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THE INFORMATIONAL RELEVANCE OF CORPORATE SOCIAL RESPONSIBILITY: EVIDENCE FROM DS400 INDEX RECONSTITUTIONS

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This study examines the relationship between corporate social responsibility and financial performance by analyzing the intra-industry wealth impact of additions and deletions to the Domini Social 400 index. Results from the event study analysis indicate that additions to the index generate a positive share price response for the announcement firm and a negative response by rival firms. The opposite reaction is observed for index deletions. Additionally, the share price response is more pronounced for informationally opaque industries. Our study highlights the importance of external monitoring agencies in providing meaningful information that helps resolve investor uncertainty regarding the quality of a firm's relationships with its primary stakeholders. Copyright © 2011 John Wiley & Sons, Ltd.

INTRODUCTION

An expanding focus on the social dimension of business has led to a significant increase in investment portfolios worldwide that use 'social and ethical screens' in their stock selection process,[1] and a corresponding need for independent third-party agencies to certify corporate social responsibility[2] (CSR) activity to investors and other stakeholders. The social auditing role has traditionally been viewed from a normative standpoint, its central aim focused on the identification or recognition of companies for 'doing good' in an ethical or stewardship context. At the same time, certain normative aspects of CSR have remained controversial, which has resulted in numerous studies that have sought to measure the empirical relationship between CSR and financial performance. The evidence from these studies has been largely inconclusive.[3]

Keywords: corporate social responsibility; event study; intra-industry response; Domini Social 400 (DS400) index; information asymmetry

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[1] According to the *2007 Report on Socially Responsible Investing (SRI) Trends in the United States*, roughly 11 percent of assets, or about $2.71 trillion under professional management in the United States are involved in SRI. The global nature of the SRI investment phenomenon is also evident—Australia, Canada, Europe, and Japan hold about $2 trillion, $64 billion, $500 billion, and $100 billion in assets, respectively.

[2] CSR is a multidimensional construct that generally refers to voluntary actions taken by companies that go beyond what is mandated by law. It includes the demonstration of economic responsibility to investors and consumers, ethical responsibility to society, and discretionary responsibility to the community (Carroll, 1979). Managers of firms pursuing CSR-based strategies take into account a broader set of stakeholder interests when making corporate resource allocation decisions.

[3] Studies such as Waddock and Graves (1997), Feldman, Soyka, and Ameer (1997), and Orlitzky, Schmidt, and Rynes (2003) document a positive relationship between CSR and financial performance. On the other hand, highlighting the agency conflicts, studies such as Shane and Spicer (1983) and Wright and Ferris (1997) show a negative relationship between CSR and financial performance. Finally, there is evidence that the profits of firms engaging in CSR are indistinguishable from firms that do not

This study examines the connection between CSR and financial performance by focusing on the informational aspects of CSR announcements. Specifically, using an event study methodology we measure the impact of addition and deletion announcements in the Domini Social 400 (DS400) index,[4] a prominent stock market social responsibility benchmark, on the share prices of both announcement (or focus) firms and industry rivals. Based on Hillman and Keim's (2001) proposition that CSR activities related to stakeholder management, as opposed to broad social issue participation, are an important source of competitive advantage and should lead to improved shareholder value, our analysis focuses on primary stakeholder-related CSR announcements. To our knowledge, this is the first study that empirically measures the competitive effect of CSR by comparing the direction of the share price response of focus firms versus rival firms. In addition, we analyze industry-specific characteristics that may mediate the link between CSR and shareholder wealth. Two main research questions are addressed. First, what is the impact of stakeholder-related CSR announcements on focus and rival firm share prices, and, specifically, is there evidence of an intra-industry competitive effect arising from such CSR activities? Second, what role does information opacity play in explaining industry differences in the announcement effect?

A central contribution of our research is that we clarify the role of information asymmetry in explaining the relationship between CSR and financial performance, thus providing insights as to why prior studies may have failed to document a systematic relationship between these two variables. As McWilliams and Siegel (2001) point out, at the macro level there should be a neutral relationship between CSR and firm performance because, in equilibrium, marginal costs and benefits of CSR for individual firms should offset each other. However, by focusing on announcement effects, our study captures the equilibrium shocks that occur when new information arrives, thus signaling a competitive shift within the industry.

