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Financial Crisis and Corporate Social Responsible Mutual Fund Flows

Sitikantha Parida * and Zhihong Wang

Graduate School of Management, Clark University, Worcester, MA 01610, USA; zhihwang@clarku.edu
* Correspondence: sparida@clarku.edu; Tel.: +1-508-421-3818

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Abstract: In this paper, we investigate investment flows into mutual funds that hold more high corporate social responsible stocks (top CSR funds) vs. mutual funds that hold more low corporate social responsible stocks (bottom CSR funds). Using a large sample of equity mutual funds spanning 2003–2012, we find that top CSR funds on average receive about 5% less investment per annum compared to the other funds; whereas bottom CSR funds receive about 5.6% more investments. These relative negative and positive flows into the top and bottom CSR funds respectively were larger during the pre-financial crisis period (2003–2007). This trend, however, reversed during the financial crisis (2008–2009). Top CSR funds attracted about 8.7% more investments during the financial crisis compared to the pre-crisis period; whereas bottom CSR funds received about 9.8% less investment. This higher investment into the top CSR funds during the crisis seems to have disappeared during the post-crisis period (2009–2012). Additional analysis shows that the corporate social ratings of top CSR funds improved through the crisis, whereas it deteriorated for the bottom CSR funds. Our findings are consistent with the "flight to quality" phenomenon observed in financial markets during market crises, indicating that investors perceive top CSR fund investments as relatively safe or of higher quality and hence, invest more in them during financial crises.

Keywords: corporate social responsibility; mutual fund flows; financial crisis; flight to quality

JEL Classification: G01; G11; G23

1. Introduction

In recent years, investors' interests in socially responsible investing (SRI) has increased significantly. Between 2012 and 2016, SRI assets in the US almost doubled to $8.72 trillion (The Forum for Sustainable and Responsible Investment 2016).[1] These investments span across a wide variety of asset classes such as equity investments, fixed income, and alternative investments.[2] Socially responsible mutual funds are one of the fast-growing portfolio-level asset class under this umbrella.

There is no consensus in the existing literature yet regarding the relative performance of socially responsible mutual funds compared to the traditional mutual funds (Bauer et al. 2005; Goldreyer and Diltz 1999; Hamilton et al. 1993; Statman 2000; Renneboog et al. 2008). Some

[1] See Report on Sustainable and Responsible Investing Trends at http://www.ussif.org/content.asp?contentid=82.
[2] There is no precise definition of SRI. Scholars have used various terms such as "community investing", "ethical investing", "green investing", "impact investing", "socially responsible investing", and "sustainable investing" to explain this. Several initiatives such as the UN Global Compact, the United Nations backed Principles for Responsible Investment (UN PRI), the Global Reporting Initiative (GRI), the Carbon Disclosure Project (CDP), the Sustainability Accounting Standards Board (SASB), and the American and European SRI markets have contributed to this phenomenal growth of socially responsible investments.

studies suggest that high-CSR funds produce poorer performance relative to low-CSR funds (e.g., El Ghoul and Karoui 2017) or to mutual funds that hold more "sin" stocks (Borgers et al. 2015), while others find the relationship is insignificant or only holds in some circumstances (e.g., Renneboog et al. 2008). Most of these studies suffer from small sample sizes as they investigate only a handful of dedicated SRI mutual funds (funds that explicitly include their SRI objectives in their prospectuses). Dong et al. (2015) address this small sample problem by constructing a fund level corporate social responsibility (CSR) measure for each mutual fund using the CSR rating provided by the KLD database. They find that top CSR funds (funds that hold more high corporate social responsible stocks) underperform bottom CSR funds (funds that hold more low corporate social responsible stocks) during normal times[3], however, top CSR funds outperform bottom CSR funds during the 2008 financial crisis. Similarly, Lins et al. (2017) show that top CSR stocks outperform bottom CSR stocks during the financial crisis. They argue that investments in the corporate social activities by top CSR firms help them build trust-based relationships with their stakeholders/investors. This pays off when there is a negative shock to the overall social trust in corporations such as during a financial crisis. Cornett et al. (2016) examine the relationship between banks' corporate social responsibility (CSR) and financial performance during the 2008 financial crisis. They find that banks are rewarded for being socially responsible, and the largest banks show a significant increase in CSR strengths and a significant drop in CSR concerns after 2009.

Legitimacy theory suggests that socially responsible activities exhibit an organization's intention to pursue moral legitimacy given by its stakeholders for socially beneficial aspects of business strategy and operations (Scherer and Palazzo 2007, 2011; Windolph et al. 2014) and build up the social trust of such organization. Several claims have been made that companies embracing corporate social responsibility deliver superior performance in terms of improved ability to attract and retain the best employees, gain competitive advantages in production technology, acquire more loyal customers, lower litigation costs and cost of capital, enhance their brand value and reputation, etc. (e.g., Eccles et al. 2012; El Ghoul et al. 2010). Putnam (1993) shows that higher social capital societies, based on mutual trust, display higher economic development. Guiso et al. (2004, 2008) show that trust derived from greater social capital encourages more stock market participation. Consistent with the concept of social trust, Nofsinger and Varma (2014) find that socially responsible mutual funds reward investors during "bad" years. Mahler et al. (2009) emphasize the real value of high-CSR firms and call to stay with "green" companies because their analysis shows that high-CSR firms generate above average performance during an economic downturn.

In this paper, we investigate if more top CSR holdings by mutual funds inspire trust among the investors during a financial crisis. We conjecture that there is a "flight to quality"[4] effect associated with mutual fund investments during a crisis—investors perceive top CSR mutual fund investments as relatively safe or of higher quality and hence, invest more in those funds during financial crises.

Using a large sample of equity mutual funds spanning 2003–2012, we find that top CSR funds receive about 5% less investment per annum compared to the rest of the funds; whereas bottom CSR funds receive about 5.6% more investments. We then partition the sample into two periods (2003–2007 and 2008–2012) and investigate the fund flows in the subsamples. We find that the relatively negative and positive flows into the top- and bottom-CSR funds respectively are larger during the pre-financial crisis period (2003–2007). Top CSR funds receive about 6.4% less investment per annum compared to

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[3] One explanation why the bottom CSR stocks/funds outperform the top CSR stocks/funds during normal times is that existing factor models fail to account for the risk embedded in low CSR stocks/funds. Hong and Kacperczyk (2009) argue that the bottom CSR stocks may be exposed to more litigation risk. There may also be a social norm against investing in the low-CSR stocks (investors avoid investing in such stocks/funds) that drives down these stocks' price and increase their expected return.

[4] 'Flight-to-quality' is a financial market phenomenon that occurs during a crisis when investors move away from investments they perceive to be of higher-risk and invest in relatively safer investments, such as US Treasuries and gold. Vayanos (2004), Caballero and Krishnamurthy (2008), Bernanke et al. (1996), etc. have referred to this phenomenon in various contexts.

the rest of the funds; whereas bottom CSR funds receive about 8.2% more investments. We, however, do not find any difference in the fund investments across the corporate social responsibility measure of the funds in the second half of the sample (2008–2012).

