Socially Conscious Investors Mitigating Stock Market Losses in A Time of Crisis: Evidence from the COVID-19 Crash

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Recent years have witnessed a surge in investors with a socially responsible investment mandate. We study stock returns associated with this practice in the COVID-19 crash and surrounding months. Stocks with greater socially responsible investor demand experience superior returns, lower volatility, and weaker market valuation decline during the crash. These effects disappear post-crash. No differences are found with respect to sales, gross profitability, and operating income as well as expectations about the long-term growth rate of earnings per share. These results suggest that socially responsible investors can act as a moderating force by mitigating losses in a time of crisis.

Keywords: pandemic, COVID-19, socially responsible investing
JEL Codes: G11, G12, G23

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Conflict-of-interest disclosure statement

I have no conflicts of interest to disclose.

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I have no conflicts of interest to disclose.

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1. Introduction

For a large group of investors in the United States, social considerations matter a great deal in their investment decisions. According to the U.S. Forum for Responsible and Sustainable Investment, socially responsible investments in 2018 add up to around 12 trillion dollars (U.S. Forum for Responsible and Sustainable Investment 2018). This represents about a quarter of total assets under professional management and marks an unprecedented level of participation from investors as at no point in its recent history has there been so much widespread interest in social responsibility in capital markets (U.S. Forum for Responsible and Sustainable Investment 2018).

With the socially responsible investing phenomenon being so big, what sort of impact has it had on stock returns? According to the model in the seminal paper by Heinkel, Kraus, and Zechner (2001), investors pay a cost in terms of stock returns in order to satisfy a social responsibility criterion as they drive up (down) share prices of the firms they prefer (eschew).[1] Hong and Kacperczyk (2009) and many other notable empirical studies like Baker, Bergstresser, Serafeim, and Wurgler (2018) have since then confirmed this theoretical prediction in equities as well as other asset classes.

However, there is much that we have yet to understand about the asset pricing implications of socially responsible investing. Specifically, under what regime might demand from socially responsible investors result in socially preferred stocks earning higher returns?

To investigate this question, we utilize the COVID-19 pandemic as a plausibly exogenous negative shock to the U.S. stock market and the economy as a whole. In a matter of weeks, as many investors rushed to sell off their stocks, the S&P 500 Index experienced a double-

[1] This idea is similarly explored in Fama and French (2007) and Pastor, Stambaugh, and Taylor (2020).

digit nosedive relative to its peak in late February 2020 with the plunge being fully apparent in the following month. To the extent that some stocks are held by enough investors for reasons owing to social motivations, then such stocks may experience superior stock market performance from a weaker decline in market valuations during this market crash.[2]

Using data on mutual fund holdings and information about socially conscious investment mandates of mutual funds, we discover that stocks in the S&P 500 with greater ownership by socially conscious mutual funds did indeed perform better during the COVID-19 crash period.[3] A one standard deviation increase in socially conscious mutual ownership corresponded to roughly a three percent increase in returns at the monthly level. An examination of book-to-market ratios reveal that firms with lower socially conscious mutual fund ownership exhibited a stronger decrease in market valuations. As one may also expect with owners who are holding stocks in part to satisfy their nonpecuniary 'social' preferences, which are not strongly related to ratings that assess corporate social responsibility, socially preferred stocks also exhibited lower stock return volatility in a time of massive selloffs. These effects were not present in the months leading up to the crash.

In light of these facts from the market, could it be that the companies preferred by socially conscious mutual funds are better in terms of operating performance? After all, it is conceivable that the act of expressing social preferences in investment decisions may go hand in hand with choosing businesses that weathered the economic downturn better. To consider this possibility, we examine sales, gross profitability, and operating income. While businesses as a whole saw a marked decline along these key operating performance benchmarks, we find that the firms preferred by socially conscious mutual funds did not perform any better. This

[2]Riedl and Smeets (2017) and Cao, Titman, Zhan, and Zhang (2019) study socially responsible investing in normal times and find that socially responsible investors place a lower importance on the financial aspect of their investments.

[3]Throughout the paper, we will use the terms 'socially responsible' and 'socially conscious' interchangeably.

marks an important distinction from the research that discusses how features like leverage, cash, and corporate culture can matter significantly for operating performance during bad times like the first quarter of 2020 (Ramelli and Wagner 2020; Li, Liu, Mai and Zhang 2021). For robustness, to investigate the possibility that socially preferred firms were somehow expected to do better, we examine analyst forecasts of the long-term growth rate for earnings per share. Again, although there was an overall decrease in analyst expectations from the pandemic, socially preferred firms are seen to have no stronger or weaker expectations on average than the rest.

With socially responsible investing among institutional investors not limited to just mutual funds, it is interesting to look beyond mutual funds and consider the base of institutional investors at large. However, unlike the relatively direct approach with identifying socially conscious mutual funds, there is no similar means readily available for identifying socially conscious institutional investors in general. To overcome this challenge, we utilize a revealed preference approach by linking firm-level corporate social responsibility ratings to institutional investor holdings to arrive at a set of fund-level social responsibility scores, which allows us to infer the degree to which each institutional fund cares about social responsibility in its investments. For a given stock, we compute its demand from socially responsible investors via a weighted sum of the fund-level scores of its institutional owners with each weight proportional to the shares owned by the fund.

Despite the popularity among researchers and the intuitive appeal of this indirect revealed preference approach to identifying socially responsible institutional investors, there is a huge amount of discretion in the choice of which rating agency to use but not much formal guidance in the academic literature about which one to use (Albuquerque, Koskinen, Yang, and Zhang 2020; Cao, Titman, Zhan, and Zhang 2019; Gibson, Krueger, and Mitali 2020). The choice can be important because recent years have witnessed a proliferation of

ratings providers given how any organization can create a set of firm-level ratings and, as shown in Berg, Koelbel, and Rigobon (2020), these ratings tend to be poorly correlated. If the chosen ratings are not as widely used by institutional investors, then using them to help identify socially responsible institutional investors can ultimately lead to smaller estimates about the demand from socially responsible institutional investors on prices.

In our empirical analysis, we consider both MSCI, the leading ratings provider with over 1,200 institutional clients, which includes 46 of the top 50 asset managers worldwide, and Thomson Reuters, a relative newcomer.[4] For the MSCI-based measure, we find similar results to those with socially conscious mutual funds but slightly more pronounced in terms of magnitudes of the effects for prices. During the crash, a one standard deviation increase in MSCI-based socially responsible institutional investor demand corresponded to nearly a three percent increase in returns at the monthly level. By contrast, the demand effects based on the less influential Thomson Reuters-based measure are smaller and hover around two percent. In studying the effects of socially responsible institutional investors on asset prices, how their demand is measured matters.

Just as the S&P 500 and other related major market indices fell meteorically in March 2020, the crash was over by around the end of the month and these indices began a gradual rise shortly thereafter that steadily continued into the summer. In this post-crash period, the superior returns performance for socially preferred stocks seen during the crash should disappear. In particular, if it were a true economic recovery, socially preferred stocks should exhibit lower returns as they regain less with respect to their market valuations for the same reason that they declined by less in the previous month.

However, as Waters and Banerji (2020) at the Wall Street Journal note, there wasn't

[4]See MSCI (2017) and Fidelity (2021). In a comparative analysis of multiple providers, Eccles and Stroehle (2018) note that MSCI is the largest.

much in terms of a recovery in these subsequent months for many businesses. A great deal of the recovery seen in widely followed stock market indices like the S&P 500 is attributed to the good performance of a select few, very large, companies like Facebook and Apple, which are not quite representative of most firms let alone the economy. Furthermore, as quantitative easing by the Federal Reserve lowered yields and triggered a fresh wave of investors to go on a stock market splurge, these investors may be less socially discriminating in the way they channel their capital towards the stocks. We find that most of the aforementioned effects documented from March 2020 vanishing in the post-crash period.

Lastly, to show that the effect of socially responsible investor demand on returns is not confined to just S&P 500 firms, we widen our sample to the CRSP universe and find similar results. Because our hypothesis about socially responsible investors is no way restricted to just the COVID-19 crash, we also examine the effects on returns during the 2008 financial crisis and discover qualitatively consistent, albeit weaker, results. Given that socially responsible investing was more of a niche practice over a decade ago, the financial crisis analysis can be viewed, in a way, as a 'placebo' test.

Our paper contributes to the empirical literature that studies the asset pricing implications of socially responsible investing by showing how socially conscious investors can affect returns differently depending on the economic environment. In doing so, we point to a rational economic explanation that links the theory of socially conscious investments sacrificing returns to a scenario under which such investments can enjoy superior returns. This stands apart, in concept, from previous efforts from researchers like Lins, Servaes, and Tamayo (2017) who document how better CSR performance, as indicated by third-party scoring, by the firm can result in positive returns because being socially responsible is argued to be profit-enhancing.[5]

[5]To be fair, the motivation for businesses to behave in a prosocial manner may also arise from managerial agency problems (Masulis and Reza 2015). Therefore, given the high degree of opaqueness surrounding CSR,

For our purposes of the analyzing the effects of socially responsible investor demand on prices, it is not required that social preferences, or nonpecuniary investor tastes, ought to, in any way, be reflective of assessments of corporate social responsibility. We observe no apparent tilt away from oil and gas companies or towards technology companies with regards to the preferences of these investors with a socially responsible investment mandate. This is line with recent commentary by practitioners like Otani (2019) from the Wall Street Journal who discuss how nonpecuniary investor tastes for social responsibility are not actually aligned with avoiding companies generally viewed as socially irresponsible. Nevertheless, in the Appendix, we check that our results are robust when considering industry-adjusted returns (i.e. monthly return less the Fama-French 49 industry-matched return) as described in Edmans (2011).

In studying the transition from normal times to the COVID-19 period, we offer evidence in support of a different perspective to the central thesis of Albuquerque, Koskinen, Yang, and Zhang (2020), who focus on the question of whether socially responsible corporate policies translated into better financial performance during the pandemic. In their paper, they document positive return effects associated with CSR ratings during the pandemic period.[6] Higher-rated firms appeared to have lower volatility and enjoyed superior operating performance during the first quarter of 2020. It is worth noting that these results are shown by Berg, Fabisik and Sautner (2020) to be susceptible to look-ahead bias due to the practice of Thomson Reuters rewriting historical records with future information. After documenting similar return effects using the 2020 re-written version of 2018 ratings, Berg, Fabisik and Sautner (2020) discover no such effects when using the original ratings from 2018. In addition, while Albuquerque, Koskinen, Yang, and Zhang (2020) also consider the potential

it is not clear if CSR is necessarily on average profit-enhancing.

