A Learning Curve of Mr. Market:
How Does Market Appreciate Intangibles Like CSR Reputation?

A Study of Earnings Surprises, Abnormal returns, and CSR Reputation

Frank Li

Ivey Business School

University of Western Ontario, Canada

fli@ivey.ca

Chong Yu

Department of Economics

University of Western Ontario, Canada

cyu372@uwo.ca

Abstract

This paper studies the relationship between CSR reputation and long-run stock returns. A value-weighted portfolio based on the "100 Best CSR companies in the world" from *Reputation Institute* shows annual abnormal returns of 2.74% and 1.98% respectively by controlling both Carhart four factors and Fama French five factors. This superior returns are robust after controlling for a vector of firm characteristics (Brennan, Chordia, & Subrahmanyam, 1998). Also, the abnormal returns are found to decrease as time goes, especially after the CSR lists appear since 2013. The paper also indicates that companies with good CSR performance are more likely to have positive earning surprises, which can partially explain the superior returns. The paper has three implications. First, it demonstrates that CSR reputation can positively contribute to a firm's superior equity performance. Second, the paper finds that the CSR lists help the market correct its mispricing of intangibles like CSR reputation. The abnormal returns decrease as the market gradually learns about firms' CSR reputation. Third, the paper

contributes to the socially responsible investing (SRI) screens, a guidance for investors who would like to do well by doing good.

Key words: Corporate Social Responsibility, Intangibles, CSR, SRI, Market Efficiency, Earnings Surprises, Underreaction, Reputations, Abnormal Returns, Mispricing, Market Learning Curve

I. Introduction

Over the decades, Corporate Social Responsibility (CSR) in finance has gained its popularity. Many researchers link the topic with corporate governance, firm financial performance, and firm valuation. However, very few studies show clear insights on how market capitalizes intangible assets, such as CSR performance, that are hard to quantified. There may be two reasons for this. First, CSR criteria varies with industries, times, and community needs. Traditional theories about corporate governance in early twentieth century prioritizes shareholders' benefits and thereby encourages management to further improve cost efficiency (Taylor, 1911). Nowadays, researchers call on organizations to do businesses with more social purposes . As community requirements change, the definition of CSR also changes. Second, as common as other social science problems, it is hard to conclude the causality relationships between CSR and firms' financial performance. Siegel and McWillams (2000) demonstrated that the existing models for CSR and firms' financial performance can be very easily misperceived because of either omitting variables or serial correlations.

According to Ghoul (2011) and Galema (2008), more than half of the Fortune 1000 U.S. companies issued CSR reports and around 10% of U.S. investments are screened by using CSR-related criteria. Our communities now focus more on green investments. However, questions, such as whether social responsible investment is a benefit or a burden, have not yet received clear answers. In this paper, my results indicate that a value-weighted CSR portfolios that consist of 40 companies with best CSR

performance earns 0.11% monthly abnormal returns, or 1.32% annual returns, by applying Carhart's four factor model (1997) from November 2007 to October 2017. My results do not consider any event-study reaction to the list inclusion.

The findings motivate me to further explore whether the market reacts to the CSR advantages. Therefore, a further study of abnormal returns with a five-year rolling basis indicates that firms with better CSR reputation have superior alphas before the list inclusion. However, their superior returns start to decrease when the CSR reputation report is first published on Forbes in 2013. Once the window fully coincided with the list disclosure period (a five year period from 2013 to 2017), the abnormal return converges to almost zero. The evidence supports that market learns and capitalizes the CSR advantages from the my CSR portfolios.

My third motivation is to test whether there is a positive correlation between earnings surprises and CSR performance. Edman (2011) indicates that firms with greater employee satisfaction are likely to have long-term growth earning surprises. With 33,510 firm year observations, he concludes that the "best companies to work for" in the world are 1.46% more likely to positively surprise the market. Since earnings surprises contribute a portion of abnormal returns according to Wang and Phet (2012), they can at least explain a portion of the abnormal returns.

My findings have contributions to three main areas of research: the relationship between of firm value and CSR reputation, an intangible "tangible" asset; market's interpretations of the intangible asset; and investment screens for social-conscious and value investors.

This paper is organized as follows. Section II discusses the relevant theoretical and empirical supports for hypothesizing the relationship between CSR reputation and abnormal stock returns. Section III and Section IV discusses the data sources and result interpretations. Lastly, I concluded my findings and expectations in Section V.

II. Literature Review and Hypotheses

Lack of complete and consistent measures, CSR has raised a fierce discussion in Corporate Governance field about its causality with firms' profitability during the past 30 years because of its qualitative nature. There are, of course, judgements on firms that consider less about CSR actions while there are also doubts on firms that do take CSR initiatives (Friedman, 1997).