To identify the effect of the financial crisis on the fund flows, we partition the sample into crisis period (2008–2009) and non-crisis period (2003–2007 and 2010–2012) and repeat the analysis. Interestingly, we find that the top CSR funds receive between 7.9% and 8.3% more investments during the financial crisis period compared to the non-crisis period; whereas the bottom CSR funds received about 7% less investment during the same period. This provides evidence in support of the "flight to quality" effect.

Next, we study if the higher investment flows into the top CSR funds is temporary, observed only during the financial crisis. We partition our sample into three subsamples: 2003–2007 (pre-crisis period), 2008–2009 (crisis period), and 2009–2012 (post-crisis period). We find that during the crisis period, top CSR funds attract between 8.5% and 9% more investments, compared to the pre-crisis period. This higher investment flow into the top CSR funds during the crisis period, however, disappears during the post-crisis period (2009–2012). The bottom CSR funds attract between 9.5% and 9.85% less investment during the financial crisis, compared to the pre-crisis period. This lower receipt of investments continues through the post-crisis period. It may be because the fund investors became wary of the bottom CSR funds during the crisis and did not yet trust them as the uncertainties in the markets/economy had not resolved completely.

To summarize, our findings are consistent with the "flight to quality" phenomenon overserved in financial markets during market crises: investors treat top CSR fund investments as relatively safe or of higher quality and hence, top CSR funds attract more investments during the crises compared to normal times. Also, we observe that the CSR ratings of top CSR-funds improve through the crisis. This may be because the fund managers of the top CSR funds consciously tried to invest in higher CSR stocks during the financial crisis or because the stocks in the fund portfolios became more CSR focused during the crisis to win the trust of their stakeholders. We carry out various robustness tests, and our results withstand these tests.

Our findings contribute to the literature in several aspects. First, our study extends the strand of the literature on CSR mutual fund investments (e.g., Bauer et al. 2005; Goldreyer and Diltz 1999; Hamilton et al. 1993; Statman 2000; Renneboog et al. 2008; Dong et al. 2015). To the best of our knowledge, this is the first[5] work that studies the impact of CSR investments on mutual fund flows. It also provides evidence in support of the 'flight to quality' phenomenon observed during financial crises.

Second, our paper contributes to the mutual fund flow literature. The current literature has established that future flows can be predicted by lagged fund performance and fund flows (Sirri and Tufano 1998; Berk and Green 2004; Lou 2012; Coval and Stafford 2007, etc.). Our paper shows that in addition to fund performance and fund flows, fund investments in CSR stocks can predict future fund flows. Third, our findings also have implications for strategic trading activities in the market such as front-running (Coval and Stafford 2007; Parida and Teo 2016; Parida 2017; Dyakov and Verbeek 2014). A front-running strategy refers to a trading strategy in which smart funds trade in securities in anticipation of trades by other funds. The targeted funds may, therefore, be forced to trade at unfavorable prices. The profitability of these front-running strategies depend on the accuracy of fund flow forecasts, which would be enhanced by inclusion of fund CSR investments in addition to lagged fund performance and flows.

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[5] Benson and Humphrey (2008) find that SRI fund flows are less sensitive to returns than conventional funds. However, our paper examines how CSR affects flows (and not the flow-performance relationship or performance).

The rest of the paper is structured as follows: Section 2 describes the data and the summary statistics; Section 3 presents the empirical analysis; Section 4 carries out robustness analysis; and Section 5 concludes.

2. Data and Summary Statistics

We source data from three databases—CRSP mutual mund database, Thomson Reuters Fund Holding database and the MSGI ESG STATS (formerly KLD database)[6]—and our sample spans 2003–2012. It starts from 2003 because that is the year KLD started covering 3000 stocks from 2000 previously, and hence, it made an estimation of fund level CSR measure more precise.

The CRSP mutual fund database provides information on fund returns, total net assets (TNA), fund fees, investment objectives, and other fund characteristics. The Thomson Reuters Mutual Fund Holdings Database provides stock holdings of mutual funds, which is sourced from reports filed by funds with the SEC as well as voluntary reports generated by the funds. Following Kacperczyk et al. (2008), we merge the CRSP mutual fund database with the Thomson Reuters Mutual Fund Holdings Database.

We focus on open-end US domestic equity mutual funds. We eliminate balanced, bond, money market, international, and sector funds, as well as funds not invested primarily in equity securities. Specifically, we select funds with the following ICDI objectives: AG, GI, LG, or IN. If a fund does not have any of the four ICDI objectives, we select funds with the following SI objectives: AGG, GMC, GRI, GRO, ING, or SCG. If a fund has neither the SI objective nor the ICDI objective, then we select funds with the following Wiesenberger Fund Type Code: G, G-I, AGG, GCI, GRI, GRO, LTG, MCG, and SCG. If none of these objectives is available and the fund has a CS policy (common stocks are the securities mainly held by the fund), we include it in our sample.

We exclude funds that have the following Investment Objective Codes in the Thomson Reuters database: International, Municipal Bonds, Bond and Preferred, and Balanced. We exclude funds that, on an average, hold less than 80% or more than 105% in stocks. We also exclude funds that hold fewer than 10 stocks and which in the previous month managed less than $5 million. For funds with multiple share classes, we eliminate duplicate funds and compute the fund level variables by aggregating across different share classes. For assets under management, we sum the TNAs of the different share classes, for other quantitative attributes of funds (such as returns, expenses, etc.), we take an asset-weighted average of the attributes of the individual share classes.

The MSGI ESG STATS database was developed by Kinder, Lydenberg, Domini Research Analytics. This database has been widely used in the literature (e.g., Krüger 2015; Borisov et al. 2016). It captures "strengths" and "concerns" attributes of 63 indicators for seven corporate social responsibility categories that include community, environment, diversity, employee relations, human rights, products, and governance[7]. It uses a binary reporting of environmental, social, and corporate governance (ESG) ratings. If a company meets the criteria established for an item, it is indicated by a "1", otherwise, a "0". These values are then summed across each category on strength and concern attributes. Following the literature (e.g., Kim et al. 2012), we calculate KLD strengths of each stock by adding up strengths for each of the five dimensions (environmental, community, employee relations, diversity, and product). We generate KLD concerns by adding up concerns for the same five dimensions. KLDNET for each

[6] It was developed by KLD Research and Analytics, which was acquired by RiskMetrics Group in 2009. The later was subsequently acquired by MSCI in 2010. This database has been widely adopted by previous studies (e.g., Turban and Greening 1996; Galbreath 2006).

[7] Per the KLD STATS (2003) data manual, KLD renamed the "Other category" in 2002 to "Corporate Governance" in order to better communicate the intent and content of those ratings. The items included in this category are compensation, ownership, tax disputes, and others. It may not capture corporate governance features for each firm well. Thus, like many other prior works on CSR, we do not include this corporate governance measure in our main analysis. However, in Section 4.3, we include this category to estimate an alternate fund level CSR measure and carry out robustness checks. We find similar results as our main analysis.

stock is then calculated by subtracting total concerns from total strengths. This is our stock level CSR measure.