Our overarching argument is that if socially responsible behavior creates value for firms in the long run, then such value creation may be observed in the share price reaction to CSR announcements. The underlying mechanism through which stock prices can be expected to react is based on the information theory of financial markets, which suggests that investors in general possess imperfect information about the companies in which they invest (Greenwald and Stiglitz, 1990). The presence of information asymmetries in the marketplace elevates the role of external monitoring or rating agencies such as KLD, which manages the DS400 index, whose role is to uncover new information about the firm's performance and communicate this to outside investors. In the context of this study, DS400 index reconstitutions provide new and relevant information about the firm's CSR actions that help investors reassess not only the value of the firm undergoing the index change but also other rival firms that are competing for the same resources and investor attention. We contend that most, if not all, firms will attempt to communicate their commitment to stakeholder relationships even though the intangible nature of CSR makes it difficult for them to credibly do so. Certification of CSR activity by a disinterested third party agency informs the market as to the *quality* of firms' CSR practices, which is not only difficult for shareholders to discern but also may be difficult in the short run for rival firms to replicate.

Luo and Bhattacharya (2006) indicate that examining the impact of a firm's CSR on its market value is perhaps the ultimate test of success or failure of any strategic initiative. Therefore, our empirical analysis relies on an event study methodology that lends itself more easily to an examination of the informational impact of CSR actions.[5] The event study analysis is an improvement over prior studies that rely on accounting-based measures of financial profitability, which fail to adequately control for potential endogeneity

engage in CSR (McWilliams and Siegel, 2000). More recently, Margolis, Elfenbein, and Walsh (2007) conduct a meta-analysis of previous research and find that the overall average effect of CSR on financial performance is positive, but small in magnitude, and only two percent of the individual studies examined report a significant negative relationship.

[4] In July 2009, after our period of study, the Domini 400 Social Index was renamed the FTSE KLD 400 Social Index. The DS400 is one of the most widely recognized industry benchmarks for measuring the impact of social and environmental screening on investment portfolios. Importantly, DS400 index reconstitutions provide independent and credible third-party certification of a firm's CSR activities that are easily observable by investors.

[5] The use of event studies to examine issues relating to the CSR arena is not without precedence. For instance, Hamilton (1995) and Klassen and McLaughlin (1996) evaluate the information content of corporate environmental news on stock prices. Posnikoff (1997) analyzes the effect of divestment announcements of U.S. firms from South Africa.

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and misspecification in the relationship between CSR and financial performance (McWilliams and Siegel, 2000). Balance sheet-based analysis makes it difficult to disentangle the two related questions—that is, whether CSR activities lead to better performance, or whether firms with superior financial performance are the ones that pursue CSR. Furthermore, they are not fully capable of shedding light on whether financial performance is superior on a risk-adjusted basis. In this context, our study design treats DS400 index reconstitutions as exogenous events and evaluates their impact on stock prices net of measurable risk factors.

In the next section of the paper, we provide arguments to support the competitive effects of CSR and the mediating role of information opacity. In the subsequent section, we describe the study's data and methods. The final two sections discuss the results and conclusions of the paper.

COMPETITIVE EFFECTS OF CSR AND THE ROLE OF INFORMATION OPACITY

Our study measures the intra-industry (or competitive) shareholder wealth effects resulting from the announcement of a firm's CSR activity. The share price response is captured using a sample of addition and deletion announcements in the DS400 that reveal new information to investors about firms' CSR activities as they relate to primary stakeholder groups. We use the conventional definition of primary stakeholders as those stakeholders who 'bear some form of risk as a result of having invested some form of capital, human or financial, something of value, in a firm' (Mitchell, Agle, and Wood, 1997). Clarkson (1995) indicates that these are stakeholders who, without their participation, the corporation cannot survive.[6] They include investors, employees, resource suppliers, customers, community residents, and the natural environment. Importantly, we propose that an examination of primary stakeholder relationships would provide the most compelling test of the information relevance of CSR since this is where information gaps between firm insiders and outside investors are likely to be most acute. Relationships with primary stakeholders are an 'intangible and socially complex' resource (Hillman and Keim, 2001: 127) that generates reputational capital and trust (Barney and Hansen, 1994) and knowledge assets for the firm (Moran and Ghoshal, 1996), and as a result, their value proposition may be difficult to convey to outside investors. It is in this framework that DS400 index reconstitution announcements provide useful information that helps resolve investor uncertainty and influences the share price response.