[6]Ding, Levine, Lin, and Xie (2021) extend the analysis of stock returns to the international setting and reach similar findings of outperformance for better-rated firms using Thomson Reuters ratings. The authors also interpret their results as evidence of socially responsible businesses faring better in the pandemic.

for socially responsible institutional investor demand to mitigate stock market losses during the crash, they uncover no direct evidence of it.[7] In their paper, socially responsible institutional investor demand is measured using 13F institutional holdings linked to these (problematic) ratings from Thomson Reuters. As we highlight in our paper, the choice of the ratings provider in the construction of a measure of socially responsible institutional investor demand is important both conceptually as well as for the empirical facts we discover about socially responsible investing.

To summarize our main findings and place them in the context of previous key research by Lins, Servaes, and Tamayo (2017) and Albuquerque, Koskinen, Yang, and Zhang (2020) who argue for the profit-enhancing qualities of CSR performance as a mechanism for superior returns during bad times, we display below our results under YK (2021) and theirs under LST (2017) and AKYZ (2020), respectively.[8]

Overview and Comparison of Main Findings

	LST (2017)	AKYZ (2020)	YK (2021)
Superior Returns?	✓	✓	✓
Lower Volatility?	NA	✓	✓
Weaker Mkt. Valuation Decline?	NA	NA	✓
Stronger Operating Performance?	✓	✓	X
Higher Expected Long-term Growth?	NA	NA	X

Subsequent research on the implications of socially responsible investing during the COVID-19 pandemic can be found in the works that explore themes pertaining to social responsibility and the behavior of funds. Glossner, Matos, Ramelli, and Wagner (2020) find

[7]The authors detect some reduction in the daily price range, a proxy for volatility, for firms with high socially responsible institutional investor demand in an analysis without controls for firm characteristics.

[8]Unlike LST (2017) and AKYZ (2020), our empirical findings raise new theoretical questions from a welfare standpoint as to whether it is good for society to have a regime where stock prices are less responsive to financially important information due to nonpecuniary 'social' preferences.

that better corporate social responsibility characteristics did little to gain extra attraction from institutional investors, even ones like pension funds that tend to have long-term horizons. Such long-term investors were found to have no effect on stock prices during the crash (Albuquerque, Koskinen, Yang, and Zhang 2020). Dottling and Kim (2020) study mutual fund flows and document substantial heterogeneity in these flows between retail investors, who appear to abandon their interest in funds with high social responsibility ratings, and institutional investors, whose interest in these funds remained steady. Independent work by Pastor and Vorsatz (2020) examines capital flows in and out of mutual funds. They find that funds with high social responsibility ratings were able to mitigate the huge outflows observed for the mutual funds in general.[9] A closer examination by the authors reveals that this outflow mitigation effect is driven by exclusionary funds (i.e. funds with a mandate to eschew stocks of companies involved in animal cruelty, tobacco, etc.), which we study in our sample of socially conscious funds.

2. Data and Descriptive Statistics

Our study focuses on U.S. firms that belong to the S&P 500 as of the end of 2018. Compared to other publicly traded firms, firms in this index are large and prominent businesses that collectively represent around 75 percent of the total market capitalization in the U.S. Unlike the stocks of smaller and lesser known firms, these ones are not thinly traded. In line with many other studies, we drop firms that are in the financial services industry, which is identified by SIC codes that begin with the digit 6.

[9]As part of their goal of documenting some preliminary facts about actively managed mutual funds during the COVID-19 crisis, Pastor and Vorsatz (2020) consider also fund performance, which is subject to influences like fund manager skill, costs, etc., and find mixed evidence: funds with high social responsibility ratings experienced positive returns but funds with exclusionary mandates experienced negative returns. In their analysis of observations at the fund level, the authors do not directly test the predictions associated with our hypothesis about socially responsible investors at the firm level. Moreover, effects concerning funds do not necessarily translate into an effect on stock returns. One important limitation to Pastor and Vorsatz (2020) is that the lack of clarity on why the funds they studied saw differences in flows. For example, such differences may arise from variation in expectations about the long-term growth rate of earnings per share.

For information on mutual fund holdings, we gather data from the Center for Research in Security Prices (CRSP) Survivorship Bias Free U.S. Mutual Fund Database. Here, we look at funds that invest primarily in U.S. domestic equity. We exclude index funds, sector funds, funds with less than 5 million dollar in total net assets and funds with fewer than 10 stocks. Holdings data are also as of the end of 2018. For mutual funds that have multiple share classes, we combine these cases into one observation. Identification of socially conscious mutual funds comes from Morningstar, which collects information on what funds claim about themselves. Morningstar defines a socially conscious mutual fund in the following manner: any fund that invests according to non-economic guidelines; such funds may make investments based on such issues as environmental responsibility, human rights, or religious views. For a given stock, we calculate socially conscious mutual fund ownership at the end of 2018 as the sum of shares owned by socially conscious mutual funds over the sum of shares owned by socially conscious mutual funds and conventional funds. [10] We winsorize our socially conscious mutual fund ownership measure at 1 percent and 99 percent levels.

To construct our measures for socially responsible institutional investor demand, we employ a similar procedure to that of Albuquerque, Koskinen, Yang, and Zhang (2020). Specifically, we link CSR ratings (i.e. the average of the environmental and social scores at the end of 2017) to quarterly 13F institutional holdings from Thomson Reuters for the first 3 quarters of 2018. Using the portfolio weights of each 13F institutional fund, we calculate its fund-level CSR score for each of the 3 quarters and then take the average across all 3 quarters to arrive at a CSR score for each fund. For a given stock, its socially responsible institutional investor demand is the weighted sum of the fund scores, where each weight corresponds to the fraction of its shares owned by a 13F institutional fund relative to shares owned by all the 13F institutional funds as of December 2018. The annual ratings on corporate social

[10] Measuring our independent variable of interest at the end of 2018 is a conservative choice that mirrors Albuquerque, Koskinen, Yang, and Zhang (2020) and is analogous to Lins, Servaes, and Tamayo (2017), who use ratings at the end of 2006 to study the financial crisis that unfolded in 2008.

responsibility are obtained from MSCI and Thomson Reuters. Both of them have been used in the empirical literature, with the former being the leading provider and more extensively utilized as discussed in Yang (2019) while the latter is found in more recent papers like Albuquerque, Koskinen, Yang, and Zhang (2020). Because of MSCI's commercial transition away from its legacy KLD ratings, which have been sporadically maintained after 2013 as pointed out by Cao, Titman, Zhan, and Zhang (2019), we use their commercial environmental and social ratings, which are on a continuous 0 to 10 scale, with 0 being the worst and 10 being the best. The ratings from Thomson Reuters are on a 0 to 100 scale. In light of the findings from Berg, Fabisik, and Sautner (2020), we use Thomson Reuters ratings that were downloaded in early 2018 to mitigate concerns that the Thomson Reuters ratings used in our analysis may incorporate substantial future information through re-writing, which is not a practice supported by MSCI in our sample. These socially responsible investor demand measures are also winsorized at 1 percent and 99 percent levels. Given the different scaling used by MSCI and Thomson Reuters for their ratings, we standardize our MSCI-based and Thomson Reuters-based socially responsible institutional investor demand measures to aid with the comparison of the empirical results.

Pricing data and quarterly accounting characteristics of the firm come respectively from CRSP and Compustat. For the purpose of methodological consistency and comparability, we follow the approach taken by Lins, Servaes, and Tamayo (2017). We consider as our main dependent variables of interest the monthly stock returns (net of the 1-month U.S. Treasury bill rate) reported in CRSP with share codes 10 or 11 and the monthly abnormal returns estimated from the market model using the past 60 months. We also adopt a similar set of controls, which we winsorize at the 1 percent and 99 percent levels. The controls based on accounting information are: 1) profitability, which is operating income before depreciation over total assets; 2) long-term debt, which is divided by total assets; 3) short-term debt (i.e. debt in current liabilities), which is also divided by total assets; 4) cash (i.e. cash and mar-

ketable securities), which is scaled by total assets. The book-to-market ratio is calculated as the book value of equity over the market value of equity in the prior month. For instances where the book-to-market ratio is negative, we construct a negative book-to-market ratio dummy and set it equal to one for those cases. Accounting information is introduced with a three-month lag (e.g. operating income for the end of September 2019 is assumed to be known by January 2020). Momentum in the prior month is calculated as the buy-and-hold return over the prior 12 months excluding the prior month. Idiosyncratic risk is the standard deviation of the residual from the market model estimated over the prior 60 months using monthly data. The market value of equity is calculated as the price times number of shares outstanding (in millions) at the end of the month prior. Risk factor loadings based on the Fama-French three-factor model with momentum are calculated over the prior 60 months and serve as control variables for exposure to these loadings. Data on the risk-free rate and risk factors are obtained from the Kenneth French data library.

In addition to returns, we also consider monthly volatility, which is the standard deviation of daily returns in a given month, and monthly idiosyncratic volatility, which the standard deviation of daily abnormal returns in a given month estimated based on the market model over the past 12 months. Table I, Panel A reports the descriptive statistics of these variables. To study the operating performance of the firm, we examine sales (i.e. scaled by total assets), gross profitability (i.e. revenue minus cost of goods sold over total assets), and operating income (scaled by total assets). For robustness, in a similar approach to Yu (2011), we consider investor expectations about the future prospects of individual firms by examining the monthly median analyst forecasts of long-term growth rates for earnings per share. These forecasts, also winsorized at the 1 percent and 99 percent levels, come from I/B/E/S. Their summary statistics can be found in Table I, Panel B.

Although our primary analysis examines the time around the COVID-19 crash period,

we also consider the 2008 financial crisis (i.e. August 2008 through March 2009) and the surrounding time period (i.e. January 2007 through December 2013) as an alternative empirical setting for studying the effect of socially responsible investor demand on stock prices in an economy-wide crash event. The variables for the financial crisis analysis are defined in the same way as above except for the fact that we use MSCI's legacy KLD ratings that were popular among academics as well as socially responsible investors back then. The other ratings that have emerged in recent years were largely either nonexistent during this time or had very limited U.S. coverage.