Following Dong et al. (2015), we construct a fund level CSR measure, called the Fund CSR Measure. We first calculate the KLDNET measure for every stock in the fund portfolio. Then we calculate the value-weighted portfolio average of KLDNETs for the whole fund as our fund level CSR measure.

Summary Statistics

Table 1 reports the mean, the median, the standard deviation, the 25th and the 75th percentile of the age, fund CSR measure, total net assets, expense ratio, and annual turnover ratio of all the funds in the sample.

Table 1. Summary statistics (2003–2012).

Variables	Mean	Median	Std. Dev.	25%	75%
Fund Age	13.545	11.000	12.110	6.000	17.000
Fund CSR Measure	1.000	0.866	1.649	−0.317	1.970
Expense Ratio	0.012	0.012	0.011	0.009	0.015
Total Net Assets	1343.310	215.583	5613.020	58.583	797.458
Family Net Assets	60,818.870	5534.000	158,257.490	617.700	24,283.700
Turnover Ratio	0.928	0.620	1.500	0.313	1.083

Note: This table reports descriptive statistics of our sample, including number of funds, mean, standard deviation, minimum, median, and maximum of the key variables used in this study. Variable descriptions are presented in Appendix A.

We started with 4838 mutual funds. However, after we implemented the filters discussed in the previous section, we ended up with about 750 funds. The mean total net asset is $1343 million, whereas the median is $215 million. So it is a positively skewed distribution. The mean expense ratio is around 1.2%, the mean annual turnover ratio is 92.8%, and the mean age of the funds in the sample is 13.545 years. These statistics compare well with the other studies carried out in the same area (see Dong et al. 2015).

3. Empirical Analysis

3.1. CSR-Funds and New Investments: Whole Sample Analysis

In this section, we investigate if the top and bottom CSR funds attract more or less new investments compared to other funds. We estimate the following regression model for our analysis

$$flow_{j,t} = Constant + \beta \times Top\ CSR\ Fund_{j,t-1} + \sum_{k=1}^{K} a_k \times flow_{j,t-k} + b \times R_{j,t-1}(m) \quad (1)$$

where $flow_{j,t}$, flow of fund j at month t, is estimated as the percentage change in total net assets over the month $t-1$, i.e.,

$$flow_{j,t} = \frac{TNA_{j,t} - TNA_{j,t-1} \times (1 + ret_{j,t})}{TNA_{j,t-1}}$$

where $ret_{j,t}$ is return of fund j over month $t-1$. $TNA_{j,t}$ is the total net assets of fund j at time t.

The dependent variables are *Top CSR Fund*, an indicator variable that takes on the value of one if a fund belongs to the top decile according to its fund-level CSR measure and zero otherwise; $flow_{j,t-k}$ are

the monthly flows from the previous K months; and $R_{j,t-1}(m)$, fund return over previous the m-month horizon. We estimate the above regression for $K = 3$ and $m = 3$[8].

We then repeat the above analysis for the bottom CSR funds. We estimate the following regression model

$$flow_{j,t} = Constant + \beta \times Bottom\ CSR\ Fund_{j,t-1} + \sum_{k=1}^{K} a_k \times flow_{j,t-k} + b \times R_{j,t-1}(m) \quad (2)$$

where, *Bottom CSR Fund* is an indicator variable that takes on the value of one if the fund belongs to the bottom decile according to its fund level CSR measure and zero otherwise. We also include both the *Top CSR Fund and Bottom CSR Fund* dummy variables in the model and run the regression.

The results are reported in Table 2. As shown in columns 1 and 2, there is a strong positive relation between mutual fund flows and both the lagged flows and the return, which are consistent with the literature. Column 1 also shows that, on an average, top CSR funds lose 42 bps of investments a month compared to the rest of the funds. Column 2 shows that bottom CSR funds gain about 47 bps of investments a month compared to the rest of the funds. Column 3 reports results for the regression with both the top and the bottom CSR dummy variables. We find that on an average, top CSR funds lose 38 bps of investments a month and bottom CSR funds gain about 43 bps a month compared to the middle decile funds.

We then replace the *Top* and *Bottom CSR Fund* dummy variables with a continuous fund level CSR measure (*Fund CSR Measure*) and run the same regression. As shown in column 4, we find that there is a negative and statistically significant relation between continuous *Fund CSR Measure* and the fund flows in the next period, suggesting that a fund's investment in high CSR stocks has a negative impact on its ability to attract more investments.

Table 2. CSR-funds and new investments: whole sample analysis (2003–2012).

	(1)	(2)	(3)	(4)
VARIABLES	**Flow**	**Flow**	**Flow**	**Flow**
Fund CSR Measure				−0.0009 ***
				(−3.874)
Top CSR Fund	−0.0042 ***		−0.0038 ***	
	(−4.899)		(−4.435)	
Bottom CSR Fund		0.0047 ***	0.0043 ***	
		(3.431)	(3.169)	
Past Performance	0.0337 ***	0.0336 ***	0.0334 ***	0.0331 ***
	(11.735)	(11.751)	(11.666)	(10.676)
Lag1(Flow)	0.1888 ***	0.1887 ***	0.1884 ***	0.1884 ***
	(14.300)	(14.288)	(14.273)	(13.078)
Lag2(Flow)	0.0947 ***	0.0946 ***	0.0944 ***	0.0948 ***
	(8.836)	(8.856)	(8.829)	(7.755)
Lag3(Flow)	0.0891 ***	0.0891 ***	0.0888 ***	0.0856 ***
	(8.449)	(8.460)	(8.435)	(7.640)
Constant	−0.0005	−0.0014	−0.0009	−0.0004
	(−0.545)	(−1.416)	(−0.967)	(−0.364)
N	61,172	61,172	61,172	51,275
R-squared	0.077	0.077	0.077	0.075
Robust *t*-statistics in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$				

Note: This table reports the results from estimation of Equations (1) and (2) above for the whole sample. Past performance is the fund return over previous three-month horizon; Lag1(Flow), Lag2(Flow), and Lag3(Flow) are monthly flows with one-, two-, and three-month lags respectively. The definition of other control variables are given in in the Appendix A. The standard errors are clustered by funds and year dummy variables are included. The number of observations, N- and R-squared, are reported at the bottom.

[8] We also adopt others values of K and m in all the analyses and find similar results.

Fund managers' compensations are tied with the assets under fund management, and hence, it may appear puzzling that fund managers would choose to invest in high CSR stocks. Bollen (2007) shows that the monthly volatility of investor cash flows is lower in socially responsible funds than conventional funds and hence, it is plausible that risk-averse fund managers are willing to trade off cash flows in exchange of lower flow volatility (by holding more top CSR stocks).

3.2. CSR-Funds and New Investments: 2003–2007 and 2008–2012 Sub-Sample Analysis

In this section, we partition the whole sample into two subsamples 2003–2007 and 2008–2012 and estimate model (1) and (2) using each of the sub-samples. Table 3 reports the results.

