (e.g., Dowell, Hart, and Yeung 2000, Konar and Cohen 2001, Jiao 2010), larger accounting profits (e.g., Russo and Fouts 1997, King and Lenox 2002, Jiao 2010), higher price-to-book ratios (Galema et al. 2008), and lower leverage ratios (Verwijmeren and Derwall 2010, Bae, Kang, and Wang 2011).

IV. Empirical analysis

A. Stakeholder relations and profitability

Before turning to the question whether the *SI* predicts future risk-adjusted stock returns due to errors in expectations, we first ask whether firms with stronger stakeholder relations have higher (discounted) future profits to begin with.

We examine firms' future operating performance, as measured by return on assets, and estimate:

$$ROA_{i,t} = \alpha + \beta_1 SI_{i,t-1} + \sum_{k=1}^{K} \gamma_k Controls_{i,k,t-1} + \varepsilon_{i,t} \quad (1)$$

where $ROA_{i,t}$ is the accounting return on assets (defined as either operating income after depreciation and amortization divided by total assets, or net income divided by assets) for the fiscal year subsequent to the year for which KLD reports its information; and $Controls_{it-1}$ is a vector of control variables. The vector of control variables includes a dummy for controversial

industries, the natural logarithm of the book-to-market ratio, the natural logarithm of total assets, the natural logarithm of firm age identified as the number of months the firm first appeared in the CRSP returns database until December of the year, a dummy for Delaware incorporation, R&D divided by total sales, capital expenses divided by total assets in conjunction with dummy variables that identify non-reported R&D and capital expenses, and year- and industry-fixed effects. All variables that are not reported as a natural logarithm are winsorized at the 1% level to account for outliers.[10] These variables (except firm age) are constructed using data from Compustat.

Table 2 shows the coefficients from the regressions together with *t*-statistics derived from two-way clustered standard errors. The coefficients on the control variables have signs that are consistent with the majority of studies on the determinants of profitability. Most important to this study is the coefficient on the *SI*. Independent of the model employed, we find that the *SI* explains future return on assets. The relation between the *SI* and ROA is positive and statistically significant at the conventional significance levels. Hence, these results not only support earlier studies that document a positive association between stakeholder relations and profitability but also suggest that information about corporate stakeholder relations is relevant in assessing firms' fundamental values. Whether the *SI* predicted risk-adjusted stock returns because investors misunderstood the association between firms' profits and the quality of stakeholder relations is central to the remainder of the paper.

B. Risk-adjusted return over the period 1992-2009

[10] Winsorizing or trimming at different levels does not qualitatively alter our results.

Our empirical analysis continues with an evaluation over the period 1992-2009 of the returns on stock portfolios that are formed using the *SI*. If it is true that stock prices insufficiently reflect earnings differences among firms that differ in the quality of stakeholder relations, we would expect that trading rules based on *SI* produce positive risk-adjusted returns.

Every year, starting in April 1992, we rank all available stocks on *SI*, and assign the top one-third of all ranked stocks to a top-ranked portfolio and the bottom third to the bottom-ranked portfolio.[11] We exclude from the portfolio construction stocks that belong to KLD's list of controversial businesses, because prior research explicitly attributes their returns to risk premiums instead of errors in expectations (see Hong and Kacperczyk (2009)). Using the CRSP returns database, we compute the monthly returns on the portfolios during the twelve consecutive months after formation until the portfolios are updated based on the latest *SI* values, and we subsequently evaluate the time-series of portfolio returns over the period April 1992-December 2009.

Following previous studies that document significant risk-adjusted returns associated with the quality of corporate stakeholder relations, we derive risk-adjusted returns from the Carhart (1997) four-factor regressions:

$$R_{i,t} - R_{f,t} = \alpha + \beta_{1,i}\left(R_{m,t} - R_{f,t}\right) + \beta_{2,i}SMB_t + \beta_{3,i}HML_t + \beta_{4,i}UMD_t + \varepsilon_{i,t} \quad (2)$$

where R*i,t* is the return on a portfolio that is formed based on the *SI*, $R_{m,t} - R_{f,t}$ is the return on a portfolio composed of all stocks from the NYSE/AMEX/Nasdaq exchanges minus the one-month

[11] The starting year in the KLD STATS database is 1991, but KLD usually releases its statistics in the first quarter of the subsequent year.

T-Bill rate from Ibbotson Associates, SMB_t is the return difference between a small cap portfolio and a large cap portfolio, HML_t is the return difference between a "value" portfolio (with a high book/market value ratio) and a growth (low book/market value) portfolio, UMD_t is the return difference between a portfolio of the past 12-month return winners and a portfolio of the past 12-month losers. A large amount of literature consistently points out that the four factors, which are taken from the Kenneth French Data Library, are important in explaining the returns on equity portfolios that are formed using stakeholder information.[12]

To examine whether the quality of stakeholder relations predicts future risk-adjusted returns, we first focus on equal-weighted portfolios that are formed based on the *SI*. We also briefly explore the use of subsets of the stakeholder-relations index, keeping in mind that too much disaggregation leads to subindexes that experience limited cross-sectional variation and highly skewed distributions. The factor loadings of the portfolios reported in Table 3 corroborate the stylized fact that returns on portfolios derived from stakeholder information are to a large degree explained by exposure to the four factors. In the majority of cases, all four factors explain the returns on top-ranked and bottom-ranked portfolios, and the regression R-squares illustrate that the four-factor model does a good job of explaining the time-series variation in returns.

In the first rows of Table 2, we show that a stock selection rule based on the *SI* produced a positive risk-adjusted return. The portfolio composed of the top one-third of stocks ranked by the stakeholder index earned an average annualized risk-adjusted return of 2.5 percent, which is statistically significant at a 5% level. In contrast, the bottom-ranked portfolio earned a risk-

[12] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. See Fama and French (1993) and Carhart (1997) for details on the construction of the four factors.

adjusted return that is not significantly different from zero. These results are consistent with earlier studies that document positive risk-adjusted returns mainly for stocks of companies that score high on certain aspects of stakeholder relations (e.g., Derwall et al. 2005; Kempf and Osthoff 2007; Statman and Glushkov 2009; Edmans 2011).

When stocks are ranked annually based on exclusively "social" aspects of stakeholder relations (i.e., the aggregate of indicators of employee relations, community involvement, diversity, and product quality), the average risk-adjusted return on the top-ranked portfolio over the period 1992-2009 is about 2 percent, which is significant at the 10% level. When stocks are ranked based on the aggregate of environmental indicators, the risk-adjusted return on the top-ranked portfolio is 2.95%.

All these findings are largely consistent with earlier studies that document risk-adjusted returns associated with several of KLD's stakeholder criteria based on shorter time horizons (e.g., Kempf and Osthoff 2007, Galema et al. 2008, Statman and Glushkov 2009). Our primary objectives in the remainder of this study are to investigate (i) whether errors in investors' expectations can explain abnormal return differences among portfolios derived from the *SI*, and if so, (ii) whether returns due to expectational errors subsequently diminished once investors ultimately paid more attention to stakeholder information.