While imperfect information lies at the heart of examining the impact on share prices, the resource-based view (RBV) theory provides a meaningful framework for predicting the direction of the response. RBV theory contends that resources and organizational capabilities of the firm lead to better financial performance only if these resources are 'valuable, rare, imperfectly imitable, and non-substitutable' (Barney, 1991: 117; see also Wernerfelt, 1984, among others). Applying the RBV theory to CSR, several authors suggest that managing relationships with primary stakeholders involves an element of knowledge or learning competency that is unique to the firm and therefore not easily replicable by its competitors (see for example, Hart, 1995; Litz, 1996; McWilliams, Van Fleet, and Cory, 2002; Branco and Rodrigues, 2006). Similar views have also been expressed by Jones (1995) and Prahalad (1997) who stress the importance of stakeholder management in order to gain a competitive advantage over rivals. We suggest that the missing link in the arguments connecting CSR and financial performance thus far has been the role of information. Specifically, in order for the strategic and competitive dimensions of stakeholder-related CSR activities to be reflected in stock prices, such information must be disclosed to outside investors in a credible manner. In this connection, changes in DS400 provide meaningful information to outside investors about a firm's relationships with primary stakeholders. Furthermore, given that such announcements simultaneously reveal information about a firm's source of competitive advantage, they would also alter investor expectations of rival

[6] Primary stakeholder-related CSR activities may be contrasted with another category of CSR called 'social issue participation' (SIP). Hillman and Keim (2001) define SIP as a broader type of CSR activity that includes interactions of the firm beyond the primary stakeholder group. Examples of SIP include avoiding nuclear energy or not engaging in the so-called 'sin' industries (alcohol, tobacco, firearms, gambling). As Hillman and Keim point out, the crucial distinction of SIP activities lies in the fact that they do not provide any intrinsic benefits to the firm since SIP activities can be easily duplicated by rival firms. SIP activities are not considered in our study since they are not central to our examination of information relevance.

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firms. These conditions would support the presence of an information (or market substitution) effect where positive share price reaction of the focus firm is coterminous with negative price reaction of rival firms, and vice versa.[7] Therefore, based on the above line of reasoning, we propose the following:

Hypothesis 1: Stakeholder-related CSR addition (deletion) announcements will result in a positive (negative) share price response among focus firms and a negative (positive) share price response among rival firms.

Continuing with this line of reasoning, if stakeholder-related CSR activities create value for focus firms it would be important to find out whether or not there are any systematic differences in firm share price response that can be attributed to specific industry factors. In this context, a recent stream of research (e.g., McWilliams and Siegel, 2000; Surroca, Tribo, and Waddock, 2010) suggests the importance of intangible assets in mediating the relationship between CSR and financial performance. Again, it must be noted that the central mechanism through which DS400 reconstitution announcements impact stock prices is that they disclose new information about the firm that would be helpful in resolving information asymmetry. Therefore, given the influential role of information in financial markets, we focus on the industry's information opacity characteristics in order to further explain the link between CSR and stockholder wealth effects. In particular, we propose the following:

Hypothesis 2: The KLD signal on stakeholder-related CSR activities is more pronounced for firms in informationally opaque industries—that is, those firms that sell intangible products and/or carry intangible assets.

Information opacity is a characteristic feature of the services industry—examples include engineering services, tourism, and legal services—because the attributes of service-related products are oftentimes difficult to grasp ahead of consumption. In fact, research indicates that the public image of the service company and the perception of the service are found to affect the firm's performance even more than the actual service it offers (Bharadwaj and Menon, 1994). Therefore, it is not entirely surprising that while product market industries focus on efficiency and performance-based benchmarks, the services markets focus more on the quality of relationship between the firm and its stakeholders (see Gwinner, Gremler, and Bitner, 1998; Athanasopoulous, 2009).

For similar reasons, information opacity is also likely to be prevalent for industries with intangible assets. For example, industries that are research and development (R&D) intensive, such as high technology manufacturing, are likely to suffer from information opacity because the value of these intangible investments is intrinsically hard to determine, and therefore difficult to convey to outside investors.