Columns 1 and 2 show that the top CSR funds are attracting even less new investments, 53 bps a month less compared to the rest of the funds in the first sub-sample (it was 42 bps a month for the whole sample), whereas the bottom CSR funds are attracting even more new investments, 68 bps a month during the same period (it was 47 bps a month for the whole sample). Similarly, column 3 shows that the relation between the next period flow and the fund level CSR measure is even more negative and statistically significant in the first subsample.

Columns 4, 5, and 6 show that there is no significant difference in the new investments in the funds across the CSR measure in the second sub-sample. In other words, the advantage of the bottom CSR funds or the disadvantage of the top CSR funds in attracting new investments in the pre-crisis period has disappeared in the second half of the sample, part of which corresponds to the financial crisis.

Next, we investigate if the reversal in the pattern of the fund flows in the second half of the sample has anything to do with the financial crisis during 2008–2009.

Table 3. CSR-funds and new investments: 2003–2007 and 2008–2012 sub-sample analysis.

	2003–2007			**2008–2012**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
VARIABLES	**Flow**	**Flow**	**Flow**	**Flow**	**Flow**	**Flow**
Fund CSR Measure			−0.0018 ***			−0.0000
			(−4.503)			(−0.163)
Top CSR Fund	−0.0053 ***			−0.0013		
	(−4.963)			(−1.067)		
Bottom CSR Fund		0.0068 ***			−0.0001	
		−3.482			(−0.060)	
Past Performance	0.0683 ***	0.0674 ***	0.0689 ***	0.0218 ***	0.0218 ***	0.0197 ***
	−11.334	−11.225	−10.729	−7.079	−7.084	−5.872
Lag1(Flow)	0.2140 ***	0.2136 ***	0.2076 ***	0.1486 ***	0.1486 ***	0.1504 ***
	−12.017	−11.958	−11.274	−9.827	−9.825	−8.186
Lag2(Flow)	0.1047 ***	0.1045 ***	0.1023 ***	0.0744 ***	0.0744 ***	0.0751 ***
	−6.963	−6.975	−6.346	−6.528	−6.528	−5.553
Lag3(Flow)	0.0877 ***	0.0876 ***	0.0812 ***	0.0858 ***	0.0858 ***	0.0875 ***
	−5.648	−5.651	−5.272	−8.282	−8.277	−6.916
Constant	−0.0042 ***	−0.0053 ***	−0.0035 ***	−0.0035 ***	−0.0036 ***	−0.0039 ***
	(−4.176)	(−5.239)	(−3.161)	(−3.330)	(−3.517)	(−3.435)
N	34,596	34,596	31,027	26,576	26,576	20,248
R-squared	0.103	0.103	0.098	0.047	0.046	0.046
Robust *t*-statistics in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$						

Note: This table reports the results from estimation of Equations (1) and (2) for the data sub-samples 2003–2007 and 2008–2012. The definition of control variables are given in in the Appendix A. The standard errors are clustered by funds and year dummy variables are included. The number of observations, N- and R-squared, are reported at the bottom.

3.3. CSR-Funds and New Investments: Financial Crisis versus Non-Crisis Subsample Analysis

To study if financial crises have any impact on fund flows of top CSR mutual funds vs. bottom CSR mutual funds, we partition our sample into the crisis period (2008–2009) and non-crisis period (2003–2007 and 2010–2012) and estimate the following regression model

$$flow_{j,t} = Constant + \beta_1 \times Crisis\ Year \times Top\ CSR\ Fund_{j,t-1} + \beta_2 \times Crisis\ Year + \beta_3 \times Top\ CSR\ Fund_{j,t-1} + \sum_{k=1}^{K} a_k \times flow_{j,t-k} + b \times R_{j,t-1}(m) \quad (3)$$

where the new variable *Crisis Year* is an indicator variable that takes a value of one if the date of observation is in 2008 or 2009 and zero otherwise. The other variable are defined in Section 3.1 (also, see the variable definition in Appendix A). We estimate the above model for $K = 3$ and $m = 3$ (we get similar results with other values of K and m). We repeat the above analysis for the bottom CSR funds by replacing the $Top\ CSR\ Fund_{j,t-1}$ dummy variable in Model (3) with $Bottom\ CSR\ Fund_{j,t-1}$.

The results are reported in Table 4. We observe that the coefficient on the interaction term *Top CSR Fund* × *Crisis Year* is positive and significant at the one percent level for the top CSR funds in columns 1 and 2. This implies that the top CSR-funds are attracting significantly more new investments, by between 66 and 69 bps a month, during the financial crisis compared to the rest of the funds; whereas, the coefficient on the interaction term *Bottom CSR Fund* × *Crisis Year* is negative and significant at the five percent level in columns 3 and 4. This implies that bottom CSR funds are attracting less new investments, by 59 bps a month, during the financial crisis compared to the rest of the funds.

Table 4. CSR-funds and new investments: financial crisis versus non-crisis subsample analysis.

	(1)	(2)	(3)	(4)
VARIABLES	**Flow**	**Flow**	**Flow**	**Flow**
Fund CSR Measure		−0.0006 **		−0.0006 ***
Crisis Year	−0.0039 ***	−0.0033 **	−0.0027 **	−0.0020
Top CSR Fund	−0.0055 ***	−0.0044 ***		
	(−6.241)	(−4.039)		
Top CSR Fund*Crisis Year	0.0066 ***	0.0069 ***		
	(3.223)	(3.329)		
Bottom CSR Fund			0.0059 ***	0.0042 **
			(3.655)	(2.466)
Bottom CSR Fund*Crisis Year			−0.0059 **	−0.0059 **
			(−2.523)	(−2.458)
	(−3.119)	(−2.513)	(−2.155)	(−1.530)
		(−2.017)		(−2.624)
Lag1(Flow)	0.1887 ***	0.1881 ***	0.1886 ***	0.1881 ***
	(14.293)	(13.063)	(14.278)	(13.050)
Lag2(Flow)	0.0946 ***	0.0946 ***	0.0946 ***	0.0947 ***
	(8.828)	(7.737)	(8.860)	(7.763)
Lag3(Flow)	0.0889 ***	0.0854 ***	0.0891 ***	0.0855 ***
	(8.439)	(7.623)	(8.463)	(7.644)
Past Performance	0.0336 ***	0.0330 ***	0.0334 ***	0.0329 ***
	(11.685)	(10.601)	(11.678)	(10.604)
Constant	−0.0004	−0.0002	−0.0014	−0.0010
	(−0.396)	(−0.155)	(−1.512)	(−0.986)
N	61,172	51,275	61,172	51,275
R-squared	0.077	0.076	0.077	0.076
Robust *t*-statistics in parentheses				
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$				

Note: This table reports the results from estimation of Equation (3) for the whole sample (2003–2012). The definition of control variables are given in in the Appendix A. The standard errors are clustered by funds and year dummy variables are included. The number of observations, N- and R-squared, are reported at the bottom.

To summarize, our results suggest that the top CSR funds are attracting more new investments during the crisis (similar to a "flight to quality effect"); whereas the bottom CSR funds are attracting less new investments. In the next section, we investigate if the "flight to quality" effect we observe here is limited to the crisis period only.