This paper is supported by the opinion of Flammer, Hong and Minor (2017) on the positive relationships between CSR contracting, firm value, and social and environmental. Their paper argues that CSR contracting provides managers clear guidance on a firm's long-run strategies and planning, which are inclined to benefit a firm's stakeholders, including employees, customers, the environment, and the community at large (Freeman, 1984, p.53). A large literature has already proved that increasing employee satisfaction will help enhance their productivity (Flammer and Kacperczyk, 2016) and will finally be capitalized as an intangible asset by the market (Edmans, 2011). In contrary, being less responsible to the environment, a company such as Volkswagen has a long way to earn trusts back from its customers after its emission cheating scandal (The Economist, 2017). With R square of 87% and 84% respectively, Flammer, Hong and Minor prove that CSR contracting not only helps improve a firm's CSR performance in various perspectives, including environment, communities, employees, and customers, but also helps increase firm value, measured by Tobin's Q.

According to the theoretical supports above, if CSR does increase a firm's value, what will be the possible ways? Although there are still concerns about whether CSR is value increasing or decreasing, Ghoul et al. (2011) has provided with concrete results by examining whether CSR activities affect a firm's cost of capital. By applying four different models into cost of capital calculations, they find that one standard deviation increases in CSR scores, measured by MSCI-CSR rating (formerly KLD), leads firms' equity premiums to decrease by 10 basis points. Although I question the CSR measure because of its undetailed classifications and limited firm-year observations (my doubts for KLD database will be further

discussed in Section IV), I do appreciate that the negative relationship between CSR scores and financing costs has been proved by analyzing data with a longer sample period (comparing with previous studies). Since cost of capital is an important channel for the market to price firms' CSR performance, their results can contribute to an alternative explanation of my superior abnormal returns based on Capital Asset Pricing Model (Treynor, Sharpe, Lintner, and Mossin, 1962).

Stein (1988) and Edmans (2009) discuss the overlook of intangibles by managers. They argue that managers are reluctant to invest in intangibles (i.e. the tangible intangibles, such as reputation) because they consider that intangibles are invisible assets and do not help improve the stock prices in short run. This might help firms with greater intangible investments create competitive advantages over others.

Edmans (2011) reduced the reverse causality effects of intangibles, such as employee satisfaction, and firms' financial performance. He studied long-run stock returns instead of 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 priced its future profitability. Therefore, it is more logical that excellent CSR performance leads to greater future profitability but not vice verse. Using stock return as a proxy for firm value also helps control for risks (Fama and French, 2015) and avoid underpricing issues from valuation ratios (Edmans, 2011) since firms with greater value of "tangible" intangible assets, such as high R&D and patent citations costs (Deng, Lev, and Narin, 1999), are likely to earn superior returns. Therefore, studying valuation ratios such as Tobin'Q will not correctly price the firms' fundamental values.

Many studies also argue that firm characteristics generates 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. Their data is retrieved from CRSP and COMPUSTAT and consists of NYSE, AMEX, and NASDAQ firms from 1971 to 1992. They find that value stocks tend to have more positive earning

surprises than their growth counterparties during given sample period. Moreover, using HHI as the main market competition measure, Giroud and Holger (2011) find that the Democracy-Dictatorship hedge portfolio earns superior abnormal returns in non-competitive industries (i.e. high HHI value). Therefore, considering firm characteristics is important for studying abnormal returns. I formed my first hypothesis as follow:

> **Hypothesis 1a**: *The superior abnormal returns of my CSR portfolio are not because of CSR advantages but because of firm characteristics.*

> **Hypothesis 1b**: *The superior abnormal returns of my CSR portfolio still exists after firm-characteristic factors are controlled. The CSR advantages can at least explain partially the superior abnormal returns.*

Earnings surprises may lead to abnormal returns to certain extent, though LeRoy and Porter (1981) argue that stock returns are mainly determined by other factors than earnings. Wang and Phet (2012) explore the relationship between abnormal stock returns and earnings surprises by analyzing OMX Nordic 40 stock index. They conclude that earning information has a lower influence on stock prices because of the statistically insignificant abnormal returns in their samples. Also, they find that positive earning surprises affect stock prices longer than negative ones. Given the fact that earnings can be manipulated and most of companies in their sample are large firms (large firms are more likely to manipulate their earnings), their index reacts less to negative earning surprises than to positive ones.

After studying the market responses around earning announcements of 171 publicly traded firms from 1962 and 1965, Falk and Levy (1989) conclude that the stock market may be inefficient during periods immediately surrounding the announcement day. Kothari and Ball (1991) expand the sample by using NYSE companies and find statistically significant factor leadings after they regress abnormal returns (with observation window from day -11 to day 11) on earnings surprises and standardized firm sizes. Qiu

(2014) also challenge the market efficiency by re-examine S&P 500 firms earning announcements. He also conclude that the most statistically significant results is on the announcement day.

Based on the existing relationship between earning surprises and abnormal returns, Giroud and Mueller (2011) further explore the connection between earnings surprises and firm characteristics, including firm size, book to market ratio, current yield, and etc. Edmans (2011) constructs the same model but add a relevant dummy variable while studying the employee satisfaction advantages. His results indicate that there is a statistically significant relationship between employee satisfaction and earnings surprises after controlling various firm characteristics.