Unlike the modern MSCI commercial ratings, these KLD ratings are not numerical ratings per se but a series of binary indicators that scored firms annually along their environmental and social dimensions. Each indicator represents a particular strength or concern across the categories of environment, community, diversity, employee relations, and human rights. The KLD social responsibility rating is therefore calculated as described in Lins, Servaes, and Tamayo (2017) by summing up its strengths net of concerns, where each strength and concern is scaled by the number of such strengths and concerns in each category. Because the financial crisis was in 2008, we measure our socially responsible institutional investor demand in 2006 with KLD ratings from 2005. This demand measure is also winsorized at the 1 percent and 99 percent levels and its timing is analogous to the one used in the analysis for the COVID-19 crisis. To faciliate the comparison of effects between the KLD-based measure for socially responsible institutional investor demand and our commercial MSCI-based one, the KLD-based demand measure is also standardized.

3. Empirical Analysis

3.1. Stock Returns

In this section, we begin our empirical analysis by investigating the effects of socially conscious mutual fund ownership on stock returns around the months leading up to and including the COVID-19 pandemic. In selecting the time window for analysis, we face several considerations. If the time window is too wide, we risk contaminating the sample with other influences that may affect the results. On the other hand, if the time window is too narrow, we diminish our ability to perform powerful tests. We therefore focus our attention to monthly returns from March 2019 through June 2020 (i.e. the crisis in the U.S. in full force in March 2020 and the 12 months before it as well as the 3 months after it).

Formally, we start by analyzing the following specification:

$$Ret_{i,t} = \delta_1 S.C.\,Ownership_i \times Crash_t + \delta_2 S.C.\,Ownership_i \times Post\text{-}Crash_t \quad (1)$$
$$+\delta_3 Crash_t + \delta_4 Post\text{-}Crash_t + \phi_i + \xi_{i,t},$$

where $S.C.\,Ownership_i$ is the fractional socially conscious mutual fund ownership for firm i as defined earlier. $Crash_t$ is a dummy variable that equals to 1 if month t is March 2020 and 0 otherwise. $Post\text{-}Crash_t$ is a dummy variable that equals to 1 if month t after March 2020 and 0 otherwise.

Table II, Panel A presents the estimation results of Equation 1, where the dependent variables are the monthly return and the monthly abnormal return. As to be expected, in Column 1 of Table II, δ_3, the coefficient for the crash dummy variable, is extremely negative with the stock market having suffered huge losses in March 2020. The positive coefficient δ_1 indicates that, for firms with greater socially conscious mutual fund ownership, this negative

impact is ameliorated. A one standard deviation increase in socially conscious mutual ownership translates to about a three-percent reduction in returns loss at the monthly level. For abnormal returns, in Column 3 of Table II, a one standard deviation increase corresponds to a two-percent reduction in returns loss at the monthly level.

In the second and fourth columns of Table II, Panel A, we show that our core result is robust to the inclusion of monthly fixed effects to account for potential aggregate time trends in addition to the firm fixed effects already in place.[11] In the third and sixth columns of Table II, Panel A, we introduce a host of lagged controls that describe the financial condition of the firm and its risk exposures. As defined in the previous section, these controls are long-term debt, short-term debt, profitability, cash, book-to-market ratio, a negative book-to-market dummy, idiosyncratic risk, log market equity, momentum, and risk factor loadings. Again, our main finding remains unchanged.[12] Standard errors are clustered at the firm level.

As for the post-crash period, we observe a stark contrast to the effects from the crash period in that socially preferred firms are no longer earning superior returns. If the post-crash period were a time of true economic recovery, then these firms would experience weaker returns as they see a smaller rise in their stock prices due to social preferences. However, in line with the mixed nature of the 'recovery' in this period, in which many businesses remained adversely affected by the outbreak, we find little indication of lower returns for socially preferred firms.[13]

[11] In unreported results, we find similar fundamental firm characteristics when comparing between high socially conscious investor ownership stocks (top quartile) and low socially conscious investor ownership (bottom quartile).

[12] In the Appendix, we report similar results when we examine daily stock returns with a slightly more precise window of the crash period for the S&P 500 prior to intervention by the Federal Reserve (i.e. from February 24, 2020 through March 23, 2020) and standard errors double clustered by firm and day. Ramelli and Wagner (2020) find that government intervention did little to ameliorate the dire situation in the stock market for the last week of March as the Covid-19 outbreak continued to dominate the market.

[13] Furthermore, in this post-crash period, the effects from quantitative easing that may prompt some investors to enter the stock market to simply gain more exposure to stocks, irrespective of social preference distinctions. In unreported results, our findings about the post-crash period remain unchanged if we extend the post-crash period by 6 or 12 months.

If these better returns during the crash are driven by investors who are dedicated to socially conscious investment mandates, then we should observe some reduction in stock return volatility as these investors would attenuate the overall panic and the rush to sell that ensued from the outbreak. In Panel B of Table II, we analyze Equation 1 but for monthly returns volatility and monthly idiosyncratic returns volatility as the dependent variables. Indeed, while the pandemic itself greatly increased stock return volatility, the presence of socially conscious mutual fund investors weakened it for socially preferred firms. In Column 1 of Table II, Panel B, a one standard deviation increase in socially conscious mutual fund ownership translates on average into nearly one-fifth of a standard deviation decrease in volatility. Columns 2 and 3 in Panel B of Table II show that reduction in volatility from higher socially conscious mutual fund ownership holds after including time fixed effects and same set of controls. For idiosyncratic volatility, the estimated effects are nearly identical. The negative effects on volatility continue albeit weakly into the post-crash period.

To the extent that we may be concerned with higher socially conscious mutual fund ownership being already on an upward path with predicting superior returns immediately before the pandemic, we consider the following dynamic version of Equation 1 with the full set of lagged controls, $X_{i,t-1}$, and fixed effects over the same time window:

$$Ret_{i,t} = \sum_{t} \delta_t S.C.\,Ownership_i \times 1_t + X_{i,t-1} + \gamma_t + \phi_i + \xi_{i,t}, \tag{2}$$

where 1_t (omitting March 2019) is equal to 1 if the monthly return is in month t and zero otherwise.

Figure 1 plots the coefficients δ_t. Stocks with higher socially conscious mutual fund ownership were clearly not gaining with respect to returns prior to the pandemic coming

into full force in March 2020, which then generated higher returns for these stocks. With the end of the crash, these higher returns dissipated. In Figure 2, we apply the same specification in Equation 2 to our monthly volatility and idiosyncratic volatility variables. We find that stocks with higher socially responsible mutual fund ownership experienced a sharp decrease in volatility only during the crash period.[14]

3.2. Market Valuations

To better understand the mechanism behind the difference in returns performance, we plot book-to-market ratios against socially conscious ownership for the months leading up to the pandemic in our sample in Figure 2.[15] In the top left plot of Figure 3, firms with greater socially conscious mutual fund ownership enjoy higher market valuations. The number in top right corner indicates the slope of the fitted line. The other plots of the figure show that the negative relationship between socially conscious mutual fund ownership and book-to-market ratio is consistent throughout the subsequent months in our sample. In the bottom left plot of Figure 3, we see a clear rise in the book-to-market ratios in the left half of the scatter plot as firms with low socially conscious ownership experience a decline in their market valuations in March 2020. The right half of the same scatter plot reveals that the book-to-market ratios for firms with high socially conscious ownership are relatively stable. In the months following the crash, we observe slight weakening in the negative relationship between socially conscious mutual fund ownership and book-to-market ratio as some firms with low socially conscious ownership were able to see their market valuations improve.

[14] One variation in the interpretation of our results lies in the fact that superior returns for socially preferred firms may also arise from an unexpected and sizeable increase in demand from socially responsible investors as interest in socially responsible investing has grown considerably over time. The lack of superior returns before and after the crash period and the absence of an uptick in volatility for socially preferred firms provide evidence against this type of variation in our interpretation about demand from socially responsible investors.

[15] For brevity, we omit displaying scatterplots for months before November 2019 in our sample. We note that the scatterplots for those months look very similar to the one in November 2019. Figure 3 excludes negative book-to-market ratios in the plotting though we note that the overall patterns remain unaffected if we do include them.

Table III evaluates our finding from the graphical illustration of Figure 3 in a specification similar to Equation 1 but where the dependent variable is instead the book-to-market ratio. In the first column of Table III, there is a clear increase in the book-to-market ratio as a whole in March 2020. However, for firms with greater ownership by socially conscious mutual funds, the hit on their market valuations is tempered. For a one standard deviation increase in socially conscious mutual fund ownership, there is a little less than one-sixth of a standard deviation decrease in the book-to-market ratio. The effects remain robust to the introduction of time fixed effects and lagged controls (i.e. long-term debt, short-term debt, profitability, cash, idiosyncratic risk, log market equity, momentum, and risk factor loadings). In the post-crash period, the magnitude of these effects wanes substantially.

3.3. Operating Performance and Expected Long-term Growth

As noted above, past studies by Albuquerque, Koskinen, Yang, and Zhang (2020) and Lins, Servaes, and Tamayo (2017) suggest that, in an economic downturn, being virtuous, or socially responsible, is profit-enhancing, which can in turn translate into higher returns for socially responsible firms.[16] To see if stocks preferred by socially conscious mutual funds belong to companies that fared better during the pandemic outbreak, we examine the operating performance as reported in June 2020 and the four quarters before it in a similar time window as the above analysis. Here, we consider sales, gross profitability, and operating income, which are winsorized at the 1 percent and 99 percent levels, and estimate the following specification:

$$Performance_{i,q} = \delta_1 S.C.\,Ownership_i \times 2020Q1_q + \delta_2 S.C.\,Ownership_i \times 2020Q2_q + \quad (3)$$
$$\delta_3 S.C.\,Ownership_i + \delta_4 2020Q1_q + \delta_5 2020Q2_q + \xi_{i,q},$$

[16]This general concept is formally modeled in Pedersen, Fitzgibbons, and Pomorski (2020) who acknowledge the potential for positive returns to arise from socially responsible corporate behavior that positively affects profits and is not fully priced in the market.

where $Performance_{i,q}$ is the operating performance for firm i in quarter q. $2020Q1_q$ is a dummy variable that is equal to 1 if q is the first quarter of 2020 and zero otherwise. $2020Q2_q$ is a dummy variable that is equal to 1 if q is the second quarter of 2020 and zero otherwise. To ensure the timing of the measurement window for each firm is consistent and covers March 2020, we exclude firms whose fiscal quarters do not end in March 2020.[17]

Table IV reports the estimation results of Equation 3 across all three key operating performance benchmarks. During the first quarter of 2020, firms suffered a decline in their business that continued into the second quarter as their sales and profits plummeted. Unlike the positive effects seen earlier with returns, firms with greater ownership by socially conscious mutual funds appear to perform no better in either statistically significant or economically significant terms. This result is important because it helps to make this paper and its findings distinct from the category of papers that discuss how variables like leverage, cash, and corporate culture can affect returns through their impact on operating performance during the first quarter of 2020 (Ramelli and Wagner 2020; Li, Liu, Mai and Zhang 2021). Hence, it is unlikely that our socially conscious mutual fund investor preferences are simply proxying for some quality like corporate culture.[18] Upon the inclusion of quarterly fixed effects and three-digit SIC industry fixed effects (and one-quarter lag controls, i.e. long-term debt, short-term debt, cash, and log total assets), no difference is to be seen right before the pandemic either.