C. Time variation in attention and portfolio returns

We now compare the risk-adjusted return differences between the aforementioned top- and bottom-ranked portfolios across periods that differ in the attention that investors in aggregate paid to stakeholder issues. Figure 3 provides a visual inspection of rolling-window risk-adjusted

returns on a portfolio that is formed using the *SI*. The equal-weighted risk-adjusted return on a portfolio that is long in the top one-third of stocks and short in the bottom-third was persistently positive for a substantial number of years but eventually decreased considerably.

To explore more formally the time-variation in returns and/or attention for stakeholder issues, we adopt two methods. First, inspired by Bebchuk et al. (forthcoming), we explore time variation in attention measured by the number of shareholder proposals. Concerning stakeholder issues that were (co)sponsored by institutions, Figure 1a shows that the number of proposals exceeded the time-series average after 2004. This rise in attention is in line with the fact that academic evidence of positive risk-adjusted returns on environmental stakeholder information became increasingly public after 2003 (e.g., Derwall et al. 2005). It is also consistent with the subsequent launch of several widely endorsed investor initiatives that promote the use of information about stakeholder relations in conjunction with corporate governance ("ESG") in investment decisions, and with Bebchuk et al. (forthcoming) who found that institutions structurally sponsored more shareholder proposals concerning corporate governance after 2002. We therefore compare risk-adjusted returns across two-subsamples. April 1992-March 2004 and April 2004-December 2009.

Our second method for determining subsample periods is based on the procedure described in Quandt (1960). The goal of the procedure is to identify a date that marks a structural break in abnormal returns of portfolios that are formed based on the *SI*. The date that is identified in this way marks a break in the sense that the risk-adjusted returns across the two periods differ the most from a statistical point of view. To determine the break date, we estimate a variant of the Carhart (1997) regression, which allows risk-adjusted returns and portfolio factor loadings to vary across two periods.

(3) $$R_{i,t} - R_{f,t} = \alpha_i * Post_t + \beta_{1,i}(R_{m,t} - R_{f,t}) * Post_t + \beta_{2,i}SMB_t * Post_t + \beta_{3,i}HML_t * Post_t + \beta_{4,i}UMD_t * Post_t + \varepsilon_{i,t}$$

The dummy variable *Post* is an indicator variable that captures all months including and after a breakpoint date. To determine which break date marks the largest difference in risk-adjusted return between two periods, we re-estimate the model based on all possible variations of the indicator variable *Post*. Like Bebchuk et al. (forthcoming), we compute the F-statistic on the coefficient on α**Post* for each regression and then determine the break date from the regression that yields the largest F-statistic for this coefficient.

Table 4 reports the average risk-adjusted return on top-ranked portfolios and on their bottom-ranked counterparts during, respectively, the period April 1994-March 2004 and April 2004-December 2009. Panel A shows the risk-adjusted returns on portfolios composed of the top one-third and bottom-one third of stocks that are ranked by the *SI*. To give an impression of robustness, Panel B reports on portfolios that are based on an alternative classification procedure, where the top-ranked (bottom-ranked) portfolio consists of those stocks with a positive (negative) *SI* value.

Taken together, the results in Table 4 point out that those trading rules based on the *SI* that produced a positive risk-adjusted return have done so mainly in the first sub-period. Both equal-weighted and value-weighted portfolios that score high on *SI* significantly outperformed their bottom-ranked counterparts during the period April 1992-2004, but most of these portfolios ceased to exhibit significant differential risk-adjusted returns during the period 2004-2009.

Table 5 present the results of Quandt tests on the risk-adjusted returns between top-ranked and bottom-ranked portfolios. Concerning equal-weighted portfolios, the dates identified by the Quandt procedure is August 2004, which is close to the cutoff we determined based on the annual frequency of shareholder resolutions. Value-weighting the portfolios yields more mixed break dates, i.e., November 2005 and April 2000. Since the tech-bubble crashed in early 2000, it stands to reason that the Quandt approach is sensitive to stocks that receive extreme weights in value-weighted portfolios when stock markets experience large upswings or downturns.

Under the Quandt test, we continue to find that the average risk-adjusted return differences between top- and bottom-ranked portfolios are positive, economically large, and statistically significant prior to the break date. After the break date, the risk-adjusted return difference is not significantly different from zero in three cases, and both negative and significant at the 10% level in one case.

At first glance, the majority of results suggest that the financial market has temporarily been too pessimistic about the value-relevance of stakeholder performance, leading to positive risk-adjusted returns, but then learned about the earnings difference among firms that differ in the quality of stakeholder relations. However, because long-term risk-adjusted returns can also emerge for reasons other than "mispricing", we now turn to more explicit tests of errors in investors' expectations.

D. Earnings announcement returns

In this section, we study abnormal earnings announcement returns to determine the extent to which the time-variation risk-adjusted returns on the aforementioned *SI*-based strategies represent

investors' initial misunderstanding and subsequent learning about firms' earnings. If it is true that firms with higher *SI* values realized higher profits than anticipated by investors, we would expect that investors' surprises are reflected in higher abnormal returns around earnings announcements. We would also expect that the *SI* ceases to explain earnings announcement returns in times of heightened capital market attention for stakeholder issues.

We perform an event study to measure firms' stock returns around the announcements, using quarterly earnings announcement dates from I/B/E/S and daily stock returns from CRSP. For each stock, we compute daily abnormal returns from various days before until one day after each announcement, where the daily abnormal return (AR) is the difference between the realized return and the return predicted by the Carhart (1997) four-factor model. The return prediction model is re-estimated for each firm before every earnings announcement, using stock returns observed over a 250-day period that ends 20 days before the announcement date. The daily abnormal returns are subsequently converted to cumulative abnormal returns (CARs) over, respectively, three-day (-1,1), five-day (-3,1), and 7-day (-5,1), and 12-day (-10,1) windows.

In the tradition of Bebchuk et al. (forthcoming), we derive time-variation in the relation between the earnings announcement CAR and corporate stakeholder relations from pooled regressions that take the form:

$$(4) \qquad CAR_{i,(tq-s,tq+1)} = \alpha + \beta_1 SI_{i,t-1} + \beta_2 SI_{i,t-1} * Subsample\ 2_t + \beta_3 * Subsample\ 2_t + \sum_{k=1}^{K} \gamma_k Controls_{i,k,t-1} + \varepsilon_{i,tq} \quad for\ s \in \{1,3,5,10\}$$

where $CAR_{i,(tq-s,tq+1)}$ is the cumulative (s+2)-day abnormal return around the earnings announcement for firm *i* in quarter *q* of year *t*. The vector of controls includes a dummy variable that captures firms' presence on KLD's list of controversial businesses and industry dummy

variables. Of primary interest to us is the stakeholder-relations index *SI* and its interaction with a dummy variable *Subsample 2* that equals 1 if earnings announcements occurred after March 2004.