My decreasing trend of alphas, although is inconsistent with what Spiess and Affleck-Graves (1995) find in their equity issuance studies, but it is consistent with Edmans's findings. According to Edmans (2011), "an intangible only affects the stock price when it subsequently manifests in tangible outcomes that are valued by the market". However, firms with great intangibles, especially employee satisfaction, might only have outperformance for a finite period since the intangibles varies over time and the market will gradually learn the advantages. The results of my paper further prove the implication that Edmans raised: the market fails to incorporate information of highly visible measure of intangibles. Based on the above theoretical supports, this paper focuses on examining which of the following hypotheses is true:

> *Hypothesis 2a: If the efficient market theory is correct for all assets, the market will immediately learn and capitalize the intangibles such as CSR advantages and the trend of the abnormal returns should be stationary during periods before and after the list inclusion.*

> *Hypothesis 2b: If the efficient market theory is not correct for all assets, the market will not immediately learn and capitalize the intangibles such as CSR advantages and the trend of the abnormal returns should not be stationary during periods before and after the list inclusion.*

IV. Data and Summary Statistics

The MSCI-CSR rating, which is called KLD formerly, is a corporate social performance (CSP) assessed by a combination of surveys, financial statements, academic journals and government reports. The data covers a wide range of dimensions, including community, diversity, employee relationships, and human rights. Each of the dimension is measured by both strengths and concerns dummy variables.

Although many researchers who study in corporate governance, strategic management, and CSR fields consider KLD CSR scores a relatively complete measure of CSR performance, I decide not to use the data. One reason for this is that the data is uninformative of the magnitude of both "strengths" and "concerns". Firms, such as United Airlines and Lululemon (the 2013 scandal), both faced community and human rights concerns. However, the dummy variables from KLD social ratings are unable to distinguish the severities of the events. Secondly, researchers need to consider whether CSR scores of zeros are not rated or the true value (i.e. CSR rating can be equal to zero after calculations).

My main data source is the list of "100 Most Socially Reputable Companies" (will be call CSR list in rest of the paper) developed by Reputation Institute, which was first published on Forbes website in 2013 (Reputation Institute, 2013). Reputation Institute provides global researchers with a measure of firms' reputation. They measure over 7000 companies in 20 different industries across 55 countries. A reputation measure is considered from seven dimensions, including products and services, innovation, workplace, governance, citizenship, leadership, and performance. Greater performance in the seven dimensions will lead to higher behavioural intention of stakeholders, such as purchasing, recommending, accepting, defending, working, and investing (Reputation Institute, 2017). It is noteworthy that CSR reputation is measured from three out of the seven dimensions, namely, citizenship, workplace, and governance.

There are overall 137 firms, including both private and public firms, listed over the past five years and 75 of them are publicly listed companies with corresponding GVKEY codes from Compustat database. In order to exaggerate CSR effects, I refine the 75 firms and end up with 40 publicly traded companies that are on the list for all five years. I construct three data subsets based on my sample. The first two are equal- and value-weighted portfolios of the 40 best CSR companies in the world. The third one is a ranking matrix of the 75 CSR companies (The group of 75 companies will be called CSR75 in rest of the paper), which includes firms that are de-listed during the five-year period.

To generate my core results of both four-and five-factor alphas, I download monthly closing-price series of the 40 best CSR companies (will be called CSR40 in rest of the paper) from Bloomberg during the period from November 2007 to October 2017. There are three reasons why I include five extra years before 2013 (i.e. the first appearance of the CSR list). First, the CSR list is currently new with limited observations. I need a longer period to observe long-run abnormal returns. Second, I extend the observation period of CSR40 because I believe its has persistent CSR performance for a reason. And it is more likely to remain on the list than other 35 firms from CSR75. Third, I can examine the abnormal returns during a period without CSR reputation information (i.e. from November 2007 to September 2013) and also observe how the abnormal returns varies with time after the market starts to learn CSR reputation (from September 2013 to October 2017).

To form a firm characteristics model (Edmans, 2011;Giroud and Mueller,2011), I retrieve data related to firm size and book to market ratio from both Compustat and CRSP. I then form a dummy variable matrix that records annual CSR ranking changes for CSR75. I construct dummy variables with value of one for unchanged and increasing rankings and zero for decreasing rankings. After merging the two datasets by GVKEY, I end up with a sample with 3,852 yearly observations for 75 companies during given list period.

V. Analysis and Results

5.1 Core Results

I control for both the four Carhart (1997) factors and Fama-French five factors to make sure that I reduce the risk exposure from related factors. My two models are demonstrated as follow:

Carhart four-factor model:

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

Fama French five-factor model:

$$R_{it} = \alpha + \beta_1 MKT_t + \beta_2 HML_t + \beta_3 SMB_t + \beta_4 RMW_t + \beta_5 CMA_t + \varepsilon_{it} \qquad (2)$$

According to Fama French five factor (2016), R_{it} represents the stock returns of my portfolios at time *t.* As MKT_t, HML_t, SMB_t and MOM_t represent the market, value, size, 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 or aggressive investments).