Even if socially preferred businesses appeared to perform no better than the rest during the pandemic, it is possible that these firms were expected to do better in the long run. If so, then this could bolster their stock market performance and provide an alternative explanation to our findings. To address this concern, we examine monthly median analyst

[17]These non-March reporting firms account for 61 firms out of the 364 firms in our sample.

[18]Nevertheless, we check in an unreported set of regressions that the documented effects on asset prices are robust to controlling for leverage, cash, and corporate culture when interacted with the pandemic period dummy variables.

forecasts of the long-term growth rate for earnings per share, which is reported in Table V. Column 1 of Table V shows that analyst expectations fell during the crash and remained quite pessimistic in the post-crash period. In line with our operating performance analysis, analyst expectations exhibited no difference with respect to greater ownership by socially conscious mutual funds. In Column 3 of Table V, the firm controls are also long-term debt, short-term debt, cash, and size.

3.4. Demand from Socially Responsible Institutional Investors

Given how mutual funds are not alone in their interest among institutional investors in socially responsible investing, we extend our original analysis involving socially conscious mutual funds to the broader base of socially responsible institutional investors. As described earlier, we measure demand from socially responsible institutional investors based on CSR ratings using a revealed preference approach. One measure is created from MSCI ratings and the other one is created from Thomson Reuters ratings. For ease of comparison of our estimates, both measures are standardized.

In a similar specification to the one found in Table II, Table VI displays the key interaction effects estimated with respect to socially responsible institutional investor demand. For both Panels A and B of Table VI, firms with stronger MSCI-based socially responsible institutional investor demand experience higher returns and lower volatility. For a one standard deviation increase in the MSCI-based socially responsible institutional investor demand, there is approximately a three percent reduction in the loss in returns. In the post-crash period, no significant positive effect on returns is to be seen while volatility remains weakly lower for firms with higher MSCI-based socially responsible institutional investor demand. On the other hand, for the Thomson Reuters-based socially responsible institutional investor demand measure, the effects on both returns and their volatility are weaker with their magnitudes strictly dominated by the coefficients of the MSCI-based socially responsible

institutional investor demand.[19]

Table VII reports the analysis for the book-to-market ratios. Between the MSCI-based and Thomson Reuters-based measures, we again see a clean distinction. Firms with higher MSCI-based socially responsible institutional investor demand experience stronger market valuations during the crash while the ones from the perspective of the Thomson Reuters-based demand does by about only half as much. For these two measures, the correlation between them is around a modest 42 percent.

Finally, to consider the possibility that firms with greater socially responsible institutional investor demand may have performed better during the pandemic or were expected to do better, we analyze the effect, if any, on operating performance and expectations of the long-term growth for earnings per share. Tables VIII and IX display the main results. Here, just as we discovered for demand from socially conscious mutual fund investors, we find no effect with respect to operating performance. For analyst expectations about long-term growth, there is no effect from either the MSCI-based measure or the Thomson Reuters-based one.

While members of the S&P 500 are clearly important in their own right given their size in the market and their role in the economy, we note that we discover similar asset pricing effects if we expand our selection to encompass all the nonfinancial firms in the CRSP universe as of the end of 2018 (subject to the standard filters of having these shares be primary shares with share codes of 10 or 11 and exchange codes 1, 2, or 3). Table X, Panel A displays the return effects for the MSCI-based measure of socially responsible institutional investor

[19]In the Appendix, to reinforce our point about the importance of using the most influential ratings to measure socially responsible institutional investor demand, we repeat our returns analysis with (standardized) socially responsible institutional investor demand based on a smaller non-U.S. rater called Sustainalytics and find no significant effect. The correlation between the Sustainalytics-based demand measure and the MSCI-based demand measure is around 12 percent.

demand. Here, a one standard deviation increase in socially responsible investor demand corresponds to about a four-percent mitigation in returns loss at the monthly level.

In the Appendix, we report similar, but again relatively weaker, findings for the Thomson Reuters-based socially responsible investor demand measure in Panel B of Table A.1. In Panel A of Table A.1, we also report weaker effects from socially conscious mutual fund ownership. Compared to its effects for returns in the S&P 500 sample, the effects for socially conscious mutual fund ownership in Panel A of Table A.1 are smaller and borderline significant, which is in line with the fact that socially conscious mutual fund ownership is lower on average (i.e. just under 9 percent, with a standard deviation of 0.147) in this overall sample. While the direction of the return effects are consistent across our several measures of socially responsible investor demand, the strength of these effects varies depending on the measure (i.e. the MSCI-based one being the strongest). In Tables A.2 and A.3 of the Appendix, we display our key estimates for market valuations and volatility for all nonfinancial firms. For brevity, we display the main coefficients of interest. A one standard deviation increase in socially conscious mutual fund ownership reduces the book-to-market ratio by -0.052, which is less than the magnitude of the effect from socially responsible institutional investor demand based on either MSCI or Thomson Reuters. For volatility, we observe a similar pattern in terms of negative effects, with the largest coming from the MSCI-based socially responsible institutional investor demand measure.

Within the past several years in which socially responsible investing has become a large phenomenon in capital markets, the COVID-19 crash stands out by far as the single most disastrous event for the economy. The other crisis in recent years that arguably comes close is the financial crisis of 2008. Although socially responsible investing was more or less a niche practice back then, it is nevertheless interesting to see if our asset pricing results about the demand effects of socially responsible investors hold at least qualitatively in an alternative

major crash setting as our hypothesis about socially responsible investors is not specific to COVID-19. Examining the effects during this earlier period with weaker interest in social responsibility among investors can, to a degree, be also interpreted as a 'placebo' test as it is expected that the magnitudes to be smaller.

To juxtapose the results from the 2008 financial crisis against those from the COVID-19 crash, we report our estimates of the return effects in Panel B of Table X. The time period studied begins in January 2007 and ends in December 2013, with the crash period defined over the months of August 2008 through March 2009 and the post-crash period defined over the months April 2009 through March 2013. Across all the columns, the effects from socially responsible institutional investor demand are qualitatively consistent with those in the COVID-19 crash, while at the same time, considerably smaller in size than the ones presented for the COVID-19 crash in Panel A of the same table. In the Appendix, we check that our effects from socially responsible institutional investor demand on returns during the crash are robust to controlling for demand from long-term institutional investors.[20]

Put together, the evidence points to a scenario where the very act of investing with accordance to social preferences can generate superior returns during a sudden crash. By devoting part of their investment objective to social considerations, socially responsible investors boost market valuations in the firms they prefer and help maintain these valuations even in a crisis as stock prices reflect not just financial information but also social preferences. These socially preferred stocks in turn experience lower volatility relative to the rest as the market tumbles. These results do not depend on socially preferred firms having stronger operating performance, which plays an important role in the explanations in other studies (e.g.

[20]For our narrower mutual fund-based measure on socially responsible investor demand, we obtain qualitatively similar results in an untabulated set of regressions. Demand from long-term institutional investors is calculated as of December 2018 based on the fraction of a stock's outstanding shares owned by long-term institutional investors. Long-term institutional investors are defined as investors with turnover ratios of less than 0.125 in the final quarter of 2018. The threshold 0.125 comes from the December 2021 version of Glossner, Matos, Ramelli, and Wagner (2020).

Lins, Servaes, and Tamayo (2017), Albuquerque, Koskinen, Yang, and Zhang (2020)) that attribute superior returns to better businesses due to their CSR performance. In accordance with recent revelations from practitioners, we do not observe a strong relationship between socially responsible investor preferences and CSR performance.

4. Concluding Remarks

This paper investigates how demand from socially responsible investors can affect stock returns as the economy suddenly found itself in the middle of a sudden crisis in March 2020. Because stock prices incorporate information about investors' social considerations (i.e. preference for socially preferred firm shares and a lower emphasis on their financial payoffs), socially preferred firms experienced a weaker reduction in market valuations and better returns as other firms saw their valuations and returns plummet in the midst of higher volatility in their stocks. In the post-crash period, we see these effects substantially weakened. Social preferences do not appear to guide socially conscious investors towards firms with better operating performance or expected long-term growth during this crisis. These results point to how social preference-driven distortions to market valuations that make socially conscious investments sacrifice returns during normal times can also generate a reversal of misfortune in a crash. By taking a less agnostic view about CSR ratings and the assessment of socially responsible investor demand, we demonstrate how socially responsible investor demand is measured can be important in studying the effects of socially responsible investors on asset prices.

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TABLE I

DESCRIPTIVE STATISTICS

Panel A: Market Performance								
	Obs.	Mean	Std. Dev.	Min.	25th Pct.	Median	75th Pct.	Max.
Return	5,713	0.004	0.116	-0.833	-0.048	0.012	0.062	2.135
Abnormal Return	5,713	-0.006	0.087	-0.525	-0.049	-0.005	0.035	1.801
Volatility	5,816	0.023	0.019	0.001	0.012	0.017	0.025	0.205
Idio. Volatility	5,816	0.018	0.014	0.002	0.010	0.014	0.020	0.200
S.C. Ownership	5,808	0.152	0.124	0.003	0.066	0.116	0.207	0.649
Log Mkt. Equity	5,824	10.140	1.073	8.027	9.377	10.000	10.791	13.001
Long-term Debt	5,814	0.307	0.167	0.000	0.195	0.303	0.400	0.932
Short-term Debt	5,771	0.039	0.041	0.000	0.009	0.031	0.054	0.222
Profitability	5,740	0.038	0.019	-0.005	0.024	0.034	0.048	0.103
Cash	5,824	0.112	0.133	0.001	0.023	0.062	0.145	0.618
Book-to-market	5,824	0.355	0.361	-0.101	0.120	0.250	0.479	1.876
BM Dummy	5,824	0.060	0.238	0.000	0.000	0.000	0.000	1.000
Momentum	5,824	0.055	0.252	-0.585	-0.109	0.068	0.221	0.694
Idiosyncratic Risk	5,721	0.063	0.022	0.030	0.046	0.056	0.075	0.137
Market Loading	5,721	0.968	0.401	0.087	0.710	0.983	1.208	2.181
Size Loading	5,721	0.055	0.460	-0.886	-0.279	0.042	0.343	1.409
Value Loading	5,721	-0.081	0.533	-1.618	-0.376	-0.069	0.240	1.246
Mom. Loading	5,721	-0.093	0.377	-1.226	-0.324	-0.053	0.175	0.755
TR 13F S.R.	5,824	0.000	1.000	-4.171	-0.337	0.182	0.629	1.648
MSCI 13F S.R.	5,824	0.000	1.000	-3.395	-0.597	0.032	0.582	2.892
Panel B: Operating Performance and Long-term Growth Expectations								
	Obs.	Mean	Std. Dev.	Min.	25th Pct.	Median	75th Pct.	Max.
Sales	1,502	0.166	0.127	0.027	0.086	0.140	0.201	0.861
Gross Profit	1,500	0.066	0.045	-0.044	0.033	0.056	0.092	0.201
Operating Income	1,488	0.033	0.022	-0.046	0.020	0.031	0.045	0.096
LTG EPS	5,383	0.092	0.097	-0.181	0.048	0.082	0.121	0.504

Table II

Socially Conscious Ownership and Stock Returns
Around the COVID-19 Outbreak in the U.S.