The estimated relationships between the *SI* and the earnings announcement CARs are reported in Table 6. All coefficients are multiplied by 1000 for expositional convenience. The regression results are consistent with the idea that better stakeholder relations was associated with higher risk-adjusted stock returns over the period 1992-2004 due to errors in investors' expectations. The coefficients concerning the *SI* point to a statistically and economically significant relationship with cumulative earnings announcement returns, regardless of the event window that we consider. For example, a one-point increase in *SI* is associated with roughly a 0.09 percent five-day abnormal return per quarterly earnings announcement during the period 1992-2004, which is equivalent to an annualized abnormal announcement return of about 0.36 percent. The average difference in *SI* score between the top one-third and bottom one-third bottom-ranked portfolio over this period is 4.33 (not tabulated), which multiplied with the estimated earnings announcement effect, implies an industry-adjusted difference in abnormal earnings announcement return of 1.56 percent.

Table 6 suggests not only that earnings announcement effects explain risk-adjusted returns associated with the *SI* over the period 1992-2004 but also that such earnings announcement effects have decreased subsequently. Independent of the event window, the coefficient on *SI*Subsample 2* is consistently negative and significant below the 5% significance level of significance. According to F-tests regarding the sum of the coefficients on *SI* and *SI*Subsample 2*, the decrease in the earnings announcement effect measured over 2004-2009 is large enough to make the positive earnings announcement effect in the earlier period disappear.

None of the F-statistics rejects the null of a zero relation between the *SI* and earnings announcement CARs during the period 2004-2009. The decreasing relation between the *SI* and these CARs over time is consistent with the notion that risk-adjusted returns associated with stakeholder information eventually disappear as rising attention causes investors to learn about the differential future earnings among firms with different stakeholder relations.

Combined with the results from the previous section, two important conclusions emerge from the analysis of earnings announcements. First, the results suggest that the risk-adjusted returns on trading rules based on the *SI* originally could be explained by investors' surprise about firms' earnings. Second, the diminishing relation between the *SI* and earnings announcement returns coincides with heightened attention for stakeholder information in the capital market and suggests that risk-adjusted return on trading strategies, if any, should be attributed to factors other than errors in expectations.

E. Errors in analysts' forecasts

We complement our examination into errors in investors' expectations with an analysis of analysts' earnings forecasts. Although analysts' expectations do not necessarily reflect the capital market's expectations, the previous results at the very least raise the question whether analysts have misunderstood the association between stakeholder relations and firms' future earnings. Moreover, analysts have been criticized for insufficiently catering to institutional investors when it comes to integrating stakeholder information in financial research (e.g., O'Loughlin and Thamotheram 2006; Jaworski 2007). Therefore, if investors misunderstood the association between stakeholder relations and profitability, one could expect that analysts were at least as surprised.

In order to be consistent with the analysis of quarterly earnings announcements, we first study errors in quarterly earnings-per-share (EPS) forecasts, which we define as the difference between the actual EPS and the median forecast that I/B/E/S/ released on the closest date prior to the last day of the fiscal period. Previous studies have illustrated that inferences involving analyst forecast data are sensitive to extreme noise, skewness, outliers, and the measurement of the forecasts themselves (see, e.g., Lim (2001); Ljungqvist et al. (2009)). We address these robustness issues by analyzing alternative measures of forecast errors. Specifically, we follow the literature on analyst forecast errors and consider different ways of scaling forecast errors. We scale the errors by respectively, the price per share at the forecast date, the assets per share, the absolute value of the median forecast and the standard deviation of the analyst forecasts. To make sure that small sample problems and outliers do not distort the median forecasts, we omit observations based on either forecast from fewer than five analysts or which exceed the bottom (top) 1% of the distribution.

The model we estimate takes the form:

$$FE_{i,tq} = \alpha + \beta_1 SI_{i,t-1} + \beta_2 SI_{i,t-1} * Subsample\ 2_t + \beta_3 * Subsample\ 2_t + \sum_{k=1}^{K} \gamma_k Controls_{i,k,t-1} + \varepsilon_{i,tq} \quad (5)$$

where FE is the forecast error for quarter q in year t. As controls, we include a dummy that is one for firms operating in a controversial industry, the natural logarithm of the book to market ratio from the previous fiscal year, the natural logarithm of the market value of equity from the previous fiscal year, and industry fixed effects based on the Fama French 48 industry definitions. In line with the previous analysis, time-variation in the relation between the *SI* and earnings

forecast errors is estimated by interacting *SI* with a dummy variable that identifies forecast errors realized after March 2004.

Since earlier studies suggest that investment in stakeholder relations are mainly intangible and pay off slowly, we also study forecasts of firms' long-term earnings growth released by sell-side financial analysts in the I/B/E/S universe in order to investigate analyst forecast errors. Following Edmans (2011), we first perform pooled OLS regressions involving forecast errors defined as the long-term earnings growth that firm *i* realized at the end of fiscal year *t* minus the corresponding median value of analysts' forecasts of long-term growth made 5 years earlier (we winsorize the errors at the 1% level). Because most annual reports are filed within three months after the fiscal year-end, we measure analysts' forecasts four months after the previous fiscal year-end in order to make sure that analysts were aware of previous earnings when they made their forecast (see Core et al. (2006); Doukas et al. (2002)). Alternatively, we estimate ordered probit models after converting the earnings forecast errors to discrete variables in order to deal with the extreme noise and outliers that are common with earnings surprise data. In the probit model (Probit), the discrete variable has a value of 1 when the forecast error is greater than or equal to 10 percent, 0 when the error is between 10 percent and -10 percent, and -1 if it is equal to or below -10 percent.

According to all models of quarterly forecast errors presented in Table 7, firms with higher *SI* values experienced significantly higher earnings surprises over the period 1992-2004. In the subsequent years, the relationship between the *SI* and quarterly forecast errors decreased significantly under all specifications. Based on F-tests, the null hypothesis that the sum of the coefficients β_1 and β_2 are different from zero is not rejected in two specifications, suggesting that the *SI* is not significantly related to forecast errors in recent years. Under the two remaining

models, the relation between the *SI* and quarterly forecast errors reversed from positive to slightly negative. Indeed, it has been shown that inferences about expectational errors derived from scaled-errors in short-term analyst forecasts might be sensitive to the choice of scaling variable (see, Bebchuk et al. (forthcoming)).

Models of long-term forecast errors reach a strong consensus. According to the OLS model in Table 8, the relation between the *SI* and errors in analysts' forecast of long-term earnings growth was positive over the period 1992-2004 but close to zero and statistically not significant over the period 2004-2009. Under the ordered probit model, firms with stronger stakeholder relations were more likely to produce higher surprises in the first part of the sample period. But after the March 2004, firms with better stakeholder relations were less likely than before to have beaten analysts' long-term growth forecasts.

Taken as a whole, the analyses of errors in analysts' forecasts produce results that display similarities with tests of errors in investors' expectations derived from risk-adjusted portfolio returns and abnormal earnings announcement returns.

V. Additional tests

As a robustness check, we investigate whether diminishing errors in expectations is reflected in the market values of firms. If investors eventually learned about the value-relevance of stakeholder information, we would expect firms' market values to be more reflective of stakeholder information in recent times.

