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ABSTRACT

This paper explores stock market reactions to corporate social performance. We find that a value-weighted portfolio based on the list of "100 Best CSR companies in the world", published by Reputation Institute, yields statistically significant annual abnormal returns of 1.63% and 1.26%, by controlling for Carhart four factors and Fama-French five factors, respectively (2.39% and 1.84% respectively for an equal-weighted portfolio). Moreover, such abnormal returns decrease as time goes, especially after the inaugural publication of the CSR lists in 2013. The paper also indicates that companies with better social performance are more likely to have positive earnings surprises, and that their returns are more sensitive to earnings surprises. The results of this paper have three implications: firstly, CSR reputation contributes positively to a firm's short-term superior equity performance; secondly, the CSR lists facilitate market correction of mispricing intangibles such as CSR reputation - abnormal returns decrease as the market gradually learns about the value of firms' social performance; lastly, the paper contributes to the socially responsible investing (SRI) screens and provides guidance for investors who would like to do well financially by doing good socially.

JEL classification: G1; M1; E2
Keywords: Corporate social responsibility; Intangibles; Market efficiency; Earnings surprises; Abnormal returns

I. Introduction

Over the past decades, Corporate Social Responsibility (CSR) has gained its popularity and importance in various areas such as corporate governance, financial economics, sustainability, sociology, strategy and management (e.g., Attig, Boubakri, Ghoul and Guedhami, 2016; Ghoul, Guedhami and Kim, 2017). According to Galema, Plantinga and Scholtens (2008), more than half of the Fortune 1000 U.S. companies have issued CSR reports, and around 10% of U.S. investments are screened by using CSR-related criteria. CSR facilitates the integration of business operations with social values so that the interests of all stakeholders - including customers, suppliers, employees, communities, governments, society, and the environment - are reflected in the company's policies and actions. However, questions such as whether a socially responsible investment is a financial benefit or burden, and whether financial markets and market participants process such information correctly and efficiently, have not been fully answered. Some argue that CSR is costly to shareholders, especially when their interests conflict with those of other stakeholders. In addition, some also posit that CSR may be misused to provide additional job security to inefficient managers by pleasing stakeholders and enhancing the individual reputations of managers at the expense of shareholder interests. From this point of view, the stock market should respond negatively to superior CSR performance. The results of Barnea and Rubin (2010) support this argument by showing that corporate insiders tend to overinvest in CSR for private benefits when they bear little of the cost of doing so. Conversely, CSR could reduce firm risk by generating "moral capital" that protects a firm's relation-based intangible assets, such as customer loyalty (Besley and Ghatak, 2007). Other benefits of CSR which have been studied include increased customer awareness (Servaes and Tamayo, 2013), higher employee satisfaction and productivity (Edmans, 2011), and risk management/insurance properties of CSR (Godfrey, 2004;

Dunbar, Li, and Shi, 2018). All these may contribute to superior financial performance during periods of stress, suggesting that the market should respond positively to superior corporate social performance. Indeed, other studies document a positive effect of CSR activities on firm performance (e.g., Jeong, Jeong, Lee and Bae, 2018). Therefore, the conclusion of the impact of CSR on firm value is still inconclusive and needs further investigation.

Before we can examine CSR's impact and market reaction, an important question we need to answer is how to measure the benefits or costs of CSR on firm value. In this study, we choose alpha. Alpha is one of the most quoted and widely used indicators to evaluate investment performance, which is defined as the risk-adjusted excess return on an investment relative to the return on a comparable benchmark; it has been called the "holy grail" of performance measurement for investors. This motivates us to explore whether or not CSR generates alpha and how the market reacts and learns. In particular, we study the abnormal returns of the "100 Most Socially Reputable Companies" on a five-year rolling basis. The results indicate that firms with better social performance had large alphas before the list was first published in Forbes in 2013. However, those superior returns started to decrease since then. Once the time rolling window fully coincides with the list disclosure period (a five-year period from 2013 to 2017), the abnormal returns diminish. The evidence supports that market participants perceive positively of CSR performance, and more importantly, the market learns and capitalizes on such CSR advantages due to reduced information asymmetry between outside investors and management regarding firm social performance. We show that CSR is indeed beneficial to shareholders who appreciate corporate social responsibility, by providing evidence that our value-weighted CSR portfolio, consisting of 40 companies with the best CSR performance, earns 0.11% monthly abnormal returns, or 1.32% annual returns, by

applying Carhart's four-factor model (1997) in the sample period from November 2007 to October 2017. This finding is robust when we apply different estimation approaches.

Another motivation for our study is to explain why and how CSR performance could benefit a firm and contribute to market efficiency. Edmans (2011) indicates that firms with higher employee satisfaction are more likely to have long-term growth earnings surprises. Studying 33,510 firm-year observations, Edmans concludes that the "best companies to work for" in the world are 1.46% more likely to positively surprise the market. Using Korean sample firms, Jeong et al. (2018) show that firm value depends on whether CSR activities are permanent or temporary, and this relation is manifested through earnings surprises. Some literature (e.g., Abarbanell and Bernard, 2012) conclude that earnings surprises can explain a significant portion of the abnormal returns. In this paper, we demonstrate that companies with better social performance are more likely to have positive earnings surprises and that CSR performance significantly affects the responsiveness of firm value to earnings, through the improvement of firm reputation.

Our findings contribute in the following aspects. Firstly, we examine how markets react to corporate CSR activities, and how to price such intangible assets, in both the short run and long run. Our selected portfolios of socially responsible firms generate positive alphas over the short run, but the positive alphas diminish over a long time-horizon. This finding is important for various parties such as socially-conscious and value investors, as well as firms that consider well-timed capital raising. It is also a way to assess market participants' perceptions of a firm's CSR activities. Secondly, this paper also provides additional evidence to the controversial issue of CSR and firm value through a different lens. Previous literature normally focuses on other measures of firm fundamental values, such as Tobin's Q, but not alphas from the investor's point of view. Finally, we further explain the superior returns and how, as well as why, CSR affects such abnormal

returns. Our results show that companies with strong social performance are more likely to have positive earnings surprises and that CSR performance has a moderating effect on the relationship between earnings surprises and firms' short-term abnormal returns, but not long-term abnormal returns. It is evident that CSR listing temporally boosts abnormal return through the improvement of firm reputation.

This paper is organized as follows. Section 2 discusses the relevant literature and develops our hypotheses. Section 3 describes sample construction and Section 4 presents and discusses our empirical results. The paper concludes in Section 5.

2. Literature Review and Hypotheses Development

Due to CSR's qualitative nature and the lack of complete and consistent measures, researchers have fiercely debated on the relations between CSR and firm performance, in a variety of areas, over the past 30 years. Questioning firms undertaking CSR initiatives, Friedman (1970) first considers CSR as a "subversive doctrine" and argues that the only social responsibility of business is to maximize profits without deception or fraud. Consistent with Friedman (1970)'s argument, Barnea and Rubin (2010) show a negative impact of CSR on firm value. On a different note, Aupperle, Carroll, and Hatfield (2017) claim a neutral relationship between firms' social orientation and financial performance in their empirical study.

On the other hand, many studies support a positive correlation between CSR and a firm's profitability. For example, both Hong, Li and Minor (2016) and Flammer, Hong and Minor (2017) find positive relationships between CSR contracting, firm value, and social and environmental performance. These papers argue that CSR contracting provides managers with clear guidance on firm's long-run strategy and planning, which are inclined to benefit shareholders as well as

stakeholders, including employees, customers, the environment, and the community at large. CSR contracting not only helps improve a firm's CSR performance in various areas, including communities, employees, customers and the environment (Hong et al., 2016), but also helps increase firm value as measured by Tobin's Q (Flammer et al., 2017). Moreover, a significant amount of literature has already proved that increasing employee satisfaction will help enhance employee productivity (e.g., Flammer and Kacperczyk, 2015), which will finally be capitalized on by the market as an intangible asset (Edmans, 2011). As an anecdote, Volkswagen, after its gross irresponsibility to the environment, has a long way to earn back the trust of its customers after its emission scandal; this illustrates an example of the negative consequences of CSR ignorance.