Panel A: Returns						
	$\text{Return}_{i,t}$			$\text{Abnormal Return}_{i,t}$		
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{S.C. Ownership}_i \times \text{Crash}_t$	0.265***	0.265***	0.284***	0.168**	0.168**	0.168***
	(0.079)	(0.079)	(0.089)	(0.072)	(0.072)	(0.077)
$\text{S.C. Ownership}_i \times \text{Post-Crash}_t$	-0.081**	-0.081**	-0.017	-0.021	-0.021	0.029
	(0.039)	(0.039)	(0.031)	(0.030)	(0.030)	(0.031)
Crash_t	-0.220***			-0.048***		
	(0.015)			0.014		
Post-Crash_t	0.085***			0.005		
	(0.008)			(0.006)		
Observations	5,697	5,697	5,562	5,697	5,697	5,562
Adj. R^2	0.258	0.430	0.494	0.052	0.064	0.152
Panel B: Volatility						
	$\text{Volatility}_{i,t}$			$\text{Idio. Volatility}_{i,t}$		
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{S.C. Ownership}_i \times \text{Crash}_t$	-0.022**	-0.022**	-0.023**	-0.021**	-0.021**	-0.022**
	(0.009)	(0.009)	(0.008)	(0.010)	(0.010)	(0.009)
$\text{S.C. Ownership}_i \times \text{Post-Crash}_t$	-0.015**	-0.015**	-0.006	-0.012**	-0.012**	-0.003
	(0.006)	(0.006)	(0.004)	(0.005)	(0.005)	(0.003)
Crash_t	0.064***			0.037***		
	(0.003)			(0.002)		
Post-Crash_t	0.022***			0.012***		
	(0.001)			(0.001)		
Observations	5,800	5,800	5,562	5,800	5,800	5,562
Adj. R^2	0.774	0.805	0.850	0.643	0.665	0.725
Controls?	No	No	Yes	No	No	Yes
Time FE	No	Yes	Yes	No	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table reports the estimation results of regressions where the dependent variables are the monthly returns and the monthly returns volatility over the period March 2019 - June 2020 for nonfinancial firms in the S&P 500. $S.C.\ Ownership_i$ measures the fractional mutual fund ownership of firm i by socially conscious mutual funds at the end of 2018. $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE III

SOCIALLY CONSCIOUS OWNERSHIP AND MARKET VALUATIONS AROUND THE COVID-19 OUTBREAK IN THE U.S.

	Book-to-market $\text{Ratio}_{i,t}$		
	(1)	(2)	(3)
$\text{S.C. Ownership}_i \times \text{Crash}_t$	-0.381***	-0.382***	-0.373***
	(0.132)	(0.132)	(0.118)
$\text{S.C. Ownership}_i \times \text{Post-Crash}_t$	-0.226**	-0.226**	-0.050
	(0.113)	(0.113)	(0.079)
Crash_t	0.226***		
	(0.028)		
Post-Crash_t	0.137***		
	(0.024)		
Controls?	No	No	Yes
Time FE?	No	Yes	Yes
Firm FE?	Yes	Yes	Yes
Observations	5,455	5,455	5,241
Adj. R^2	0.897	0.898	0.920

Notes. This table reports the estimation results of regressions where the dependent variable is the monthly book-to-market ratio over the period March 2019 - June 2020 for nonfinancial firms in the S&P 500. $S.C.\ Ownership_i$ measures the fractional mutual fund ownership of firm i by socially conscious mutual funds at the end of 2018. $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Negative BM ratios are excluded. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE IV

OPERATING PERFORMANCE

	$\text{Sales}_{i,q}$			$\text{Gross Profit}_{i,q}$			$\text{Operating Income}_{i,q}$		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
S.C. $\text{Ownership}_i \times 2020Q1_q$	-0.021	-0.022	-0.019	-0.003	-0.003	0.001	0.005	0.005	0.007
	(0.016)	(0.017)	(0.018)	(0.013)	(0.014)	(0.014)	(0.012)	(0.012)	(0.013)
S.C. $\text{Ownership}_i \times 2020Q2_q$	-0.003	0.010	0.002	-0.001	-0.001	0.001	0.008	0.009	0.011
	(0.034)	(0.035)	(0.036)	(0.014)	(0.014)	(0.014)	(0.012)	(0.012)	(0.013)
S.C. Ownership_i	0.006	-0.022	-0.006	0.046***	-0.005	0.005	0.020**	0.003	0.007
	(0.071)	(0.035)	(0.033)	(0.017)	(0.013)	(0.012)	(0.009)	(0.012)	(0.011)
$2020Q1_q$	-0.014***			-0.010***			-0.009***		
	(0.003)			(0.003)			(0.003)		
$2020Q2_q$	-0.035***			-0.015***			-0.011***		
	(0.008)			(0.004)			(0.003)		
Controls?	No	No	Yes	No	No	Yes	No	No	Yes
Time FE?	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Industry FE?	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Observations	1,497	1,497	1,476	1,495	1,495	1,474	1,483	1,483	1,463
Adj. R^2	0.012	0.828	0.852	0.034	0.579	0.632	0.057	0.380	0.405

Notes. This table reports the estimation results of regressions where the dependent variables are key operating performance benchmarks for June 2020 and the four preceding quarters for nonfinancial firms in the S&P 500. Standard errors, clustered by three-digit SIC industry codes, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE V

SOCIALLY CONSCIOUS OWNERSHIP AND LONG-TERM GROWTH EXPECTATIONS

	Long-term $\text{Growth}_{i,t}$		
	(1)	(2)	(3)
$\text{S.C. Ownership}_i \times \text{Crash}_t$	-0.019	-0.020	-0.020
	(0.043)	(0.043)	(0.039)
$\text{S.C. Ownership}_i \times \text{Post-Crash}_t$	0.009	0.008	-0.028
	(0.048)	(0.048)	(0.045)
Crash_t	-0.014**		
	(0.007)		
Post-Crash_t	-0.038***		
	(0.008)		
Controls?	No	No	Yes
Time FE?	No	Yes	Yes
Firm FE?	Yes	Yes	Yes
Observations	5,371	5,371	5,140
Adj. R^2	0.734	0.745	0.782

Notes. This table reports the estimation results of regressions where the dependent variable is the monthly median analyst forecast of the long-term growth rate for earnings per share over the period March 2019 - June 2020 for nonfinancial firms in the S&P 500. $S.C.\ Ownership_i$ measures the fractional mutual fund ownership of firm i by socially conscious mutual funds at the end of 2018. $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE VI

SOCIALLY RESPONSIBLE INSTITUTIONAL DEMAND AND STOCK RETURNS
AROUND THE COVID-19 OUTBREAK IN THE U.S.

Panel A: Returns	Thomson Reuters				MSCI			
	$\text{Return}_{i,t}$		$\text{Abnormal Return}_{i,t}$		$\text{Return}_{i,t}$		$\text{Abnormal Return}_{i,t}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\text{S.R. Demand}_i \times \text{Crash}_t$	0.027***	0.024**	0.020***	0.016**	0.029***	0.034***	0.023**	0.026***
	(0.010)	(0.011)	(0.008)	(0.008)	(0.010)	(0.011)	(0.009)	(0.009)
$\text{S.R. Demand}_i \times \text{Post-Crash}_t$	-0.002	0.001	0.003	0.004	-0.006	-0.002	-0.001	0.003
	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)	(0.006)	(0.004)	(0.006)
Panel B: Volatility	**Thomson Reuters**				**MSCI**			
	$\text{Volatility}_{i,t}$		$\text{Idio. Volatility}_{i,t}$		$\text{Volatility}_{i,t}$		$\text{Idio. Volatility}_{i,t}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\text{S.R. Demand}_i \times \text{Crash}_t$	-0.002	-0.002	-0.003**	-0.003**	-0.004**	-0.003**	-0.005***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
$\text{S.R. Demand}_i \times \text{Post-Crash}_t$	-0.001*	-0.000	-0.001*	-0.000	-0.002**	-0.000	-0.001*	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Controls?	No	Yes	No	Yes	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table reports the estimation results of regressions where the dependent variables are the monthly returns and the monthly returns volatility over the period March 2019 - June 2020 for nonfinancial firms in the S&P 500. $S.R.\ Demand_i$ is *TR 13F S.R.* for columns 1 through 4 and *MSCI 13F S.R.* for columns 5 through 8. $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE VII

SOCIALLY RESPONSIBLE INSTITUTIONAL DEMAND AND MARKET VALUATIONS AROUND THE COVID-19 OUTBREAK

	Thomson Reuters		MSCI	
	Book-to-market Ratio$_{i,t}$			
	(1)	(2)	(3)	(4)
S.R. Demand$_i$ × Crash$_t$	-0.028**	-0.024**	-0.048***	-0.047***
	(0.014)	(0.012)	(0.016)	(0.015)
S.R. Demand$_i$ × Post-Crash$_t$	-0.017	-0.002	-0.040***	-0.021*
	(0.014)	(0.009)	(0.015)	(0.011)
Controls?	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes
Observations	5,471	5,257	5,471	5,257
Adj. R^2	0.897	0.925	0.900	0.928