3.4. CSR-Funds and New Investments: Pre-Crisis, Crisis, and Post-Crisis Subsample Analysis

To further examine if the 'flight to quality' effect we found in Section 3.3 persists after the financial crisis is over, we partition the sample into three periods: pre-crisis (2003–2007), crisis (2008–2009), and post-crisis periods (2010–2012) and estimate the following regression model

$$\begin{gathered} flow_{j,t} = Constant + \beta_1 \times Crisis\ Year \times Top\ CSR\ Fund_{j,t-1} + \beta_2 \times \\ Post\ Crisis\ Year \times Top\ CSR\ Fund_{j,t-1} + \beta_3 \times Crisis\ Year + \beta_4 \times Post\ Crisis\ Year + \\ \beta_5 \times Top\ CSR\ Fund_{j,t-1} + \sum_{k=1}^{K} a_k \times flow_{j,t-k} + b \times R_{j,t-1}(m) \end{gathered} \quad (4)$$

where *Post Crisis Year* is an indicator variable that takes a value of one if the date of observation is greater than 2009 and zero otherwise. The other variables are defined in Sections 3.1 and 3.2 (also, see the variable definition in Appendix A). We estimate the above regression for $K = 3$ and $m = 3$ (we get similar results with other values of K and m). Again, we repeat the above analysis for the bottom CSR funds by replacing the $Top\ CSR\ Fund_{j,t-1}$ with $Bottom\ CSR\ Fund_{j,t-1}$.

The results are reported in Table 5. We observe that β_1 (the coefficient on $Crisis\ Year \times Top\ CSR\ Fund_{j,t-1}$) is positive and significant at the one percent level in columns 1 and 2. This implies that the top CSR funds are attracting significantly more new investments, by between 72–75 bps a month during the financial crisis compared to pre-crisis period. We find that β_2 (the coefficient on $Post\ Crisis\ Year \times Top\ CSR\ Fund_{j,t-1}$) is not statistically significant. This implies that the significantly more cash flows into the top CSR funds during the crisis period disappeared after the crisis was over.

Columns 3 and 4 report the results for the Bottom CSR funds. We find that the coefficients on $Crisis\ Year \times Bottom\ CSR\ Fund_{j,t-1}$ and $Post\ Crisis\ Year \times Bottom\ CSR\ Fund_{j,t-1}$ are negative and statistically significant at the one percent level. This suggests that bottom CSR funds keep attracting lower level of investments both during the crisis period (between 79 and 82 bps a month) and the post-crisis period (between 79 and 96 bps a month) compared to the pre-crisis period.

Table 5. CSR-funds and new investments: pre-crisis, crisis and post-crisis subsample analysis.

	1	2	3	4
VARIABLES	**Flow**	**Flow**	**Flow**	**Flow**
Fund CSR Measure		−0.0006 **		−0.0007 ***
		(−2.071)		(−3.035)
Crisis Year	−0.0039 ***	−0.0034 **	−0.0025 **	−0.0019
	(−3.154)	(−2.555)	(−2.009)	(−1.387)
Post Crisis Year	−0.0052 ***	−0.0013	−0.0040 ***	0.0001
	(−3.645)	(−0.594)	(−2.884)	(0.055)
Top CSR Fund	−0.0061 ***	−0.0050 ***		
	(−5.492)	(−4.128)		
Top CSR Fund × Crisis Year	0.0072 ***	0.0075 ***		
	(3.412)	(3.531)		
Top CSR Fund × Post Crisis Year	0.0024	0.0027		
	(1.420)	(1.462)		
Bottom CSR Fund			0.0078 ***	0.0063 ***
			(3.814)	(3.015)

Table 5. *Cont.*

	1	2	3	4
VARIABLES	**Flow**	**Flow**	**Flow**	**Flow**
Bottom CSR Fund × Crisis Year			−0.0079 ***	−0.0082 ***
			(−2.977)	(−3.042)
Bottom CSR Fund × Post Crisis Year			−0.0079 ***	−0.0096 ***
			(−2.735)	(−3.223)
	(−3.753)	(−3.167)	(−3.662)	(−3.179)
Lag1(Flow)	0.1886 ***	0.1881 ***	0.1884 ***	0.1877 ***
	(14.292)	(13.063)	(14.249)	(13.014)
Lag2(Flow)	0.0946 ***	0.0945 ***	0.0943 ***	0.0943 ***
	(8.824)	(7.732)	(8.840)	(7.735)
Lag3(Flow)	0.0889 ***	0.0853 ***	0.0888 ***	0.0851 ***
	(8.434)	(7.615)	(8.441)	(7.610)
Past Performance	0.0336 ***	0.0329 ***	0.0334 ***	0.0327 ***
	(11.682)	(10.598)	(11.660)	(10.545)
Constant	−0.0003	−0.0001	−0.0016 *	−0.0011
	(−0.335)	(−0.073)	(−1.687)	(−1.089)
N	61,172	51,275	61,172	51,275
R-squared	0.077	0.076	0.077	0.076
Robust *t*-statistics in parentheses				
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$				

Note: This table reports the results from estimation of Equation (4) for the whole sample (2003–2012). The definition of control variables are given in in the Appendix A. The standard errors are clustered by funds and year dummy variables are included. The number of observations, N- and R-squared, are reported at the bottom.

3.5. Fund CSR Measure, Financial Crisis, and Post-Crisis Period

In this section, we investigate how the fund level CSR measure has evolved through the financial crisis. We estimate the following regression model

$$\begin{gathered} Fund\ CSR_{j,t} = Constant + \beta_1 \times Crisis\ Year \times Top\ CSR\ Fund_{j,t-1} + \\ \beta_2 \times Post\ Crisis\ Year \times Top\ CSR\ Fund_{j,t-1} + \beta_3 \times Crisis\ Year + \beta_4 \times \\ Post\ Crisis\ Year + \beta_5 \times Top\ CSR\ Fund_{j,t-1} + \beta_6 \times Total\ Net\ Assets_{j,t-1} + \beta_7 \times \\ Expense\ Ratio_{j,t-1} + \beta_8 \times Turnover\ Ratio_{j,t-1} + \beta_9 \times Fund\ Age_{j,t-1} + \beta_{10} \times Family\ Net\ Assets_{j,t-1} \end{gathered} \quad (5)$$

where *Fund CSR* is the monthly fund level CSR measure. *Total Net Assets* of the fund is the total assets under management in millions of dollars. *Fund Age* is the age of the fund. *Expense Ratio* is the annual expense ratio of a fund. *Turnover Ratio* is the annual turnover ratio of the fund. *Family Net Assets* is the total net assets of the fund family. The other variable are defined in the previous sections (also, see the variable definition in Appendix A). All the independent variables in the regression have been lagged by one month. We repeat the above regression for the bottom CSR funds by replacing the *Top CSR* $Fund_{j,t-1}$ with *Bottom CSR* $Fund_{j,t-1}$ in Model (5).