Following the majority of studies on the determinants of firm value, we use the Tobin's *q* measures for our purpose. We estimate models of the form:

(6) $$Q_{i,t} = \alpha + \beta_1 SI_{i,t} + \sum_{k=1}^{K} \gamma_k Controls_{i,k,t} + \varepsilon_{i,t}$$

where $Q_{i,t}$ is the natural logarithm of the Tobin's q value of firm i at t; for the fiscal year for which KLD reports its information; and $Controls_{i,k,t}$ is a vector of all k controls. We include the earlier mentioned dummy for controversial business involvement, the log of the book-to-market ratio, the logarithm of total assets, $ROA_{i,t}$ (defined as the ratio of operating income after depreciation and amortization divided by total assets), leverage (defined as the book value of debt divided by the book value of assets), the natural logarithm of firm age identified as the number of months the firm first appeared in the CRSP returns database until December of the year, R&D expenses scaled by sales, capital expenditures scaled by total assets in conjunction with dummy variables that identify non-reported R&D and capital expenses, and industry and year fixed effects.

The first column of Table 9 shows that over the period April 1992-March 2004, the relation between the *SI* and Tobin's q was positive and statistically significant. Based on this result, we could conclude that in earlier years of the sample period the capital market deemed stakeholder information to a certain extent relevant in the valuation of companies. The second column of Table 9 shows that the relation between the *SI* and Tobin's q doubled during the period 2004-2009. This increase is consistent with a story where investors eventually came to better understand the association between stakeholder relations and firm' future earnings.

VI. Conclusion

Many investors justify the integration of stakeholder information – nowadays under the heading of "ESG" information - in portfolio selection by the view that corporate stakeholder relations are

associated with (intangible) value in a manner that is not fully understood by the financial market. Although this view is not necessarily counterintuitive in the short run, investors' public hunt for "mispriced" information that generates superior risk-adjusted returns eventually comes as a double-edged sword. Economic logic teaches us that increased attention to value-relevant information makes potential "mispricing" short-lived.

This paper investigated whether a stakeholder-relations index predicted risk-adjusted returns due to errors in investors' expectations and ultimately ceased to do so as investor attention for stakeholder issues increased. We found that risk-adjusted returns to trading strategies that use the stakeholder index were economically and statistically significant over the period 1992-2004, but largely non-significant over the period 2004-2009, when attention for stakeholder issues became stronger. Consistent with the idea that errors in expectations were not persistent, the stakeholder-relations index was significantly positively associated with earnings announcement returns and analysts' forecast errors during the first subsample period, but not so thereafter.

Our evidence on the information content of corporate stakeholder relations leans on data and methodology from one particular provider of stakeholder information that is easily accessible to investors. The information content of other (and perhaps more sophisticated) assessments of the quality of stakeholder relations remains an open question.

References

Bae, K., J. Kang and J. Wang. "Employee treatment and firm leverage: A test of the stakeholder theory of capital structure." *Journal of Financial Economics*, 100 (2011), 130-253.

Barney, J.B. "Firm resources and sustained competitive advantage." *Journal of Management*, 17 (1991), 99–120.

Bassi, L., P. Harisson, J. Ludwig and D. McMurrer. "The impact of U.S. firms' investments in human capital on stock prices." (2004), Working Paper.

Bebchuk, L., A. Cohen and C. Wang. "Learning and the disappearing association between governance and stock returns." (2011), *Journal of Financial Economics, forthcoming.*

Bessire, D. and S. Onnée. "Assessing corporate social performance: Strategies of legitimation and conflicting ideologies." *Critical Perspectives on Accounting*, 21 (2010), 445–467.

Carhart, M. "On the persistence in mutual fund performance." *Journal of Finance,* 52 (1997), 57–82.

Chan, L., N. Jegadeesh and J. Lakonishok. "Momentum strategies." *Journal of Finance, 51* (1996), 1681-1713.

Chan, L., J. Lakonishok and T. Sougiannis. "The stock market valuation of research and development expenditures." *Journal of Finance,* 6 (2001), 2431-2456.

Core, J. R. W. Guay, and T. Rusticus. "Does weak governance cause weak stock returns? An examination of firm operating performance and investors' expectations." *Journal of Finance,* 61 (2006), 655–687.

Cornell, B. and A. Shapiro. "Corporate stakeholders and corporate finance." *Financial Management, 16* (1987), 5-14.

Cremers, M., Petajisto, A. and E. Zitzewitz. "Should benchmark indices have alpha? Revisiting performance evaluation. (2010), Working paper.

Dahliwal, D., O. Li, A. Tsang and Y. Yang. "Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting." *The Accounting Review, 86* (2011), 59-100.

Derwall, J., N. Guenster, R. Bauer and K. Koedijk. "The eco-efficiency premium puzzle." *Financial Analysts Journal,* 61 (2005), 51–63.

Derwall, J., K. Koedijk and J. Ter Horst. "A tale of values-driven and profit-seeking social investors." *Journal of Banking and Finance,* 35 (2011), 2137-2147.

Doukas, J., C. Kim, and C. Pantzalis. "A Test of the errors–in–expectations explanation of the value/glamour stock returns performance: evidence from analysts' forecasts." *Journal of Finance,* 57 (2002), 2143-2165.

Dowell, G., S. Hart and B. Yeung. "Do corporate global environmental standards create or destroy market value?" *Management Science, 46* (2000), 1059-1074.

Eberhart, A.C., W.F. Maxwell and A.R. Siddique. "An examination of long-term abnormal stock returns and operating performance following R&D increases." *Journal of Finance*, 59 (2004), 623-650.

Edmans, A. "Does the stock market fully value intangibles? Employee satisfaction and equity prices." *Journal of Financial Economics*, 101 (2011), 621-640.

Fama, E.F. and K. French. "Common risk factors in the returns on stocks and bonds." *Journal of Financial Economics,* 33 (1993), 3-56.

Galema, R., A. Plantinga and B. Scholtens. "The stocks at stake: Return and risk in socially responsible investing." *Journal of Banking and Finance,* 32 (2008), 2646–2654.

Gompers, P., J. Ishii and A. Metrick. "Corporate governance and equity prices." *Quarterly Journal of Economics,* 118 (2003), 107–155.

Hart, S. "A natural-resource-based view of the firm." *The Academy of Management Review, 20 (*1995), 986-1014.

Heinkel, R., A. Kraus and J. Zechner. “The effect of green investment on corporate behavior.” *Journal of Financial and Quantitative Analysis,* 35 (2001), 431–449.

Hong, H. and M. Kacperczyk. “The price of sin: The effects of social norms on markets”. *Journal of Financial Economics*, 93 (2009), 15-36.

Hong, H. and L. Kostovetsky. “Red and blue investing: Values and finance”. *Journal of Financial Economics,* 103 (2012), 1-19.

Jaworski, W. “"The Use of extra-financial information by research analysts and investment managers.” ECCE Report (2007), Maastricht University.

Jiao, Y. “Stakeholder welfare and firm value.” *Journal of Banking and Finance,* 34 (2010), 2549-2561.