Before concluding this section, it is important to highlight two points. First, the inferences drawn in this study critically hinge on the efficient market hypothesis (EMH). The EMH asserts that financial markets are informationally efficient—that is, stock prices reflect all publicly available information and respond immediately to the arrival of any new and relevant information about the firm. Under EMH, significant changes in current security prices are interpreted as a measure of the market's instantaneous assessment of an event's economic impact on the future cash flows of the firm. Second, the market reaction we measure is that of focus and rival firm shareholders—not managers. We would note, however, that secondarily, to the extent firm managers can easily and unambiguously observe the price response of rival firm shareholders, this may also carry useful strategic implications regarding the impact of CSR on firm value.

DATA AND METHODS

Data

The DS400 index is constructed and maintained by *KLD Research & Analytics*, and is one of the oldest and most widely recognized industry benchmarks used to measure the impact of

[7] It would be worthwhile to note that market substitution effects have been documented in a variety of contexts in the finance literature, such as new product introductions (Chen *et al*., 2002), reorganization filings (Chi and Tang, 2008), bankruptcy announcements (Iqbal, 2002), and additions to the S&P 500 index (Cai, 2007). Our study would be among the first to provide evidence on intra-industry information effects for CSR-related announcements.

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environmental and social screening on investment portfolios. According to KLD, 10 out of the top 15 institutional financial managers in the world use its research for investment purposes and about $9 billion is invested in funds that are based on KLD's ratings. Several studies such as Waddock and Graves (1997), McWilliams and Siegel (2000), and McWilliams, Siegel, and Wright (2006), among others, have used KLD data on social performance.

A list of all company additions and deletions to the DS400 since its inception on May 1, 1990 through April 10, 2007 is obtained from KLD. The raw data consist of 453 deletions and 453 corresponding additions, with a date stamp obtained for each announcement and corresponding reasons provided for each index change. In managing the index, KLD seeks to maintain a desired composition of firms with regard to market cap, industry and sector representation, exposure to the S&P500 index, and exchange listing.[8] Therefore, an addition is made only when a vacancy is created by the removal of a company in the index.

The overall list of index changes is then pared down to a smaller study sample of stakeholder-related CSR announcements that includes 166 additions and 28 deletions. Specifically, for the purpose of the analysis, we only consider firms that meet KLD's 'qualitative' screen (Social Q) which is based on specific environment, social, and governance (ESG) factors that directly relate to one or more primary stakeholder groups. Qualitative screens may apply either negatively or affirmatively and often cite multiple ESG factors in combination. Reasons for Social Q deletions include: environment or product safety concerns, corporate governance issues or lack of transparency, marketing/contracting concerns, and issues with labor, diversity, or union relations. For instance, the company *American International Group* was deleted from the index in 2005 due to corporate governance, marketing/contracting, and product concerns. Reasons for Social Q additions include: strong employee relations, diversity strengths, beneficial products and services, environment strengths, compensation, governance strengths, and so forth. For example, the company *Sierra Health Services* was added to the index in 2006 for having strong workforce diversity initiatives, good employee and community relations, and for avoiding product-related concerns common to its industry.

In order to avoid confounding our results with other types of index changes, we exclude announcements related to KLD's 'exclusionary' screen (Social E) which pertain to broader social issues not related to primary stakeholder relationships.[9] We also exclude announcements that are due to technical reasons (e.g., acquisition, merger, privatization), cosmetic changes (e.g., ticker or name change), financial distress (e.g., bankruptcy, deteriorating financial quality), and other announcements that cannot be unambiguously related with primary stakeholder groups.

For each stakeholder-related addition or deletion, a set of industry rivals (or peers) as of the event date is obtained from the *Center for Research in Security Prices* (CRSP) database based on the focus firm's four-digit primary Standard Industrial Classification (SIC) code at the time of the announcement. A market cap screen is applied whereby a given peer company is retained only if either of the following conditions is met: the peer company market cap is within a range of values equal to the focus firm market cap plus or minus 50 percent; or the peer firm and focus firm market cap values are both in the top 25 percent or both in the bottom 25 percent of firms in the industry. Furthermore, in order to avoid cross-contamination of results, if any company appears twice within a seven day period, or if multiple addition or deletion events from the same industry occur within a seven day period, then all observations related to such events are omitted from the sample.[10]

Finally, it is required that all announcement firms and peer firms included in the sample must have positive market cap and available stock price

[8] Beginning in 2003, KLD expanded its universe of coverage to include the 3,000 largest publicly traded companies by market capitalization.