The results are reported in Table 6. In column 1, we observe that top and bottom CSR funds have higher and lower CSR measures respectively. Columns 2 and 3 show that the fund level measure of the top CSR funds went up by 0.19 during the crisis compared to the pre-crisis period. This trend continues, and the fund level CSR measure of the top CSR funds went up by 1.23 during the post-crisis period compared to the pre-crisis period. These results are similar to the findings of Cornett et al. (2016). They examine the relationship between banks' corporate social responsibility (CSR) and financial performance during the 2008 financial crisis and find that banks are rewarded for being socially responsible, and the largest banks see a significant increase in CSR strengths and a significant drop in CSR concerns after 2009.

In contrast, we find an opposite trend with the bottom CSR funds. Their fund level CSR measure went down by 0.22 and 1.35 during the crisis period and post-crisis period respectively, compared to the pre-crisis period. It appears that fund managers of the top CSR funds were aware of investors'

preference for top CSR stocks/funds during the crisis and hence, they consciously increased the CSR measure of their portfolios.

Table 6. Fund CSR measure, financial crisis and post-crisis period.

VARIABLES	1	2	3
	Fund CSR Measure	Fund CSR Measure	Fund CSR Measure
Top CSR Fund	2.2547 ***	2.1856 ***	
	(65.299)	(69.355)	
Bottom CSR Fund	−2.0965 ***		−2.0513 ***
	(−58.855)		(−48.831)
Top CSR Fund × Crisis Year		0.1905 ***	
		(4.811)	
Top CSR Fund × Post Crisis Year		1.2340 ***	
		(21.228)	
Bottom CSR Fund × Crisis Year			−0.0219
			(−0.496)
Bottom CSR Fund × Post Crisis Year			−1.3526 ***
			(−24.316)
Crisis Year		−0.3000 ***	−0.2680 ***
		(−13.428)	(−11.541)
Post Crisis Year		1.6230 ***	1.8627 ***
		(36.321)	(42.643)
Total Net Assets	0.0000 ***	0.0000 ***	0.0000 ***
	(4.599)	(4.965)	(3.586)
Expense Ratio	−2.8226	−6.2793 **	−2.5662
	(−1.255)	(−2.024)	(−1.145)
Turnover Ratio	−0.0204 **	−0.0242 **	−0.0274 **
	(−2.220)	(−2.125)	(−2.136)
Age	0.0094 ***	0.0101 ***	0.0115 ***
	(8.057)	(7.174)	(7.431)
Family Net Assets	0.0000*	0.0000	0.0000
	(1.832)	(0.820)	(0.943)
Constant	0.6886 ***	0.5430 ***	0.8982 ***
	(17.404)	(10.687)	(20.870)
N	214,594	214,594	214,594
R-squared	0.522	0.382	0.358
Robust *t*-statistics in parentheses			
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$			

Note: This table reports the results from estimation of Equation (5) for the whole sample (2003–2012). The definition of control variables are given in in the Appendix A. The standard errors are clustered by funds and year dummy variables are included. The number of observations, N- and R-squared, are reported at the bottom.

4. Robustness Tests

To examine the robustness of our results, we conduct a series of robustness tests in this section.

4.1. CSR Fund Flows, Financial Crisis, and Post-Crisis Period (Fixed Effect Model)

First, to control for the time-invariant differences across mutual funds, we include fund fixed effects in Model (4) and estimate it. The results are reported in Table 7. We find similar results as in Section 3.4. β_1 (the coefficient on $Crisis\ Year \times Top\ CSR\ Fund_{j,t-1}$) is positive and significant at the one percent level in columns 1 and 2. This suggests that top CSR funds are attracting significantly more new investments, by between 67–75 bps a month during the financial crisis compared to the rest of the funds. Also, as before, we find that β_2 (the coefficient on $Post\ Crisis\ Year \times Top\ CSR\ Fund_{j,t-1}$) is not statistically significant. This again suggests that the significantly larger cash flows into the Top CSR funds disappeared after the crisis was over.

Columns 3 and 4 report results for the bottom CSR funds. Similar to our earlier results, we find that coefficients on *Crisis Year* × *Bottom CSR Fund*$_{j,t-1}$ and *Post Crisis Year* × *Bottom CSR Fund*$_{j,t-1}$ are negative and statistically significant at the one percent level. This implies that bottom CSR funds keep attracting less investment both during the crisis period (between 98 and 106 bps a month) and the post-crisis period (between 74 and 103 bps a month) compared to the pre-crisis period. Thus, our results are robust to inclusion of fund fixed effects in the model.

Table 7. CSR fund flows, financial crisis, and post-crisis period (Fixed effect model).

	1	2	3	4
VARIABLES	**Flow**	**Flow**	**Flow**	**Flow**
Fund CSR Measure		−0.0011 **		−0.0013 **
		(−1.996)		(−2.384)
Crisis Year	−0.0100 ***	−0.0100 ***	−0.0085 ***	−0.0082 ***
	(−7.026)	(−6.581)	(−5.863)	(−5.302)
Post Crisis Year	−0.0128 ***	−0.0083 ***	−0.0118 ***	−0.0067 **
	(−7.746)	(−3.273)	(−7.219)	(−2.552)
Top CSR Fund	−0.0041 ***	−0.0034 **		
	(−3.213)	(−2.469)		
Top CSR Fund × Crisis Year	0.0067 ***	0.0075 ***		
	(2.765)	(2.951)		
Top CSR Fund × Post Crisis Year	0.0017	0.0026		
	(0.773)	(1.127)		
Bottom CSR Fund			0.0073 ***	0.0072 ***
			(3.417)	(3.142)
Bottom CSR Fund × Crisis Year			−0.0098 ***	−0.0106 ***
			(−3.396)	(−3.527)
Bottom CSR Fund × Post Crisis Year			−0.0074 **	−0.0103 ***
			(−2.294)	(−2.912)
	(−5.924)	(−5.411)	(−5.862)	(−5.424)
Lag1(Flow)	0.1620 ***	0.1593 ***	0.1617 ***	0.1588 ***
	(11.967)	(10.921)	(11.928)	(10.863)
Lag2(Flow)	0.0708 ***	0.0690 ***	0.0706 ***	0.0687 ***
	(6.805)	(5.855)	(6.797)	(5.843)
Lag3(Flow)	0.0638 ***	0.0583 ***	0.0637 ***	0.0580 ***
	(5.993)	(5.288)	(5.989)	(5.280)
Past Performance	0.0339 ***	0.0338 ***	0.0337 ***	0.0336 ***
	(11.823)	(10.727)	(11.772)	(10.681)
Constant	0.0037 ***	0.0042 ***	0.0026 **	0.0033 ***
	(3.606)	(3.867)	(2.570)	(3.005)
N	61,172	51,275	61,172	51,275
R-squared	0.054	0.051	0.054	0.051
Number of funds	724	716	724	716

Robust *t*-statistics in parentheses
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Note: This table reports the results from estimation of Equation (4) for the whole sample (2003–2012). The definition of control variables are given in in the Appendix A. The standard errors are clustered by funds and fund and year fixed effects are included. The number of observations, N- and R-squared, are reported at the bottom.