The question then becomes, "If CSR increases firm value, what would the possible channels be?" Attig, Ghoul, Guedhami and Suh (2013) find that CSR performance is a critical factor for rating agencies to evaluate firms' creditworthiness. By investigating 1,585 unique firms across 49 industries during the period of 1991 - 2010, they conclude that after controlling for firm characteristics, investing in CSR activities is likely to decrease a firm's financing costs. In particular, an incremental increase in CSR scores, measured by the MSCI-CSR rating (formerly known as KLD), leads to a significant 9.6% increase in credit rating scores. Since credit ratings play a significant role in corporate financing and investment decisions (Blume et al., 1998), these findings support a positive relationship between CSR performance and firm creditworthiness.

Ghoul et al. (2011) provide concrete results from their examination of whether CSR activities affect a firm's cost of capital. By applying four different models to the cost of capital calculations, they find that a one standard deviation increase in CSR scores causes firms' equity premiums to decrease by 10 basis points, confirming the negative relationship between CSR scores and financing costs over a sample period longer than those used in the previous studies.

Stein (1988) and Edmans (2009) discuss the consequences of managers overlooking intangibles. They argue that managers are reluctant to invest in intangibles, such as reputation, because they consider intangibles to be invisible assets that do not help improve stock prices in the short run. Managers overlooking intangible assets may indirectly help their counterparts who create competitive advantages by investing more in intangibles or long-term assets. Flammer and Bansal (2016) find that the passage of long-term compensation proposals contributes to positive market reactions. Therefore, they conclude that firms with a long time-horizon (i.e., long-term incentive compensation) are more likely to align managers' interests with firms' long-term value maximization.

In support of the stakeholder theory first raised by Freeman (1984), Bird et al. (2007) enrich the discussion of corporate management and financial performance, regarding the interests of stockholders and those of other stakeholders. The findings indicate that market performance is proactive in companies with positive CSR activities, especially employee-relations, which are highly related to stakeholders' benefits.

Faleye and Trahan (2011) further explore the relationship between labor friendliness and market performance by examining abnormal stock returns around labor-friendly policy announcement dates. Conducting standard event studies on the "100 Best Companies to Work for in America", the researchers interpret that the superior abnormal returns are generated by firms' sustainable competitive advantages, in this case, especially by improved employee productivity.

Edmans (2011) mitigates the reverse causality effects of intangibles, such as employee satisfaction, on firms' financial performance. He studied long-run stock returns instead of accounting profits. According to the Efficient Market Hypothesis (EMH), a financially well-performed firm is unlikely to earn superior future returns because the market has already

appreciated it in current prices. Therefore, it is logical to argue that excellent CSR performance, undisclosed before, leads to better financial performance but not vice versa. Using abnormal stock returns (alpha) as a proxy for firm performance also helps control for risks (Fama and French, 2015) and avoids underpricing issues caused by valuation ratios (Edmans, 2011).

Many studies argue that firm characteristics, particularly some firm fundamental information, are most related to superior abnormal returns. La Porta et al. (1997) study stock returns around earnings announcements for both value and growth stocks over a five-year period and find that value stocks tend to have more positive earnings surprises than growth stocks. Their data is retrieved from CRSP and COMPUSTAT and consists of NYSE, AMEX, and NASDAQ firms from 1971 to 1992. Moreover, Giroud and Mueller (2011) find that the Democracy-Dictatorship hedge portfolio earns superior abnormal returns in non-competitive industries. Therefore, in this study, we control for important firm characteristics based on previous literature when we study abnormal returns. We argue that CSR performance boosts firm value, based on the above discussion. Therefore, we have our first hypothesis:

***Hypothesis 1*:** The superior abnormal returns of our selected CSR portfolios still exist after firm-characteristic factors are controlled for.

In terms of the trend and persistence of the abnormal returns, the study of seasoned equity offerings by Spiess and Affleck-Graves (1995) shows that abnormal returns are quite persistent over the long-term horizon. On the contrary, according to Edmans (2011), "an intangible only affects the stock price when it subsequently manifests in tangible outcomes that are valued by the market." Firms with great intangibles, such as employee satisfaction, might only have superior performance for a short period because the market will gradually learn the true value of these

intangibles, although the market may fail to incorporate this information in the short run. Based on the above discussion we have our second hypothesis:

Hypothesis 2a: If the efficient market theory holds, the market will immediately learn and capitalize on the intangibles such as CSR advantages. *VS.*

Hypothesis 2b: If the efficient market theory does not hold, the market will not immediately learn and capitalize on the intangibles such as CSR advantages.

Earnings surprise, defined as the difference between actual and predicted earnings measures, may lead to abnormal returns to a certain extent. Wang and Phet (2012) explore the relationship between abnormal stock returns and earnings surprises by analyzing the OMX Nordic 40 stock index. They find that positive earnings surprises affect stock prices over a longer term than negative surprises do.

Studying the market responses around earnings announcements of 171 publicly traded firms from 1962 to 1965, Falk and Levy (1989) conclude that the stock market may be inefficient, during the periods immediately surrounding the announcement day, thereby causing abnormal returns. Kothari and Ball (1991) expand the sample by using NYSE companies and find statistically significant factor loadings after they regress abnormal returns on earnings surprises and standardized firm sizes over an (-11, +11) event window. Qiu (2014) also challenges the market efficiency by re-examining S&P 500 firms' quarterly earnings announcements and concludes that the most statistically significant results are concentrated on the announcement day.

Based on the existing relationship between earnings surprises and abnormal returns, Giroud and Mueller (2011) further explore the connection between earnings surprises and firm characteristics such as firm size, book-to-market ratio, current yield, etc. The evidence demonstrated in their paper suggests that firms with good governance in non-competitive

industries are more likely to generate earnings surprises because of analysts' underestimation of governance's effect on earnings. The failure of earnings forecasts explains at least a portion of the corresponding abnormal returns. Edmans (2011) constructs the same model but adds a relevant dummy variable of employee satisfaction. His results indicate that there is a statistically significant relationship between employee satisfaction and earnings surprises after controlling for firm characteristics. We argue that social performance will positively affect earnings surprises and affect the impact of earnings surprises on firm value. Therefore, our third hypothesis is:

Hypothesis 3: CSR performance positively affects earnings surprises and the responsiveness of firm value to earnings surprises.

4. Data and Summary Statistics

Our main data source to measure CSR performance is the list of "100 Most Socially Reputable Companies" (hereafter called "the CSR list") developed by Reputation Institute, which was first published on Forbes' website in 2013 (Reputation Institute, 2013). [1] Reputation Institute (RI) provides global researchers with a measure of firms' reputation. The research conducted by RI studies over 7,000 companies in 20 different industries and across 55 countries. The list includes both public and private companies, and the majority of them are traded in the U.S. markets. The reputation measure is based on seven dimensions: products and services, innovation, workplace, governance, citizenship, leadership, and performance. Better performance in the seven dimensions will lead to a higher behavioral intention of stakeholders, such as purchasing, recommending,

[1] Although many researchers who study in corporate governance, strategic management, and CSR fields consider KLD CSR scores as a relatively complete measure of CSR performance, we decide not to use the data in this study for our purpose, mainly because the data is uninformative of the magnitude of both "strengths" and "concerns". Firms, such as United Airlines and Lululemon (the 2013 scandal), both faced serious community and human rights concerns. However, the dummy variables from KLD social ratings are unable to distinguish the severities of the events.

accepting, defending, working, and investing (Reputation Institute, 2017). The reputation scores are measured based on a unique algorithm developed by RI, the RepTrak Pulse. The algorithm produces comparable reputation scores after adjusting for industrial differences. The CSR scores are recalculated based on three of the seven dimensions measured by the reputations scores: citizenship, workplace, and governance. Based on the RI's measure of CSR reputation, the annual CSR list includes the top 100 global firms with the highest CSR scores. The list is usually published during the last quarter of each year (between September and December).

There are overall 137 private and public firms listed over the past five years and 75 of them are publicly traded companies with corresponding GVKEY codes from the Compustat database. According to Table 1 Panel A, 46 of the 75 companies are traded in the United States, 12 of them via Tokyo Stock Exchange (TYO), six of them via Euronext Paris (EPA), and four via London Stock Exchange (LON).