Table 1

	Excess Returns Over Risk-free Rates			
	Carhart 4-factors			
	Panel A: Equal-Weighted		*Panel B: Value-Weighted*	
	Coefficient	P.Value	Coefficient	P.Value
alpha4	0.1056	0.4888	0.2283	0.1729
rmrf	1.0773	0.0000 ***	1.0575	0.0000 ***
smb	0.0623	0.4854	0.0010	0.9907
hml	-0.1095	0.1418	-0.1709	0.0102 *
mom	0.1042	0.5763	-0.0716	0.6858
	Fama French 5-factors			
	Coefficient	P.Value	Coefficient	P.Value
alpha5	0.0850	0.4852	0.1648	0.2771
rmrf	1.0849	0.0000 ***	1.0648	0.0000 ***
smb	0.1084	0.1991	0.0400	0.6422
hml	-0.0074	0.9116	-0.0536	0.3583
rmw	0.2497	0.0251 *	0.2289	0.0387 *
cma	-0.2650	0.0107 *	-0.3381	0.0019 **
*Significant codes: 0 = '***'; 0.001 = '**'; 0.01='*'; 0.05 =' .'*				

I also use Newey and West (1987) with a lag of 10 to correct the standard errors for heteroskedastic and serially correlated. As we can tell from the results, both four- and five-factor models generate a superior abnormal monthly returns. According to the Carhart four factor model, the monthly abnormal returns of my equal-weighted portfolio (named EW) is 0.11%, or 1.32% per year. When it comes to the value-weighted portfolio (named VW), the monthly abnormal return increases to 0.22%, or 2.74% per year. Although my alphas lack the statistical significance, it is still meaningful to conclude that both CSR40 portfolios generate superior abnormal returns over a ten-year period. A possible explanation of the greater alpha from portfolio VW may be that in my sample big firms earned more returns than small firms, which is contradict to the Fama French size anomaly (Fama and French, 1973). This can be attributed to my small sample size and limited observations.

5.2 Further robustness tests

Another possible concern of the abnormal return is that the abnormal returns 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), I run a regression indicated as below:

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

X_{it} is the dummy variable created in Section IV. X_{it} is equal to one if the CSR rankings of the firm do

not decrease on the most recent list (Table 2 exhibit the dummy variable X_{it}). As indicated in Table 5 in

Appendix section. I regress the monthly stock returns on the CSR dummy variables, *logsize2* is the log of

stock *i*'s market capitalization 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 for

month *t-3* and month *t-2*; *logret102* is the compounded log returns for month *t-12*, month *t-11*, and *t-*

10; *logret4-9* are the log returns at end of the corresponding months before time *t*. My results generate

a statistically insignificant positive CSR dummy coefficient, 0.004% monthly, or around 0.05% per year.

The "CSR premium" (i.e. superior abnormal returns from model 1 and 2) seems to be reduced by a large

portion after controlling for firm characteristics. However, my findings support hypothesis 1b that the

superior abnormal returns of my CSR portfolio still exist after firm-characteristic factors are controlled.

The CSR advantages are affected largely by firm characteristics based on my sample observations but

can at least explain partially the superior abnormal returns. My conclusion is based on the assumption

that the model is efficient (The R square from model 3 is around 22.43% with a statistically significant F

value).

5.3 Earning announcements

The paper's hypothesis is that good CSR performance is beneficial to a firm's value but not immediately capitalized by stock returns because good CSR performance contributes to a firm's reputation, which is hard to be quantified. Therefore, we investigate whether there are positive impacts on CSR companies' earnings. Although profits are persistent, they can still affect stock returns while they are unexpected (Edmans, 2011). We choose earning because this accounting performance is observable and influential to returns with high frequency (i.e. monthly returns in this case). According to Giroud and Mueller (2011) and Edmans (2011), we run a similar regression:

$$Surprise_{it} = Alpha1 + B1 * D_{it} + B2*BM + B3*SIZE + B4*YIELD$$

Surprise$_{it}$ represents the earning spread (i.e. earing surprise) between the actual yearly earnings per share (EPS) and the estimated earnings per share. The actual and the estimated EPS are retrieved from Bloomberg and the latter is the median Bloomberg estimate system median analyst forecast. The D$_{it}$ represents a dummy variable for whether the CSR firms' CSR ranking increases or decreases. If the ranking of a firm increases, which means that the firm's CSR performance becomes worse, the value of D$_{it}$ is 0. The value of D$_{it}$ is 1 vice versa. BM is the log ratio of book value to market value. This factor controls the discrepancies of firm value. SIZE is the log of firms' market capitalization while YIEDL represents the dividend yields of each firm at the end of four consecutive years (from 2014 to 2017). The methodology above also follows the study of Brenna, Chordia, and Subrahmanyam (1998), which illustrates factor controls, such as BM, SIZE, and YIELD for conducting characteristics regressions of stock returns. However, in this case, we study earning surprises instead of stock returns.

Table 6 and 7 illustrate how dummy variables are created based on the ranking changes. Negative dummy variables are demonstrated as above while positive dummy variables have value of 1 when value ranking increases from that of previous year. The value of positive dummy variables will be zero if the ranking remains unchanged or decreases.

Table 8 illustrates the results of our regressions. DUM1 represents the positive dummy variable. Although variables BM and DIV.Y cannot explain the earning surprise very well, SIZE and DUM1 do have statistically significant p value. The positive DUM1 value also suggests that if CSR ranking improves, the earning surprise will likely improve by 14.65%.

We also run regression by using negative dummy variable and draw a similar conclusion. As Table 9 illustrated, if CSR ranking decreases, the earning surprises will likely to fall by 12.51%.