4.2. Fund CSR Measure, Financial Crisis, and Post-Crisis Period (Fixed Effect Model)

We also control for fund fixed effects in Model (5) to re-examine the effect of the financial crisis on fund CSR measure. The results are reported in Table 8. In column 1, as before, we see that top and bottom CSR funds have higher and lower CSR measure respectively. In columns 2 and 3, we observe that fund level CSR measure of the top CSR fund went up by 0.17 during the crisis compared to the pre-crisis period. This trend continues, and the fund level CSR measure of the top CSR funds went up by 1.41 during the post-crisis period compared to the pre-crisis period. Again, similar to our previous findings, we observe an opposite trend with the bottom CSR funds. Their fund level measure did not

change during the crisis period compared to the pre-crisis period. However, it went down by 1.35 during the post-crisis period. Thus, our results are robust to the inclusion of fund fixed effects.

Table 8. Fund CSR measure, financial crisis and post-crisis period (Fixed effect model).

	1	2	3
VARIABLES	**Fund CSR Measure**	**Fund CSR Measure**	**Fund CSR Measure**
Top CSR Fund	1.1698 ***	0.7945 ***	
	(36.181)	(32.063)	
Bottom CSR Fund	−0.9874 ***		−0.6625 ***
	(−29.307)		(−16.673)
Top CSR Fund × Crisis Year		0.1747 ***	
		(4.883)	
Top CSR Fund × Post Crisis Year		1.4144 ***	
		(23.459)	
Bottom CSR Fund × Crisis Year			−0.0394
			(−0.939)
Bottom CSR Fund × Post Crisis Year			−1.3629 ***
			(−26.713)
Crisis Year		0.0111	0.0406
		(0.458)	(1.627)
Post Crisis Year		1.9933 ***	2.2509 ***
		(46.087)	(52.629)
Total Net Assets	0.0000 **	0.0000 ***	0.0000 **
	(2.395)	(3.123)	(2.280)
Expense Ratio	2.0754	1.4858	2.3479
	(0.813)	(0.525)	(0.771)
Turnover Ratio	0.0178 **	0.0160 **	0.0168
	(2.286)	(2.037)	(1.483)
Age	−0.0181 ***	−0.0161 ***	−0.0151 ***
	(−5.206)	(−4.505)	(−4.177)
Family Net Assets	0.0000 **	0.0000 *	0.0000 **
	(2.302)	(1.936)	(2.418)
Constant	0.7916 ***	0.7039 ***	0.8183 ***
	(14.040)	(11.557)	(12.641)
N	214,594	214,594	214,594
R-squared	0.526	0.499	0.475
Robust *t*-statistics in parentheses			
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$			

Note: This table reports the results from estimation of Equation (5) for the whole sample (2003–2012). The definition of control variables are given in in Appendix A. The standard errors are clustered by funds and fund and year fixed effects are included. The number of observations, N- and R-squared, are reported at the bottom.

4.3. CSR Fund Flows, Financial Crisis, and Post-Crisis Period (Alternative CSR Measure)

In this section, we use an alternative CSR measure that includes two additional criteria—human rights and governance—provided by the MSCI ESG STATS database, but not commonly included in the construction of CSR measures in the literature. We re-examine the effect of the financial crisis on fund flows with this new CRS measure.

The results are reported in Table 9. Columns 1 and 2 report results from the pooled regression and columns 3 and 4 report results from a regression with fund fixed effects. We find that results from both the pooled and the fixed effect regression with the alternate CRS measure are similar to the results from our main analysis. The fund flows to the top CSR funds are higher during the financial crisis compared to the pre-crisis period, and this effect does not persist through the post-crisis period. Also, we find opposite effect for the bottom-CSR funds. They receive lower investments during the crisis compared to the pre-crisis period, and this continues through the post-crisis period.

Table 9. CSR fund flows, financial crisis and post-crisis period (alternative CSR measure).

	POOLED	POOLED	FE	FE
VARIABLES	**Flow**	**Flow**	**Flow**	**Flow**
Top CSR Fund	−0.0053 ***		−0.0051 ***	
	(−4.321)		(−4.017)	
Top CSR Fund × Crisis Year	0.0055 **		0.0052 **	
	(2.540)		(2.375)	
Top CSR Fund × Post Crisis Year	0.0028		0.0029	
	(1.497)		(1.520)	
Bottom CSR Fund		0.0101 ***		0.0104 ***
		(4.982)		(5.340)
Bottom CSR Fund × Crisis Year		−0.0105 ***		−0.0105 ***
		(−4.120)		(−4.215)
Bottom CSR Fund × Post Crisis Year		−0.0120 ***		−0.0110 ***
		(−4.382)		(−3.863)
Crisis Year	−0.0014	0.0000	−0.0010	0.0005
	(−1.003)	(0.031)	(−0.686)	(0.336)
Post Crisis Year	−0.0022	−0.0007	−0.0022*	−0.0009
	(−1.571)	(−0.535)	(−1.655)	(−0.693)
Lag1(Flow)	0.1851 ***	0.1842 ***	0.1866 ***	0.1856 ***
	(13.203)	(13.130)	(13.173)	(13.064)
Lag2(Flow)	0.0949 ***	0.0943 ***	0.0937 ***	0.0930 ***
	(8.005)	(8.009)	(7.955)	(7.950)
Lag3(Flow)	0.0850 ***	0.0843 ***	0.0845 ***	0.0837 ***
	(7.865)	(7.804)	(7.812)	(7.737)
Past Performance	0.0343 ***	0.0340 ***	0.0356 ***	0.0352 ***
	(11.243)	(11.174)	(11.460)	(11.384)
Constant	−0.0006	−0.0021 **	−0.0009	−0.0024 ***
	(−0.575)	(−2.173)	(−0.938)	(−2.635)
N	53,323	53,323	52,268	52,268
R-squared	0.074	0.075	0.076	0.077
Robust *t*-statistics in parentheses				
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$				

Note: This table reports the results from estimation of Equation (4) for the whole sample (2003–2012). Fund CSR measure is the estimated alternate CSR measure at the fund level. The definition of control variables are given in in Appendix A. The standard errors are clustered by funds and year fixed effects are included. The number of observations, N- and R-squared, are reported at the bottom.

4.4. CSR-Funds and New Investments (Controlling for Investment Styles)

In this section, we control for the fund investment styles by including style dummy variables and repeat the analysis in Section 3.3.

The results are reported in Table 10. We observe that the coefficient on the interaction term *Top CSR Fund* × *Crisis Year* is positive and significant at the one percent level for the top CSR funds in columns 1 and 2. This implies that the top CSR-funds are attracting significantly more new investments, by between 69 and 72 bps a month, during the financial crisis compared to the rest of the funds; whereas, the coefficient on the interaction term *Bottom CSR Fund* × *Crisis Year* is negative and significant at the one percent level in columns 3 and 4. This implies that bottom CSR funds are attracting less new investments, by 62 bps a month, during the financial crisis compared to the rest of the funds.

These results are similar to the results we found in Section 3.3. Hence, our results are robust to the inclusion of style dummy variables.

Table 10. CSR-funds and new investments: financial crisis versus non-crisis subsample analysis (investment style control variables included).

	(1)	(2)	(3)	(4)
VARIABLES	**Flow**	**Flow**	**Flow**	**Flow**
Fund CSR Measure		−0.0005 *		−0.0006 **
		(−1.714)		(−2.311)
Crisis Year	−0.0057 ***	−0.0052 ***	−0.0045 ***	−0.0038 ***
	(−4.233)	(−3.632)	(−3.295)	(−2.684)
Top CSR Fund	−0.0059 ***	−0.0050 ***		
	(−6.561)	(−4.170)		
Top CSR Fund × Crisis Year	0.0069 ***	0.0072 ***		
	(3.769)	(3.874)		
Bottom CSR Fund			0.0061 ***	0.0045 **
			(3.680)	(2.530)
Bottom CSR Fund × Crisis Year			−0.0062 ***	−0.0062 ***
			(−2.672)	(−2.631)
Lag1(Flow)	0.1922 ***	0.1929 ***	0.1921 ***	0.1930 ***
	(12.026)	(10.972)	(11.998)	(10.954)
Lag2(Flow)	0.0895 ***	0.0890 ***	0.0896 ***	0.0892 ***
	(6.538)	(5.678)	(6.560)	(5.696)
Lag3(Flow)	0.0843 ***	0.0811 ***	0.0844 ***	0.0813 ***
	(7.120)	(6.420)	(7.136)	(6.433)
Past Performance	0.0329 ***	0.0324 ***	0.0326 ***	0.0323 ***
	(11.083)	(10.009)	(11.068)	(10.004)
Constant	0.0023	0.0039	0.0011	0.0030
	(0.641)	(0.866)	(0.304)	(0.632)
R-squared	0.077	0.076	0.077	0.076
Robust *t*-statistics in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$				

Note: This table reports the results from estimation of Equation (4) for the whole sample (2003–2012). The definition of control variables are given in Appendix A. The standard errors are clustered by funds. Investment style and year dummy variables are included. R-squared values are reported at the bottom.

4.5. CSR-Funds and New Investments (Controlling for Return and Flow Volatility)

In this section, we test if investors rely on the CSR level to find "safe investment opportunities" beyond the traditional measures of risk: return volatility and flow volatility. We control for these two variables and repeat the analysis in Section 3.3.

The results are reported in Table 11. We observe that the coefficient on the interaction term *Top CSR Fund* × *Crisis Year* is positive and significant at the one percent level for the top CSR funds in column 1. This implies that the top CSR-funds are attracting significantly more new investments, by between 67 bps a month, during the financial crisis compared to the rest of the funds; whereas, the coefficient on the interaction term *Bottom CSR Fund* × *Crisis Year* is negative and significant at the 10-percent level in column 2. This implies that bottom CSR funds are attracting less new investments, by 41 bps a month, during the financial crisis compared to the rest of the funds.

Thus we find that the effect is significant even after we control for the traditional measures of risk.

Table 11. CSR-funds and new investments: financial crisis versus non-crisis subsample analysis (controlling for return and flow volatility).

	1	2
VARIABLES	**Flow**	**Flow**
Crisis Year	0.0028 **	0.0036 **
	(2.032)	(2.559)
Top CSR Fund	−0.0054 ***	
	(−5.492)	
Top CSR Fund × Crisis Year	0.0067 ***	
	(3.294)	
Bottom CSR Fund		0.0053 ***
		(3.250)
Bottom CSR Fund × Crisis Year		−0.0041 *
		(−1.693)
Lag1(Flow)	0.1695 ***	0.1696 ***
	(12.287)	(12.306)
Lag2(Flow)	0.0671 ***	0.0672 ***
	(5.754)	(5.769)
Lag3(Flow)	0.0626 ***	0.0627 ***
	(5.445)	(5.463)
Past Performance	0.0318 ***	0.0316 ***
	(10.623)	(10.589)
Stdev (Flow)	0.1723 ***	0.1719 ***
	(10.789)	(10.769)
Stdev(Return)	−0.0752 ***	−0.0873 ***
	(−3.464)	(−3.997)
Constant	−0.0074 ***	−0.0070 ***
	(−4.489)	(−4.329)
N	55,551	55,551
R-squared	0.086	0.086
Robust *t*-statistics in parentheses		
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$		

Note: This table reports the results from estimation of Equation (4) for the whole sample (2003–2012). Stdev (Flow), and Stdev (Return) are the monthly standard deviations for flow and returns respectively, estimated over the previous 12 months. The definition of other control variables are given in Appendix A. The standard errors are clustered by funds and year dummy variables are included. The number of observations, N- and R-squared, are reported at the bottom.

5. Conclusions

In this paper, we investigate investment flows into mutual funds that hold more high corporate social responsible stocks (top CSR funds) versus mutual funds that hold more low corporate social responsible stocks (bottom CSR funds). Using a large sample of equity mutual funds, we find that top CSR funds receive less investment compared to the rest of the funds; whereas bottom CSR funds receive more. This trend, however, reverses during the financial crisis, the top CSR funds attract more investments during the crisis compared to the pre-crisis period; whereas bottom CSR funds attract less. This higher investment into the top CSR funds during the crisis appears to be a temporary phenomenon and disappears after the crisis was over.

Our findings are consistent with the "flight to quality" phenomenon overserved during financial crises: investors perceive top CSR funds as relatively more trustworthy or of higher quality and hence,

invest more in those funds during financial crises (when there is a negative shock to the overall social trust in corporations) compared to the normal times.

Our paper has implications for financial practitioners as well as policymakers. It shows that future fund flows could be predicted by CSR rating of the fund holdings (from public disclosures) in addition to the other currently known predictors such as lagged performance and fund flow. The inclusion of CSR ratings may increase the accuracy of flow forecasts and may make flow-based predatory trading against mutual funds more profitable.

Due to data limitations (KLD provides ESG performance data for U.S. public companies only), we focus on the USA domestic equity market only. However, given the increasing importance of CSR across the world, we expect our results to benefit mutual fund managers and fund investors in other countries as well.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A Variable Definitions

Variables	Definitions
Age	Age of a fund in months
Bottom CSR Fund	An indicator variable that equals to 1 if a fund belongs to the bottom decile of the fund-level CSR measure; 0 otherwise
Crisis Year	An indicator variable that equals to 1 if the year of observation is either 2008 or 2009; 0 otherwise.
Expense Ratio	Annual expense of a fund as a ratio of the total net assets
Family Net Assets	Total net assets of a fund family expressed in millions
Flow	A fund's monthly new net investment as a percentage of previous total net assets.
Fund CSR Measure	Monthly fund level CSR measure estimated from aggregated stock level KLD scores
Past Performance	Fund return over previous 3-month period
Post Crisis Year	An indicator variable that equals to 1 if the year of observation is greater than 2009; 0 otherwise.
Total Net Assets	Total net assets of a fund expressed in millions
Top CSR Fund	An indicator variable that equals to 1 if a fund belongs to the top decile of the fund-level CSR measure; 0 otherwise
Turnover Ratio	Annual turnover ratio of a fund

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