Notes. This table reports the estimation results of regressions where the dependent variable is the monthly book-to-market ratio over the period March 2019 - June 2020 for nonfinancial firms in the S&P 500. *S.R. Demand$_i$* is *TR 13F S.R.* for columns 1 and 2 and *MSCI 13F S.R.* for columns 3 and 4. *Crash$_t$* (*Post-Crash$_t$*) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Negative BM ratios are excluded. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE VIII

SOCIALLY RESPONSIBLE INSTITUTIONAL DEMAND AND OPERATING PERFORMANCE

Panel A: Sales	Thomson Reuters		MSCI	
	(1)	(2)	(3)	(4)
S.R. $\text{Demand}_i \times \text{Crash}_t$	-0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)
S.R. $\text{Demand}_i \times \text{Post-Crash}_t$	-0.005	-0.005	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)
Panel B: Gross Profit	Thomson Reuters		MSCI	
	(1)	(2)	(3)	(4)
S.R. $\text{Demand}_i \times \text{Crash}_t$	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
S.R. $\text{Demand}_i \times \text{Post-Crash}_t$	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.002)	(0.002)
Panel C: Operating Income	Thomson Reuters		MSCI	
	(1)	(2)	(3)	(4)
S.R. $\text{Demand}_i \times \text{Crash}_t$	0.001	0.001	0.002	0.002
	(0.001)	(0.001)	(0.002)	(0.002)
S.R. $\text{Demand}_i \times \text{Post-Crash}_t$	0.000	0.000	0.001	0.001
	(0.001)	(0.001)	(0.002)	(0.002)
Controls?	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes
Industry FE?	Yes	Yes	Yes	Yes

Notes. This table reports the estimation results of regressions where the dependent variable is the monthly book-to-market ratio over the period March 2019 - June 2020 for nonfinancial firms in the S&P 500. *S.R. Demand*$_i$ is *TR 13F S.R.* for columns 1 and 2 and *MSCI 13F S.R.* for columns 3 and 4. $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. The standalone independent variable *S.R. Demand*$_i$ is not displayed for brevity. Standard errors, clustered by 3-digit SIC industry codes, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

Table ix

Socially Responsible Institutional Demand and Long-term Growth Expectations

	Thomson Reuters		MSCI	
	Long-term $\text{Growth}_{i,t}$			
	(1)	(2)	(3)	(4)
$\text{S.R. Demand}_i \times \text{Crash}_t$	0.003	0.003	0.006	0.005
	(0.002)	(0.002)	(0.005)	(0.005)
$\text{S.R. Demand}_i \times \text{Post-Crash}_t$	0.004	0.002	0.010*	0.005
	(0.004)	(0.003)	(0.006)	(0.005)
Controls?	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes
Observations	5,383	5,329	5,383	5,329
Adj. R^2	0.747	0.774	0.746	0.773

Notes. This table reports the estimation results of regressions where the dependent variable is the monthly median analyst forecast of the long-term growth rate for earnings per share over the period March 2019 - June 2020 for nonfinancial firms in the S&P 500. $S.R.\ Demand_i$ is *TR 13F S.R.* for columns 1 and 2 and *MSCI 13F S.R.* for columns 3 and 4. $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

Table x

Socially Responsible Investors and Stock Returns
Around the COVID-19 Crash and the Financial Crisis

Panel A: COVID-19				
	$\text{Return}_{i,t}$		$\text{Abnormal Return}_{i,t}$	
	(1)	(2)	(3)	(4)
S.R. (MSCI) $\text{Demand}_i \times \text{Crash}_t$	0.035***	0.041***	0.037***	0.041***
	(0.005)	(0.006)	(0.006)	(0.006)
S.R. (MSCI) $\text{Demand}_i \times \text{Post-Crash}_t$	-0.019***	-0.006	-0.016***	-0.004
	(0.005)	(0.005)	(0.004)	(0.005)
Controls?	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes
Observations	33,814	32,409	33,814	32,409
Adj. R^2	0.214	0.268	0.069	0.135
Panel B: 2008 Financial Crisis				
	$\text{Return}_{i,t}$		$\text{Abnormal Return}_{i,t}$	
	(1)	(2)	(3)	(4)
S.R. (MSCI) $\text{Demand}_i \times \text{Crash}_t$	0.005**	0.006***	0.002	0.004
	(0.002)	(0.002)	(0.002)	(0.002)
S.R. (MSCI) $\text{Demand}_i \times \text{Post-Crash}_t$	-0.001	-0.001	-0.001	-0.000
	(0.001)	(0.002)	(0.002)	(0.002)
Controls?	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes
Observations	141,272	132,619	141,272	132,619
Adj. R^2	0.184	0.210	0.038	0.085

Notes. This table reports the estimation results of regressions where the dependent variable is the monthly return for all nonfinancial firms over the period around the COVID-19 outbreak (i.e. Mar. 2019 - Jun. 2020) and the financial crisis and its aftermath (i.e. Jan. 2007 - Dec. 2013). In Panel A, $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is Mar. 2020 (after Mar. 2020) and 0 otherwise. In Panel B, $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is Aug. 2008 - Mar. 2009 (after Mar. 2009) and 0 otherwise. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

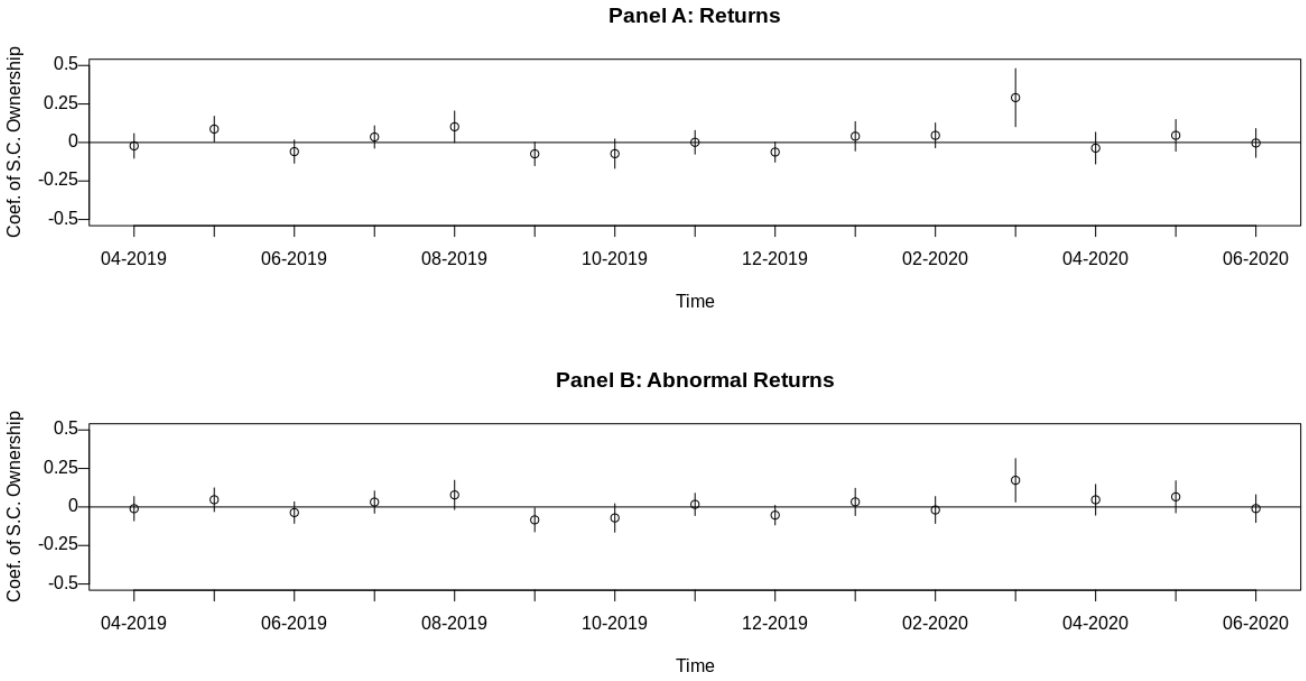


FIGURE 1

Dynamic Effects of Socially Conscious Mutual Fund Ownership

This figure plots the dynamic impact of socially conscious mutual fund ownership on monthly stock returns (Panel A) and monthly abnormal stock returns (Panel B) during the COVID-19 period and the months immediately leading up to it. The vertical bars denote 95% confidence intervals. Standard errors are clustered at the firm level.

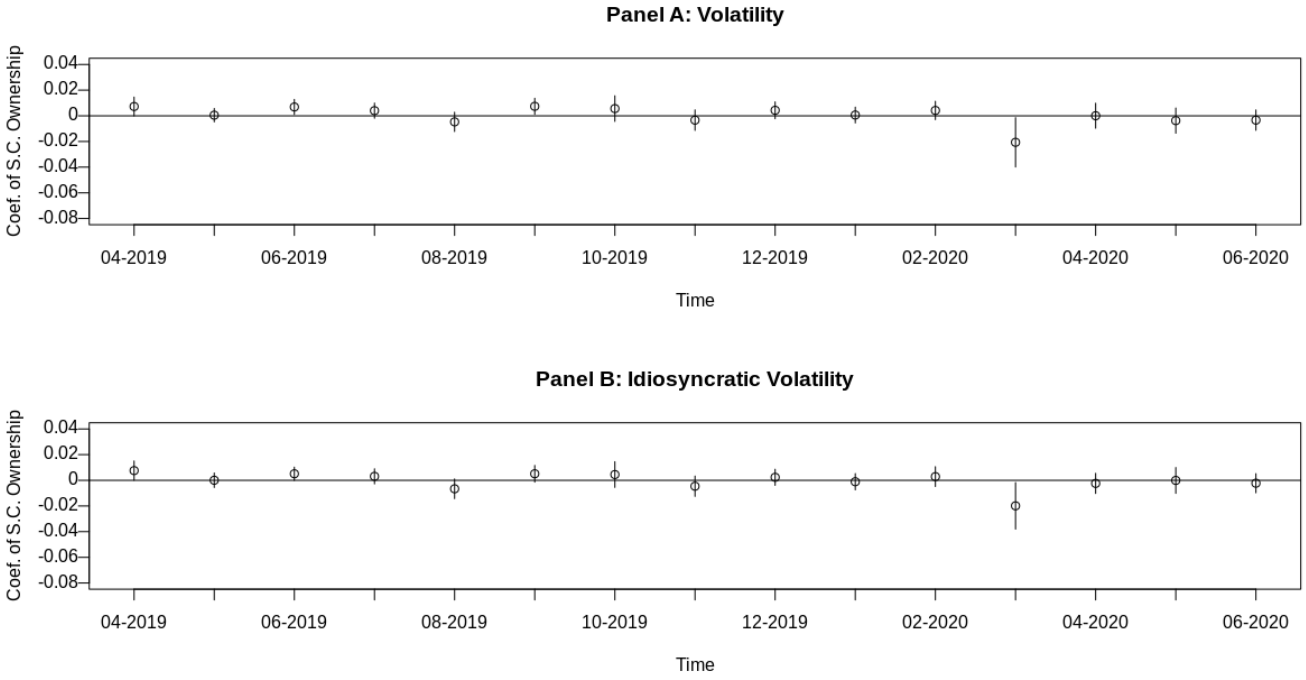


FIGURE 2

Dynamic Effects of Socially Conscious Mutual Fund Ownership

This figure plots the dynamic impact of socially conscious mutual fund ownership on monthly returns volatility (Panel A) and monthly idiosyncratic returns volatility (Panel B) during the COVID-19 period and the months immediately leading up to it. The vertical bars denote 95% confidence intervals. Standard errors are clustered at the firm level.