[Insert Table 1 Here]

We further refine the 75 firms and end up with 40 public companies that are actively traded in the United States (i.e., NYSE or Nasdaq) and are on the CSR list for all the five years from 2013 through 2017 (called CSR40 hereafter). We construct three portfolios based on this sample. The first two are equal and value-weighted portfolios of the 40 best CSR companies in the world. The third portfolio is a ranking matrix of the 75 CSR companies (called CSR75 in the rest of the paper), which includes firms that are de-listed during the five years to reduce the survival bias.

We first examine stock performance by using the monthly total return series (including dividends) of CSR40 companies from November 2007 to December 2017, retrieved from Bloomberg. There are three reasons why we include five extra years before the year of 2013 (i.e., the first appearance of the CSR list). First, we need a longer period to calculate the long-run

abnormal returns. Second, we extend the observation period of CSR40 because we believe CSR performance is highly persistent for those firms already ranked over the five years. Therefore, it is more likely for those firms to remain on the list than the other 35 firms from CSR75. Third and most importantly, we can examine the abnormal returns during a period when the market did not have CSR reputation information from these sample firms (i.e., from November 2007 to September 2013) and analyze how the abnormal returns vary over time after the market starts to learn about CSR reputation (from September 2013 to October 2017).

Figure 1 below shows the relative performance of our CSR40 value-weighted portfolio to the market index (S&P 500) performance over the sample period. The monthly average excess return is 0.26%.

[Insert Figure 1 Here]

Based on previous literature (e.g. Edmans, 2011; Giroud and Mueller, 2011), we retrieve data to construct firm-level control variables, such as firm size and book-to-market ratio, from Compustat and CRSP. We then set a dummy variable matrix that records annual CSR ranking changes for CSR75. The dummy variables with the value of one indicate firms with unchanged or increasing rankings and zero for firms with decreasing rankings. After merging the two datasets, the final sample consists of 3,852 observations for 75 companies during the sample period.

5. Empirical Results

5.1 Portfolio Approach

We use both the Carhart's (1997) four-factor model and Fama-French's (2016) five-factor model to estimate risk-adjusted abnormal returns, as shown below.

Carhart four-factor model:

$$R_{it} = \alpha + \beta_1 MKT_t + \beta_2 HML_t + \beta_3 SMB_t + \beta_4 MOM_t + \varepsilon_{it} \quad (1)$$

Fama French five-factor model:

$$R_{it} = \alpha + \beta_1 MKT_t + \beta_2 HML_t + \beta_3 SMB_t + \beta_4 RMW_t + \beta 5\ CMA_t + \varepsilon_{it} \quad (2)$$

According to the Fama-French five-factor model (2016), R_{it} represents the excess returns of our portfolios at time *t.* As MKT_t, HML_t, SMB_t, and MOM_t represent the market, value, size, and momentum risk premiums, it is worth to note that the two new factors, RMW_t and CMA_t, further explain the return premiums from firms' return disparities caused by profitability and investment styles (conservative vs. aggressive). We use Newey and West (1987) with a lag of 10 to correct the standard errors for heteroskedasticity and serial correlation, and the continuous variables are winsorized at a 3% level to reduce the potential effects of outliers.

[Insert Table 2 here]

The results from Table 2 show that our CSR portfolios in both four and five-factor models generate superior abnormal monthly returns. Based on Carhart four-factor model, the monthly abnormal returns of the equal-weighted portfolio (named CSR40-EW) is 0.20% or 2.39% per year. When it comes to the value-weighted portfolio (named CSR40-VW), the monthly abnormal return increases to 0.14% or 1.63% per year. As to Fama-French's five factors, the CSR40-EW generates a monthly abnormal return of 0.15% (1.84% annually) while its counterpart, CSR40-VW, has a monthly alpha of 0.11% (1.26% per year). The superior annual returns are constant for the ten-

year period, as shown in Figure 1. Both CSR40 portfolios generate statistically significant superior abnormal returns over a ten-year period.

5.2 Robustness Tests for Raw Returns

Another possible concern of abnormal returns is that they do not come from the above risk premium factors but from firm characteristics. Therefore, following Fama-Macbeth (1973), Brennan et al. (1998), and Edmans (2011), we study a larger data sample (i.e., 75 firms from CSR75 portfolio with around 3190 firm-year observations) and run the following regression by controlling for more variables that are plausible to affect the raw returns:

$$R_{it} = \alpha + \beta_1 X_{it} + \beta_2 Z_{it} + \varepsilon_{it} \qquad (3)$$

R_{it} is the annual raw returns for firm i in time period t. We construct the CSR dummy variable X_{it} by considering CSR performance variations (i.e., CSR ranking changes) during the listing years. If a firm's CSR ranking improves from the previous year or a new firm is included in the most recent list, the dummy variable of the corresponding firm has a value of one.

[Insert Tables 3 and 4 here]

In Table 3 we provide the summary statistics of all the variables used in equation (3). In Table 4 we conduct a correlation analysis of these variables. The CSR dummy variable has a statistically significant positive correlation with *BM*, *PRCCM*, and *MKVALT*. This indicates that excellent or stable CSR performance has a positive impact on stock returns. Also, the positive correlation between *DUMMY* and book-to-market ratio implies that firms with high *BM* may have a higher probability of performing well in CSR or vice versa.

[Insert Table 5 here]

As indicated in Table 5, we study both short-term stock returns (i.e., those of the corresponding month) and long-term stock returns (i.e., one-year and two-year stock returns since the corresponding annual release). For short-term regression results, there is a statistically significant positive CSR dummy coefficient, i.e., around 71 basis point monthly, or 8.57% per year. We use two different models to estimate the "CSR return premium" and obtain similar results (including *PRCCM2* and *DVOL* does not make a big difference regarding model efficiency). Regardless of the relatively low R square of our models, the short-term results, which are consistent with hypothesis one, indicate that the monthly return premium of our CSR portfolio still exists – a robust result after controlling for firm characteristics.

For the long-term results illustrated by columns 3 and 4 in Table 5, the adjusted R squares of the two models increase to 36.62% and 69.71%, respectively, as the time horizons for individual stock returns expand. We can also observe that the CSR return premiums, which are primarily affected by firm characteristics, are neither statistically nor economically significant although they remain positive. One plausible explanation for the disappearing abnormal returns is that the CSR firms were undervalued but become more fairly valued as the market gradually learns about the true value of CSR. It is also possible that as more CSR-related information is now disclosed, either by firms themselves or by institutions such as analysts, regulators, rating agencies, and the media, the market becomes more efficient by acting quicker on the available information. Although the financial advantages of investing in socially responsible companies may have largely vanished, the societal and moral benefits remain.

5.3 Robustness Tests for Abnormal Returns

Our previous tests demonstrate that CSR premium seems to exist only in short-term abnormal returns tests (i.e. positive and statistically significant monthly dummy coefficients). Due to our curiosity about whether abnormal returns—which are largely attributed to CSR reputation—have similar time-variation effects, we run similar regressions to those in Giroud and Mueller (2011):

$$AR_{it} = Alpha_1 + B_1 * D_{it} + B_2*BM + B_3*SIZE + B_4*LR + B_5*YIELD \quad (4)$$

$$CAR_{it} = Alpha_1 + B_1 * D_{it} + B_2*BM + B_3*SIZE + B_4*LR + B_5*YIELD \quad (5)$$

AR_{it} represents the abnormal return of the individual firm i in month *t*. We calculate a four-month (-1, +3) average of abnormal returns in excess of Carhart's four-factor model. Our estimation period is 46 months from March 2010 onwards, which is 45 months prior to December 2013, the first month of CSR listing. The reason for this relatively long observation period is that the CSR list is always published between September and December. We believe the market needs an appropriate time frame to fully synthesize the CSR list information and a normalized abnormal return will be an optimal dependent variable for our study. Month t is the number of months after the list inclusion. CAR_{it} is the cumulative abnormal returns from the first release month (i.e., month 1) to month t. This dependent variable is used to measure the long-term effect of CSR reputation on abnormal returns. Both dependent variables are estimated to cover the entire listing period from December 2013 to September 2017. D_{it} represents the dummy variable that indicates a firm's CSR performance. Tables 6 and 7 illustrate how dummy variables are created based on the ranking changes. If CSR ranking of a firm decreases, or if a firm is delisted (from the CSR list) during the current year, the value of D_{it} is 0, and 1 otherwise.