Kaplan S.N., L. and Zingales. “Do Investment-Cash Flow Sensitivities Provide Useful Measures of Financing Constraints?” *Quarterly Journal of Economics*, 112 (1997), 169-215.

Kempf, A. and P. Osthoff, “The effect of socially responsible investing on financial performance.” *European Financial Management,* 13 (2007), 908–922.

King, A. and M. Lenox. “Exploring the locus of profitable pollution reduction.” *Management Science*, 48 (2002), 289–99.

Konar, S. and M. Cohen. “Does the market value environmental performance?” *Review of Economics and Statistics,* 83 (2001), 281-289.

La Porta, R., J. Lakonishok, A. Shleifer and R.W. Vishny, “Good news for value stocks: further evidence on market efficiency.” *Journal of Finance,* 50 (1997), 1715–1742.

Lim, T. “Rationality and analysts’ forecast bias.” *Journal of Finance,* 56 (2001), 369-385.

Ljungqvist, A., C. Malloy, and F. Marston. “Rewriting history.” *Journal of Finance,* 64 (2009), 1935-1960.

Lo, A.W. and A.C. MacKinlay. "Data-snooping biases in tests of financial asset pricing models." *Review of Financial Studies*, 3 (1990), 431-67.

Madden, T. J., F. Fehle and S. M. Fournier. "Brands matter: an empirical investigation of brand-building activities and the creation of shareholder value." *Journal of the Academy of Marketing Science*, 34 (2006), 224-235.

O'Loughlin, J. and R. Thamotheram, "Enhanced Analytics for a New Generation of Investor", Report by Universities Superannuation Scheme Ltd, (2006).

Pantzalis C. and J.C. Park, "Equity market valuation of human capital and stock returns." *Journal of Banking and Finance,* 33 (2009), 1610–1623.

Quandt, R.E. "Tests of the hypothesis that a linear regression system obeys two separate regimes." *Journal of the American Statistical Association,* 55 (1960), 324-330.

Russo, M. and P. Fouts. "A resource-based perspective on corporate environmental performance and profitability." *Academy of Management Journal*, 40 (1997), 534–59.

Schwert, G. "Anomalies and market efficiency." In G.M. Constantinides & M. Harris & R. M. Stulz (ed.), *Handbook of the Economics of Finance, ed. 1*, vol. 1, (2003), 939-974. Elsevier.

Sloan, R. "Do stock prices fully reflect information in accruals and cash flows about future earnings?" *The Accounting Review*, 71 (1996), 280-315.

Statman, M. and D. Glushkov. "The wages of social responsibility." *Financial Analysts Journal,* 65 (2009), 33–46.

Verwijmeren, P. and J. Derwall. "Employee well-being, firm leverage, and bankruptcy risk." *Journal of Banking and Finance,* 34 (2010), 956-964.

Wernerfelt, B. "The resource-based view of the firm." *Strategic Management Journal*, 5 (1984), 171–180.

Zingales, L. "In search of new foundations." *Journal of Finance, 55* (2000), 1623-1653.

Table 1. Correlations

Reported are pairwise correlations and the involved number of observations in parentheses between the disaggregate stakeholder relations scores and the stakeholder-relations index (SI) and accounting variables. Tobin's *q* is defined as in Kaplan and Zingales (1997). Return on assets (ROA) is defined as the ratio of operating income (after depreciation and amortization) divided by total assets, the book-to-market equity defined as the book value of equity plus book value of deferred taxes divided by the market value of equity (common shares outstanding * share price at the end of the fiscal period), the logarithm of firm age in months, Leverage defined as long term debt to total assets.

	Environment	Community	Diversity	Employees	Product	*SI*
Log Tobin's *q*	0.131	0.010	0.017	0.100	0.137	0.090
	(5650)	(5323)	(16199)	(12648)	(5864)	(22486)
Return on Assets (ROA)	-0.010	0.010	0.044	0.098	0.022	0.027
	(5651)	(5316)	(16206)	(12649)	(5864)	(22490)
Log Assets	-0.325	0.065	0.241	0.024	-0.330	-0.078
	(5651)	(5323)	(16211)	(12650)	(5866)	(22500)
Log book / market equity	-0.075	-0.006	-0.058	-0.068	-0.058	-0.070
	(5559)	(5241)	(15828)	(12327)	(5730)	(21991)
Leverage	-0.048	-0.101	-0.041	-0.094	-0.047	-0.075
	(5648)	(5317)	(16155)	(12621)	(5842)	(22435)
Log age	-0.155	0.019	0.119	0.011	-0.106	-0.052
	(5654)	(5329)	(16231)	(12663)	(5875)	(22525)
1-year sales growth	0.023	-0.010	-0.017	0.013	0.058	0.014
	(5599)	(5284)	(15756)	(12404)	(5816)	(21967)
5-year sales growth	0.030	-0.029	-0.010	0.012	0.025	0.009
	(5296)	(5025)	(13632)	(11102)	(5480)	(19403)

Table 2. Stakeholder relations and profitability

This table reports on pooled regressions with accounting return on assets (ROA) as dependent variable and the *SI* in conjunction with control variables as independent variables. Return on assets (ROA) is defined as either the ratio of operating income (after depreciation and amortization) divided by total assets or net income divided by total assets. The control variables include a dummy variable capturing firms' controversial business involvement (alcohol, gambling, firearms, military, nuclear power, tobacco) according to KLD, the logarithm of the book-to-market ratio, the logarithm of total assets, R&D expenses scaled by sales, capital expenditures scaled by total assets, dummy variables that identify non-reported R&D and capital expenditures, and year fixed-effects, and industry-fixed effects based on 48 industry classifications from the Kenneth French Data Library. The *t*-statistics (in parentheses) are derived from two-way clustered standard errors. Sample period 1992-2009. *, **, *** represent significance levels of 10%, 5%, and 1%, respectively.

	Operating income / assets	Net income / assets
SI	0.004***	0.004***
	(4.81)	(4.01)
Controversial business	-0.003	-0.005
	(-0.87)	(-1.19)
Log book / market equity	-0.025***	-0.011***
	(-6.60)	(-2.98)
Log total assets	0.006***	0.005***
	(3.36)	(3.65)
Log age	0.006***	0.005**
	(4.41)	(2.33)
Delaware	-0.009***	-0.012***
	(-3.63)	(-4.86)
CAPEX / assets	0.030*	0.010
	(1.76)	(0.68)
R&D / sales	-0.083***	-0.060***
	(-21.73)	(-13.75)
R&D Dummy	0.012***	0.011***
	(3.35)	(3.05)
CAPEX / assets dummy	-0.001	-0.000
	(-0.34)	(-0.051)
Constant	-0.001	-0.055**
	(-0.07)	(-2.19)
Observations	21,310	20,643
Adj. R-squared	0.348	0.233
Year FE	YES	YES
Industry FE	YES	YES

Table 3: Risk-Adjusted returns over 1992-2009

Every year, starting in April 1992, we rank stocks based on the stakeholder-relations index (*SI*) and assign the top 1/3rd (bottom 1/3rd) of ranked stocks to a top-ranked (bottom-ranked) portfolio. We run Carhart (1997) four-factor regressions to estimate risk-adjusted portfolio returns over the period April 1992-December 2009. Reported are annualized risk-adjusted returns and factor exposures for equal-weighted portfolios.