[9] Social E screens disqualify companies that participate in certain industries such as alcohol, gambling, tobacco, military contracting, nuclear power, or firearms. For instance, *IBM* was deleted in 1998 for military reasons for selling supercomputers to a Russian nuclear weapons facility, and the toy manufacturer *Hasbro, Inc*. was deleted from the index in 1991 when it licensed a brand name to a gambling services company.

[10] For instance, on October 31, 1993 *Baxter International Inc*. was deleted from the DS400 index and on the same date *Allergan Inc.*, a rival of Baxter, was added. A total of seven focus firms (three deletions and four additions), and their corresponding peers, were eliminated from the sample by this screen. Expanding this window to a two-week period had no material impact on the results.

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information in the CRSP database over the relevant time span needed for inclusion in the event study analysis. The final sample of additions consists of 166 announcement firms and 2,104 peer companies, and the final sample of deletions consists of 28 announcement firms and 204 industry peers. A breakdown by industry indicates that firms are distributed across a diverse set of business sectors, with the services, financials, and manufacturing sectors accounting for the largest proportion of index changes.[11] The ratio of peer companies per announcement firm averages about 13 percent for both additions and deletions.

Methodology

The standard event study methodology of Brown-Warner (1985) is employed to examine share price movements for focus firms and rival firms at and around the period surrounding DS400 reconstitution announcements. To calculate abnormal returns, a market risk-adjusted expected return for each firm is estimated with the following specification:[12]

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}, \qquad (1)$$

where $t = -255, \ldots, -46$ days (estimation period), R_{it} is the return on stock i at time t, and R_{mt} is the return on an equally weighted CRSP market index at time t.[13]

Subsequently, estimates of the daily abnormal returns (AR) are generated by subtracting the expected returns obtained in the estimation period from the actual returns during the event period. That is,

$$AR_{it} = R_{it} - (\hat{a}_t + \hat{\beta} R_{mt}), \qquad (2)$$

where $\hat{\alpha}$ and $\hat{\beta}$ are the ordinary least squares (OLS) parameter estimates obtained from Equation (1). Any significant difference between the actual return and the expected return is considered to be an abnormal, or market risk-adjusted excess, return. Cumulative abnormal returns (CARs) are computed for each event window and then averaged across firms to produce cumulative average abnormal returns (CAARs).

CAARs are reported for the following three event windows: (−3, +3), (+1, +3), and for the event date (0, 0). Statistical significance of abnormal returns is reported using a one-tailed Patell (1976) test statistic based on the precision-weighted CAAR. The Patell z is a restrictive parametric test that examines the likelihood for each day of the sample period that the difference between the observed sample mean and the expected sample mean values (for each firm individually) differs from 0.

It is hypothesized that the announcement effect associated with KLD certification of stakeholder-related CSR activities will be more pronounced for firms in industries characterized by greater information opacity. To investigate possible industry effects, we perform a cross-tabulation of the CARs from the (−3, +3) event window for CSR announcements of focus firms across different industry sectors. Specifically, we focus on the (nonfinancial) *services* industry (SIC code: 7xxx-8xxx), *financial* industry (SIC code: 60xx-66xx), and *high technology manufacturing* industry (SIC code: 28xx-39xx).

The services sector (SVC) identifies companies in nonfinancial service industries, which are characterized by information opacity stemming from both intangible products and from outcomes that are closely tied to intangible customer relationship management factors.

The financial sector (FIN) is singled out in recognition of the unique regulatory structure of the financial industry related to the government policy goals of protecting customer fiduciary interests and the overall integrity of the financial system. It may be conjectured that the safety net provided by government regulation might mitigate information asymmetry problems for financial service firms or otherwise lead to differential announcement effects compared to nonfinancial services. FIN includes all industries in the finance, insurance, and real estate sector (SIC division H) except for 'Holding And Other Investment

[11] For additions and deletions, these three sectors account for 74 percent and 64 percent of the sample, respectively.

[12] Abnormal returns were also estimated using the Fama-French three factor model that controls for size and book-to-market effects. The results from this model were qualitatively similar to those found using the market model, and therefore not reported.

[13] There is no standard convention in the literature for assigning an estimation window; however, most of them range between 250 and 260 days in the estimation period, which roughly corresponds with the number of trading days in a calendar year (see Cowan and Sergeant, 1996; McWilliams and Siegel, 1997). We adopt a 255-day estimation period. The 46-day count is approximately the number of trading days in two months. We construct the estimation window in this manner so as to minimize possible misspecification in estimating the regression parameters.