[Insert Tables 6 and 7 here]

BM is the log ratio of book-value to market-value. *SIZE* is the log of firms' market capitalization. *LR* represents the leverage ratio of a firm (i.e. total debt / total capital) while *YIELD* represents the dividend yields of each firm at the end of five consecutive years (from 2013 to 2017).

The regression results in Table 8 based on monthly abnormal returns demonstrate a positive and statistically significant coefficient of CSR dummy. Firms with improved CSR performance or reputation in the current year can produce a 0.16% higher abnormal return during the CSR listing period.[2] However, regarding the cumulative abnormal returns, the results lack statistical significance even though the economic significance is larger with the coefficient of 1.63%. Our results indicate that the CSR reputation premium may have time-variation characteristics. It is obvious that firms in the most recent CSR list benefit from both normal and abnormal stock returns. However, results are not convincing enough for us to conclude the CSR advantage is persistent over the long run; a possible explanation is that the market incorporated the CSR information in the stock price gradually, thereby reducing the abnormal returns for the CSR portfolio. Our robustness test results are consistent with such a hypothesis.

[Insert Table 8 here]

5.4 Earnings Announcement

We further examine what the possible channels for CSR companies to generate superior abnormal returns may be. In particular, we investigate whether CSR performance has a positive impact on the earnings of listed companies. Although profits are persistent over time, they can

[2] We consider the fourth-month average abnormal returns of our dependent variables to stabilize effects from extreme events.

affect stock returns when they are unexpected (Edmans, 2011). Therefore, following the literature, we use earnings surprises because this measure is readily observable, accurately measured, exogenous – as it is unexpected at least to outside investors, and influential to stock returns with high frequency (i.e., monthly returns in this case). Our regression model is shown below:

$$E.Sup_{it} = Alpha_1 + B_1 * D_{it} + B_2*BM + B_3*SIZE + B_4*LR + B_5*YIELD \quad (6)$$

$E.Sup_{it}$ represents the earnings spread (i.e. used to measure earnings surprise) between the actual annual earnings per share (EPS) and the estimated earnings per share. The actual EPS figures are realized EPS retrieved from Bloomberg and the estimated EPS figures are the median analyst earnings forecast retrieved from Institutional Brokers' Estimate System (IBES database). Following previous studies such as Brenna, Chordia, and Subrahmanyam (1998), we also control for firm fundamentals such as *BM*, *SIZE*, and *YIELD*.

Table 9 presents the regression results of model 6. DUM_1 represents the positive dummy variable. Variables such as *DUM1*, *BM*, *SIZE*, and *DIV.Y* are statistically significant. The positive coefficient on the CSR dummy *DUM1* implies that if CSR ranking improves by 1, the earnings surprise increases by 2.87% on average.

[Insert Tables 9 here]

5.5. The Disappearing Alphas and CSR List Inclusion

Hypothesis 2a indicates that if the efficient market theory does hold, the market will immediately learn and capitalize on the intangibles, such as CSR reputation, and the trend of the abnormal returns should not have significant changes during periods before or after the list inclusion – if reasonable factors are controlled for. Edmans (2011) concludes that there are two possible reasons to explain the superior abnormal returns of firms with high employee satisfaction

(i.e., high CSR performance). One reason is earnings surprises and the other is the mispricing of employee satisfaction. The latter is explained by the fact that intangibles are less likely to have permanent characteristics and the market has a slow learning curve of intangibles. Therefore, if intangibles, such as CSR reputation, decline over time, the abnormal returns also diminish. Additionally, the longer the companies remain on the list (i.e., CSR40) and the longer the market learns about their CSR performance, the less the mispricing portion remains. Edmans (2011) conducts a "longevity test" of cumulative abnormal returns over a series of accumulated month periods. The findings indicate that the increase of the cumulative abnormal returns tends to slow down with increasing the number of periods. The growth rates of cumulative abnormal returns converge to zero after time periods increase to 60 months (i.e. five years after the firms are included in the list of "100 Best Companies to Work for in America").

We conduct a similar experiment to directly test the change of cumulative abnormal returns. Specifically, we extend the observation window to five years (i.e., 60 months) and run both four and five-factor models on a rolling basis since November 2007. The first set of regression results is based on observations from November 2007 to October 2012, when there was no CSR reputation list published. The last set of regression results is based on a data series from November 2012 to October 2017, during which the market had continuously learned about the CSR reputation list for four years. We plot for the 60-month rolling alphas trends in Figure 2 and the results are consistent with our expectation and the empirical evidence from Edmans' longevity analysis (2011).

[Insert Figure 2 here]

To further explore the main reason of the diminishing abnormal returns, we proceed with testing whether CSR reputation has an incremental effect on the relationship between earnings surprises and firms' abnormal returns, and analyze how these coefficients change over different observation horizons. We run panel regressions and consider earnings surprise the moderator. The methodology of this study is similar to that of Cui et al. (2016), which tests the relationship between firms' CSR performance and family involvement, and to that of Jeong et al. (2018), which look at CSR activities and firm valuation. Our regression model is shown below:

$$AR_{it} = Alpha_1 + B1 * D_{it} + B_2 * BM + B_3 * SIZE + B_4 * LR + B_5 * YIELD + B_6 * E.Sup + B_7 * (D_{it} * E.Sup_{it}) \quad (7)$$

$$CAR_{it} = Alpha_1 + B_1 * D_{it} + B_2 * BM + B_3 * SIZE + B_4 * LR + B_5 * YIELD + B_6 * E.Sup + B_7 * (D_{it} * E.Sup_{it}) \quad (8)$$

All the parameters are similar to those in Section 5.3. If firms truly benefit from CSR reputation, we expect to observe a significantly positive interaction, represented by B_7 in our model. From the results in Table 10, we find that the coefficients for CSR dummy, firms' log size, dividend yield, and the interaction variable $D_{it} * E.Sup_{it}$ are statistically significant. It is noteworthy that both D_{it} and $D_{it} * E.Sup_{it}$ have positive coefficients. Based on this monthly regression result, we can conclude that firms having superior CSR performance and earnings surprises during the listing year are more likely to generate monthly abnormal returns. In other words, CSR reputation makes firms' short-run abnormal returns more sensitive to earnings surprises – possibly because CSR reputation puts the firms in stricter public scrutiny.

[Insert Table 10 Here]

Although the CSR dummy coefficient is positive for the long-term results, it lacks statistical significance. The interaction term turns negative with a significant p-value of 0.05. Based on these results, we conclude that CSR reputation does not have a moderating effect on the relationship of earnings surprises and cumulative abnormal returns over the long run. This is a signal indicating that the market gradually capitalizes on the information related to CSR premiums during the five-year listing period.

6. Conclusion

As Edmans (2011) explains in his "lack-of-information hypothesis", the reason why values of intangibles are not immediately incorporated in market prices is that the market lacks the information to price their value. Lev, Sarath, and Sougiannis (2004) also argue that even if R&D costs are disclosed by income statements, the market is still uninformative of the quality and success rate. This is the reason why we choose CSR performance score (an output) instead of firm's CSR engagements (an input) as usually measured by KLD CSR scores to analyze the process of market valuation of CSR. Although the CSR reputation list ("100 Most Socially Reputable Companies") has a relatively short history, it is comprehensive, visible, and influential. Therefore, the list should be an efficient way of informing investors of firms' CSR reputation, thereby reducing the information asymmetry between socially responsible investors and socially responsible firms.

Unlike other papers that test market efficiency through studying earnings announcements and short-term abnormal returns, this paper tests the market efficiency from a different perspective and considers the abnormal return as a mispricing portion that is not fully, or only partially, incorporated into the intangible asset pricing. Results based on the CSR40 and CSR75 portfolios further prove that intangible assets, such as CSR reputation, cannot be absorbed by the market

completely when these assets first appear. However, as time goes on, the mispricing portion is gradually corrected. The market seems inefficient initially in processing non-financial information such as CSR but is "willing to learn."

Our motivation for the study stems from two general perspectives. First, from a business point of view, we explore the relationship between CSR reputation and firms' financial performance. Through our study of CSR portfolios, we clearly identify how CSR reputation helps improve firms' equity performance. Considering different time horizons, we encourage managers to be aware of the fact that CSR reputation cannot persistently produce abnormal returns over the long run, and CSR reputation only represents the public information of a firm's CSR performance. To maximize shareholders' long-term benefits, managers should consider CSR initiatives as a long-term strategy.

Second, our findings also encourage socially-conscious investors to consider the list of "100 Best CSR companies in the world" as a stock screening guide, which measures CSR reputation from three perspectives: citizenship, workplace, and governance. Based on the 10-year excess returns over the market index (i.e., S&P 500), our results also promote a long-term investment concept. We agree with Habisch (2003) and Freeman (2004) that CSR should be considered as a long-term investment to support firms' sustainable growth. Moreover, investors' long-term perspectives increase a firm's proclivity to invest in CSR initiatives. Socially-conscious investors can benefit not only from the superior long-term returns but also from their influence on managerial incentives and behaviors. Attig et al. (2013) suggest that CSR investments are "going beyond a firm's direct economic benefits but directly related to the firm's primary stakeholders." This further indicates that CSR investments will not only benefit our community economically but socially as well.

In addition, according to the study conducted by Ghoul et al. (2016), the media has the ability to impact reputational capital, which means that the media freedom and information disclosure can largely affect companies' incentives to engage in costly CSR activities. Our study promotes that researchers, firms, and the media disclose more valuable and complete CSR-related information to reduce information asymmetry and facilitate market efficiency. Sengupta (1998) suggests that the quality of firms' information disclosure has a strong impact on firms' credit rating. We posit that the quality of firms' information disclosure in the CSR field plays a key role in investment and financial decision making and significantly impacts firm performance, community well-being, and financial stability.

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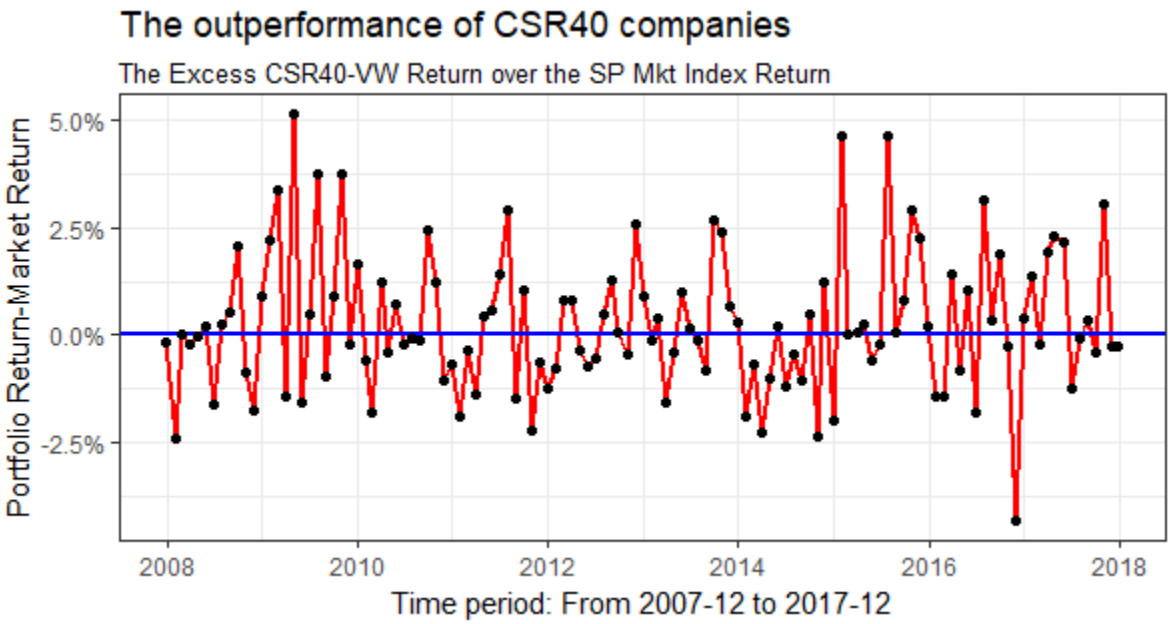
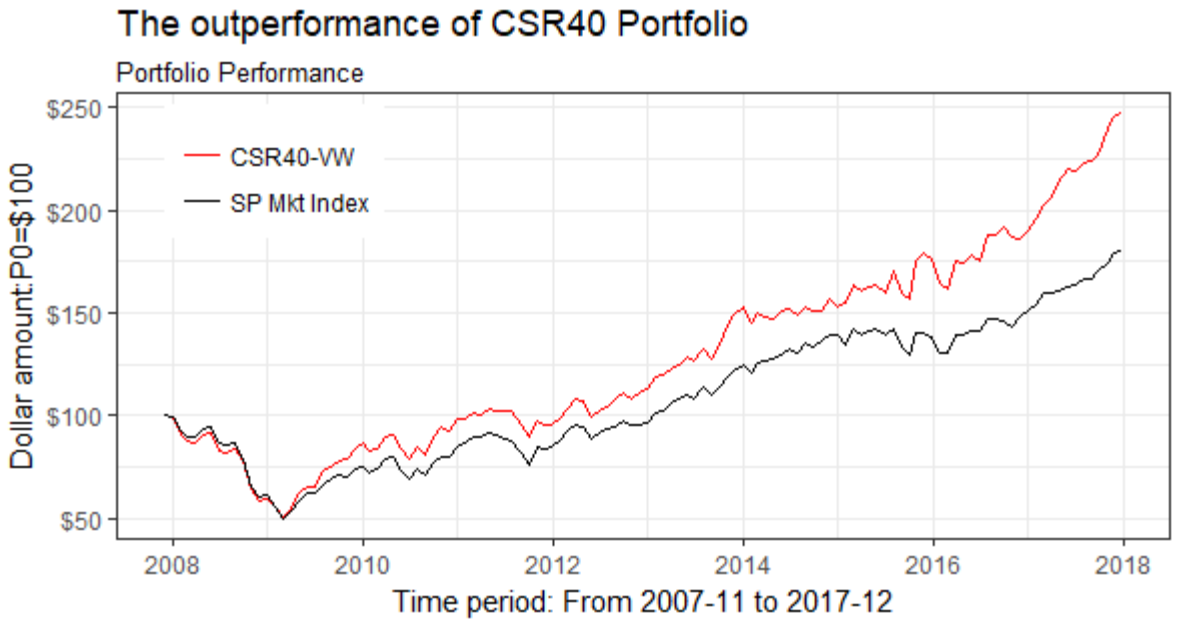
Figure 1:

The outperformance of CSR40-VW (value-weighted) over S&P 500

The first plot demonstrates the excess log returns of CSR40-VW over the market index (S&P Mkt Index) and the second describes the portfolio performance against the market benchmark. The monthly average excess log return from the first plot is 0.26% (i.e. 3.11% annually). In addition, over the ten-year observation period, CSR40-VW indicates characteristics of a higher Sharpe ratio when compared to the benchmark (i.e. 0.54 for CSR40-VW and 0.38 for S&P Mkt Index). In the third plot, CSR40-VW demonstrates superior recovery ability, especially after the 2009 credit crisis, when compared to the market threshold and performs stably after 2011.




The outperformance of CSR40 Portfolio
Portfolio Performance
$250
$200
$150
$100
$50
Dollar amount:P0=$100
CSR40-VW
SP Mkt Index
2008
2010
2012
2014
2016
2018
Time period: From 2007-11 to 2017-12

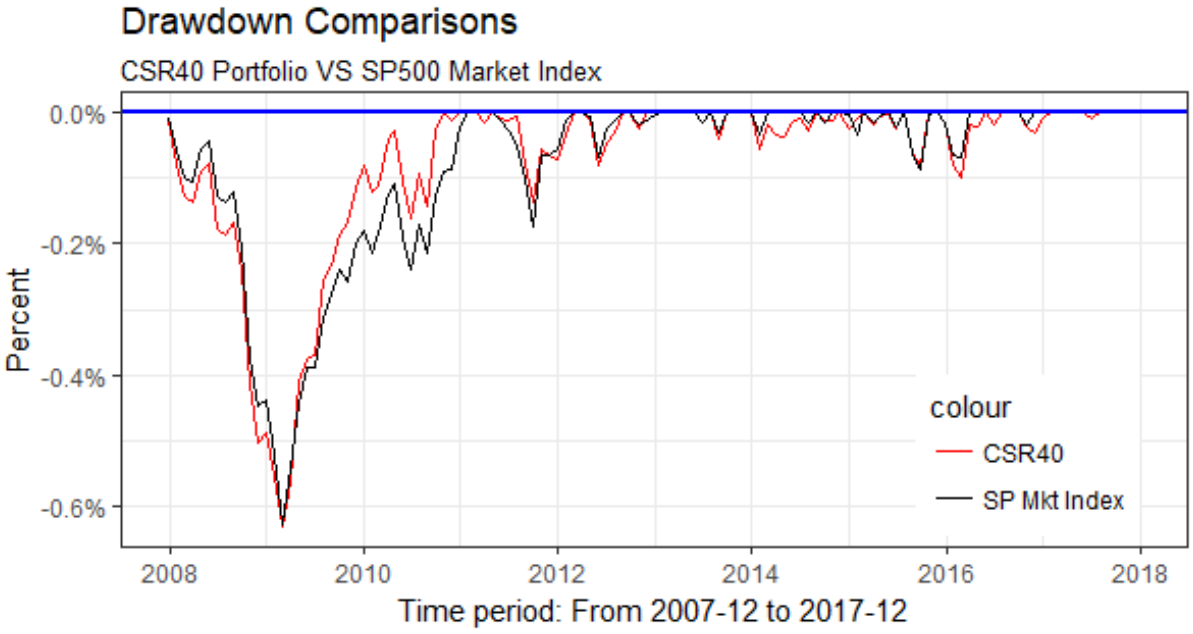
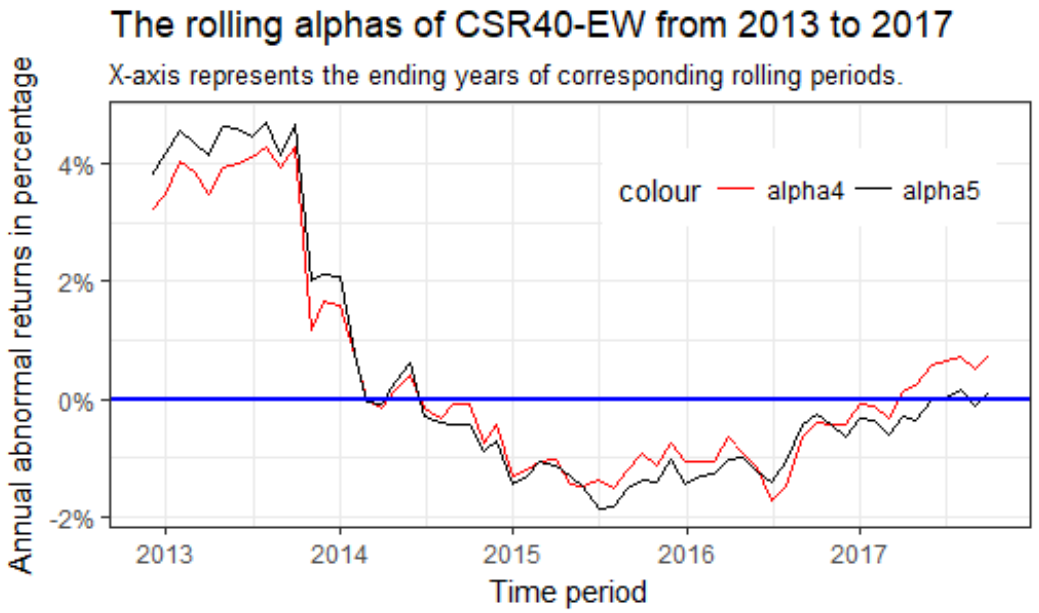

Drawdown Comparisons
CSR40 Portfolio VS SP500 Market Index
0.0%
-0.2%
-0.4%
-0.6%
Percent
colour
CSR40
SP Mkt Index
2008
2010
2012
2014
2016
2018
Time period: From 2007-12 to 2017-12

Figure 2
Convergent Alpha

These figures display rolling monthly regressions of returns to both CSR40-EW and CSR40-VW portfolios. The figures present the convergent trends of alphas from both Carhart's four-factor and Fama French five-factor models. The first alpha is computed from the first-period regression (i.e. November 2007 – October 2012) among the 60-month rolling periods. It is noteworthy that the CSR list (i.e. 100 Best CSR companies in the world) was first published in November 2013. In other words, the market had not been informed of the CSR reputation until November 2013. As the list-inclusion periods extend, the alphas from both factor models demonstrate salient trends of converging to zero. The X-axis only indicates the ending years of the corresponding rolling periods.



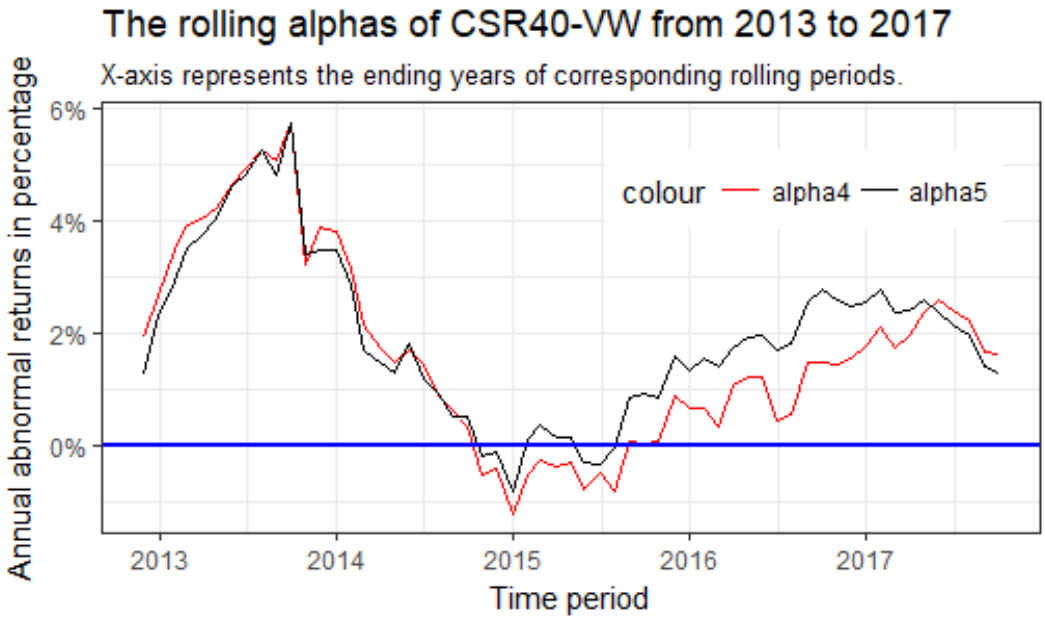


Table 1
List of publicly traded companies

Panel A: The companies traded in different stock exchanges. The remaining stocks are traded via CPH (Copenhagen Stock Exchange), BIT (Borsa Italiana S.p.A.), ETR. (XETRA, operated by the Frankfurt Stock Exchange) and SWX (SIX Swiss Exchange).

Stock Exchange	# of firms
NYSE	32
NASDAQ	13
OTC - US	1
TYO	12
LON	4
EPA	6
SWX	1
CPH	3
BIT	2
ETR	1
Total:	**75**

Panel B: This panel provides the complete list of CSR75 companies, with their stock exchanges and the global company key (i.e. Compustat firm ID). We use this list to create the CSR companies' dummy variable *Xit*. *Xit* is equal to one if a firm's CSR ranking improves or the firm is a new addition to the list (i.e. "100 Best CSR companies in the world") in the current year. The dummy variables are demonstrated below:

Firm Name	Stock Exchange	GVKEY	2013	2014	2015	2016	2017
3M	NYSE	7435	1	1	0	1	1
Panasonic	TYO	7114	1	0	1	1	1
Air France-KLM	EPA	101475	1	0	0	1	1
Amazon.com	NASDAQ	64768	1	0	1	0	1
Anheuser-Busch InBev	EPA	241637	0	1	1	0	1
Apple	NASDAQ	1690	1	1	0	1	0
AstraZeneca	LON	28272	0	1	1	0	1
Bayer	BIT	100080	1	1	0	1	0
Benetton	BIT	15406	0	1	0	1	1
Boeing	NYSE	2285	1	1	1	0	1
Bristol-Myers Squibb	NYSE	2403	1	0	1	0	1
Campbell Soup Company	NYSE	2663	0	1	0	0	1
Caterpillar	NYSE	2817	0	1	1	0	1
Cisco Systems	NASDAQ	20779	1	1	0	1	1
Danone	NASDAQ	17452	1	0	1	0	1
Deere & Co.	NYSE	3835	0	1	1	0	1

Dell	NYSE	14489	1	0	1	0	1
Delta Air Lines	NYSE	3851	0	1	1	1	1
Diageo	LON	18636	1	0	1	0	1
DuPont	NYSE	4087	1	1	0	1	0
eBay	NASDAQ	114524	1	0	0	1	0
Electrolux	CPH	14620	1	0	1	1	0
FedEx	NYSE	4598	1	0	1	0	1
Ford Motor	NYSE	4839	1	0	1	1	1
Fujifilm	TYO	4925	1	0	0	0	1
Fujitsu	TYO	18467	1	0	0	1	1
General Mills	NYSE	5071	1	1	0	1	1
General Motors Company	NYSE	5073	1	0	1	1	1
GlaxoSmithKline	LON	5180	1	0	1	1	1
Goodyear	NASDAQ	5234	1	0	0	1	0
Heineken	EPA	104833	1	0	1	0	1
Hershey Company	NYSE	5597	0	1	0	1	0
Hertz Global Holdings	NYSE	5600	1	0	1	1	1
Hewlett-Packard (HP Inc)	NYSE	26156	1	0	1	0	1
Hilton Worldwide	NYSE	5643	0	1	1	0	1
Hitachi	TYO	5650	1	0	1	1	1
HJ Heinz	NASDAQ	5568	1	0	0	0	0
Intel	NASDAQ	6008	1	0	1	0	1
Johnson & Johnson	NYSE	6266	1	1	1	1	0
Kellogg Company	NYSE	6375	1	0	0	0	0
Kimberly-Clark Corporation	NYSE	6435	0	1	1	1	0
L'Oreal	EPA	100581	1	0	0	1	0
LVMH Group	EPA	14447	1	0	0	0	0
Marks & Spencer Group	LON	7052	1	0	0	1	1
Marriott International	NASDAQ	28930	0	1	0	1	0
Microsoft	NASDAQ	12141	1	0	0	1	1
Nestle SA/AG	SWX	16603	1	0	1	1	0
Nike	NYSE	7906	1	1	1	1	0
Nintendo	TYO	102450	1	1	1	1	0
Nissan Motor	TYO	19113	1	1	0	1	1
Nokia	CPH	23671	1	0	1	1	0
Novo Nordisk	CPH	8020	0	1	1	0	1
Oracle	NYSE	12142	1	0	1	0	1
Mastushita Electric Industrial	TYO	7114	0	1	0	1	0
PepsiCo	NASDAQ	8479	1	1	0	1	1
Pfizer	NYSE	8530	1	0	1	1	1
Procter & Gamble	NYSE	8762	1	0	0	0	1
Ralph Lauren Corporation	NYSE	64891	0	1	1	1	1
Ricoh	TYO	9135	0	1	1	1	0
Sanofi	EPA	101204	0	1	1	0	1

SAP	NYSE	103487	0	1	1	1	1
Sharp	TYO	100699	1	0	0	1	0
Siemens	ETR	19349	1	0	0	0	1
Sony	TYO	9818	1	0	0	1	0
Starbucks Coffee Company	NASDAQ	25434	1	0	0	1	0
Texas Instruments	NASDAQ	10499	0	1	1	1	0
Toshiba	TYO	10622	1	1	0	0	1
Toyota	TYO	19661	1	1	0	1	1
Under Armour	NYSE	165052	0	1	1	1	0
Unilever	NYSE	10846	1	0	0	0	1
UPS	NYSE	10920	1	0	0	1	1
Visa	NYSE	179534	0	1	0	1	0
Volkswagen	OTC - US	100737	1	1	0	0	1
Whirlpool	NYSE	11465	1	0	1	1	0
Xerox	NYSE	11636	1	1	0	1	0

Table 2
Superior abnormal returns

This table presents the monthly regression results from two models: Carhart four-factor model and Fama-French five-factor model. The dependent variable is the excess portfolio return, which is the portfolio return less the risk-free rate. Panel A illustrates abnormal returns and factor coefficients of the equal-weighted portfolio and Panel B demonstrates those of the value-weighted portfolio. The sample period is December 2007 – December 2017.

Excess Returns Over Risk-free Rates						
	Carhart 4-factors					
	Panel A: Equal-Weighted			***Panel B: Value-Weighted***		
	Coefficient	P.Value		Coefficient	P.Value	
alpha4	0.1990	0.0185	**	0.1355	0.0796	*
rmrf	0.9366	0.0000	***	0.9422	0.0000	***
smb	0.0041	0.9409		-0.0331	0.5104	
hml	-0.1233	0.1695		-0.1703	0.0339	**
mom	-0.0047	0.8166		0.0033	0.7299	
Fama French 5-factors						
	Coefficient	P.Value		Coefficient	P.Value	
alpha5	0.1535	0.0794	*	0.1051	0.0875	*
rmrf	0.9477	0.0000	***	0.9486	0.0000	***
smb	0.0319	0.3766		-0.0044	0.9117	
hml	-0.0527	0.2065		-0.0718	0.0114	**
rmw	0.1703	0.0017	***	0.1957	0.0000	***
cma	-0.1830	0.0857	*	-0.2823	0.0802	*
# of obs	121			121		
**** Denotes statistical significance at 1% level,** at 5% level, * at 10% level.*						

Table 3
Summary Statistics

The statistics include all the variables used in equation (3): $Rit = \alpha + \beta 1\ Xit + \beta 2\ Zit + \varepsilon it$. DUMMY represents a dummy variable that has a value of one if firms have increasing and unchanged CSR rankings (as shown in Table 2). MKVALT is the total market value of a firm at its fiscal year-end. PRCCM is the monthly close stock prices. Yield represents firms' monthly dividend yields. BM is the book-to-market ratio and TRT1M is monthly total stock return calculated by Compustat. The sample period is May 2014 – August 2017.

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
DUMMY	3852	0.5566	0.4969	2144.0000	0.0000	1.0000
MKVALT	13120	4.22E+10	7.54E+10	5.53E+14	0.00E+00	8.52E+11
PRCCM	12650	68.4168	102.6112	865473.0000	0.0180	1451.0000
Yield	4895	0.0082	0.0075	40.0806	0.0000	0.1498
BM	8068	-6.5015	6.3906	-52454.0000	-17.6459	0.3642
TRT1M	12651	0.9723	8.6147	12301.0000	-93.3333	127.3764

Table 4
Correlation analysis

This table presents the results of correlation analysis on the key variables in this paper.

	DUMMY	MKVALT	PRCCM	Yield	BM	TRT1M
DUMMY	1					
P Value						
# of obs	3852					
MKVALT	0.04431	1				
P Value	0.0067					
# of obs	3745	13120				
PRCCM	0.05372	0.02114	1			
P Value	0.0014	0.0176				
# of obs	3535	12621	12650			
Yield	0.00513	0.14956	-0.20571	1		
P Value	0.8441	<.0001	<.0001			
# of obs	1473	4887	4895	4895		
BM	0.06934	-0.62363	0.14754	-0.43001	1	
P Value	<.0001	<.0001	<.0001	<.0001		
# of obs	3386	8068	7570	3072	8068	
TRT1M	0.02054	0.00706	0.06131	-0.03592	0.02567	1
P Value	0.2224	0.4279	<.0001	0.012	0.0256	
# of obs	3530	12608	12630	4885	7561	12651

Table 5
Determinants of Stock Returns

This table presents the results when we regress stock raw returns on a dummy variable for whether the firms' CSR rankings decrease over the five-year period and all control variables. *Xit* is the dummy variable constructed in Section IV. *Xit* equals to one if the CSR rankings of the firm do not decrease on the most recent list (Table 2 exhibits the dummy variable *Xit*). *logsize* is the log of stock i's market capitalization at the corresponding month *t* while *logsize2* is at the end of month *t-2*; *BM* is the log of stock *i*'s book-to-market ratio; *Yield* represents the dividend yield at the end of month *t*; *logret32* is the compounded log returns from month *t-3* to month *t-2*; logret64 is the compounded log returns from month t-6 to month 6-4; *logret102* is the compounded log returns from month *t-12* to month *t-10*; *logret4-9* are the log returns at end of the corresponding months before time *t*; *PRCCM* and *PRCCM2* represent stock prices at end of month *t* and *t-2* respectively. *DVOL* represents the dollar trading volume at end of month *t-2*. The sample period is September 2013 – September 2017. The table illustrates two kinds of results: short term and long term. Short-term results are illustrated by the first two columns while long-term results are illustrated by the last two.

Dependent Variable	**Short Term**		**Long Term**	
	1-month return	1-month return	1-year return	2-year return
DUMMY	0.0071	0.0070	0.0010	0.0266
	(2.55)***	(2.5)**	(0.01)	(0.55)
logsize			-0.1493	-0.5891
			(-0.68)	(-4.78)***
logsize2	-0.0312	-0.0284		
	(-6.93)***	(-5.75)***		
BM	-0.0272	-0.0273	-0.0885	0.0650
	(-8.22)***	(-8.25)***	(-0.84)	(1.00)
Yield		0.4440	1.1986	2.0668
		(2.16)**	(0.19)	(0.77)
logret32	-0.0250	-0.0241		
	(-3.64)***	(-3.42)***		
logret64	-0.0056			
	(-0.95)			
logret4		-0.0125		
		(-1.31)		
logret5		0.0084		
		(0.94)		
logret6		-0.0096		
		(-1.08)		
logret7	-0.0276	-0.0273		
	(-3.09)***	(-3.02)***		
logret8	0.0082	0.0094		
	(0.91)	(1.04)		
logret9	0.0065	0.0064		

	(0.69)	(0.68)		
logret102	-0.0115	-0.0114		
	(-1.7)*	(-1.68)*		
PRCCM			0.0061	-0.0019
			(5.84)***	(-2.45)**
PRCCM2		0.0000		
		(-0.10)		
DVOL		0.0000		
		(-1.33)		
Adj R^2	5.33%	5.66%	36.62%	69.71%
# of obs.	3190	3190	282	151

Table 6
Changes of ranking

This table presents the yearly changes in firms' CSR rankings over the five-year period. The example covers firms including Microsoft, Google, Disney, BMW, Intel, and Cisco Systems. Table 7 illustrates the dummy variables created based on the ranking changes. The sample period is September 2014 – October 2017.

Year	MSFT US	GOOGL US	DIS US	BMW GY	INTC US	CSCO US
2014	1	-2	1	0	1	-6
2015	2	0	0	-2	1	6
2016	-2	0	0	2	1	-28
2017	0	2	1	1	-4	-16

Table 7
Positive and Negative dummy variables

This table presents the dummy variables based on the yearly changes in firms' CSR rankings. Dummy variables from the first panel "Positive.D" (i.e., D_{it}) are equal to one if firms' CSR rankings increase.

Positive.D	MSFT US	GOOGL US	DIS US	BMW GY	INTC US
2014	1	0	1	0	1
2015	1	0	0	0	1
2016	0	0	0	1	1
2017	0	1	1	1	0

Table 8
Robustness Check for Abnormal Returns – CSR effects

This table presents the robustness check results in Section 5.3. All the independent variables are equivalent to ones in Table 8. AR_{it} represents average four-month abnormal returns (-1, +3) calculated in excess of Carhart's four factor model with an estimation period of 46 months. CAR_{it} represents the cumulative abnormal returns since the first month of CSR listing till month t. Our five release months for CSR listing are Dec 2013, Dec 2014, Sep 2015, Sep 2016, and Sep 2017.

$AR/CAR_{it} = Alpha1 + B1 * Dit + B2*BM + B3*SIZE + B4*LR + B5*YIELD$				
	Dependent var. = AR		Dependent var. = CAR	
Indep.variables	**Coefficients**	**t value**	**Coefficients**	**t value**
(Intercept)	-2.6918	-2.5739**	-95.103	-2.9743***
DUM1	0.1596	1.6853*	1.6292	0.5307
BM	0.0106	0.1196	3.2015	1.3934
SIZE	0.2879	3.0128***	9.297	3.1381***
LR	0.1169	0.6151	18.7488	2.8086***
YIELD	-0.4149	5.3935***	-9.1163	-5.048***
Adj. R^2	24.46%		20.34%	

**** Denotes statistical significance at 1% level,** at 5% level, * at 10% level.*

Table 9
Regressions of Positive Dummy Variable

This table presents the yearly regression based on pooled company data of CSR40. BM is the log of book-to-market ratios. Firms' book value and market value are taken at the end of their fiscal years. SIZE is the log of market equity and DIV.YIELD is dividend yields. As demonstrated from the table below, DUM1, the dummy variable coefficient, has positive value while films' CSR rankings increase. LR1 represents firms' leverage ratio (i.e. total debt / total capital). The sample period is 2013 – 2017.

$E.Sup_{it} = Alpha1 + B1 * Dit + B2*BM + B3*SIZE + B4*YIELD$					
	Coefficients	**Std. Error**	**t value**	**Pr(>|t|)**	
(Intercept)	0.1678	0.0773	2.1722	0.0298	**
DUM1	0.0287	0.0167	1.7201	0.0854	*
BM	0.0203	0.0114	1.7792	0.0752	*
SIZE	-0.0173	0.0056	-3.0981	0.0019	***
DIV.Y	0.0133	0.0058	2.3042	0.0212	**
LR1	0.0400	0.0516	0.7753	0.4381	
Adj. R^2	4.71%				

**** Denotes statistical significance at 1% level,** at 5% level, * at 10% level.*

Table 10
Robustness Check for Abnormal Returns – Incremental effects

This table presents the robustness check results in Section 5.5. There are two independent variables added: *E.Sup* for earnings surprise and *DUM1:E.Sup* for the interaction coefficients of CSR dummy and earnings surprises. The rest of the variables are equivalent to the ones in Table 9. Our sample period is from December 2013 – September 2017.

$AR/CAR_{it} = Alpha1+B1*Dit+B2*BM+B3*SIZE+B4*LR+B5*YIELD+B6*E.Sup+B7*(Dit*E.Sup)$

	Dependent var. = AR		Dependent var. = CAR	
Indep.variables	**Coefficients**	**t value**	**Coefficients**	**t value**
(Intercept)	-2.8648	3.9125***	-101.6489	-4.9051***
DUM1	0.1381	1.6655*	0.3011	0.1548
E.Sup	0.2451	0.8385	59.1465	13.2494***
BM	-0.0109	-0.1311	2.4217	1.3188
SIZE	0.3023	4.1134***	10.0601	4.8816***
LR	0.1208	0.7125	16.0327	3.4804***
DIV.Y	-0.4233	-7.5077***	-9.7713	-8.4787***
DUM1:E.Sup	0.7293	2.4074**	-18.6916	-1.928*
Adj. R^2	24.87%		28.66%	

**** Denotes statistical significance at 1% level, ** at 5% level, * at 10% level.*