Therefore, if the explanatory power of earning surprises to stock returns exists, we can conclude that the companies on CSR list and have improving CSR performance will lead to earning surprises and thereby improve their stock returns if the earning surprises are unexpected by the market.

5.4 The disappearing alphas and CSR list inclusion

My hypothesis 2b indicates that if the efficient market theory is not correct for all assets, the market will not immediately learn and capitalize the intangibles such as CSR reputation and the trend of the abnormal returns should not be stationary during periods before and after the list inclusion. Edmans (2011) concluded that there are two possible reasons to explain the superior abnormal returns of firms with high employee satisfaction. One is earnings surprises and the other is the mispricing of employee satisfactions. The latter is further explained by facts 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. Also, 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. His findings indicate that cumulative abnormal returns tend to decrease their growth rates as number of periods accumulated. The growth rates of

cumulative abnormal returns converge to zero after time periods increase to 60 months (i.e. five years after the firms included by the list of "100 Best Companies to Work For in America").

I conduct a similar method with Edmans here to test directly the change of cumulative abnormal returns. Inspired by Edmans (2011), I extend my observation window to five years (i.e. 60 months) and run both four- and five-factors models on a rolling basis since November 2007. To explain, my first regression result is generated from observations from November 2007 to October 2013, when there is no CSR reputation list in the market. My last regression result is based on data series from November 2013 to October 2017, the market has continuously learned the CSR reputation list for five years. Consistent with my expectation and the empirical evidence from Edmans's longevity analysis (2011), my plots for the 60-months rolling alphas trends are shown below:
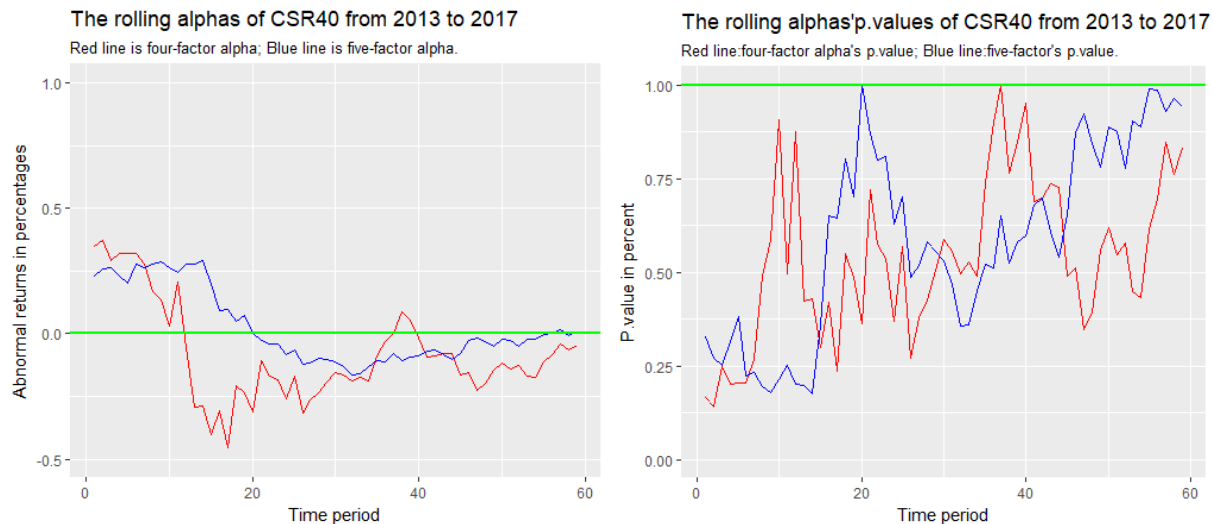
As the observation window moves, the alphas from both four- and five-factor models demonstrate a decreasing trends while the corresponding p values increase as time approaches to 60 (t=60 means the list is disclosed for every month during the observation period). Since CSR reputation is more persistent than employee satisfaction (there are two reasons for this: first, employee satisfaction can be considered an input for CSR reputation; second, CSR reputation is more likely to remain unchanged unless negative events shock the CSR reputation), the explanation for the decreasing alpha values is

more likely to be the fact that the market has a slow learning curve of the intangibles and gradually corrects for its mispricing of the intangibles. My further results of the stationarity test are shown in Table 10 below:

Table 10: Stationarity Test for Alphas:

Carhart Four Factor		
PP4	**ADF4**	**KPSS4**
53.71%	41.46%	1.46%
Not Reject H0	Not Reject H0	Reject H0
Non-stationary	*Non-stationary*	*Non-stationary*
Fama French 5 Factor		
PP5	**ADF5**	**KPSS5**
97.24%	97.72%	1.00%
Not Reject H0	Not Reject H0	Reject H0
Non-stationary	*Non-stationary*	*Non-stationary*

My stationary tests, including Philips-Perron, Augmented Dickey-Fuller, and KPSS test all suggest that the alphas are non-stationary, which is consistent with my hypothesis 2b. Therefore, we conclude that the learning curve of the market can best explain the diminishing alpha values, the superior abnormal returns.