SI portfolio	α	β_1	β_2	β_3	β_4	R^2-adj.
Aggregate stakeholder-relations index SI						
Top one-third	2.46%**	1.03***	0.21***	0.44***	-0.17***	0.94
	(2.27)	(41.84)	(4.89)	(11.70)	(-8.24)	
Bottom one-third	0.89%	1.07***	0.24	0.45***	-0.23***	0.91
	(0.60)	(33.43)	(5.09)	(6.56)	(-7.46)	
Social: SI excl. Environment						
Top one-third	1.99%*	1.03***	0.19***	0.43***	-0.17***	0.93
	(1.81)	(41.15)	(3.92)	(12.22)	(-9.49)	
Bottom one-third	1.33%	1.06***	0.25***	0.44***	-0.223***	0.90
	(0.87)	(33.45)	(5.68)	(6.24)	(-6.94)	
Environment						
Top one-third	2.95%	0.984***	0.222***	0.460***	-0.157***	0.83
	(1.55)	(23.86)	(3.826)	(7.272)	(-4.53)	
Bottom one-third	-0.84%	1.045***	0.125**	0.646***	-0.159***	0.83
	(-0.43)	(22.62)	(2.22)	(9.054)	(-3.69)	

Table 4. Difference in risk-adjusted return over time on portfolios formed based on the *SI*

Every year, starting in April 1992, we rank stocks based on the aggregate stakeholder-relations index (*SI*). We then assign stocks to either an equal-weighted or a value-weighted top-ranked (bottom-ranked) portfolio. We run Carhart (1997) four-factor regressions to estimate the difference in risk-adjusted return between the portfolios over two consecutive periods April 1992-March 2004 and April 2004-December 2009. We explore alternative stock selection rules: top/bottom one-third of stocks ranked on the *SI*, and stocks with positive/negative *SI*.

Panel A: top versus bottom one-third SI portfolios over periods 1992-2004 and 2004-2009

	Equal-weighted α			Value-weighted α		
SI portfolio	1992-2009	92-04	04-09	1992-2009	92-04	04-09
Top one-third	2.46%**	4.76%***	-1.45%	1.21%	2.83%**	-1.72%
	(2.27)	(3.89)	(-1.32)	(1.10)	(1.98)	(-1.37)
Bottom one-third	0.89%	1.25%	0.85%	-0.81%	-0.60%	-0.44%
	(0.60)	(0.80)	(0.70)	(-0.73)	(-0.40)	(-0.38)
Top minus bottom one-third	1.57%	3.52%**	-2.30%	2.02%	3.43%*	-1.28%
	(1.19)	(2.44)	(-1.58)	(1.26)	(1.72)	(-0.63)

Panel B:positive versus negative SI portfolios over periods 1992-2004 and 2004-2009

	Equal-weighted α			Value-weighted α		
SI portfolio	1992-2009	92-04	04-09	1992-2009	92-04	04-09
Positive	2.16%*	3.71%***	-0.14%	1.36%	2.64%**	-0.73%
	(1.723)	(2.698)	(-0.139)	(1.410)	(2.251)	(-0.650)
Negative	1.08%	1.43%	0.96%	-1.11%	-0.95%	-1.03%
	(0.854)	(0.969)	(0.885)	(-1.073)	(-0.639)	(-1.045)
Positive minus negative	1.08%	2.28%*	-1.10%	2.47%*	3.59%*	0.30%
	(1.051)	(1.747)	(-0.853)	(1.687)	(1.876)	(0.176)

Table 5. Quandt test on difference in returns

Every year, starting in April 1992, we rank stocks based on the stakeholder-relations index (*SI*) and assign top-ranked stocks to an equal-weighted top-ranked (bottom-ranked) portfolio. We explore alternative stock selection rules: top and bottom one-third of all stocks ranked on stakeholder relations, and stocks with positive and negative stakeholder relations. We apply a Quandt (1960) procedure to determine the date of a break in the risk-adjusted return difference between the portfolios. We do make sure to have at least 36 months at either end of the time series that we do not consider as break dates to make sure we can properly estimate the factor loadings. We estimate using monthly returns from April 1992 to December 2009,

$$(3) \qquad R_{i,t} - R_{f,t} = \alpha_i * Post_t + \beta_{1,i}\left(R_{m,t} - R_{f,t}\right) * Post_t + \beta_{2,i} SMB_t * Post_t + \beta_{3,i} HML_t * Post_t + \beta_{4,i} UMD_t * Post_t + \varepsilon_{i,t}$$

where *Post* is an indicator variable that captures all months including and after a breakpoint date. We re-estimate the model based on all possible variations of the indicator variable *Post*. We compute the F-statistic on the coefficient on α**Post* for each regression, and identify the break date from the regression that yields the largest F-statistic for this coefficient.

	Equal-weighted α			Value-weighted α		
SI portfolio	Break date	Pre-break	Post-break	Break date	Pre-break	Post-break
Top minus bottom one-third	August 2004	4.19%***	-2.76%*	November 2005	3.71%**	-2.60%
		(2.81)	(-1.82)		(2.06)	(-1.11)
Positive minus negative	August 2004	2.59%**	-1.70%	April 2000	4.58%*	-0.71%
		(2.02)	(-1.31)		(1.89)	(-0.43)

Table 6. Stakeholder relations and earnings announcement returns

We estimate the relationship between the stakeholder-relations index and cumulative earnings announcement returns using a model of the form:

$$(4) \qquad CAR_{i,(tq-s,tq+1)} = \alpha + \beta_1 SI_{i,t-1} + \beta_2 SI_{i,t-1} * Subsample\ 2_t + \beta_3 * Subsample\ 2_t + \sum_{k=1}^{K} \gamma_k Controls_{i,k,t-1} + \varepsilon_{i,tq} \qquad for\ s \in \{1,3,5,10\}$$

where $CAR_{i,(tq-s,tq+1)}$ is the cumulative abnormal return realized during (s+2)-days around the earnings announcement date of firm *i* in quarter *q* of year *t*, *SI* is the stakeholder-relations index, Subsample 2_t is a dummy variable that equals 1 when earnings announcements occurred during the period April 2004-December 2009 and zero otherwise. $Controls_{i,k,t-1}$ is a vector of control variables, which includes a dummy variable that captures firms' presence on KLD's list of controversial businesses, and industry fixed effects based on the 48 industry classifications from the Kenneth French Data Library. In four independent regressions, we analyze the effect of stakeholder relations on CAR measured over, respectively three-day (-1,1), five-day (-3,1), seven-day (-5,1), and twelve-day (-10,1) event windows. The *t*-statistics (in parentheses) are derived from two-way clustered standard errors. The reported coefficients are multiplied by 1000 for expositional convenience. The F-test measures for each regression whether the sum of the coefficients on *Stakeholder* and *Stakeholder*Subsample 2* are different from zero. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively.