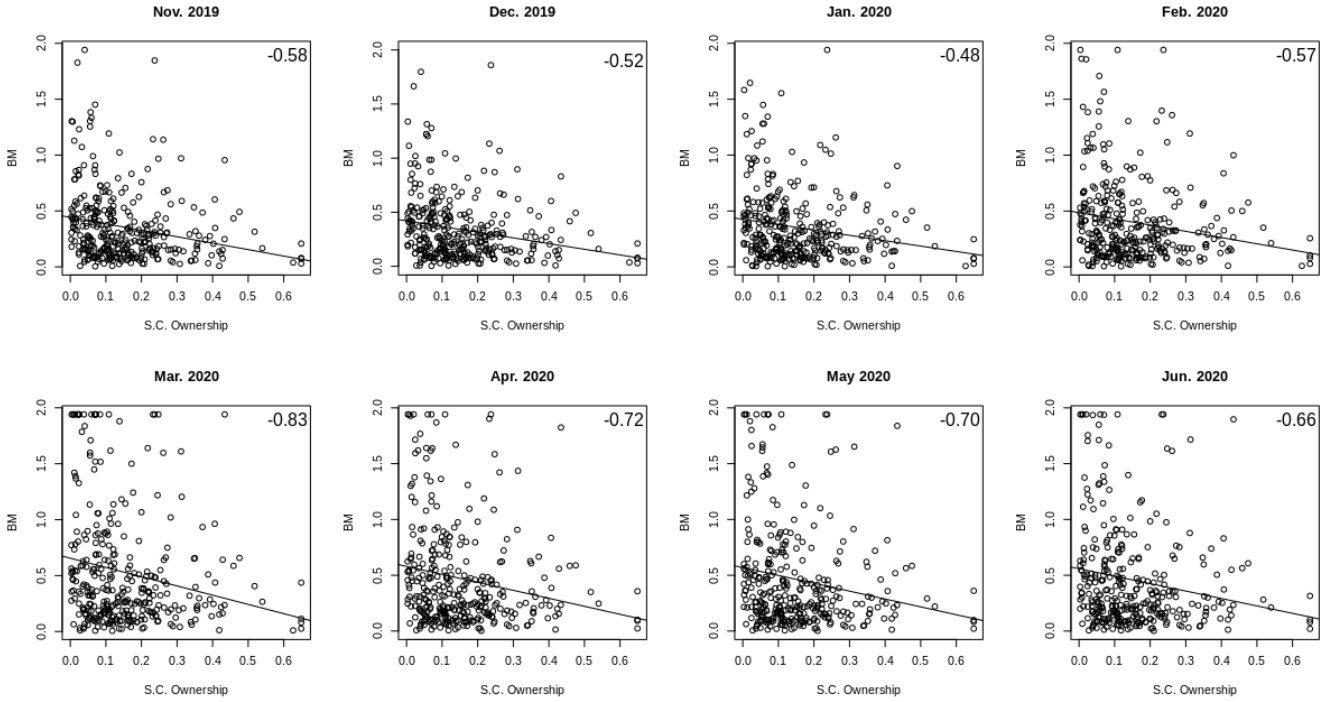


FIGURE 3

Book-to-market Ratio (BM) vs. Socially Conscious (S.C.) Mutual Fund Ownership

This figure plots the book-to-market ratios measured at the end of each month from November 2019 through June 2020 against socially conscious mutual fund ownership in December 2018. Each data point corresponds to an individual firm. Negative BM ratios are excluded. Data variables are winsorized at the 1% percent and 99% percentiles. The slope of the fitted line for each plot is displayed in the top right corner.

Appendix

TABLE A.1

ALTERNATIVE S.R. INVESTOR DEMAND MEASURES AND RETURNS AROUND THE COVID-19 OUTBREAK

Panel A: Mutual Funds	$\text{Return}_{i,t}$		$\text{Abnormal Return}_{i,t}$	
	(1)	(2)	(3)	(4)
$\text{S.C. Ownership}_i \times \text{Crash}_t$	0.084**	0.096**	0.056*	0.057*
	(0.034)	(0.038)	(0.032)	(0.035)
$\text{S.C. Ownership}_i \times \text{Post-Crash}_t$	-0.076***	-0.061**	-0.055**	-0.041*
	(0.026)	(0.024)	(0.023)	(0.023)
Controls?	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes
Observations	30,106	28,994	30,106	28,994
Adj. R^2	0.259	0.323	0.066	0.143
Panel B: 13F Institutions (Thomson Reuters)	$\text{Return}_{i,t}$		$\text{Abnormal Return}_{i,t}$	
	(1)	(2)	(3)	(4)
$\text{S.R. (TR) Demand}_i \times \text{Crash}_t$	0.032***	0.034***	0.027***	0.029***
	(0.006)	(0.006)	(0.007)	(0.007)
$\text{S.R. (TR) Demand}_i \times \text{Post-Crash}_t$	-0.018***	-0.009	-0.012***	-0.003
	(0.005)	(0.006)	(0.005)	(0.006)
Controls?	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes
Observations	33,814	32,409	33,814	32,409
Adj. R^2	0.220	0.272	0.068	0.134

Notes. This table reports the estimation results of our main variables of interest for regressions where the dependent variables are the monthly returns and monthly abnormal returns over the period March 2019 - June 2020 for all nonfinancial firms. *S.C. Ownership*$_i$ measures the fractional mutual fund ownership of firm i by socially conscious mutual funds at the end of 2018. *S.R.* (TR) *Demand*$_i$ is *TR 13F S.R. Crash*$_t$ (*Post-Crash*$_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE A.2

S.R. DEMAND MEASURES AND MARKET VALUATIONS
AROUND THE COVID-19 OUTBREAK IN THE U.S.

Panel A: Mutual Funds	Book-to-market Ratio$_{i,t}$		
	(1)	(2)	(3)
S.C. Ownership$_i$ × Crash$_t$	-0.300***	-0.301***	-0.355***
	(0.149)	(0.149)	(0.126)
S.C. Ownership$_i$ × Post-Crash$_t$	-0.094	-0.094	-0.032
	(0.122)	(0.122)	(0.060)
Panel B: 13F Institutions (MSCI)	Book-to-market Ratio$_{i,t}$		
	(1)	(2)	(3)
S.R. (MSCI) Demand$_i$ × Crash$_t$	-0.169***	-0.168***	-0.155***
	(0.024)	(0.024)	(0.023)
S.R. (MSCI) Demand$_i$ × Post-Crash$_t$	-0.103***	-0.103***	-0.009
	(0.020)	(0.020)	(0.014)
Panel C: 13F Institutions (Thomson Reuters)	Book-to-market Ratio$_{i,t}$		
	(1)	(2)	(3)
S.R. (TR) Demand$_i$ × Crash$_t$	-0.073***	-0.074***	-0.104***
	(0.023)	(0.023)	(0.026)
S.R. (TR) Demand$_i$ × Post-Crash$_t$	-0.044**	-0.044**	-0.017
	(0.018)	(0.018)	(0.022)
Controls?	No	No	Yes
Time FE?	No	Yes	Yes
Firm FE?	Yes	Yes	Yes

Notes. This table reports the estimation results of our main variables of interest for regressions where the dependent variable is the monthly book-to-market ratio over the period March 2019 - June 2020 for all nonfinancial firms. For brevity, the main coefficients of interest are displayed. *S.C. Ownership$_i$* measures the fractional mutual fund ownership of firm i by socially conscious mutual funds at the end of 2018. *S.R.* (TR) *Demand$_i$* and *S.R.* (MSCI) *Demand$_i$* are *TR 13F S.R.* and *MSCI 13F S.R.*, respectively. *Crash$_t$* (*Post-Crash$_t$*) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Negative BM ratios are excluded. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE A.3

S.R. DEMAND MEASURES AND VOLATILITY
AROUND THE COVID-19 OUTBREAK IN THE U.S.

Panel A: Mutual Funds	$\text{Volatility}_{i,t}$	Idio. $\text{Volatility}_{i,t}$
	(1)	(2)
$\text{S.C. Ownership}_i \times \text{Crash}_t$	-0.001	-0.011**
	(0.006)	(0.005)
$\text{S.C. Ownership}_i \times \text{Post-Crash}_t$	-0.001	-0.002
	(0.003)	(0.003)
Panel B: 13F Institutions (MSCI)	$\text{Volatility}_{i,t}$	Idio. $\text{Volatility}_{i,t}$
	(1)	(2)
$\text{S.R. (MSCI) Demand}_i \times \text{Crash}_t$	-0.004***	-0.006***
	(0.001)	(0.001)
$\text{S.R. (MSCI) Demand}_i \times \text{Post-Crash}_t$	-0.002**	-0.002**
	(0.001)	(0.001)
Panel C: 13F Institutions (Thomson Reuters)	$\text{Volatility}_{i,t}$	Idio. $\text{Volatility}_{i,t}$
	(1)	(2)
$\text{S.R. (TR) Demand}_i \times \text{Crash}_t$	-0.002	-0.005**
	(0.002)	(0.002)
$\text{S.R. (TR) Demand}_i \times \text{Post-Crash}_t$	-0.002	-0.003**
	(0.001)	(0.001)
Controls?	Yes	Yes
Time FE?	Yes	Yes
Firm FE?	Yes	Yes

Notes. This table reports the estimation results of our main variables of interest for regressions where the dependent variables are the monthly returns volatility and monthly returns idiosyncratic volatility over the period March 2019 - June 2020 for all nonfinancial firms. For brevity, the main coefficients of interest are displayed. *S.C. Ownership*$_i$ measures the fractional mutual fund ownership of firm i by socially conscious mutual funds at the end of 2018. *S.R.* (TR) *Demand*$_i$ and *S.R.* (MSCI) *Demand*$_i$ are *TR 13F S.R.* and *MSCI 13F S.R.*, respectively. *Crash*$_t$ (*Post-Crash*$_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE A.4

S.R. DEMAND MEASURES AND DAILY RETURNS
AROUND THE COVID-19 OUTBREAK IN THE U.S.