V. Conclusion

As Edmans (2011) explains his "lack-of-information hypothesis", the reason why intangibles are not incorporated in market prices immediately is because the market lacks information of their value. Lev (2004) also discusses that even if R&D costs are disclosed by income statements, the market is still uninformative of their quality and success. This is also why this paper chooses CSR reputation, an output, instead of firm's CSR engagements, an input, which are measured by KLD CSR scores. Although the CSR reputation lists ("100 Most Socially Reputable Companies") have a relatively short history, it is complete (based on its CSR measure methodology), visible, and influential (published on Forbe.com annually). Therefore, the lists should be an efficient way of informing CSR investors and the market.

Unlike other papers that test market efficiency through studying earning announcements and short-term abnormal returns, this paper tests the market efficiency from a different perspective. I follow the methodologies developed by Edmans and Giroud (2011) and consider the abnormal return a mispricing portion that are not or only partially incorporated into the tangible asset pricing. Here, tangible assets refer to assets that have salient and visible measures and are easy to be quantified. Results indicated by my CSR40 and CSR75 portfolios further prove that intangible assets, such as CSR reputation, can not be understood by the market at the very beginning (when the intangible measures first appear). However, as time goes, the intangible advantages gradually decreases and the mispricing portion is gradually corrected by the market itself. Therefore, the market seems to be very efficient to tangible assets while inefficient but "willing" to learn about intangibles with non-permanent characteristics and high qualities.

References

Brennan, M., Chordia, T.,Subrahmanyam, A.(1998). Alternative factor specifications, security characteristics, and the cross-section of expected stock returns. *Journal of Financial Economics 49*, 345–373.

Bernard, V., Thomas, J., (1989). Post-earnings-announcement drift: delayed price response or risk premium? Journal of Accounting Research 27, 1–36.

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

Chatterji, A., Levine, D., & Toffel, M. (2009). How Well Do Social Ratings Actually Measure Corporate Social Responsibility? *Journal of Economics & Management Strategy, 18(1),* 125-169*.*

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

Daniel, K., Titman, S., (1997). Evidence on the characteristics of cross-sectional variation in common stock returns. Journal of Finance 52, 1–33.

Diltz, J., (1995). Does social screening affect portfolio performance? Journal of Investing 4, 64–69.

Edmans, A., (2009). Blockholder trading, market efficiency, and managerial myopia. Journal of Finance 64, 2481–2513.

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

Fama, E., French, K., (1997). Industry costs of equity. Journal of Financial Economics 43, 153–193

Fama, E., French, K., (2008). Dissecting anomalies. Journal of Finance 63, 1653–1678.

Fama, E., MacBeth, J., (1973). Risk, return, and equilibrium: empirical tests. Journal of Political Economy 81, 607–636.

Gaines-Ross, L. (2000). CEO Reputation: A Key Factor in Shareholder Value. *Corporate Reputation Review, 3(4),* 366-370.

Giroud, X., Mueller, H. (2011). Corporate governance, product market competition, and equity prices. *Journal of Finance 66*, 563–600.

Gregory, A., Tharyan, R., & Whittaker, J. (2014). Corporate Social Responsibility and Firm Value: Disaggregating the Effects on Cash Flow, Risk and Growth. *Journal of Business Ethics, 124(4),* 633-657.

Griffin, J., & Mahon, J. (1997). The Corporate Social Performance and Corporate Financial Performance Debate: Twenty-Five Years of Incomparable Research. *Business & Society, 36*(5), 5-31.

Kurtz, L., DiBartolomeo, D., (1996). Socially screened portfolios: an attribution analysis of relative performance. Journal of Investing 5, 35–41.

La Porta, R., Lakonishok, J., Shleifer, A., Vishny, R., (1997). Good news for value stocks: further evidence on market efficiency. Journal of Finance 52, 859–874.

Hamilton, S., Jo, H., Statman, M., (1993). Doing well while doing good: the investment performance of socially responsible mutual funds. Financial Analysts Journal 49, 62–66.

Hong, H., Kacperczyk, M., (2009). The price of sin: the effect of social norms on markets. Journal of Financial Economics 93, 15–36.

Markowitz, H., (1959). Portfolio Selection: Efficient Diversification of Investments. Wiley, New York.

Mcguire, J., Sundgren, A., & Schneeweis, T. (1988). Corporate Social Responsibility And Firm Financial Performance. *Academy of Management Journal, 31*(4), 854-872.

Mishra, S., & Suar, D. (2010). Does Corporate Social Responsibility Influence Firm Performance of Indian Companies? *Journal of Business Ethics, 95*(4), 571-601.

LeRoy, S., Porter, R.(1982) The present-value relation: tests based on implied variance bounds. *Econometrica 49*, 555–574.

Lev, B., Sarath B., & Sougiannis, T. (2004). R&D Reporting Biases and Their Consequences. *Contemporary Accounting Research, 22(4).*

Reputation Institute (2016). 2016 GLOBAL CSR REPTRAK®. Retrieved from https://www.reputationinstitute.com/2016-global-csr-reptrak.aspx

Sadok, G., et al (2011). Does Corporate Social Responsibility Affect the Cost of Capital? *Journal of Banking & Finance 35(9),* 2388-2406.