	Event window (days before, after)			
	-1,+1	-3,+1	-5,+1	-10,+1
SI	0.889***	0.895***	0.758**	0.803**
	(3.15)	(3.20)	(2.38)	(2.12)
*SI**Subsample 2	-1.032**	-1.140***	-1.000**	-1.338**
	(-2.46)	(-2.58)	(-1.98)	(-2.15)
Subsample 2	-0.722	-0.477	0.318	1.311
	(-0.60)	(-0.29)	(0.16)	(0.48)
Controversial business	2.320**	2.124*	1.147	1.246
	(2.08)	(1.67)	(0.76)	(0.63)
Constant	10.829***	6.575	3.714	1.712
	(3.05)	(1.45)	(0.76)	(0.36)
Observations	78,340	78,323	78,319	78,310
R-squared	0.002	0.001	0.001	0.002
F-test (β1+β2=0)	0.220	0.560	0.411	1.356
Prob. > F	0.639	0.454	0.521	0.244

Table 7. Stakeholder Index and Quarterly Errors in Analysts' Earnings Forecasts

The error in quarterly forecast is defined as the actual level of quarterly earnings minus the I/B/E/S median analyst long-term forecast closest to the error date. We report quantile (median) regressions to take the skewed distributions of the errors into account. As independent variables, we include the stakeholder-relations index (*SI*), a dummy variable (Subsample 2) that is equal to 1 whenever a forecast error is realized during the period April 2004-December 2009, an interaction term *SI**Subsample 2 that captures time variation in the relation between stakeholder relations and dependent variable, and control variables. Sample period: April 1992 - December 2009. The *t*-statistics, derived from two-way clustered standard errors, are given in parentheses. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively.

Variables	Percentage	Assets	Price	St. Dev
SI	1.382***	0.009***	0.006*	48.229***
	(3.994)	(3.282)	(1.900)	(7.598)
*SI**Subsample 2	-1.653***	-0.001	-0.017***	-45.071***
	(-3.417)	(-0.099)	(-3.842)	(-5.078)
Subsample 2	17.039***	0.299***	0.316***	133.819***
	(17.591)	(38.758)	(34.883)	(7.528)
Controversial business	-5.13***	-0.089***	-0.052***	-90.727***
	(-3.254)	(-7.123)	(-3.531)	(-3.137)
Log book / market equity	4.576***	-0.069***	0.09***	-102.107***
	(6.775)	(-12.781)	(14.323)	(-8.237)
Log market value of equity	-0.849**	0.008***	0.01***	97.054***
	(-2.500)	(3.013)	(3.035)	(15.568)
Constant	14.587**	-0.162***	-0.098*	-649.716***
	(2.390)	(-3.325)	(-1.723)	(-5.799)
Observations	59,320	59,320	59,320	59,320
F-test ($\beta1+\beta2=0$)	0.593	9.508	11.620	0.238
Prob. > F	0.441	0.002	0.001	0.625

Table 8. Stakeholder Index and Errors in Analysts' Forecasts of Long-Term Earnings Growth

The error in long-term growth forecast is defined as the actual five-year annualized EPS growth rate minus the I/B/E/S median analyst long-term growth forecast 56 months before the error date. We report on an OLS regression (OLS), and an ordered probit model (Probit) after we convert the forecast errors to discrete variables. In the ordered probit model, the discrete variable has a value of 1 when the forecast error is greater than or equal to 10 percent, 0 when the error is between 10 percent and -10 percent, and -1 if it is equal to or below -10 percent. As independent variables, we include the stakeholder-relations index (*SI*), a dummy variable (Subsample 2) that is equal to 1 whenever a forecast error is realized during the period April 2004- December 2009, an interaction term Stakeholder*Subsample 2 that captures time variation in the relation between stakeholder relations and dependent variable, and control variables. Sample period: April 1992 - December 2009. The t-statistics (*z*-statistics) in parentheses are derived from standard errors that are clustered by firm. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively.

	OLS	Probit
SI	0.267**	0.012*
	(1.97)	(1.69)
*SI**Subsample 2	-0.388	-0.026**
	(-1.55)	(-1.96)
Subsample 2	3.647	0.206*
	(1.54)	(1.70)
Controversial business	0.442	-0.011
	(0.42)	(-0.21)
Log book / market equity	-5.156***	-0.286***
	(-8.11)	(-8.58)
Log market value of equity	2.071***	0.104***
	(10.90)	(7.19)
Constant	-29.576***	
	(-13.10)	
Observations	15,190	15,190
F test / Chi-square test (β1+β2=0)	0.362	1.929
Prob. > F	0.548	0.165

*** p<0.01, ** p<0.05, * p<0.1

Table 9. Stakeholder relations and valuation

This table reports on pooled regressions with the logarithm of Tobin's *q* as dependent variable and the *SI* in conjunction with control variables as independent variables. We perform two independent regressions using observations from, respectively, the period 1992-2004 and 2004-2009. Tobin's *q* is defined as in Kaplan and Zingales (1997). The control variables include a dummy variable capturing firms' controversial business involvement (alcohol, gambling, firearms, military, nuclear power, tobacco) according to KLD, the logarithm of the book-to-market ratio, the logarithm of total assets, the logarithm of firm age, a dummy for Delaware incorporation, Leverage defined as long term debt to total assets, R&D expenses scaled by sales, capital expenditures scaled by total assets, dummy variables that identify non-reported R&D expenses and capital expenditures, year fixed-effects, and industry-fixed effects based on 48 industry classifications from the Kenneth French Data Library. The *t*-statistics (in parentheses) are derived from two-way clustered standard errors. Sample period 1992-2009. *, **, *** represent significance levels of 10%, 5%, and 1%, respectively.

VARIABLES	1992-2004	2004-2009
SI	0.010***	0.020***
	(3.029)	(4.096)
Controversial business	-0.083***	0.022
	(-3.947)	(1.131)
Log Total Assets	-0.009	-0.074***
	(-0.679)	(-9.321)
Log Age	-0.053***	-0.004
	(-4.066)	(-0.677)
Delaware	0.026*	0.051***
	(1.677)	(3.801)
Return on Assets	2.632***	0.876***
	(4.622)	(6.617)
CAPEX / Assets	0.189**	0.344
	(2.154)	(1.428)
Leverage	-0.375***	-0.232***
	(-4.806)	(-4.845)
R&D expenses / sales	0.045	0.117***
	(0.525)	(8.355)
R&D dummy	-0.114***	-0.134***
	(-4.479)	(-5.724)
CAPEX dummy	-0.024	-0.044***
	(-1.351)	(-3.340)
Constant	0.594***	1.273***
	(4.527)	(14.348)
Observations	7,524	14,962
R-squared	0.575	0.412
Year FE	YES	YES
Industry FE	YES	YES

Figure 1a. Index of shareholder proposals on corporate governance issues sponsored by institutions

We collect all shareholder proposals involving S&P 1500 firms from Riskmetrics over the period 1997-2008. For each proposal, we identify whether it is (co)sponsored by (an) institution(s) and eliminate proposals that are exclusively sponsored by individuals or religious institutions. To identify corporate governance issues we take all shareholder proposals that Riskmetrics classifies as "Governance" and remove all "crossover" proposals, i.e., proposals involving social issues that investors submit tied to executive compensation. Based on the number of proposals each year, Figure 1a reports an index of attention for governance issues (the base year is 1997). The time-series average index value is reported as a constant.

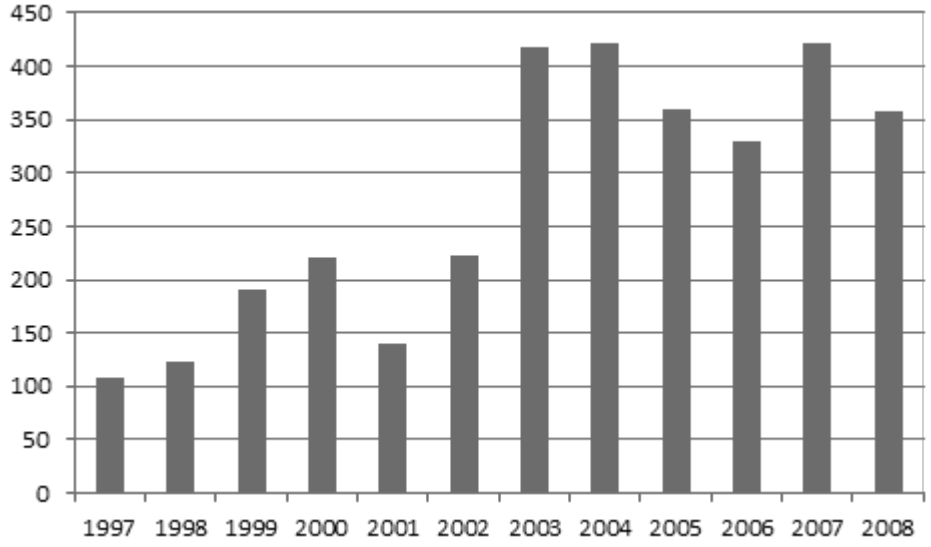

Figure 1b: Index of shareholder proposals on stakeholder issues sponsored by institutions

We collect all shareholder proposals involving S&P 1500 firms from Riskmetrics over the period 1997-2008. For each proposal, we identify whether it is (co)sponsored by (an) institution(s) and eliminate proposals that are exclusively sponsored by individuals or religious institutions. To identify stakeholder issues we take all shareholder proposals that Riskmetrics classifies as "SRI" and add all "crossover" proposals, i.e., proposals involving social issues that investors submit tied to executive compensation. Based on the number of proposals each year, Figure 1b reports an index of attention for stakeholder issues (the base year is 1997). The time-series average index value is reported as a constant.

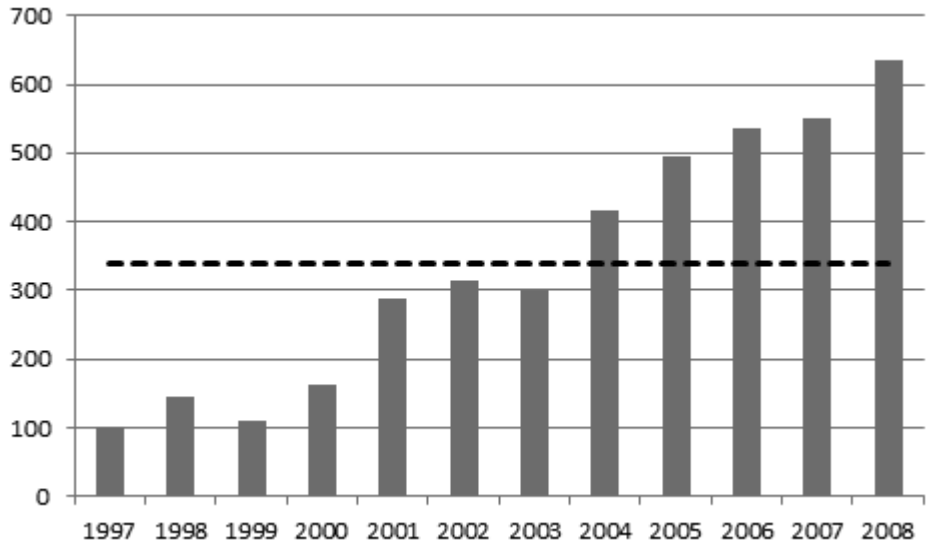

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Figure 2. Number of CSR reports published annually according to Dahliwal et al. (2011)

Figure 2 summarizes the findings of Dahliwal et al. (2011) regarding the number of U.S. firms that voluntarily disclosed CSR information. We present indexed values of the number of CSR reports that were made public every year (1993 represents the base year with index value equal to 100).

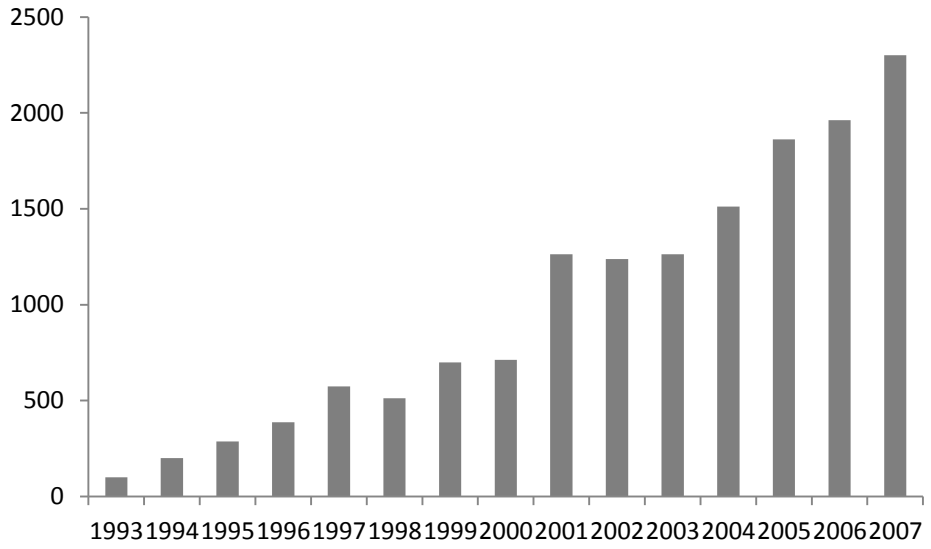

Figure 3. year-by-year difference in risk-adjusted return between top- and bottom-ranked portfolios

Every year, we perform Carhart (1997) four-factor regressions using monthly return differences over the last 4-years between the portfolio composed of the top one-third of stocks ranked on the stakeholder relations index and the the bottom-ranked counterpart. Reported are the annualized yearly risk-adjusted returns derived from equal-weighted portfolios. The stakeholder-relations index *SI* is based on the sum of all strenghts a firm receives in the areas of environment, community, diversity, employee relations, and product quality minus to sum of all concerns.