Panel A: Mutual Funds	$\text{Return}_{i,t}$	$\text{Abnormal Return}_{i,t}$
	(1)	(2)
$\text{S.C. Ownership}_i \times \text{Crash}_t$	0.022**	0.014**
	(0.008)	(0.007)
$\text{S.C. Ownership}_i \times \text{Post-Crash}_t$	-0.000	0.002
	(0.002)	(0.002)
Panel B: 13F Institutions (MSCI)	$\text{Return}_{i,t}$	$\text{Abnormal Return}_{i,t}$
	(1)	(2)
$\text{S.R. (MSCI) Demand}_i \times \text{Crash}_t$	0.003**	0.002**
	(0.001)	(0.001)
$\text{S.R. (MSCI) Demand}_i \times \text{Post-Crash}_t$	0.000	0.000
	(0.000)	(0.000)
Panel C: 13F Institutions (Thomson Reuters)	$\text{Return}_{i,t}$	$\text{Abnormal Return}_{i,t}$
	(1)	(2)
$\text{S.R. (TR) Demand}_i \times \text{Crash}_t$	0.002*	0.002*
	(0.001)	(0.001)
$\text{S.R. (TR) Demand}_i \times \text{Post-Crash}_t$	0.000	0.000
	(0.000)	(0.000)
Controls?	Yes	Yes
Time FE?	Yes	Yes
Firm FE?	Yes	Yes

Notes. This table reports the estimation results of our main variables of interest for regressions where the dependent variable is the daily return over the period March 2019 - June 2020 for nonfinancial firms in the S&P 500. For brevity, the main coefficients of interest are displayed. *S.C. Ownership*$_i$ measures the fractional mutual fund ownership of firm i by socially conscious mutual funds at the end of 2018. *S.R.* (TR) *Demand*$_i$ and *S.R.* (MSCI) *Demand*$_i$ are *TR 13F S.R.* and *MSCI 13F S.R.*, respectively. *Crash*$_t$ (*Post-Crash*$_t$) is equal to 1 if t is February 24, 2020 through March 23, 2020 (after March 23, 2020) and 0 otherwise. Standard errors, double clustered by firm and time, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

Table A.5

No Significant Effect on Returns from S.R. Investor Demand Based on Smaller Rater

	$\text{Return}_{i,t}$		$\text{Abnormal Return}_{i,t}$	
	(1)	(2)	(3)	(4)
$\text{S.R. Demand}_i \times \text{Crash}_t$	0.010	0.006	0.005	0.001
	(0.010)	(0.011)	(0.009)	(0.009)
$\text{S.R. Demand}_i \times \text{Post-Crash}_t$	-0.005	-0.006	-0.002	-0.003
	(0.005)	(0.005)	(0.005)	(0.005)
Controls?	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes
Observations	5,713	5,578	5,713	5,578
Adj. R^2	0.425	0.489	0.062	0.148

Notes. This table reports the estimation results of our main variables of interest for regressions where the dependent variables are the monthly returns and monthly abnormal returns over the period March 2019 - June 2020 for all nonfinancial firms in the S&P 500. *S.R. Demand*$_i$ is the standardized Sustainalytics-based socially responsible institutional investor demand calculated at the end of 2018. $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE A.6

SOCIALLY CONSCIOUS OWNERSHIP AND
INDUSTRY-ADJUSTED RETURNS

	Industry-adjusted $\text{Return}_{i,t}$		
	(1)	(2)	(3)
$\text{S.C. Ownership}_i \times \text{Crash}_t$	0.237***	0.215**	0.211**
	(0.080)	(0.089)	(0.100)
$\text{S.C. Ownership}_i \times \text{Post-Crash}_t$	-0.057	-0.033	-0.008
	(0.038)	(0.043)	(0.049)
Crash_t	-0.098***		
	(0.015)		
Post-Crash_t	0.024***		
	(0.008)		
Controls?	No	No	Yes
Time FE?	No	Yes	Yes
Firm FE?	Yes	Yes	Yes
Observations	5,544	5,544	5,336
Adj. R^2	0.025	0.278	0.337

Notes. This table reports the estimation results of regressions where the dependent variable is the industry-adjusted return (i.e. monthly return less the Fama-French 49 industry-matched return) over the period March 2019 - June 2020 for nonfinancial firms in the S&P 500. $S.C.\ Ownership_i$ measures the fractional mutual fund ownership of firm i by socially conscious mutual funds at the end of 2018. $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Negative BM ratios are excluded. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

Table A.7

Socially Responsible Institutional Demand and Returns
Around the COVID-19 Outbreak in the U.S.

	Thomson Reuters				MSCI			
	$\text{Return}_{i,t}$		$\text{Abnormal Return}_{i,t}$		$\text{Return}_{i,t}$		$\text{Abnormal Return}_{i,t}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S.R. $\text{Demand}_i \times \text{Crash}_t$	0.034***	0.037***	0.025***	0.028***	0.033***	0.039***	0.036***	0.039***
	(0.006)	(0.006)	(0.007)	(0.007)	(0.005)	(0.006)	(0.006)	(0.006)
S.R. $\text{Demand}_i \times \text{Post-Crash}_t$	-0.014***	-0.003	-0.006	0.003	-0.020***	-0.008	-0.016***	-0.006
	(0.005)	(0.006)	(0.005)	(0.006)	(0.004)	(0.005)	(0.004)	(0.005)
Long-term $\text{Demand}_i \times \text{Crash}_t$	0.120***	0.095**	0.059	0.031	0.121***	0.098***	0.058	0.032
	(0.039)	(0.038)	(0.046)	(0.045)	(0.039)	(0.038)	(0.045)	(0.045)
Long-term $\text{Demand}_i \times \text{Post-Crash}_t$	-0.035	-0.042	-0.002	-0.004	-0.035	-0.042	-0.001	-0.003
	(0.031)	(0.038)	(0.029)	(0.038)	(0.031)	(0.038)	(0.029)	(0.038)
Controls?	No	Yes	No	Yes	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table reports the estimation results of regressions where the dependent variables are the monthly returns over the period March 2019 - June 2020 for nonfinancial firms. $Demand_i$, as measured in December 2018, is *TR 13F S.R.* for columns 1 and 2 and *MSCI 13F S.R.* for columns 3 and 4. *Long-term* $Demand_i$ measures demand from long-term institutional investors as based on the fraction of shares owned by such investors in December 2018. $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE A.8

SOCIALLY RESPONSIBLE INSTITUTIONAL DEMAND AND RETURNS VOLATILITY
AROUND THE COVID-19 OUTBREAK IN THE U.S.

	Thomson Reuters				MSCI			
	$\text{Volatility}_{i,t}$		Idio. $\text{Volatility}_{i,t}$		$\text{Volatility}_{i,t}$		Idio. $\text{Volatility}_{i,t}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S.R. $\text{Demand}_i \times \text{Crash}_t$	-0.002	-0.0002	-0.004**	-0.005***	-0.005***	-0.004***	-0.006***	-0.006***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)
S.R. $\text{Demand}_i \times \text{Post-Crash}_t$	-0.002***	-0.002*	-0.003***	-0.003***	-0.004***	-0.002**	-0.004***	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Long-term $\text{Demand}_i \times \text{Crash}_t$	0.009	0.017*	0.0002	0.010	0.010	0.017*	0.002	0.009
	(0.009)	(0.010)	(0.009)	(0.011)	(0.009)	(0.010)	(0.009)	(0.011)
Long-term $\text{Demand}_i \times \text{Post-Crash}_t$	0.008*	0.005	0.0002	-0.0002	0.009**	0.004	0.003	-0.001
	(0.004)	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)
Controls?	No	Yes	No	Yes	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table reports the estimation results of regressions where the dependent variables are the monthly returns volatility over the period March 2019 - June 2020 for nonfinancial firms. $Demand_i$, as measured in December 2018, is *TR 13F S.R.* for columns 1 and 2 and *MSCI 13F S.R.* for columns 3 and 4. *Long-term* $Demand_i$ measures demand from long-term institutional investors as based on the fraction of shares owned by such investors in December 2018. $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.

TABLE A.9

SOCIALLY RESPONSIBLE INSTITUTIONAL DEMAND AND MARKET VALUATIONS AROUND THE COVID-19 OUTBREAK

	Thomson Reuters		MSCI	
	Book-to-market $\text{Ratio}_{i,t}$			
	(1)	(2)	(3)	(4)
S.R. $\text{Demand}_i \times \text{Crash}_t$	-0.079***	-0.106***	-0.173***	-0.152***
	(0.024)	(0.027)	(0.025)	(0.024)
S.R. $\text{Demand}_i \times \text{Post-Crash}_t$	0.048**	0.021	0.106***	0.005
	(0.019)	(0.022)	(0.020)	(0.014)
Long-term $\text{Demand}_i \times \text{Crash}_t$	0.043	-0.107	0.081	-0.106
	(0.102)	(0.117)	(0.103)	(0.116)
Long-term $\text{Demand}_i \times \text{Post-Crash}_t$	-0.169*	-0.140	-0.186**	-0.139
	(0.090)	(0.088)	(0.090)	(0.088)
Controls?	No	Yes	No	Yes
Time FE?	Yes	Yes	Yes	Yes
Firm FE?	Yes	Yes	Yes	Yes

Notes. This table reports the estimation results of regressions where the dependent variable is the monthly book-to-market ratio over the period March 2019 - June 2020 for nonfinancial firms. *S.R. Demand*$_i$, as measured in December 2018, is *TR 13F S.R.* for columns 1 and 2 and *MSCI 13F S.R.* for columns 3 and 4. *Long-term Demand*$_i$ measures demand from long-term institutional investors as based on the fraction of shares owned by such investors in December 2018. $Crash_t$ ($Post\text{-}Crash_t$) is equal to 1 if month t is March 2020 (after March 2020) and 0 otherwise. Negative BM ratios are excluded. Standard errors, clustered by firm, are reported in parentheses. Significance at the 10% level is given by *; at the 5% level **, at the 1% level ***.