Spiess, D., Affleck-Graves, J., (1995). Underperformance in long-run stock returns following seasoned equity offerings. Journal of Financial Economics 38, 243–267.

VI. Appendix (references, exhibits, codes)

Table 2: CSR companies dummy variables – X_{it}

Rank	Firm Name	GVKEY	2014	2015	2016	2017
1	3M	7435	1	0	1	1
2	61 Panasonic	1078	0	1	1	1
3	Air France-KLM	101475	0	0	1	1
4	Amazon.com	64768	0	1	0	1
5	Anheuser-Busch InBev	241637	1	1	0	1
6	Apple	1690	1	0	1	0
7	AstraZeneca	28272	1	1	0	1
8	Bayer	100080	1	0	1	0
9	Benetton	15406	1	0	1	1
10	Boeing	2285	1	1	0	1
11	Bristol-Myers Squibb	2403	0	1	0	1
12	Campbell Soup Company	2663	1	0	0	1
13	Caterpillar	2817	1	1	0	1
14	Cisco Systems	20779	1	0	1	1
15	Danone	17452	0	1	0	1
16	Deere & Co.	3835	1	1	0	1
17	Dell	14489	0	1	0	1
18	Delta Air Lines	3851	1	1	1	1
19	Diageo	18636	0	1	0	1
20	DuPont	4087	1	0	1	0
21	eBay	114524	0	0	1	0
22	Electrolux	14620	0	1	1	0
23	FedEx	4598	0	1	0	1
24	Ford Motor	4839	0	1	1	1
25	Fujifilm	4925	0	0	0	1
26	Fujitsu	18467	0	0	1	1
27	General Mills	5071	1	0	1	1
28	General Motors Company	5073	0	1	1	1
29	GlaxoSmithKline	5180	0	1	1	1
30	Goodyear	5234	0	0	1	0
31	Heineken	104833	0	1	0	1
32	Hershey Company	5597	1	0	1	0
33	Hertz Global Holdings	5600	0	1	1	1
34	Hewlett-Packard (HP Inc)	5606	0	1	0	1
35	Hilton Worldwide	5643	1	1	0	1
36	Hitachi	5650	0	1	1	1

Table 3: Statistics summary of equation (3): $R_{it}= \alpha + \beta_1 X_{it} + \beta_2 Z_{it} + \varepsilon_{it}$

Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
DUMMY	3852	0.55659	0.49685	2144	0	1.00000	
MKVALT	13120	4.21512E10	7.54315E10	5.53023E14	0	8.51726E11	Market Value - Total - Fiscal
PRCCM	12650	68.41682	102.61122	865473	0.01800	1451	Price - Close - Monthly
Yield	4895	0.00819	0.00754	40.08058	0	0.14977	
BM	8068	-6.50153	6.39057	-52454	-17.64585	0.36419	
TRT1M	12651	0.97233	8.61465	12301	-93.33333	127.37643	Monthly Total Return

Table 4: Correlations analysis:

Pearson Correlation Coefficients Prob > |r| under H0: Rho=0 Number of Observations						
	DUMMY	MKVALT	PRCCM	Yield	BM	TRT1M
DUMMY	1.00000 3852	0.04431 0.0067 3745	0.05372 0.0014 3535	0.00513 0.8441 1473	0.06934 <.0001 3386	0.02054 0.2224 3530
MKVALT Market Value - Total - Fiscal	0.04431 0.0067 3745	1.00000 13120	0.02114 0.0176 12621	0.14956 <.0001 4887	-0.62363 <.0001 8068	0.00706 0.4279 12608
PRCCM Price - Close - Monthly	0.05372 0.0014 3535	0.02114 0.0176 12621	1.00000 12650	-0.20571 <.0001 4895	0.14754 <.0001 7570	0.06131 <.0001 12630
Yield	0.00513 0.8441 1473	0.14956 <.0001 4887	-0.20571 <.0001 4895	1.00000 4895	-0.43001 <.0001 3072	-0.03592 0.0120 4885
BM	0.06934 <.0001 3386	-0.62363 <.0001 8068	0.14754 <.0001 7570	-0.43001 <.0001 3072	1.00000 8068	0.02567 0.0256 7561
TRT1M Monthly Total Return	0.02054 0.2224 3530	0.00706 0.4279 12608	0.06131 <.0001 12630	-0.03592 0.0120 4885	0.02567 0.0256 7561	1.00000 12651

Table 5: Regression analysis: $R_{it} = \alpha + \beta_1 X_{it} + \beta_2 Z_{it} + \varepsilon_{it}$

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	72	0.57912898	0.00804346	2.38	<.0001
Error	593	2.00223996	0.00337646		
Corrected Total	665	2.58136894			

R-Square	Coeff Var	Root MSE	RETURN Mean
0.224350	985.0055	0.058107	0.005899

Parameter	Estimate	Standard Error	t Value	Pr > |t|
DUMMY	0.003984117	0.00532176	0.75	0.4544
logsize2	-0.026253982	0.00717939	-3.66	0.0003
BM	-0.025137633	0.00701658	-3.58	0.0004
Yield	-5.004254846	1.00630538	-4.97	<.0001
logret32	-0.009634330	0.01368894	-0.70	0.4818
logret6	-0.108460438	0.07662162	-1.42	0.1574
logret4	0.008909010	0.01768684	0.50	0.6147
logret5	0.039111680	0.02500308	1.56	0.1183
logret7	-0.085821755	0.04141786	-2.07	0.0387
logret8	0.046231468	0.03628968	1.27	0.2032
logret9	0.092398775	0.04001302	2.31	0.0213
logret102	-0.033562238	0.01714871	-1.96	0.0508