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Table 1. Share price response to announcements of DS400 Index reconstitutions
Panel A: Results for focus and rival firms across all industries

Event window	Focus firms		Rival firms	
	N	CAARs (%)	N	CAARs (%)
Additions:				
(0,0)	166	0.04	2,058	−0.08**
(−3,+3)	166	0.85*	2,058	−0.08**
(+1,+3)	166	0.50*	2,057	−0.52***
Deletions:				
(0,0)	28	−0.67***	204	0.12**
(−3,+3)	28	−1.30*	204	−0.11
(+1,+3)	28	−0.21	204	0.17

Panel B: Cross-tabulation of focus firm CARs by industry group for the (−3, +3) event window

	Opaque industries				Non-opaque industries	All industries
	SVC	FIN	TECH	Combined		
Additions:						
Average CAR (%)	0.87	−1.17	2.01	1.12	0.45	0.85
Opacity premium (%)	*+0.42*	*−1.62*	*+1.56*	*+0.67*	*n*.a	*n*.a
N	28	18	54	100	66	166
Deletions:						
Average CAR (%)	−2.83	−0.16	−6.07	−3.00	0.17	−1.30
Opacity premium (%)	*−3.00*	*−0.33*	*−6.24*	*−3.17*	*n*.a	*n*.a
N	5	4	4	13	15	28

Notes:
1. Panel A reports the mean cumulative abnormal return (CAAR) for each event window; statistical significance tests are based on the (one-tailed) Patell Z-statistic for the precision-weighted CAAR. Statistical significance at the 0.10, 0.05, or 0.01 level is indicated by *, ** and *** respectively.
2. Panel B shows the cross-tabulation of focus firm cumulative abnormal returns (CARs) for CSR announcements across industry sectors for industries characterized by information opacity. The *opacity premium* is measured relative to the base group of non-opaque industries.

Offices' (67xx) which pertain to non-service type companies such as bank holding companies, real estate investment trusts, and so forth.

The high technology manufacturing sector (TECH) identifies manufacturing companies in high technology industries, which are generally characterized by firms having a significant amount of intangible assets related to R&D activities. Information issues arise with R&D-related information not only because such investments are difficult to value but also because voluntary disclosure by the firm is costly if such information is proprietary or would benefit competitors (Jones, 2007). There is some variation in the literature regarding the definition of high technology industries and the measurement of R&D intensity. Our dummy variable definition spans a range of industries (28xx-39xx) from the manufacturing sector (SIC division D) such that most of the industries in this range commonly appear in studies or have been identified in at least one study as being a high technology- or R&D-intensive industry (see, e.g., Hecker, 1999; Cortright and Mayer, 2001; Silva, 2007).

EMPIRICAL RESULTS

Impact of CSR activities on focus versus rival firms

In order to examine whether or not stakeholder-related CSR announcements engender a competitive response, we compare the share price reaction of focus firms versus rival firms. Table 1–Panel A provides corresponding CAARs with statistical significance based on the Patell Z-statistic.[14]

[14] In addition to testing for the significance of CAARs, we also examine a nonparametric generalized Z which is based on the

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An examination of DS400 additions indicates that firms that are added due to stakeholder-related CSR reasons experience significant positive share price reaction. For instance, announcement firm shareholders, on average, realize significant daily cumulative abnormal returns of positive 0.85 percent over the entire (−3, +3) event window. This translates into a total dollar wealth impact of approximately $3.1 million aggregated across all firms. In comparison, the evidence from rival firms indicates that CSR announcements have a significant and negative influence on their share prices across all three event windows. For instance, on the day of the event, rival firms have a negative abnormal return of 0.08 percent (significant at the 0.01 level), and this is followed by a negative 0.52 percent abnormal return during days +1 to +3.

In the case of deletions, we observe that focus firms experience large and significant negative abnormal equity returns for CSR announcements. For example, during day 0, the abnormal return is negative 0.67 percent and statistically significant at the 0.01 level. The magnitude of the abnormal returns is nearly twice as large for the (−3, +3) window. For the (−3, +3) event window, the abnormal return of −1.30 percent translates into a total dollar wealth impact of approximately negative $7.5 million aggregated across all firms (or an average wealth impact of approximately −$270,000 per announcement event compared to only about +$20,000 for additions). Rival firms, on the other hand, exhibit positive abnormal returns on the day of the announcement (0.12 percent, significant at the 0.05 level).

The combined evidence from both additions and deletions provides two important insights. First, in examining the announcement effect on the focus firm, our results indicate that DS400 additions are positively related to share price changes; whereas, index deletions are greeted with a strong negative assessment by shareholders. In a related study, Curran and Moran (2007) examine reconstitutions in the FTSE4Good Index (an index of the top 50 environmentally and socially responsible firms in the United Kingdom) and find that although positive and negative index announcements have the expected effect in terms of share price direction, importantly their abnormal returns are not significant. We contend that this lack of significant share price response may be partly attributed to the fact that their study does not separate announcements based on the type of CSR activities and that their sample includes additions and deletions not only due to stakeholder-related activities but also due to reasons such as participation in broad social issues (e.g., military, tobacco, nuclear weapons) and financial factors. In contrast, our study builds a framework arguing for the information relevance of stakeholder-related CSR activities and reports evidence consistent with the notion that 'firms can do good while doing well.'

Second, for both additions and deletions, the direction of the share price response of rival firms is opposite to that of the focus firm. That is, in response to the CSR announcement for the focus firm, rival firm shareholders seem to revise their expectations of the firm's future cash flows and/or cost of capital estimates. The resulting intra-industry share price response is in agreement with the competitive effect hypothesis which posits that 'good (bad) news for the focus firm is perceived as bad (good) news for rival firms.' From a strategic management perspective, the guidance offered by our results is that a firm's focus on stakeholder relationships entails a twin benefit—a positive assessment by its shareholders and a simultaneous gain in competitive advantage over its industry rivals.

In order to check the robustness of our findings, we also perform the same event study analysis over two nonoverlapping subperiods: 1 May, 1990 through 26 February, 2003; and 27 February, 2003 through 10 April, 2007.[15] This is done in order to examine possible shareholder wealth impacts resulting from a change in KLD's index reconstitution announcement procedure. During the first subperiod, index changes were communicated directly by KLD to the affected companies on the effective date, as opposed to issuing a common public release. Individual companies could then further publicize such information or not, at their own discretion. However, for the purpose of minimizing tracking errors, KLD also released this information to fund managers/licensees who

ratio of positive to negative CARs. The results from this test were largely in agreement with those reported in this study, and can be obtained from the authors.

[15] For the sake of brevity, we provide only a brief qualitative discussion of subperiod results. These results are not reported in the paper and can be made available from the authors upon request.

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were tracking the DS400 index for investment purposes. Correspondingly, our analysis assumes that the investment community effectively receives this information on the day the change is made and reacts immediately. Note that, starting on 27 February, 2003, KLD began making public announcements of each index change.

In general, subperiod results are consistent with the evidence reported from the full sample period; however, a few additional insights are obtained. First, during the first subperiod we observe that the announcement effect occurs largely in the post-announcement window; whereas, for the second subperiod it shifts mainly to the pre-announcement window. This timing difference is in line with what one might expect given the type of change that occurred in KLD's information dissemination process. Second, there is evidence of competitive industry effects among rival firms for stakeholder-related CSR events during both subperiods. Finally, the magnitude of the negative response for deletions, in general, is quite stronger than the corresponding positive response observed for additions. This is perhaps because, in the case of deletions, the announcement may more clearly mark the change of a company's CSR activity. For additions, the signal is a bit weaker since firms are added to the index only when there is a corresponding deletion, and entry into the index may not necessarily coincide with a change in CSR. The conclusion of this finding for corporate managers is clear: shareholders attach a greater penalty for negative CSR actions that result in the firm's deletion from the index.

Role of industry characteristics

Table 1–Panel B presents a cross-tabulation of abnormal returns (CARs) for the (−3, +3) event window for focus firms across different industry sectors. The results reveal relationship patterns in abnormal returns across industry groups and help to verify our hypothesis that variation in abnormal returns associated with CSR announcements can be systematically explained by industry-specific characteristics. Our hypothesis is that those industries with greater information opacity should be the ones that are more significantly related with abnormal returns.

The results provide two important findings. First, we observe that informationally opaque industries exhibit a more pronounced positive (negative) average abnormal return for additions (deletions) as compared to the base group of non-opaque industries. Specifically, additions exhibit a positive 'opacity premium' of 67 basis points (1.12 percent versus 0.45 percent), whereas deletions reveal a negative opacity premium of 317 basis points (−3.00 percent versus +0.17 percent). Second, we find that, among informationally opaque industries, abnormal returns are highest in magnitude for high technology manufacturing firms, followed by service companies. The abnormal return for the high technology industry is at least double that of the service sector for both additions (1.56 percent versus 0.42 percent) and deletions (−6.24 percent versus −3.00 percent). This suggests that while informational opacity, in general, helps to describe industry differences, it appears that this relationship is being driven more by asset opacity than product opacity. Furthermore, if one interprets a positive (negative) opacity premium for additions (deletions) as being consistent with the informational aspect of RBV theory, then these results imply that within the group of opaque industries, the signal value is lowest for the financial industry, a sector that is characterized by heavy government regulation. One possible interpretation of this finding is that the safety net of government regulation reduces information uncertainty, thereby reducing the signal value of the announcement.

From a strategic perspective, the informational relevance of these results is that shareholders of firms in industries characterized by asset opacity (e.g., high technology manufacturing) or product opacity (e.g., services) stand to benefit more when management pursues stakeholder- related CSR activities and by having those actions certified by KLD, than firms in other industries.

CONCLUSIONS

This paper examines the informational and competitive effects of CSR on shareholder wealth. The informational attribute of CSR is measured by considering public announcements of reconstitutions to the DS400 index, which is a widely recognized stock index that comprises companies that have positive environmental, social, and governance performance relative to their industry and sector peers. Based on related evidence in the literature, we focus on stakeholder-related

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announcements since this is where the strategic elements of CSR are most clearly reflected.

In general, results indicate that additions to the index are associated with positive abnormal returns and deletions correspond with negative abnormal returns. In other words, firms that engage in effective and credible stakeholder management are rewarded with a positive share price reaction surrounding the CSR announcement. Actions that improve relationships among primary stakeholder groups, for example, strengthening employee ties, developing sustainable practices, creating reputational links with customers and other stakeholders, and so forth, are a way to signal to outside investors that the firm is investing in those stakeholder-related CSR activities that build competitive advantage and that will create long-term value for shareholders.

Second, the wealth impact on firms suggests competitive effects; specifically, there is a transfer of shareholder wealth from rival firms to focus firms for additions, and for deletions there is a reverse wealth transfer from focus firms to rival firms. Finally, it is important to acknowledge the important role of KLD and the DS400 index in the information dissemination process. Principally, their role is one of external monitoring and certifying CSR actions. The information provided by index reconstitutions is especially important for firms that are characterized by informational opacity, in terms of providing intangible products and/or carrying relatively large amounts of intangible assets.

These results have important strategy implications for firms. Senior management and board members can conclude that investments made in enhancing social responsibility are best focused on building primary stakeholder relationships that are not easily replicable by competitors. Additionally, because the quality of such relationships is not easily observable by outsiders, it is incumbent upon management to recognize the importance of effectively communicating the value of its CSR activities to the market. Our research indicates that being added to the DS400 index provides a credible signal in the form of third-party verification of value-creating CSR actions being undertaken by the firm.

It is important to note some possible limitations of our study and suggestions for future research. First, the findings of our study apply to publicly held firms and do not necessarily extend to privately held companies, which may face a different set of constraints and objectives. Second, the index construction process introduces a timing element that may differentially impact addition and deletion announcements. Specifically, additions are precipitated only by the removal of another company from the index, and in this regard may be seen as a 'second-order' response and thus may portend lower signal value as compared to deletions. Finally, the implications of our results are predicated on an event study methodology that provides meaningful insights on the immediate short-run announcement impact of CSR activities on share price, but does not necessarily measure long-run effects.

In terms of possible extensions to this research, an evaluation of the impact of socially responsible investments of firm value over a longer time horizon would add greatly to our understanding of their value impact. These findings would provide insights into Jensen's (2002) 'enlightened' stakeholder theory, which postulates that the appropriate objective function of a firm is one that maximizes its long-term market value by taking into account all of the firm's financial claimants. Likewise, an analysis that takes into account firm-specific characteristics such as insider ownership, debt levels, and so forth, or the competitive market structure of the firm's industry, might help to further clarify the results reported in this study. It would also be interesting to reconcile the findings of this study with evidence from abroad. These issues are left for future examination.

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