Table 6 Changes of ranking (from 2014 to 2017):

MSFT US Equity	GOOGLE US Equity	DIS US Equity	BMW GY Equity	INTC US Equity	CSCO US Equity	CL US Equity	ML FP Equity	SNE US Equity	IBM US Equity	ADDYY US Equity	MMM US Equity	CAJ US Equity
1	-2	1	0	1	-6	9	-1	5	1	-4	-19	0
2	0	0	-2	1	6	-1	-5	5	9	-5	11	1
-2	0	0	2	1	-28	-1	-3	-3	5	3	-4	-3
0	2	1	1	-4	-16	-13	1	3	-16	2	-12	12

Table 7 Negative dummy variables & Positive Dummy Variables (from 2014 to 2017):

	MSFT US Equity	GOOGL US Equity	DIS US Equity	BMW GY Equity
2014	0	1	0	0
2015	0	0	0	1
2016	1	0	0	0
2017	0	0	0	0

	MSFT US Equity	GOOGL US Equity	DIS US Equity	BMW GY Equity	INTC US Equity
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 Regressions of Positive Dummy Variable (positive ranking changes)

	Estimate	z value	Pr (> |z|)
(Intercept)	−51.11713	−2.1631	0.03053 *
DUM1	14.64708	2.2144	0.02680 *
BM	1.80594	0.7238	0.46921
SIZE	4.33067	1.8340	0.06666 .
DIV.Yield	0.24496	0.5748	0.56545

*Significant codes: 0 = '***'; 0.001 = '**'; 0.01='*'; 0.05 ='.'*

Table 9 Regressions of Negative Dummy Variable (negative ranking changes)

	Estimate	z value	Pr (> |z|)
(Intercept)	−34.34894	−2.1485	0.03167
DUM2	−12.50650	−2.4467	0.01442
BM	1.48101	0.6635	0.50703
SIZE	3.91928	1.8774	0.06046
DIV.Yield	0.31639	0.5471	0.58434

*Significant codes: 0 = '***'; 0.001 = '**'; 0.01='*'; 0.05 ='.'*
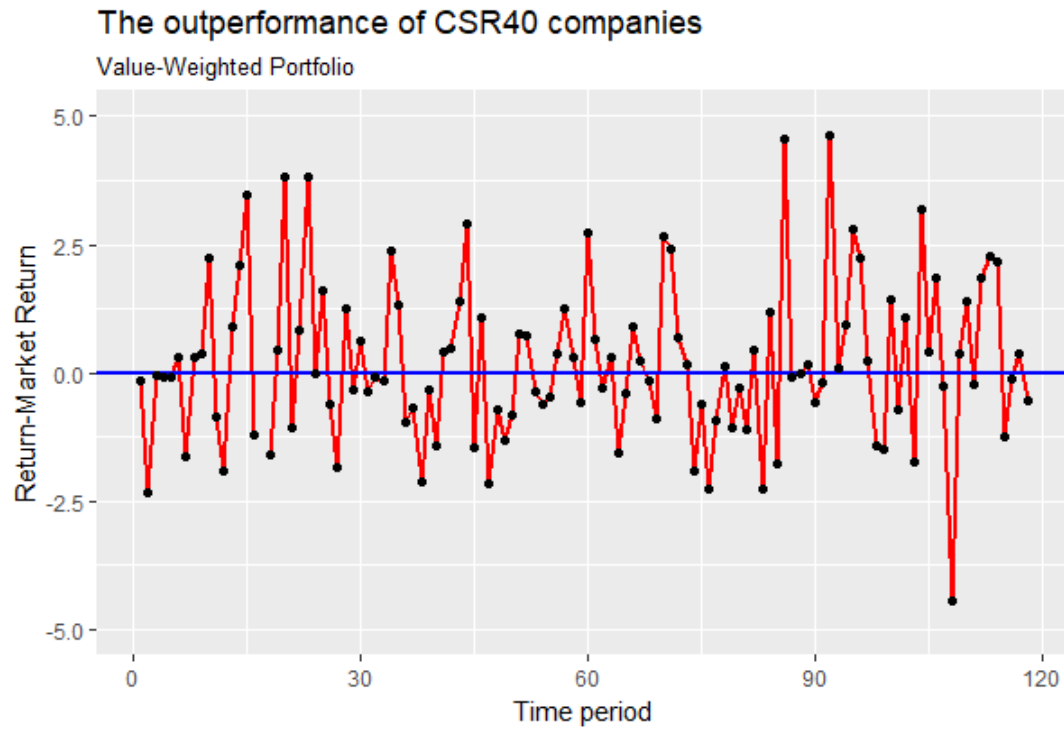
Figure 1: The excess return of CSR40-VW over S&P 500:

Figure 2: The outperformance of CSR40-VW over S&P 500: