Does ESG negative screening work?

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ABSTRACT:

We revisit the firm value and pricing implications of the negative screening of sin stocks. Unlike prior work, we find that institutional ownership and valuations related to sin stocks are not different from those of other stocks after controlling for differences in fundamentals between sin and non-sin stocks. Sin stocks do not differ in the likelihood of exiting the public market, the cost of raising new equity, and the announcement returns around negative ESG news relative to non-sin stocks, casting further doubt on whether negative screening hurts sin stocks. However, the cost of new debt is higher for sin stocks. Investors submit more ESG proposals, and a larger number of ESG proposals are passed. In sum, evidence for the oft-stated hypothesis that negative screening hurts sin stocks depends on the design the researcher uses.

Keywords: CSR; ESG; exclusion; index exclusion; negative screening; socially responsible investing; firm valuation; performance

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1. Introduction

Negative screening is broadly the process of finding and excluding stocks of companies, whose operations are seen as "unsustainable" from an environmental, social, or governance (ESG) standpoint.[2] A popular version of negative screening, that is widely practiced by institutional investors sensitive to ESG considerations, is to exclude stocks of firms involved in the production of alcohol, tobacco, and gaming, and fossil fuels such as coal and gas or oil (labeled as "sin stocks" or "excluded industries").[3]

There is a relatively long literature suggesting that stock returns of sin stocks, traditionally covering alcohol, gaming, and tobacco, outperform the market (see Salaber 2007; Fabozzi, Ma, and Oliphant 2008; Hong and Kacperczyk 2009; Statman and Glushkov 2009; Durand, Koh, and Tan 2013).[4] The intuition appears to be that the investors who are willing to hold these screened

[2] The U.S. SEC does not define a poor ESG stock. The European Sustainable Finance Disclosure Regulation (SFDR), on the other hand, defines a sustainability investment as "an investment in an economic activity that contributes to an environmental objective, as measured, for example, by key resource efficiency indicators on the use of energy, renewable energy, raw materials, water and land, on the production of waste, and greenhouse gas emissions, or on its impact on biodiversity and the circular economy, or an investment in an economic activity that contributes to a social objective, in particular an investment that contributes to tackling inequality or that fosters social cohesion, social integration and labour relations, or an investment in human capital or economically or socially disadvantaged communities, provided that such investments do not significantly harm any of those objectives and that the investee companies follow good governance practices, in particular with respect to sound management structures, employee relations, remuneration of staff and tax compliance."

[3] We acknowledge lack of agreement on which industries should be excluded in practice. For instance, ammunitions and nuclear are often excluded. Our list of screened stocks was chosen to retain consistency with prior literature in financial economics and accounting.

[4] Salaber (2007) and Hong and Kacperczyk (2009) identify firms in the alcohol, tobacco, and gaming industries as sin firms. Hong and Kacperczyk (2009) also include weapon firms in robustness tests. Fabozzi, Ma, and Oliphant (2008) identify sin stocks as those classified in the six industries of alcohol, tobacco, defense, biotech, gaming, and adult services (they also require that identified sin stocks earn over 30% of total revenue from the six sin product categories. Statman and Glushkov (2009) and Durand, Koh, and Tan (2013) define sin firms as ones operating in alcohol, tobacco, gaming, defence and weaponry industries. Luo and Balvers (2017) analyze a shorter list of sin stocks (i.e., alcohol, coal, and tobacco firms).

investments expect a higher rate of return. However, relatively little is known about whether such negative screening by institutions actually hurts the intended parties – firms in these excluded industries – either by way of valuations or by way of fundamentals covering operating, investing, and financing activities. That is the question we study in this paper.

We begin by documenting that institutions indeed hold less equity in excluded industries, especially in alcohol, tobacco, gas and oil in the past two decades, consistent with influential prior work (Hong and Kacperczyk, 2009). We focus on the 20 years since 2000 in the analyses of this paper to offer up-to-date insights into sin stocks. Negative screening has seemingly increased in the recent decade: the gap between institutional ownership between non-sin stocks and sin stocks was 4.3 percent in the earlier decade (2000-2009) relative to 7.9 percent in the recent decade (2010-2019) and that increase of 3.6 percent is statistically significant (t-value is 2.28). Increased negative screening is concentrated in two industries (alcohol and gun industries). A similar time-series pattern is observed for the breadth of institutional ownership, as measured by the number of institutional investors holding shares of firms. Overall, these results indicate that negative screening by institutional investors displays significant time-series variation, highlighting the importance of revisiting the real impacts of negative screening with fresh data.

A more careful matched sample approach suggests that, after controlling for basic firm fundamentals such as size, ROA (return on assets), firm age, CAPEX, R&D, risk, past performance, stock price based dividend yield, and book to market ratio, the gap in institutional ownership between sin firms and other firms disappears. For example, in the matched sample from

2000 to 2019, institutional ownership is 50.1 percent for sin stocks and 51.8 percent for other stocks, with an insignificant difference of 1.8 percent (t-value is 0.77). Hence, some institutions do not potentially hold sin firms, on account of intuitive fundamentals-based considerations, rather than purely on account of negative screening rules.

We now turn to an analysis of the impact of negative screening on firm valuation and performance. If exclusions were to hurt excluded industries, keeping firm characteristics constant, we should have observed lower firm valuations (e.g., Tobin's Q). We find that Tobin's Q for sin stocks is similar to that of the rest of the market after controlling for firm characteristics.

The result is a bit nuanced in that sin stocks are associated with lower valuations relative to non-sin stocks in the recent decade since 2010 in an unmatched sample. However, in the matched sample, sin stocks have significantly higher Tobin's Q than that of control firms. This enhanced valuation was driven by gas and oil firms, and it exists in both the recent and the earlier decades. Relatively exogenous shocks related to divestment (i.e., when a firm switches from a non-excluded industry to an excluded industry) and the addition of stocks to a "good" ESG index confirm the finding of no apparent impact of negative screening the Tobin's Q of excluded industries.

Our findings of a similar Tobin's Q in the full sample and a higher valuation in the matched sample are different from Hong and Kacpercyzk (2009) who document that sin stocks suffer a lower valuation. Two possible reasons for that include: (i) the publication of their paper might have highlighted an arbitrage opportunity that investors eventually realized; (ii) our evidence is

sensitive to the inclusion of the gas and oil industry, a category left out by Hong and Kacpercyzk (2009). When we only focus on sin firms in the consumer sector (i.e., alcohol, gaming, and tobacco), as Hong and Kacpercyzk (2009) did, the valuation of sin stocks is statistically indistinguishable from that of matched firms.

Next, we examine how the fundamentals of industries that are subject to negative screening differ from those of other industries (*Return on Sales, Return on Assets, Return on Equity, Sales Efficiency, Operating Efficiency, Capital Expenditures to Sales, Real sales, Employment, Leverage, Payouts, Equity Issuance, Debt Issuance, Retain Earnings,* and *Acquisition)* in general and for the matched sample in particular. In the full sample, we find that sin stocks are associated with larger capital expenditure to sales, equity issuance, and acquisitions relative to other firms. In addition, sin stocks are associated with lower sales per unit of assets, lower real sales, and fewer employees. The comparison of other dimensions (e.g., leverage, debt issuance, and retained earnings) yields conflicting signs when we use greater or fewer control variables for underlying firm performance. Overall, we demonstrate that the omitted variables could significantly alter conclusions about the fundamental and stock-related performance of sin stocks relative to other stocks.

If exclusions were to hurt excluded industries, keeping firm characteristics constant, we should observe a lower current stock price leading to higher future stock returns. However, sin stocks do not earn an alpha or abnormal monthly return estimated with Fama-Macbeth regressions. We supplement this analysis with the cost of raising equity capital (i.e., (last-day closing price

minus offer price) / last-day closing price) in seasoned equity offerings. If exclusions were to hurt excluded industries, we should have observed a lower offer price relative to the prevailing stock prices (due to limited demand for such stocks). However, we find that sin stocks generally do not differ from other stocks in their cost of new equity. In contrast to the cost of new equity, the cost of new debt (i.e., the yield of fixed-rate debt issued) is higher for sin stocks, in general, especially for tobacco firms, gaming, fossil-fuel-focused stocks.

We also consider a potentially extreme outcome of corporate failure that occurs following poor performance – delisting from the public market. If exclusions were to hurt excluded industries (in terms of both operating performance and financing activities), we should observe a higher likelihood of exits for sin stocks relative to other stocks. However, we find that sin stocks have a similar probability of exiting the public market. Among the six excluded industries, firms in coal, gas and oil industries have a higher chance of exiting than other firms in the market but firms in the other four excluded industries do not differ from other firms in their likelihood of getting delisted.

If exclusions were to hurt excluded industries, keeping firm characteristics constant, we should observe negative stock returns for sin stocks when news that damages investors' perceptions of ESG performance are released for sin stocks relative to others. Announcement stock returns around the release of socially irresponsible news data from RepRisk for sin stocks are not significantly different from that for other stocks.

A potential explanation for our findings is that sin stocks attract demand for their shares from a subset of investors who do not implement negative screening. When the demand for sin stocks is large enough, their stock prices and stock returns, holding firm characteristics constant, are not different from that of non-sin stocks.

Finally, we discuss investor engagement in sin stocks. In addition to stock trading, investors may participate in low-cost activism, i.e., by submitting and voting on shareholder proposals in annual meetings. We find that (i) the number of ESG proposals voted in the annual meeting is larger for sin stocks than other stocks; and (ii) the number of ESG proposals passed in the annual meeting is larger for sin stocks than for other stocks, suggesting that investors in sin stocks likely exert higher pressure on firm management to improve its ESG performance or alternatively engage in virtue signaling themselves.

In sum, we argue that claims that negative screening hurts sin stocks are somewhat overstated. The underlying empirical reality, at least since 2000, is more nuanced and complicated and depends on the research design used, as documented here. The remainder of the paper is organized as follows. Section 2 introduces related literature on sin stocks. Empirical results are provided in Section 3, and we conclude in Section 4.

2. Prior literature on sin stocks and our contribution

Almost all of the published research on sin stocks concentrates on the stock returns of these firms. Salaber (2007) shows that Protestants require higher risk-adjusted returns on sin stocks than

do Catholics. Salaber (2009) finds sin stocks face higher risk in that a larger number of such stocks exit during recessions over the business cycle. Fabozzi, Ma, and Oliphant (2008) find that sin stocks deliver an average annual return of 19.02%, in contrast to a 7.87% annualized average market return.

In an influential paper, Hong and Kacperczyk (2009) classify stocks into three groups: sin stocks in the consumer sector (i.e., alcohol, tobacco, and gaming), non-sin stocks in the consumer sector (i.e., food, soda, fun, and meals/hotels), and stocks not in the consumer sector (i.e., all other Fama-French-48 industries). Using a sample ending in 2006, Hong and Kacperczyk (2009) find that sin stocks in the consumer sector have higher expected returns, lower institutional ownership, lower valuation, and lower analyst coverage relative to comparable stocks but also face higher litigation risk. Avramov et al. (2022) argue that the market premium increases and demand for stocks declines under ESG uncertainty. Avramov et al. (2022, p.3) state that "the sin premium (Hong and Kacperczyk, 2009) and carbon premium (Bolton and Kacperczyk, 2020) could be attributed to the notion that sin stocks (i.e., companies involved in producing alcohol, tobacco, and gaming) and carbon emissions are clearly defined and thus subject to minimal uncertainty among investors."

Prior studies debate whether the sin stock returns premium is driven by omitted variables that capture the risk exposure of sin stocks. On the one hand, Blitz and Fabozzi (2017) find significant positive CAPM alpha for sin stocks in the U.S., European, and global samples. However, they find that the positive alpha disappears after controlling for classic risk factors (e.g.,

size, value, and momentum) and Fama and French quality factors (i.e., profitability and investment). In contrast, Luo and Balvers (2017) document a positive investor boycott premium after controlling for risk from 1999 to 2012, i.e., positive risk-adjusted sin-stock abnormal returns. They argue that the positive premium is driven by the systematic risk associated with sin stocks, which is not displaced by litigation risk, measures of neglect effect, illiquidity, industry momentum, or concentration.[5]

Another strand of literature focuses on the economic magnitude of negative screening on the cost of capital. Teoh, Welch, and Wazzan (1999) fail to detect any effect of divestment in South African stocks during the apartheid regime. Berk and van Binsbergen (2022, p.2) evaluate the impact of divestiture initiatives as "an estimated change in the cost of capital of 0.35 basis points." They go on to state, "given the uncertainty in the capital budgeting process, one-third of a basis point cannot meaningfully impact firms' investment strategies."

The small effect of negative screening on the cost of capital may be explained by cross-sectional variation in the exact filters associated with negative screening. For example, the valuation of sin stocks depends on the degree of negative screening in the capital market. Fauver and McDonald (2014) document that sin stocks are associated with an 8% lower equity valuation

[5] A few other papers document differences between sin stocks and non-sin stocks and the associated implications for investors. Kim and Venkatachalam (2011) find that sin stocks actually have more predictable earnings, timely loss recognition, and superior performance for a sample of 111 tobacco, alcohol, and defense sin stocks. Cai et al. (2013) find that CSR engagement of firms from sin industries will positively affect firms' value, proxied by Tobin's Q ratio. Humphrey and Tan (2014) find that screening on positive social responsibility scores, and negative scores, excluding sin stocks, for portfolios yield no difference in return or risk. Nofsinger and Varma (2014) find that negative screening may generate negative abnormal returns by reducing returns and increasing idiosyncratic risk. Similarly, Trinks and Scholtens (2017) document that removing controversial stocks from the portfolio may worsen financial performance, while the absence of negative screens generally enhances risk-adjusted returns.

in G20 countries where society is strongly against such industries (i.e., sin countries), while sin stocks are associated with an 11.2% higher valuation in countries that do not consider alcohol, gambling, or tobacco industries to be sinful. Institutional investors exhibit significant variation in their negative screening of sin stocks. For example, Liu, Lu, and Veenstra (2014) show that institutional investors' shareholdings and analyst coverage of sin companies increase with the degree of social norm acceptance (which is captured by alcohol, tobacco, and gaming consumption and people's attitudes toward these sin products).[6]

Our paper is also broadly related to the mixed conclusions concerning whether investors reward firms with "better" corporate social responsibility (CSR) performance. For example, using an event-study approach, Flammer (2013) finds a positive CAR (cumulative abnormal return), i.e., 0.84%, in two days around 156 eco-friendly news events (i.e., the news likely to increase firms' CSR performance). In contrast, Manchiraju and Rajgopal (2017) document a negative CAR (-4.1%) in the three days around the announcement of a new Indian law in 2013 that mandatorily required firms to spend money on CSR.

We differ from the reviewed literature by concentrating on (i) whether negative screening is seen in the new data beginning in 2000 as proxied by institutional holdings; (ii) whether negative screening results documented earlier simply reflect cross-sectional variation in fundamentals; and (iii) whether negative screening, should it exist, hurts sin stocks' valuations, stock returns and cost

[6] In a related paper, Raghunandan and Rajgopal (2022) verify whether ESG mutual funds, i.e., funds that claim to focus on socially responsible stocks, actually invest in firms that have stakeholder-friendly track records. Raghunandan and Rajgopal (2022) find that self-labelled ESG mutual funds in the US hold portfolio firms with worse track records for compliance with labor and environmental laws, relative to portfolio firms held by non-ESG funds managed by the same financial institutions in the same years.

of capital. Our general conclusions are that the difference between sin stocks and non-sin stocks is less pronounced relative to the impression that a reasonable reader of the prior literature would have.

3. Empirical Results

3.1. Data and statistics

We obtain data on stock returns and trading volume and other share-related data from the daily and monthly files of the Center for Research in Security Prices (CRSP). Our sample firms include all common stocks that trade on NYSE/AMEX and NASDAQ (i.e., share code equals either 10 or 11). We exclude firms with one-digit SIC codes of 6 (i.e., financial service industry), following Hong and Kacperczyk (2009) and other studies. All accounting data, including total assets, book value of equity, and returns on assets, are obtained from COMPUSTAT. Our sample starts in the year 2000 and ends in 2019.

Following prior literature (e.g., Hong and Kacperczyk, 2009), we define a sin stock as a firm involved in the alcohol, gaming, and tobacco industries. In addition, we also classify firms operating in weapons (gun industry) and carbon-intensive industries (i.e., coal and gas and oil) as sin stocks (Teoh et al., 1999). Five exclusion industries are operationalized as the Fama-French-48 industry codes for tobacco (FF48=5), alcohol (FF48=4), guns (FF48=26), coal (FF48=29), and gas & oil (FF48=30). We create five indicators for each excluded industry. *Dummy(Tobacco)* equals one for tobacco stocks (FF48=5), and zero otherwise. *Dummy(Alcohol)* equals one for

alcohol stocks (FF48=4), and zero otherwise. *Dummy(Gun)* equals one for gun stocks (FF48=26), and zero otherwise. *Dummy(Coal)* equals one for coal stocks (FF48=29), and zero otherwise. *Dummy(Gas and oil)* equals one for gas & oil stocks (FF48=30), and zero otherwise. We also designate a sixth sin category i.e., gaming stocks, following Hong and Kacperczyk (2009) using NAICS codes: *Dummy(Gaming)* equals one for gaming stocks or firms with the following NAICS codes: 7132, 71312, 713210, 71329, 713290, 72112, and 721120. *Dummy(Sin)* is an indicator that equals one for firms operating in any of the six exclusion industries (in year t), and zero otherwise.

Table 1 presents the summary statistics of the variables. *Tobin's Q* equals (Market value of equity + Total Liability + Preferred Stock - deferred taxes and investment tax credit (if available))/Total Asset. *M/B* equals the Market value of equity/Book common equity. *IO (total)* equals the number of shares held by institutions scaled by shares outstanding (average across four quarters in a year). Return on Sales (*ROS*) = Net Income /Sales. Return on Assets (*ROA*) equals Net Income/Assets. Return on Equity (*ROE*) equals Net Income/ Equity. Sales Efficiency (*SALEFF*) equals Sales/assets. Operating efficiency (*OPERFF*) equals Net Income/employees. Capital Expenditures to Sales (*CESA*) equals Capital Expenditures/ sales. *Log Real sales* equals log nominal sales/CPI. *Employment* equals the logarithm of the number of employees (in million). *Leverage* equals long-term debt to equity. *Dividend Payouts* equals cash dividends/assets. *Total Payout*s equals (cash dividends + stock repurchases)/assets. *Equity Issue* equals equity capital raised in a year relative to assets. *Debt Issue* equals debt capital raised in a year relative to assets.

Retained earnings pct equals retained earnings as a proportion of lagged assets. *Acquisition Pct* equals acquisition expense as a proportion of lagged sales.

We construct a list of control variables that affect firms' institutional ownership following Bennett, Sias, and Starks (2003). *LogAge* is defined as the natural logarithm of the number of months of CRSP listing since December 1972 (the starting date for CRSP Nasdaq return data). *Beta* is estimated as the sum of the coefficients in a regression of the firm's monthly return on the contemporaneous and lag one-month CRSP NYSE-AMEX value-weighted index over the previous 24 to 60 months (depending on availability). *Standard deviation* is estimated as the natural logarithm of the standard deviation of returns over the previous 24 to 60 months (depending on availability). *Dividend yield* is measured as the natural logarithm of one plus the average monthly dividend yield over the previous 12 months. *LogPrice* is measured as the natural logarithm of one plus the quarter-end share price. *Lag return* is the cumulative months in the past six months.

As reported in Table 1, the mean value of institutional ownership in our sample is 0.52, which means that, on average, 52% of a firm's shares are held by institutional investors. The average number of unique institutional shareholders of a firm (*Number of institutional investors*) equals 133. The mean of *Dummy(Sin)* is 0.059, indicating that 5.9% of our firm-year observations relate to sin stocks. Among the indicators for each of the six sub-categories of sin stocks, *Dummy(Gas and oil)* is the largest (mean of 0.042), indicating that 4.2% of observations are in the *Gas and oil* industry. The other five sub-categories of sin stocks are quite small, i.e., the mean of

Dummy(Tobacco), *Dummy(Alcohol)*, *Dummy(Gaming)*, *Dummy(Gun)*, and *Dummy(Coal)* is 0.002, 0.004, 0.006, 0.003, and 0.002, respectively.

We construct a matched sample based on a propensity score matching (PSM) procedure. The propensity score is estimated each year by regressing an indicator for industry exclusion on lagged firm size (*lag Log(TA)*), *Lag ROA*, *firm age*, *Lag Capex/TA*, *Lag R&D/Sale*, *Lag Beta*, *Lag LogPrice*, *Lag Standard Deviation*, *Lag Annual Return*, *Lag Dividend yield*, and *Lag B/M*.

Table 2 presents the characteristics of the two groups of firms after matching. We require the difference in the propensity score between treatment firms and control firms to be less than 0.1. There are 382 unique treatment firm observations and an equal number of control firm observations in the final sample. The univariate comparison of treatment and control firms in the matched sample indicates that there are no statistically significant differences between the treatment firms and control firms for the matching fundamentals (except for firm risk as measured with standard deviations of monthly returns), suggesting a reasonably successful PSM procedure was accomplished in achieving covariate balance.

3.2. Difference in institutional ownership between sin and non-sin stocks

3.2.1 Comparing institutional ownership between sin and non-sin stocks in the full sample

To examine whether institutional investors avoid sin stocks from excluded industries, we regress firms' institutional ownership on the exclusion dummy and a battery of control variables. We rely on the following regression specifications estimated using a firm-year level sample.

$$IO\ (Total)_{i,t+1}$$

$$= \alpha_0 + \alpha_1 Dummy(X)_{i,t} + \alpha_2 Log(TA)_{i,t} + \alpha_3 Log(Age)_{i,t} + \alpha_4 ROA_{i,t} + \alpha_5 Beta_{i,t}$$

$$+ \alpha_6 Log(Price)_{i,t} + \alpha_7 Standard\ Deviation_{i,t} + \alpha_8 Ret_{i,t} + \alpha_9 Dividend\ yield_{i,t}$$

$$+ \alpha_{10} B/M_{i,t} + \omega_t + \varepsilon_{i,t}. \quad (1)$$

The dependent variable, *IO (total)*$_{t+1}$, equals the aggregate number of shares held by all institutional investors in year *t*+1 scaled by the number of outstanding shares (we calculate the IO in each quarter in *t*+1 and use the average value across four quarters as the dependent variable). An alternative dependent variable is the breadth of institutional ownership, i.e., the number of unique institutional investors that hold the stock in a year. *Log (Number of institutional investors)*$_{i,t+1}$ equals the natural logarithm of one plus the number of institutional investors that hold the stock *i* in year *t*+1 (we count the unique institutional investors that hold the stock in each quarter in *t*+1, then average that variable across four quarters to obtain the annual measure of the number of institutional investors). The main independent variable is either *Dummy(Sin)* or six indicators for each excluded industry.

Panel A of Table 3 presents the difference in IO and breadth of institutional ownership from 2000-2019. Column (1) of Panel A of Table 3 shows that *Dummy(Sin)* is negatively correlated with *IO(total)*$_{t+1}$ when we only control for firm size and firm age. The result remains unchanged after controlling for other firm characteristics in column 3 and the effect is economically significant: institutional investors, on average, hold 7.4% fewer shares (as a percentage of shares outstanding) of sin stocks relative to other stocks. This finding also holds when we replace the exclusion dummy

with six indicator variables for each sin industry (in columns 2 and 4): we find avoidance of sin stocks in all excluded industries except for the Gun and the Coal industry (in columns 2 and 4). In columns 5 – 8, we use *Log (Number of institutional investors)*$_{t+1}$ as the dependent variable and find similar results.

In Panel B of Table 3, we compare the effect of industry exclusion on institutional ownership in the recent decade (2010-2019) relative to the earlier decade (2000-2009). *Recent* is a dummy variable that equals one if the institutional ownership is measured in the recent decade (2010-2019) and is set to zero otherwise. We find that the interaction between *Recent* and *Dummy(Sin)* is negative and significant at a 5% level (0.036, t-value =-2.28). The coefficient of *Dummy(Sin)* is -0.043 (t-value =-3.57), indicating that institutional ownership of sin stocks is 4.3% lower than that of non-sin stocks in the earlier decade (2000-2009). However, in the later decade (2010-2019), while sin stocks still have lower IO than non-sin stocks, the difference has increased to -7.9% (i.e., -0.043-0.036 = -0.043) as suggested by adding the coefficients of *Dummy(Sin)* and the interaction term. In addition, we observe strong negative screening in four excluded industries in the earlier decade (alcohol, gaming, gas and oil, and tobacco). Such negative screening has significantly increased in two sin industries (alcohol and gun). For example, the negative screening in guns does not exist in the earlier period but becomes significant in the recent decade: IO for gun stocks is -15.6% (i.e., 0.034-0.19=-0.156) higher than IO of all of the rest non-gun stocks over 2010-2019. We also find an insignificant decrease in IO in tobacco, gaming, coal, gas and oil industries, relative to other stocks (as indicated by the negative interaction terms), in the recent

decade. For example, the difference in IO between tobacco firms and non-tobacco firms decreases in the recent period, although the effect is insignificant (-0.041, t-value =-0.57). Overall, the result in Panel B suggests that negative screening performed by institutional investors has increased in the recent decade, especially for alcohol and gun firms. When we analyze the breadth of institutional ownership in column 3, we still find a significant and negative interaction term related to *Recent* and *Dummy(Sin)*. This negative interaction effect on the number of institutional investors is significant in the gun, coal, and gas and oil industries, as shown in column 4.

3.2.2 Comparing institutional ownership between sin and non-sin stocks in the matched sample

Next, we compare the potential impact of negative screening by institutional owners of sin stocks relative to non-sin stocks using a propensity score matching approach. The objective is to control for observable differences between the sin stocks and matched non-sin stocks. The matching procedure has been reported in Table 2. Panel C of Table 3 reports the comparison of total institutional investor ownership as well as ownership for a few subsets of institutions between the treatment group and control group. We first split institutions identified by their organization structures: $IO(Bank\ trusts)_{t+1}$, $IO(Insurance\ companies)_{t+1}$, $IO(Inv.companies)_{t+1}$, $IO(Ind.\ invest.\ advisors)_{t+1}$, *and* $IO(Pension\ funds)_{t+1}$ refer to a firm's institutional ownership by Bank trusts, Insurance companies, Investment companies, Independent investment advisors, and Pension funds in year t+1, respectively. We also identify institutions separately by their investment horizons: $IO(Dedicated\ institutions)_{t+1}$, $IO(Quasi\text{-}indexer\ institutions)_{t+1}$, and $IO(Transient\ institutions)_{t+1}$

refer to a firm's institutional ownership by dedicated institutions, quasi-indexer institutions, and transient institutions in year *t*+1, respectively.

We do not find major differences in the institutional ownership between sin stocks and the control group. For example, the mean institutional investor ownership for sin stocks is 50.1% and the institutional investor ownership for the control group is 51.8%. The difference in institutional investor ownership between these two groups is -1.8% and is statistically insignificant (t-value=-0.77), indicating that institutions do not convincingly differentiate between sin stocks and non-sin stocks with similar fundamentals.

For additional descriptive evidence, we split total institutional ownership based on the types of institutions. There is no significant difference in the level of institutional ownership when the data is cut by each subset of institutional investors. The so-called dedicated investors do not hold less equity in sin stocks (the difference is -0.001, t=-0.09). Perhaps more important, norm-constrained institutions (i.e., banks, insurance, pensions, and others), as termed in Hong and Kacperczyk (2009), also hold similar ownership stakes in treatment sin stocks compared with matched non-sin stocks.

3.3. Differences in firm valuation and firm fundamentals between sin and non-sin stocks

In this section, we examine whether negative screening is associated with firm valuation and various accounting performance measures.

3.3.1 Comparing firm valuation between sin and non-sin stocks in the full sample

We estimate the effect of negative screening of sin stocks on firm valuation using the following regression specification:

$$Tobin's\ Q_{i,t+1} = \beta_0 + \beta_1 Dummy(X)_{i,t} + \beta_2 IO_{i,t+1} + \beta_3 Log(TA)_{i,t} + \beta_4 ROA_{i,t} + \beta_5 R\&D_{i,t} + \beta_6 Capex_{i,t} + \beta_7 Cash_{i,t} + \beta_8 Dividend_{i,t} + \beta_9 Repurchase_{i,t} + \beta_{10} Debt_{i,t} + \beta_{11} SG\&A_{i,t} + \omega_t + \varepsilon_{i,t}, \quad (2)$$

In Panel A of Table 4, the *Dummy(Sin)* variable has a significant and negative relationship with Tobin's Q if we only control for firm size and firm age. However, this relation becomes insignificant once we control for more firm characteristics (in columns 3 and 5), suggesting that it is important to account for firm fundamentals when assessing the marginal effect of *Dummy(Sin)* on Tobin's Q. The coefficient on *Dummy(Tobacco)* suggests a higher Tobin's Q for tobacco firms in column (2) although that significance disappears in column (4) when additional controls for fundamentals are added. The coefficient on *Dummy(Alcohol)* is positive and significant in column (6). The important takeaway is that we observe no discount in Tobin's Q for sin stocks in our sample when relevant firm fundamentals are controlled for.

In Panel B of Table 4, we interact the *Recent* dummy with *Dummy(Sin)* to detect trends in the potential impact of exclusions on Tobin's Q over the past two decades. We find that the coefficient on the interaction term is negative and statistically significant in column 1 (-0.174, t-value=-3.16), suggesting that the valuation of sin stocks, relative to that of non-sin stocks, is significantly lower in the recent decade than that in the earlier decade. This result is consistent

with our earlier finding that institutional investors appear to take a less favorable view of sin stocks in the recent decade, relative to the earlier decade.

In column 2, we find that the three excluded industries (coal, gaming, and gas and oil) suffer a negative shift in Tobin's Q in the recent decade, while one other excluded industry (alcohol) experiences a positive shift in Tobin's Q. The Tobin's Q of tobacco and gun firms is not different from that of other stocks in the earlier decade. Coal and gas and oil enjoyed a price premium (i.e., higher Tobin's Q) in the earlier decade and these premiums appear to have reversed in the later decade. In columns 3 and 4, we present results using the Market-to-Book ratio as an alternate dependent variable. We find a similar result in column 3 that sin stocks, in general, have a lower valuation in the recent decade.

3.3.2 Comparing firm valuation between sin and non-sin stocks in a matched sample

We test the relationship using a propensity score matched sample which attempts to keep the underlying fundamentals between sin stocks and non-sin stocks as similar as possible (see Table 2 for the construction of the matched sample). Panel C of Table 4 shows that the coefficient on the treatment dummy is positive in columns (3) and (4) but statistically insignificant in columns 1-2, suggesting that negative screening does not hurt the valuation of sin firms in the matched sample. In column 5 (6), we analyze the matched sample in the recent (earlier) decade and find that the treatment sin stocks have a higher Tobin's Q than their matched firms in both decades, although the statistical significance varies (t-value is 2.32 and 1.59 in the recent and the earlier period, respectively). The finding that sin stocks exhibit higher valuations relative to matched non-

sin stocks in the recent decade (as shown in column 5 of Panel C of Table 4) contradicts what we discover in the unmatched sample (i.e., we found a lower Tobin's Q for sin stocks in the unmatched sample in recent decade in panel B). Such a difference illustrates the importance of constructing a reasonable set of benchmark firms when evaluating the fate of sin stocks relative to other firms.

When we analyze firms in each excluded industry and their corresponding matched firms in Panel D of Table 4, the number of observations tends to shrink except for the oil and gas industry. Feeble statistical power, due to small sample size in columns 1 to 5, constrains us from highlighting these results for each of the five excluded industries. Subject to that caveat, the oil and gas industry is viewed more favorably by the market, after controlling for known and observable differences between firms in that industry and for a PSM sample in column 6.

3.3.3 Comparing firm valuation around two shocks in a diff-in-diff approach

To further investigate whether negative screening affects the valuation of sin stocks, we analyze valuations around two "shocks" that affect the likelihood of firms suffering from negative screening. The first shock occurs when a firm switches from a non-exclusion industry into an exclusion industry. Firms report their SIC codes based on major types of business operations. If their major line of business switches from a non-sin business to a sin business, their reported SIC codes change accordingly. The second shock is when a firm is included in a "good" ESG index. Ideally, these two shocks should only affect the likelihood of a firm being screened out by institutional investors without explicitly affecting the performance of such firms.

Panel A of Table 5 presents the difference-in-differences analysis around the entry of firms into the excluded industry. We focus on firms that switch their industry affiliations and we retain observations for the switchers around their switching year. Such industry switching is very rare in that we can only find 11 treatment firms that switch their industry from non-sin to sin category. We construct a sample consisting of both treatment firms and their matched control firms for the years around the treatment firms' event year associated with the switch. Control firms are selected from firms that operate in non-sin industries and do not switch their industries. The *Post(Switching)* variable is a dummy that equals one if the treatment firm has switched to the exclusion industry, and zero before the switch. We find that the coefficient on the interaction term between the treatment and *Post(Switching)* dummy is insignificant. We report results based on a sample consisting of two years before and two years after the event, but the results remain similar if we use a longer window, i.e., [t-3, t+3], or a shorter window, i.e., [t-1, t+1]. We also conduct a difference-in-differences analysis using the inclusion into the Thomson Reuters Best ESG index as the exogenous shock event.[7]

Panel B of Table 5 shows that the inclusion of firms from ESG indexes does not affect firms' Tobin's Q (in an event window from t-2 to t+2). We only concentrate on firms that are newly added to the good-ESG index and we retain observations for these firms around their index addition year to perform the difference-in-differences analysis. Such index additions are also quite rare in that we can find seven treatment firms that are added to the index. We construct a sample

[7] We obtained the annual index constituents of Refinitiv/S-Network US Large-Cap ESG Best Practices Index (TRESGUS) from https://snetworkglobalindexes.com/indexes/refinitiv-s-network-esg-best-practices/data/constituentdata/tresgus.

consisting of both treatment firms and their control firms in a five-year centering on the treatment firms' event year (the results are similar if we use a three-year or seven-year window centering on the event year). Control firms are selected from non-sin firms. These results suggest that negative screening is not correlated with firm valuations, subject to the caveat associated with low statistical power.

3.3.4 Comparing firm fundamentals between sin and non-sin stocks in both full sample and matched sample

In this section, we examine whether and how negative screening affects firm fundamentals. We construct 15 fundamental variables that measure various aspects of firms' policies, e.g., financing, investing and profitability. We regress each of these firm fundamental variables on *Dummy(Sin)* and control variables in both the full sample and the matched sample. Because these fundamental variables are likely correlated with certain control variables for mechanical reasons, we employ two sets of control variables for each dependent variable. Our choice of two sets of control variables also helps to mitigate the concern that our conclusions are only valid when certain variables are (not) controlled for. The short set consists of firm size and firm age (used in odd columns). The long set consists of following additional variables: EBITA/TA, R&D/Sales, Capex/TA, Cash/TA, Dividend/TA, Repurchase/TA, Debt/TA, SG&A/TA (used in the even columns).

Panel A of Table 6 shows the regression results for the full sample. We find that, compared with non-sin stocks, sin stocks are associated with lower sales per unit of assets and higher capital

expenditures to sales. Additionally, sin stocks have fewer employees, lower real sales, greater equity issue events, and more acquisitions. However, we find inconsistent signs associated with a negative screening on certain firm fundamental characteristics (e.g., leverage, debt issues, and retained earnings) after we add additional controls. In Column (17) of Panel A in Table 6, for example, *Dummy(Sin)* is positive and statistically significant correlated with leverage when we control for firm size and age, but the coefficient on *Dummy(Sin)* becomes significant and negative in the leverage regression in Column (18) if we add additional controls other than the two aforementioned control variables. This inconsistent result highlights that conclusions related to the impact of industry exclusion depend on inserting appropriate controls for firms' fundamentals.

We repeat the above analyses using a matched sample (refer to Table 2 for the construction of the matched sample). Panel B of Table 6 shows that many of the significant results in panel A disappear in the matched sample (e.g., total payout, retained earnings, debt issues, and acquisitions). In sum, the results from the full sample and matched sample show that industry exclusion is positively correlated with capital expenditures to sales and equity issues and is negatively correlated with employment and log real sales, highlighting the concern that omitted variables could significantly influence the comparison of fundamental performance between sin stocks and other stocks.

3.4. Difference in cost of capital between sin and non-sin stocks

3.4.1 Difference in stock returns: Fama-Macbeth approach

If negative screening hurts excluded industries, we should observe a lower current stock price for sin stocks and hence a higher future stock return. In this section, we examine the effect of negative screening on firms' monthly stock returns using a Fama-Macbeth approach:

$$Monthly\ Ret_{i,t+1} = \alpha_0 + \alpha_1 Dummy(X)_{i,t} + \alpha_2 Log(TA)_{i,t} + \alpha_3 Log(B/M)_{i,t} + \alpha_4 BHRet_{i,[t-12,t-1]} + \alpha_5 Ret_{i,t} + \omega_t + \varepsilon_{i,t}\ , \quad (3)$$

In Table 7, we present the results using Fama-Macbeth regressions based on month stock returns over 240 months (July 2000 to June 2020). We control for firm size (*log(TA)*), log of market-to-book ratio (*Log(B/M)*), momentum return over the prevailing 11 months ($BHRet_{i,[t-12,t-1]}$), and lagged monthly return ($Ret_{i,,t}$). We find no significant relation between *Dummy(Sin)* and monthly stock returns in columns 1 and 3. In columns 2 and 4 of Table 7, we replace *Dummy(Sin)* with the industry dummy for the six sin stock industries and find that two dummy variables, corresponding to the tobacco industry and gun industry, are positively associated with monthly stock returns (the relation is significant at 5% level). The indicators for the alcohol and gaming industries assume positive but insignificant coefficients. The indicators for coal and gas and oil industries are associated with negative and insignificant coefficients. In un-tabulated analyses, we report Fama-Macbeth results of monthly stock returns in alternative horizons (1980-2020, or 1980-2000) and find qualitatively similar results. The mixed findings for six excluded industries in Table 7 highlight the heterogeneity among different subsets of sin stocks.

3.4.2 Differences in cost of new equity, new debt, and probability of exiting the equity market

We obtain data for seasoned equity offerings of common stocks and debt offerings from Securities Data Company (SDC). If a firm issues new equity (debt) multiple times in a year, we retain the equity (debt) offering with the largest offer value. We examine the effect of negative screening on firms' cost of equity and debt capital using the following specification:

$$Cost\ of\ equity\ (or\ Cost\ of\ debt\ or\ Dummy(Exit))_{i,t+1}$$
$$= \beta_0 + \beta_1 Dummy(X)_{i,t} + \beta_2 IO_{i,t+1} + \beta_3 Log(TA)_{i,t} + \beta_4 EBITDA_{i,t} + \beta_5 R\&D_{i,t}$$
$$+ \beta_6 Capex_{i,t} + \beta_7 Cash_{i,t} + \beta_8 Dividend_{i,t} + \beta_9 Repurchase_{i,t} + \beta_{10} Debt_{i,t}$$
$$+ \beta_{11} SG\&A_{i,t} + \beta_{12} Log(Age)_{i,t} + \omega_t + \varepsilon_{i,t}$$

In Columns (1) and (3) of Panel A in Table 8, we regress the cost of new equity, which equals (the last-day closing price minus offer price) /last-day closing price, on the *Dummy(Sin)* and control variables. In unreported analysis, we find 375 SEOs of sin firms in our sample (the numbers of SEOs are 5, 6, 30, 5, 15, and 314 for tobacco, alcohol, gaming, gun, coal, and gas and oil firms, respectively). We find that negative screening does not affect firms' cost of equity capital in column 1. When we analyze the effect of six exclusion industry dummies in columns 2 and 4, firms from the tobacco industry enjoy a lower cost of equity capital compared with firms from other industries. The result is counter to the commonly held perception in the ESG community that negative screening increases the cost of equity for sin stocks. The other five excluded industries do not significantly differ from other industries in column 2.

To provide supplementary information about the overall cost of fundraising, we present an analysis associated with the cost of new debt in panel B. The dependent variable is the yield of

fixed-rate debt issued (for cases with multiple instances of debt issuance, we consider the value for the issuance with the largest face debt value). We find that the coefficient on the *Dummy(Sin)* is positive and statistically significant in columns 1 and 3, suggesting that sin stocks have a higher cost of debt relative to other firms. In columns 2 and 4, we find that this positive effect of exclusion on the cost of new debt is mainly driven by firms from the tobacco, gaming, coal, and gas and oil industries. The positive effect of a negative screen on the cost of debt is consistent with our earlier finding that sin stocks are associated with lower (larger) leverage ratios (equity issues) relative to non-sin stocks in the matched sample. In unreported analysis, we find 704 new debt issuances of sin firms in our sample (the numbers of new debt are 41, 37, 80, 20, 27, and 499 for tobacco, alcohol, gaming, gun, coal, and gas and oil firms, respectively).

Additionally, we investigate the effect of negative screening on the likelihood of firms exiting the public capital market and report the results in Panel C of Table 8. We define a firm's exit from the capital market (*Dummy(Exit)*) as a dummy variable that equals one if the firm is in the CRSP dataset in fiscal year *t* but not in fiscal year *t*+1 and zero otherwise. We estimate a logit regression by regressing *Dummy(exit)* on *Dummy(Sin)* and a battery of controls. Columns (1) and (3) of Panel C in Table 8 show, on average, that negative screening does not affect the likelihood of firms exiting the capital market. When we analyze each excluded industry separately in columns (2) and (4), firms from coal and gas and oil industries have a higher delisting likelihood than other firms (marginally significant), while firms in the other four excluded industries do not differ from other firms in the likelihood of getting delisted.

3.4.3 Difference in announcement returns around socially irresponsible news

In this section, we examine the market reaction to ESG-related news and investigate whether investors react differently to the news of sin stocks and non-sin stocks. We obtain firm-specific negative ESG-related news from the RepRisk database, which dynamically captures and quantifies reputational risk exposure related to ESG issues. This data has been used by many papers in the prior literature (e.g., Gantchev, Giannetti, and Li, 2022).

Panel A of Table 9 reports that the three-day CAPM adjusted return and Fama-French-Carhart-4-factor adjusted return around the announcement of negative ESG news of firms in the exclusion industries is negative but not statistically significantly different from zero, except for the coal industry where the market does react negatively. The four-factor abnormal announcement return for firms in non-exclusion industries is uniformly negative and significantly different from zero (-0.093%, t-statistic = -6.36). However, Panel B of Table 9 shows that the coefficient on the *Dummy(Sin)* is statistically insignificant in a multivariate regression. We control for three news features, including the novelty, reach, and severity of news when analyzing the incremental effect of negative screening on the announcement returns.

Panels C, D, and E report announcement return results based on three subsets of negative news related to the environment, society, and governance, respectively. We find that sin stocks have similar announcement returns around environment or society-related negative ESG news, i.e., the coefficient on the *Dummy(Sin)* is statistically insignificant in panels C and D. We find some limited evidence that sin stocks have larger announcement returns than non-sin firms around

governance-related news, i.e., the coefficient on the *Dummy(Sin)* is positive and marginally statistically in columns 1 and 3 in Panel E. In sum, the stock market does not appear to price bad ESG news differently for sin stocks relative to non-sin stocks.

3.5. Difference in shareholder proposals targeting sin and non-sin stocks

Instead of divesting the shares of sin stocks, investors can engage with firm management via a low-cost type of activism, i.e., proxy voting. We investigate whether the voting behavior of investors differs for sin stocks relative to non-sin stocks. We obtain firm-level shareholder voting data from Institutional Shareholder Services (ISS), which covers all types of proposals since 2003 (sponsored by either firm management or shareholders). This data is widely used in the literature (e.g., Aggarwal, Dahiya, and Prabhala, 2019) and allows us to quantify the number of ESG-related proposals voted on (i.e., all ESG-related proposals are submitted to the firm to be voted in the annual meetings by shareholders) and the number of ESG-related proposals passed. While ESG-related proposals are non-binding, the submission of the proposals and voting thereof can reveal the nature and efficacy of investor activism.

Table 10 reports the results. The dependent variables are the number of ESG proposals voted and the number of ESG proposals passed in panels A and B, respectively. A proposal will pass if the number of shares voting for it exceeds the threshold required by the firm, normally 50% of the total votes. We find that the coefficients on *Dummy(Sin)* in columns 1 and 3 in Panel A are positive and significant, suggesting that investors are more likely to engage in activism with sin firms relative to non-sin firms by submitting more proposals. In columns 2 and 4 of Panel A, we

find that the larger number of voted ESG proposals is mainly driven by sin firms in the tobacco, gun, coal, and gas or oil industries. Moreover, the number of passed ESG-related proposals is higher for sin stocks relative to non-sin stocks in Panel B, indicating that shareholders of sin stocks successfully convey their opinions to firm management as evidenced by the passage of ESG proposals. Although ESG proposals are normally non-binding, i.e., firms do not have to implement passed proposals, such passed ESG proposals potentially signal joint interest from the majority of shareholders in promoting ESG issues. The alternate hypothesis is that holders of sin stocks indulge in virtue signaling.

4. Conclusions

We revisit the firm value and pricing implications of the negative screen of sin stocks. Unlike Hong and Kacperczyk (2009), we find that after controlling for variations in firm characteristics (i) sin stocks are not undervalued relative to other stocks; and (ii) institutional ownership in sin stocks is not statistically distinguishable from those of no sin stocks. Sin stocks do not differ in the likelihood of exiting the public market, the cost of raising new equity, and the announcement returns upon negative ESG news relative to other stocks. However, the cost of new debt is higher for sin stocks. Finally, we find that investors submit more ESG proposals for voting in annual meetings, and a larger number of ESG proposals are passed, indicating that investors are either actively trying to improve ESG profiles of sin stocks or alternatively indulging in virtue-signaling of their own.

In sum, the oft-repeated assertion that negative screening hurts sin stocks does not appear to be held in the data when differences between firm fundamentals of sin stocks and non-sin stocks are held constant.

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Table 1. Summary statistics

This table presents firm-year level statistics. *Tobin's Q* equals (Market value of equity + Total Liability + Preferred Stock - deferred taxes and investment tax credit (if available))/Total Asset. *M/B* equals the Market value of equity/Book common equity. Exclusion industries are defined based on Fama-French-48 industry codes (FF48) and NAICS. *Dummy(Tobacco)* equals one for tobacco stocks (FF48=5), and zero otherwise. *Dummy(Alcohol)* equals one for alcohol stocks (FF48=4), and zero otherwise. *Dummy(Gun)* equals one for gun stocks (FF48=26), and zero otherwise. *Dummy(Coal)* equals one for coal stocks (FF48=29), and zero otherwise. *Dummy(gas & oil)* equals one for gas & oil stocks (FF48=30) , and zero otherwise. We identify gaming stocks following Hong and Kacperczyk (2009) using NAICS codes: *Dummy(Gaming)* equals one for gaming stocks, i.e., firms that have the following NAICS codes: 7132, 71312, 713210, 71329, 713290, 72112, and 721120. *Dummy(Sin)* is an indicator that equals one for firms operating in any of the six exclusion industries (in year t), and zero otherwise. *IO (total)* equals the number of shares held by institutions scaled by shares outstanding (average across four quarters in a year). *Number of institutional investors*$_{t+1}$ is the number of institutional investors holding the share of the stock in t+1. Return on Sales (*ROS*) = Net Income /Sales. Return on Assets (*ROA*) equals Net Income/Assets. Return on Equity (*ROE*) equals Net Income/ Equity. Sales Efficiency (*SALEFF*) equals Sales/assets. Operating efficiency (*OPERFF*) equals Net Income/employees. Capital Expenditures to Sales (*CESA*) equals Capital Expenditures/ sales. *Log Real sales* equals log nominal sales/CPI. *Employment* equals the logarithm of the number of employees (in million). *Leverage* equals Long-term debt to equity. *Dividend Payouts* equals Cash dividends/assets. *Total Payout*s equals (cash dividends + stock repurchases)/ assets. *Equity Issue* equals equity capital raised in a year relative to assets. *Debt Issue* equals debt capital raised in a year relative to assets. *Retained earnings pct* equals retained earnings as a proportion of lagged assets. *Acquisition Pct* equals acquisition expense as a proportion of lagged sales. *LogAge* is defined as the natural logarithm of the number of months of CRSP listing since December 1972 (the starting date for CRSP Nasdaq return data). *Beta* is estimated as the sum of the coefficients in regression of the firm's monthly return on the contemporaneous and lag one-month CRSP NYSE-AMEX value-weighted index over the previous 24 to 60 months (depending on availability). *Standard deviation is* estimated as the natural logarithm of the standard deviation of returns over the previous 24 to 60 months (depending on availability). *Dividend yield* is measured as the natural logarithm of one plus the average monthly dividend yield over the previous 12 months. *LogPrice* is measured as the natural logarithm of one plus the quarter-end share price. *Lag return* is the cumulative months in the past 6 months. Sample period: 2000-2019.

variable	N	mean	sd	p25	p50	p75
Dependent variables						
Tobin's Q	59,676	1.996	1.581	1.084	1.473	2.266
Mkt Equity/Book Equity	59,674	2.749	4.767	1.053	1.82	3.302
Institution Own. (total)$_{t+1}$	59,676	0.516	0.31	0.237	0.562	0.781
Number of institutional investors$_{t+1}$	59,676	133.152	184.784	22.5	81.5	161.75
Log (Number of institutional investors)$_{t+1}$	59,676	4.133	1.381	3.157	4.413	5.092
Dummy(Sin)t	59,676	0.059	0.236	0	0	0
Dummy(Tobacco)	59,676	0.002	0.041	0	0	0
Dummy(Alcohol)	59,676	0.004	0.064	0	0	0
Dummy(Gaming)	59,676	0.006	0.079	0	0	0

Dummy(Gun)	59,676	0.003	0.05	0	0	0
Dummy(Coal)	59,676	0.002	0.044	0	0	0
Dummy(Gas and oil)	59,676	0.042	0.201	0	0	0
ROS	59,447	-0.852	5.761	-0.062	0.028	0.079
ROA	59,665	-0.036	0.246	-0.056	0.029	0.078
ROE	57,170	-0.065	0.571	-0.101	0.065	0.153
SALEFF	59,668	1.109	0.835	0.522	0.927	1.469
OPERFF	58,974	-26.763	281.904	-14.063	5.747	25.439
CESA	59,667	0.132	0.41	0.017	0.036	0.081
Log real sales	59,447	5.614	2.342	4.122	5.75	7.207
Employment	58,929	0.329	2.15	-1.238	0.382	1.87
Leverage	59,676	0.469	1.252	0	0.113	0.417
Dividend payout	59,676	0.009	0.024	0	0	0.01
Total payout	59,676	0.03	0.058	0	0.004	0.032
Equity Issue	59,676	0.031	0.159	-0.007	0	0.01
Debt Issue	59,676	0.011	0.109	-0.02	0	0.032
Retained Earning Pct	59,516	-0.608	2.314	-0.451	0.095	0.364
Acquisition Pct	59,676	0.043	0.153	0	0	0.011
Lagged Control variables						
Log(TA)	59,676	6.082	2.098	4.522	6.004	7.52
Log(Age)	59,676	4.923	0.911	4.317	5.081	5.7
EBITDA/TA	59,676	0.064	0.238	0.028	0.109	0.177
R&D/TA	59,676	0.457	2.831	0	0.002	0.088
Capex/TA	59,676	0.05	0.056	0.015	0.032	0.062
Cash/TA	59,676	0.208	0.231	0.033	0.115	0.307
Dividend/TA	59,676	0.009	0.023	0	0	0.009
Repurchase/TA	59,676	0.019	0.043	0	0	0.013
Debt/TA	59,676	0.219	0.216	0.013	0.179	0.347
SG&A/Sale	59,676	0.28	0.275	0.08	0.208	0.393
Beta(t)	59,577	1.471	1.172	0.712	1.28	2.014
LogPrice(t)	59,330	2.505	1.316	1.641	2.703	3.48
Standard Deviation(t)	59,576	-1.964	0.526	-2.332	-1.968	-1.597
Return(t)	59,337	0.037	0.429	-0.206	0.006	0.214
Dividend yield(t)	59,389	0.001	0.002	0	0	0.001
B/M(t)	59,661	0.642	0.741	0.259	0.491	0.838

Table 2. Constructing a matched sample based on a propensity score matching

This table reports the univariate comparison of firm fundamentals for a matched sample. *Treatment* equals one for firms operating in any of the six excluded industries, and zero for control firms. The control firms are selected from non-sin firms with a propensity score matching procedure. We match each sin stock in the exclusion industries (i.e., treatment firm) to one control firm with the closest propensity score to the treatment firm (we require the difference in the propensity score between treatment and control firms to be less than 0.1). The propensity score is estimated each year by regressing an indicator for industry exclusion on lagged firm size (total asset), lagged ROA, firm age, Lag Capex/TA, Lag R&D/Sale, Lag Beta, Lag LogPrice, Lag Standard Deviation, Lag Annual Return, Lag Dividend yield, and Lag B/M. There are 382 unique treatment firms and an equal number of control firms. Sample period: 2000-2019.

	Treatment		Control firms		Treatment - Control	
Variable	mean	median	mean	median	diff. in mean	t-Value
Lag Log(TA)	6.608	6.92	6.632	6.784	-0.024	-0.15
Lag ROA	0.096	0.138	0.113	0.137	-0.017	-1
Lag Firm Age	4.679	4.824	4.603	4.723	0.076	1.04
Lag Capex/TA	0.091	0.072	0.081	0.067	0.01	1.81
Lag R&D/Sale	0.159	0	0.059	0	0.1	1.01
Lag Beta	1.423	1.175	1.337	1.143	0.086	0.89
Lag LogPrice	2.512	2.753	2.559	2.853	-0.047	-0.47
Lag Standard Deviation	-1.942	-1.971	-2.049	-2.015	0.107	2.97
Lag Annual Return	0.246	0.146	0.218	0.061	0.028	0.46
Lag Dividend yield	0.001	0	0.001	0	0	-0.74
Lag B/M	0.718	0.567	0.718	0.57	-0.001	-0.01

Table 3. The relation between negative screening and institutional ownership in the past two decades

This table reports the relation between industry exclusion and total institutional ownership. *IO (total)* $_{t+1}$ equals the number of shares held by all institutions scaled by the number of the firm's outstanding shares in year t+1. *Dummy(Sin)* is an indicator that equals one for firms operating in any of the six exclusion industries (tobacco, alcohol, gaming, gun, coal, and gas & oil, and zero for firms not in these exclusion industries. *Recent* is an indicator that equals one if the dependent variable is measured in the recent decade (2010 to 2019), and zero if the dependent variable is measured in the earlier decade (2000 to 2009). We control for a set of determinants of institutional ownership constructed following Bennett, Sias, and Starks (2003), including *LogAge, Beta, Standard Deviation, LogPrice, Dividend yield,* and *Lag Return*. *LogAge* is defined as the natural logarithm of the number of months of CRSP listing since December 1972 (the starting date for CRSP Nasdaq return data). *Beta* is estimated as the sum of the coefficients in regression of the firm's monthly return on the contemporaneous and lag one-month CRSP NYSE-AMEX value-weighted index over the previous 24 to 60 months (depending on availability). *Standard deviation* is estimated as the natural logarithm of the standard deviation of returns over the previous 24 to 60 months (depending on availability). *Dividend yield* is measured as the natural logarithm of one plus the average monthly dividend yield over the previous 12 months. *LogPrice* is measured as the natural logarithm of one plus the quarter-end share price. *Lag return* is the cumulative months in past 6 months. We also control for *Log(TA),* the log of total firm assets and *B/M,* the book-to-market ratio. *Treatment* equals one for firms operating in any of the six excluded industries, and zero for control firms. All control variables are lagged by one year. The sample consists of all U.S. listed firms over the period from 2000 to 2019. The unit of analysis is a firm-year observation. ***, ** and * represent significance levels at 1%, 5%, and 10%, respectively.

Panel A: Firm-year level analysis over 2000-2019 (full sample)

Dep. Variable:	IO (total) $_{t+1}$				Log (Number of institutional investors) $_{t+1}$			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dummy(Sin)	-0.074***		-0.059***		-0.221***		-0.143***	
	(-5.96)		(-5.00)		(-5.55)		(-3.63)	
Dummy(Tobacco)		-0.225***		-0.170***		0.083		0.110
		(-4.72)		(-4.64)		(0.66)		(1.01)
Dummy(Alcohol)		-0.227***		-0.228***		-0.673*		-0.611*
		(-3.42)		(-3.80)		(-1.95)		(-1.80)
Dummy(Gaming)		-0.103***		-0.082**		-0.345***		-0.248***
		(-3.26)		(-2.58)		(-4.58)		(-3.08)
Dummy(Gun)		-0.043		-0.052		-0.207		-0.230
		(-0.97)		(-1.26)		(-0.95)		(-1.33)
Dummy(Coal)		-0.048		-0.033		-0.411***		-0.416**
		(-1.07)		(-0.76)		(-2.87)		(-2.56)
Dummy(Gas and oil)		-0.052***		-0.036***		-0.161***		-0.072**
		(-3.76)		(-2.71)		(-4.42)		(-1.99)
Log(TA)t	0.087***	0.087***	0.047***	0.047***	0.523***	0.523***	0.423***	0.423***
	(50.52)	(50.47)	(21.93)	(21.65)	(115.31)	(114.95)	(72.84)	(71.58)
Log(Age)t	-0.014***	-0.014***	-0.014***	-0.014***	0.005	0.005	0.024***	0.024***
	(-4.91)	(-4.85)	(-5.15)	(-5.18)	(0.53)	(0.58)	(2.94)	(2.95)
ROAt			0.072***	0.071***			-0.100***	-0.103***
			(7.90)	(7.76)			(-3.32)	(-3.49)
Beta(t)			0.009***	0.009***			0.036***	0.036***

			(5.55)	(5.60)			(6.93)	(6.98)
LogPrice(t)			0.109***	0.109***			0.314***	0.314***
			(30.03)	(30.01)			(30.43)	(30.45)
Standard Deviation(t)			0.053***	0.051***			0.204***	0.199***
			(7.51)	(7.17)			(9.71)	(9.45)
Return(t)			-0.036***	-0.036***			-0.019**	-0.017*
			(-11.85)	(-11.70)			(-2.03)	(-1.91)
Dividend yield(t)			-9.147***	-9.067***			-6.406***	-6.862***
			(-7.37)	(-7.34)			(-2.60)	(-2.77)
B/M(t)			-0.010***	-0.010***			-0.252***	-0.251***
			(-3.58)	(-3.61)			(-24.16)	(-24.16)
Constant	0.064***	0.063***	0.132***	0.130***	0.949***	0.949***	1.191***	1.184***
	(3.99)	(3.93)	(7.62)	(7.47)	(21.27)	(21.38)	(24.46)	(24.60)
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	59,350	59,350	59,350	59,350	59,350	59,350	59,350	59,350
R-squared	0.38	0.38	0.49	0.49	0.67	0.67	0.75	0.75

Panel B: Recent decade (2010-2019) vs. earlier decade (2000-2009) (full sample)

Dep. Variable:	IO (total)$_{t+1}$		Log (Number of institutional investors)$_{t+1}$	
	(1)	(2)	(3)	(4)
*Recent*Dummy(Sin)*	-0.036**		-0.135**	
	(-2.28)		(-2.37)	
*Recent*Dummy(Tobacco)*		-0.041		0.337
		(-0.57)		(1.36)
*Recent*Dummy(Alcohol)*		-0.099**		-0.200
		(-2.21)		(-0.75)
*Recent*Dummy(Gaming)*		-0.021		-0.064
		(-0.42)		(-0.39)
*Recent*Dummy(Gun)*		-0.190***		-0.685***
		(-2.93)		(-2.64)
*Recent*Dummy(Coal)*		-0.102		-0.597*
		(-0.92)		(-1.71)
*Recent*Dummy(Gas and oil)*		-0.019		-0.112*
		(-1.05)		(-1.81)
Dummy(Sin)	-0.043***		-0.082**	
	(-3.57)		(-2.34)	
Dummy(Tobacco)		-0.149**		-0.067
		(-2.42)		(-0.38)
Dummy(Alcohol)		-0.183***		-0.519*
		(-3.48)		(-1.83)
Dummy(Gaming)		-0.073**		-0.222***
		(-2.08)		(-2.70)
Dummy(Gun)		0.034		0.081
		(0.96)		(0.61)
Dummy(Coal)		0.009		-0.168
		(0.21)		(-1.08)
Dummy(Gas and oil)		-0.027**		-0.020
		(-2.02)		(-0.62)
Control variables	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y
Observations	59,350	59,350	59,350	59,350
R-squared	0.49	0.49	0.75	0.75

Panel C: Comparison of total IO and IO by subsets of institutions in the matched sample

	Treatment		Control firms		Treatment - Control	
Variable	mean	median	mean	median	diff. in mean	t-Value
IO (total)	0.501	0.549	0.518	0.53	-0.018	-0.77
IO (Bank trusts)	0.079	0.07	0.074	0.062	0.005	1.07
IO (Insurance)	0.022	0.016	0.025	0.017	-0.002	-1.19
IO (Inv. companies)	0.077	0.058	0.081	0.066	-0.004	-0.81
IO (Ind. invest. advisors)	0.299	0.298	0.316	0.28	-0.017	-1.12
IO (Pension & other)	0.037	0.03	0.036	0.028	0.001	0.14
IO (Dedicated)	0.054	0.015	0.055	0.018	-0.001	-0.09
IO (Quasi-indexer)	0.304	0.276	0.324	0.288	-0.020	-1.21
IO (Transient)	0.142	0.124	0.139	0.118	0.003	0.40

Table 4: The effect of negative screening on firm valuation

This table reports the effect of firms' industry exclusion status on the firm's Tobin's Q in the next year. Panels A and B present the comparison of Tobin's Q based on the full sample, consisting of sin firms and all non-sin firms. *Dummy(Sin)* is an indicator that equals one for firms operating in any of the six exclusion industries (tobacco, alcohol, gaming, gun, coal, and gas & oil, and zero for firms not in these exclusion industries. Panel C presents the results based on the matched sample for all treatment firms. In panel C, *Treatment* equals one for firms operating in any of the six excluded industries, and zero for control firms (i.e., matched non-sin firms). Panel D presents the comparison of Tobin's Q between treatment firms in each of the six excluded industries and corresponding control firms in the matched sample. In panel C, *Treatment* equals one for firms operating in the excluded industry as specified at the top of the table, and zero for control firms (i.e., matched non-sin firms). All control variables are lagged by one year relative to the dependent variable. We use OLS regression and control for year fixed effects. Sample period: 2000-2019. ***, ** and * represent significance levels at 1%, 5%, and 10%, respectively.

Panel A: The effect of firms' industry exclusion status on the firm's Tobin's Q (full sample)

Dep. Variable:	Tobin's $Q_{(t+1)}$					
	(1)	(2)	(3)	(4)	(5)	(6)
Dummy(Sin)	-0.280***		-0.056		-0.009	
	(-5.61)		(-1.29)		(-0.21)	
Dummy(Tobacco)		1.601***		0.621		0.741
		(3.03)		(1.25)		(1.52)
Dummy(Alcohol)		-0.049		0.201		0.357**
		(-0.19)		(1.38)		(2.47)
Dummy(Gaming)		-0.350***		-0.202**		-0.148
		(-2.72)		(-2.09)		(-1.45)
Dummy(Gun)		0.214		0.286		0.322
		(0.58)		(0.87)		(0.94)
Dummy(Coal)		-0.399***		0.031		0.039
		(-7.40)		(0.54)		(0.51)
Dummy(Gas and oil)		-0.389***		-0.126***		-0.095**
		(-8.92)		(-3.04)		(-2.27)
Log(TA)t	-0.127***	-0.127***	-0.020**	-0.021***	-0.085***	-0.087***
	(-13.49)	(-13.61)	(-2.53)	(-2.61)	(-9.16)	(-9.26)
Log(Age)t	-0.133***	-0.133***	-0.047***	-0.046***	-0.039***	-0.038***
	(-8.33)	(-8.41)	(-3.36)	(-3.31)	(-2.79)	(-2.73)
ROAt			-0.410***	-0.409***	-0.584***	-0.585***
			(-3.90)	(-3.90)	(-5.54)	(-5.56)
R&D/Salet			0.018***	0.018***	0.017***	0.016***
			(3.01)	(2.99)	(2.76)	(2.73)
Capex/TAt			1.936***	2.061***	1.819***	1.969***
			(10.06)	(10.53)	(9.49)	(10.15)
Cash/TAt			2.424***	2.425***	2.288***	2.288***
			(28.80)	(28.78)	(27.62)	(27.59)
Dividend/TAt			8.901***	8.708***	9.566***	9.358***
			(12.04)	(11.54)	(13.10)	(12.56)
Repurchase/TAt			5.528***	5.513***	5.213***	5.192***
			(15.98)	(15.93)	(15.15)	(15.08)
Debt/TAt			0.574***	0.574***	0.641***	0.641***
			(7.53)	(7.49)	(8.49)	(8.44)

SG&A/TAt			0.889***	0.881***	0.861***	0.851***
			(13.14)	(13.06)	(12.89)	(12.78)
Institution Own. (total)t+1					0.741***	0.748***
					(15.84)	(15.97)
Constant	3.437***	3.445***	1.218***	1.217***	1.228***	1.227***
	(40.41)	(40.59)	(14.42)	(14.44)	(14.51)	(14.52)
Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	59,676	59,676	59,676	59,676	59,676	59,676
R-squared	0.06	0.06	0.24	0.24	0.25	0.25

Panel B: Recent decade (2010-2019) vs. earlier decade (2000-2009) (full sample)

Dep. Variable:	Tobin's $Q_{(t+1)}$		$M/B_{(t+1)}$	
	(1)	(3)	(2)	(4)
*Recent*Dummy(Sin)*	-0.174***		-0.678***	
	(-3.16)		(-2.93)	
*Recent*Dummy(Tobacco)*		0.394		-3.607
		(1.53)		(-1.29)
*Recent*Dummy(Alcohol)*		0.760**		1.493
		(2.51)		(1.56)
*Recent*Dummy(Gaming)*		-0.231**		0.119
		(-2.52)		(0.11)
*Recent*Dummy(Gun)*		0.001		1.339
		(0.00)		(0.73)
*Recent*Dummy(Coal)*		-0.419***		-3.111***
		(-2.93)		(-5.38)
*Recent*Dummy(Gas and oil)*		-0.288***		-0.890***
		(-5.08)		(-4.83)
Dummy(Sin)	0.025		0.264**	
	(0.53)		(2.06)	
Dummy(Tobacco)		0.413		1.554*
		(0.82)		(1.88)
Dummy(Alcohol)		-0.149		0.022
		(-1.32)		(0.06)
Dummy(Gaming)		-0.104		-0.200
		(-1.12)		(-0.54)
Dummy(Gun)		0.286		1.046
		(0.79)		(1.42)
Dummy(Coal)		0.205***		1.669***
		(2.60)		(3.20)
Dummy(Gas and oil)		0.009		0.162
		(0.19)		(1.16)
Control variables	Y	Y	Y	Y
Year Fixed Effects	Y	Y	Y	Y
Observations	59,676	59,676	59,675	59,675
R-squared	0.24	0.24	0.06	0.06

Panel C: The effect of industry exclusion (i.e., treatment) on Tobin's Q (matched sample)

Dependent var.	Tobin's $Q_{(t+1)}$					
	(1)	(2)	(3)	(4)	(5)	(6)
	All exclusion industries vs. all controls					
Sample:	Full sample (2000-2019)				Recent period (2010-2019)	Early period (2000-2009)
Treatment	0.184	0.139	0.261**	0.262**	0.316**	0.204
	(1.34)	(1.20)	(2.52)	(2.54)	(2.32)	(1.59)
Lag Log(TA)		-0.102***	-0.068**	-0.098***	-0.070*	-0.078*
		(-3.04)	(-2.09)	(-2.89)	(-1.67)	(-1.93)
Lag ROA		-1.643**	-1.291**	-1.365**	-2.046***	-0.874
		(-2.45)	(-2.38)	(-2.48)	(-3.27)	(-1.04)
Lag Firm Age		0.045	0.039	0.034	0.048	-0.023
		(0.62)	(0.67)	(0.58)	(0.64)	(-0.30)
Lag Capex/TA		0.152	1.545**	1.375*	3.089***	0.390
		(0.20)	(2.13)	(1.88)	(2.60)	(0.44)
Lag R&D/Sale		0.092	0.077	0.076	0.064*	2.435***
		(1.26)	(1.31)	(1.32)	(1.68)	(4.45)
Lag Cash/TA			1.564***	1.505***	1.430**	1.174*
			(2.93)	(2.85)	(2.03)	(1.76)
Lag Div/TA			14.424***	15.090***	15.560***	11.744**
			(5.49)	(5.66)	(5.97)	(1.98)
Lag Repurchase/TA			4.971***	4.875***	9.126***	2.497*
			(3.48)	(3.41)	(3.43)	(1.90)
Lag Debt/TA			0.626**	0.656**	1.198***	-0.117
			(2.15)	(2.25)	(3.17)	(-0.35)
Lag SG&A/TA			1.307***	1.283***	1.799***	0.817**
			(3.46)	(3.42)	(3.00)	(2.13)
Lag IO(Total)				0.319*	0.410*	0.152
				(1.65)	(1.78)	(0.62)
Constant	1.664***	2.305***	1.047**	1.130***	0.321	1.834***
	(24.02)	(6.84)	(2.58)	(2.78)	(0.59)	(3.86)
Year fixed effects	Y	Y	Y	Y	Y	Y
Observations	764	764	764	761	304	457
R-squared	0.04	0.19	0.35	0.35	0.54	0.28

Panel D: The effect of each exclusion industry (i.e., treatment) on Tobin's Q (matched sample)

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Tobacco vs control	Alcohol vs control	Gaming vs control	Gun vs control	Coal vs control	Gas and Oil vs control
Treatment	0.794	0.049	0.142	0.857	-0.292	0.242**
	(0.81)	(0.15)	(0.54)	(0.79)	(-1.02)	(2.19)
Lag Log(TA)	-0.072	-0.145	-0.015	0.185	-0.155	-0.103***
	(-0.26)	(-1.37)	(-0.32)	(0.47)	(-0.68)	(-2.70)
Lag ROA	-1.058	0.137	2.972	-3.393	2.277	-1.050
	(-0.27)	(0.09)	(1.61)	(-0.10)	(1.01)	(-1.48)
Lag Firm Age	0.244	-0.074	-0.317*	-2.671	-0.529	-0.001
	(0.55)	(-0.33)	(-1.78)	(-0.50)	(-1.15)	(-0.01)
Lag Capex/TA	79.562	1.341	-1.245	6.479	4.989	0.835
	(0.58)	(0.35)	(-0.39)	(0.06)	(0.98)	(1.09)
Lag R&D/Sale	1.454		-0.802	0.167		0.934**
	(1.61)		(-0.26)	(0.41)		(2.07)
Lag Cash/TA	-3.593	-1.165	2.889**	-5.169	2.431	1.188*
	(-1.09)	(-1.49)	(2.10)	(-2.39)	(1.46)	(1.78)
Lag Div/TA	6.011	19.086	9.351**	32.514	29.782	16.376***
	(1.75)	(1.54)	(2.63)	(1.42)	(1.46)	(4.15)
Lag Repurchase/TA	9.815	12.422***	3.349**	-13.362	-2.683	3.070*
	(0.95)	(4.04)	(2.09)	(-0.88)	(-0.98)	(1.91)
Lag Debt/TA	-0.144	2.074**	-0.328	2.532	-0.892	0.403
	(-0.10)	(2.14)	(-0.71)	(0.91)	(-1.12)	(1.35)
Lag SG&A/TA	3.113*	1.299*	1.097**	4.165	-0.266	0.891**
	(2.00)	(1.92)	(2.15)	(0.87)	(-0.27)	(2.10)
Constant	-0.703	1.749*	2.283**	13.742	4.318**	1.669***
	(-0.23)	(1.84)	(2.32)	(0.45)	(2.40)	(4.17)
Year fixed effects	Y	Y	Y	Y	Y	Y
Observations	30	80	104	22	32	496
R-squared	0.93	0.51	0.58	0.98	0.80	0.42

Table 5: Two shocks to negative screening: Two Difference-in-differences analyses

This table presents firms' Tobin's Q around two shocks to negative screening. In Panel A, treatment firms are those switching from a non-exclusion industry (*t*-1) to an exclusion industry (in year *t*). *Post(Switching)* equals one if the treatment firm has switched to the exclusion industry(i.e., *t* to *t*+3), and zero if it is before the switching (i.e., *t*-1). *Treatment* equals one for firms that just switch from non-sin to sin industries in the event year (*t*), and zero for matched non-sin firms. In Panel B, treatment firms are sin firms newly added to Thomson Reuters Best ESG index in year *t*. *Post(Index_Addition)* equals one after the treatment firms' addition to the Best-ESG index (i.e., *t* to *t*+2), and zero if it is before the index addition. In both panels, we keep two years around each event, i.e., [t-2, t+2] (for both treatment and their matched non-sin firms), and implement a diffidence-in-differences analysis. *Treatment* equals one for treatment firms, and zero for matched non-sin firms. We use a propensity score matching procedure as described in Table 2 to find the matched firms. In both panels, control firms are non-sin firms that have the closest propensity to the treatment sin firms. We control for event year fixed effects in all specifications. ***, ** and * represent significance levels at 1%, 5%, and 10%, respectively.

Panel A: Diff-in-diff analysis around firms' switching into the exclusion industries

Dependent var.	Tobin's Q		
	(1)	(2)	(3)
Treatment Post(Switching)*	-0.157	0.200	0.169
	(-0.42)	(0.73)	(0.64)
Post(Switching)	0.652	0.114	0.215
	(0.83)	(0.31)	(0.63)
Treatment	-0.073	-0.233	-0.276
	(-0.57)	(-0.98)	(-1.08)
Lag Log(TA)		-0.007	-0.042
		(-0.06)	(-0.31)
Lag ROA		-2.450**	-2.407**
		(-2.17)	(-2.26)
Lag Firm Age		0.141	0.196
		(0.49)	(0.61)
Lag Capex/TA		-3.337	-3.440
		(-1.58)	(-1.69)
Lag R&D/Sale		0.009	-0.010
		(0.05)	(-0.06)
Lag Cash/TA		0.217	0.331
		(0.13)	(0.22)
Lag Div/TA		22.580	23.456
		(1.19)	(1.21)
Lag Repurchase/TA		0.654	-0.103
		(0.24)	(-0.04)
Lag Debt/TA		0.390	0.571
		(0.30)	(0.41)
Lag SG&A/TA		3.708***	3.578***
		(12.08)	(10.93)
Lag IO			0.418
			(0.87)
Constant	1.623***	0.794	0.496
	(6.36)	(0.56)	(0.31)
Year fixed effects	Y	Y	Y

Observations	96	87	87
R-squared	0.12	0.78	0.78

Panel B: Diff-in-diff analysis around sin firms' inclusion into a Best-ESG index

Dependent var.	Tobin's Q		
	(1)	(2)	(3)
Treatment Post(Index_Addition)*	0.027	0.097	0.011
	(0.14)	(0.50)	(0.06)
Post(Index_Addition)	0.398*	0.773**	0.931***
	(2.17)	(2.82)	(3.18)
Treatment	-0.282	-0.265**	-0.189*
	(-1.59)	(-2.27)	(-1.98)
Lag Log(TA)		-0.467***	-0.519***
		(-3.12)	(-3.35)
Lag ROA		-1.795	-2.163**
		(-1.63)	(-2.26)
Lag Firm Age		0.110	0.103
		(0.48)	(0.40)
Lag Capex/TA		0.670	2.136
		(0.33)	(0.73)
Lag R&D/Sale		-72.735***	-69.403***
		(-3.47)	(-3.19)
Lag Cash/TA		1.350	2.827
		(0.74)	(0.98)
Lag Div/TA		32.118	11.473
		(1.41)	(0.31)
Lag Repurchase/TA		1.513	1.333
		(0.91)	(0.90)
Lag Debt/TA		1.680**	2.080*
		(2.33)	(2.02)
Lag SG&A/TA		1.663	3.500
		(1.21)	(1.37)
Lag IO			-2.304
			(-1.02)
Constant	1.488***	4.657	6.687**
	(10.73)	(1.78)	(2.28)
Year fixed effects	Y	Y	Y
Observations	68	68	68
R-squared	0.32	0.51	0.53

Table 6: The effect of negative screening on fifteen firm fundamental measures

The table reports the effect of exclusion on 15 fundamental measures: *ROA, ROA, ROE, SALEFF, OPERFF, CESA, Log Real Sales, Employment, Leverage, Dividend payout, total payout, Equity issuance, Debt issuance, Retain Earning Percentage,* and *Acquisition*. Return on Sales (ROS) = Net Income /Sales. Return on Assets (ROA) = Net Income/Assets. Return on Equity (*ROE*) = Net Income/ Equity. Sales Efficiency (*SALEFF*) = Sales/assets. Operating efficiency (*OPERFF*) = Net Income/employees. Capital Expenditures to Sales (*CESA*) = Capital Expenditures/ sales. *Log Real sales* = nominal sales/CPI. *Employment* = logarithm of one plus # of employees. *Leverage* = Long-term debt to equity. *Dividend Payouts* = Cash dividends/assets. *Total Payouts* = (cash dividends +stock repurchases)/ assets. *Equity Issue* = equity capital raised relative to assets. *Debt Issue* = debt capital raised relative to assets. *Retained earnings pct* = retained earnings as a proportion of lagged assets. *Acquisition Pct* = acquisition expense as a proportion of lagged sales. Panel A (B) reports the results for the full (matched) samplefromr 2000 to 2019. In odd columns, we control for a short set of variables including *Log(TA)* and *Log(Age)*. In even columns, we control for a long set of variables, including *Log(TA), Log(Age), EBITA/TA, R&D/Sales, Capex/TA, Cash/TA, Dividend/TA, Repurchase/TA, Debt/TA,* and *SG&A/TA*. All control variables are lagged by one year. *Dummy(Sin)* is an indicator that equals one for firms operating in any of the six exclusion industries (tobacco, alcohol, gaming, gun, coal, and gas & oil, and zero for firms not in these exclusion industries. *Treatment* equals one for firms operating in any of the six excluded industries, and zero for matched non-sin firms. We control for year fixed effects in all specifications. ***, ** and * represent significance levels at 1%, 5%, and 10%, respectively.

Panel A: The effect of exclusion on fifteen firm fundamental measures (full sample)

Dep. Variable (t+1)	ROS	ROS	ROA	ROA	ROE	ROE	SALEFF	SALEFF	OPERFF	OPERFF
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dummy(Sin)	0.113	-0.146	0.007	-0.001	-0.002	0.003	-0.388***	-0.277***	-7.241	0.113
	(1.04)	(-1.62)	(1.00)	(-0.16)	(-0.16)	(0.27)	(-10.10)	(-6.99)	(-0.51)	(1.04)
Control variables	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long
Observations	59,485	59,475	59,704	59,694	57,206	57,197	59,736	59,726	59,012	59,002
R-squared	0.04	0.48	0.17	0.59	0.12	0.41	0.05	0.33	0.05	0.22
Dep. Variable (t+1)	CESA	CESA	Log real sales	Log real sales	Employment	Employment	Leverage	Leverage	Dividend payo	Dividend payo
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Dummy(Sin)	0.453***	0.245***	-0.507***	-0.405***	-1.384***	-1.339***	0.232***	-0.044	-0.001	0.000
	(13.95)	(11.05)	(-10.97)	(-9.10)	(-17.17)	(-16.10)	(4.78)	(-1.15)	(-0.83)	(0.85)
Control variables	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long
Observations	59,734	59,725	59,485	59,475	58,951	58,941	59,687	59,677	59,744	59,734
R-squared	0.08	0.32	0.81	0.89	0.72	0.78	0.05	0.24	0.06	0.08
Dep. Variable (t+1)	Total payout	Total payout	Equity Issue	Equity Issue	Debt Issue	Debt Issue	Retained Earning	Retained Earning	Acquisition Pct	Acquisition Pct
	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
Dummy(Sin)	-0.012***	-0.000	0.015***	0.008***	0.010***	-0.001	0.088	-0.196***	0.004	0.012***
	(-5.49)	(-0.08)	(3.48)	(2.91)	(4.38)	(-0.47)	(1.26)	(-3.84)	(0.90)	(3.01)
Control variables	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long
Observations	59,744	59,734	59,716	59,706	59,716	59,706	59,543	59,533	59,744	59,734
R-squared	0.07	0.40	0.14	0.41	0.03	0.06	0.20	0.49	0.01	0.02

Panel B: The effect of exclusion (i.e., treatment=1) on fifteen firm fundamental measures (**matched sample**)

Dep. Variable (t+1)	ROS	ROS	ROA	ROA	ROE	ROE	SALEFF	SALEFF	OPERFF	OPERFF
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Treatment	-0.205	-0.085	0.010	0.017	0.031	0.046	-0.345***	-0.198**	18.430	28.975
	(-0.69)	(-0.28)	(0.42)	(1.23)	(0.58)	(1.08)	(-3.79)	(-2.43)	(0.50)	(0.82)
Control variables	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long
Observations	1,627	1,627	1,635	1,635	1,574	1,574	1,635	1,635	1,504	1,504
R-squared	0.06	0.31	0.16	0.58	0.12	0.36	0.07	0.30	0.07	0.15
Dep. Variable (t+1)	CESA	CESA	Log real sales	Log real sales	Employment	Employment	Leverage	Leverage	Dividend payout	Dividend payout
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Treatment	0.236***	0.185***	-0.404***	-0.240**	-0.959***	-0.765***	-0.098	-0.170*	0.003	0.000
	(4.15)	(3.83)	(-3.67)	(-2.45)	(-6.56)	(-5.50)	(-0.91)	(-1.70)	(1.19)	(0.09)
Control variables	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long
Observations	1,636	1,636	1,627	1,627	1,507	1,507	1,634	1,634	1,636	1,636
R-squared	0.11	0.32	0.82	0.88	0.67	0.74	0.08	0.26	0.05	0.66
Dep. Variable (t+1)	Total payout	Total payout	Equity Issue	Equity Issue	Debt Issue	Debt Issue	Retained Earning Pct	Retained Earning Pct	Acquisition Pct	Acquisition Pct
	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
Treatment	0.002	0.004	0.027	0.027**	0.001	0.002	-0.136	-0.189	0.027	0.027
	(0.51)	(1.08)	(1.51)	(2.21)	(0.13)	(0.14)	(-0.71)	(-1.26)	(1.47)	(1.41)
Control variables	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long
Observations	1,636	1,636	1,636	1,636	1,636	1,636	1,481	1,481	1,636	1,636
R-squared	0.05	0.57	0.15	0.35	0.04	0.06	0.25	0.52	0.03	0.04

Table 7: The effect of negative screening on stock returns - Fama-Macbeth regressions with monthly stock returns

This table reports the effect of industry exclusion on monthly stock returns. *Ln(size)* and *Ln(BE/ME)* for monthly observations during July in year *t* to June in year *t*+1 is market capitalization as of June of year *t* and BE in fiscal year *t* -1 scaled by market capitalization as of June of year t, respectively. *BHRet[m-11,m-2]* and *Ret(m-1)* are cumulative stock returns over *m*-11 to *m*-2 and monthly return in *m*-1, respectively. *Dummy(Sin)* is an indicator that equals one for firms operating in any of the six exclusion industries (tobacco, alcohol, gaming, gun, coal, and gas & oil, and zero for firms not in these exclusion industries. The sample period spans from July 2000 to June 2020 (240 months). All the control variables, except for indicators, are winsorized at the top and bottom one percentile. Newey-West adjusted *t* -statistics are reported in parentheses.

Dep. Var. =	Monthly stock return (%)			
	(1)	(2)	(3)	(4)
Dummy(Sin)t	-0.166		-0.122	
	(-0.42)		(-0.31)	
Dummy(Tobacco)		1.096**		1.322**
		(2.10)		(2.48)
Dummy(Alcohol)		0.182		0.333
		(0.62)		(1.11)
Dummy(Gaming)		0.432		0.504
		(1.13)		(1.31)
Dummy(Gun)		0.989**		1.056**
		(2.10)		(2.24)
Dummy(Coal)		-1.065		-1.042
		(-1.02)		(-1.00)
Dummy(Gas and oil)		-0.323		-0.300
		(-0.63)		(-0.59)
Ln(Size)	-0.060	-0.057	-0.136**	-0.136**
	(-0.96)	(-0.91)	(-2.41)	(-2.40)
Ln(BE/ME)	0.336***	0.338***	0.313***	0.315***
	(3.39)	(3.41)	(3.44)	(3.46)
BHRet[m-11,m-2]	-0.238	-0.259	-0.254	-0.276
	(-0.48)	(-0.52)	(-0.51)	(-0.56)
Ret(m-1)	-2.714***	-2.777***	-2.742***	-2.809***
.	(-4.32)	(-4.46)	(-4.36)	(-4.51)
IO (total)t			0.778**	0.808**
			(2.41)	(2.50)
Intercept	1.593	1.556	2.184**	2.162**
	(1.47)	(1.43)	(2.10)	(2.08)
Adj. R2	0.03	0.04	0.04	0.04
Number of months	240	240	240	240

Table 8: The effect of negative screening on alternative capital market outcomes – the cost of capital and exiting the public market

Panel A reports industry exclusion's effect on the cost of equity financing. *Cost of New Equity* refers to the cost of raising equity capital in a seasoned equity offering in year *t*+1, i.e., the (last-day closing price minus offer price) / last-day closing price. Panel B reports industry exclusion's effect on the cost of debt financing. *Cost of New Debt* refers to the cost of raising debt in year *t*+1, i.e., the yield of fixed-rate debt issued (if there are multiple debt issuances, we take the value for the issuance with the largest face debt value). Panel C reports the effect of firms' industry exclusion status on a firm's likelihood of exiting the capital market. *Dummy(Exit)t+1* equals one if a firm is in the CRSP dataset in fiscal year *t* but it is not in fiscal year *t*+1, and zero otherwise. *Dummy(Sin)* is an indicator that equals one for firms operating in any of the six exclusion industries (tobacco, alcohol, gaming, gun, coal, and gas & oil, and zero for firms not in these exclusion industries. All control variables are lagged by one year relative to the dependent variable. Sample period: 2000-2019. ***, ** and * represent significance levels at 1%, 5%, and 10%, respectively.

Panel A: the effect of negative screening on firms' cost of equity financing

Dep. Variable:	Cost of New Equity$_{t+1}$			
	(1)	(2)	(3)	(4)
Dummy(Sin)	0.003		0.004	
	(0.44)		(0.62)	
Dummy(Tobacco)		-0.049***		-0.053***
		(-5.25)		(-4.72)
Dummy(Alcohol)		-0.004		-0.010
		(-0.13)		(-0.32)
Dummy(Gaming)		-0.012		-0.018
		(-0.44)		(-0.69)
Dummy(Gun)		-0.070		-0.066
		(-0.92)		(-0.87)
Dummy(Coal)		-0.003		0.002
		(-0.32)		(0.22)
Dummy(Gas and oil)		0.008		0.010*
		(1.53)		(1.95)
Log(TA)	-0.009***	-0.009***	-0.005***	-0.005***
	(-8.02)	(-8.07)	(-4.42)	(-4.39)
EBITDA/TA	-0.012	-0.012*	-0.008	-0.008
	(-1.62)	(-1.65)	(-1.01)	(-1.02)
Log(Age)	0.002**	0.002**	0.002**	0.002**
	(2.14)	(2.12)	(2.02)	(2.00)
Capex/TA	0.019	0.007	0.020	0.006
	(0.85)	(0.31)	(0.90)	(0.26)
R&D/Sale	-0.000	-0.000	-0.000	-0.000
	(-0.55)	(-0.54)	(-0.52)	(-0.51)
Cash/TA	0.001	0.000	0.011	0.011
	(0.07)	(0.05)	(1.29)	(1.31)
Dividend/TA	-0.167***	-0.150***	-0.218***	-0.200***
	(-3.32)	(-3.03)	(-3.81)	(-3.57)
Repurchase/TA	-0.002	-0.001	0.005	0.006
	(-0.04)	(-0.03)	(0.12)	(0.15)
Debt/TA	0.003	0.003	0.003	0.003
	(0.37)	(0.43)	(0.36)	(0.45)

SG&A/TA	0.001	0.002	0.004	0.004
	(0.21)	(0.27)	(0.59)	(0.68)
IO (total)t			-0.038***	-0.039***
			(-6.95)	(-7.14)
Constant	0.104***	0.104***	0.098***	0.099***
	(10.66)	(10.75)	(10.10)	(10.18)
Year Fixed Effects	Y	Y	Y	Y
Observations	4,301	4,301	4,301	4,301
R-squared	0.11	0.11	0.12	0.12

Panel B: the effect of negative screening on firms' cost of debt financing

Dep. Variable:	Cost of New Debt $_{t+1}$			
	(1)	(2)	(3)	(4)
Dummy(Sin)	0.886***		0.881***	
	(6.49)		(6.60)	
Dummy(Tobacco)		1.333**		1.354**
		(1.97)		(2.21)
Dummy(Alcohol)		-0.605**		-0.705**
		(-2.50)		(-2.14)
Dummy(Gaming)		0.925***		0.803***
		(3.46)		(3.24)
Dummy(Gun)		0.025		-0.017
		(0.06)		(-0.04)
Dummy(Coal)		2.340***		2.375***
		(5.19)		(5.46)
Dummy(Gas and oil)		0.948***		0.978***
		(6.04)		(6.35)
Log(TA)	-0.278***	-0.278***	-0.265***	-0.264***
	(-9.31)	(-9.33)	(-8.94)	(-8.95)
EBITDA/TA	-1.823**	-1.824**	-1.538**	-1.533**
	(-2.42)	(-2.42)	(-2.04)	(-2.02)
Log(Age)	-0.103**	-0.096**	-0.102**	-0.095**
	(-2.45)	(-2.30)	(-2.46)	(-2.29)
Capex/TA	-0.618	-0.833	-0.737	-1.045
	(-0.89)	(-1.13)	(-1.08)	(-1.45)
R&D/Sale	0.010	0.011	0.011	0.012
	(0.58)	(0.65)	(0.67)	(0.75)
Cash/TA	-3.533***	-3.568***	-3.365***	-3.398***
	(-11.08)	(-11.29)	(-10.60)	(-10.79)
Dividend/TA	-5.648**	-6.111**	-7.739***	-8.306***
	(-2.24)	(-2.42)	(-3.01)	(-3.15)
Repurchase/TA	-0.792	-0.661	-0.533	-0.379
	(-0.49)	(-0.41)	(-0.33)	(-0.23)
Debt/TA	2.533***	2.543***	2.412***	2.433***
	(10.46)	(10.33)	(9.93)	(9.86)
SG&A/TA	-0.057	-0.021	-0.051	-0.009
	(-0.20)	(-0.07)	(-0.18)	(-0.03)
Debt maturity	0.031***	0.032***	0.029***	0.030***
	(9.15)	(9.35)	(8.60)	(8.79)
Debt Call provision	1.000***	0.993***	1.010***	1.002***
	(12.44)	(12.32)	(12.61)	(12.48)
IO (total)			-1.083***	-1.113***
			(-5.68)	(-5.87)
Constant	7.205***	7.175***	7.841***	7.825***
	(22.22)	(22.05)	(21.95)	(21.97)

Year Fixed Effects	Y	Y	Y	Y
Observations	6,526	6,526	6,526	6,526
R-squared	0.30	0.31	0.31	0.31

Panel C: the effect of negative screening on firms' likelihood of exiting the public market

Dep. Variable:	Dummy(Exit) $_{t+1}$			
	(1)	(2)	(3)	(4)
Dummy(Sin)	0.055		0.044	
	(0.75)		(0.59)	
Dummy(Tobacco)		-0.336		-0.364
		(-0.48)		(-0.52)
Dummy(Alcohol)		-0.204		-0.235
		(-0.71)		(-0.82)
Dummy(Gaming)		-0.260		-0.272
		(-1.43)		(-1.49)
Dummy(Gun)		-0.330		-0.337
		(-0.83)		(-0.84)
Dummy(Coal)		0.382*		0.379*
		(1.71)		(1.68)
Dummy(Gas and oil)		0.157*		0.148*
		(1.85)		(1.74)
Log(TA)	-0.173***	-0.173***	-0.156***	-0.155***
	(-17.68)	(-17.65)	(-12.78)	(-12.69)
EBITDA/TA	-0.544***	-0.539***	-0.524***	-0.518***
	(-7.34)	(-7.26)	(-7.02)	(-6.94)
Log(Age)	-0.144***	-0.144***	-0.143***	-0.143***
	(-11.54)	(-11.53)	(-11.45)	(-11.44)
Capex/TA	-0.507*	-0.646**	-0.475*	-0.617**
	(-1.77)	(-2.18)	(-1.66)	(-2.09)
R&D/Sale	-0.048***	-0.048***	-0.048***	-0.047***
	(-5.14)	(-5.12)	(-5.12)	(-5.10)
Cash/TA	-0.392***	-0.389***	-0.361***	-0.356***
	(-4.83)	(-4.78)	(-4.39)	(-4.33)
Dividend/TA	-4.819***	-4.724***	-4.941***	-4.844***
	(-3.96)	(-3.88)	(-4.01)	(-3.93)
Repurchase/TA	-1.675***	-1.660***	-1.585***	-1.567***
	(-3.69)	(-3.66)	(-3.48)	(-3.44)
Debt/TA	1.209***	1.217***	1.196***	1.204***
	(17.16)	(17.23)	(16.91)	(16.98)
SG&A/TA	0.612***	0.620***	0.621***	0.629***
	(11.36)	(11.48)	(11.52)	(11.65)
IO (total)			-0.163**	-0.168**
			(-2.43)	(-2.50)
Constant	-0.773***	-0.772***	-0.825***	-0.826***
	(-7.96)	(-7.95)	(-8.35)	(-8.36)
Year Fixed Effects	Y	Y	Y	Y
Observations	0.055		0.044	

Table 9. The effect of negative screening on the cost of capital - announcement returns around negative ESG news

This table reports the effect of industry exclusion on three-day abnormal returns around negative ESG events (i.e., events that hurt firms' ESG score) identified by RepRisk data. We use the CAPM model the and Fama-French-Carhart-4-factor model to calculate the abnormal returns (the unit is in %). *Dummy(Sin)* is an indicator that equals one for firms operating in any of the six exclusion industries (tobacco, alcohol, gaming, gun, coal, and gas & oil, and zero for firms not in these exclusion industries. Panels A and B report results based on all negative ESG news. Panels C, D, and E report results based on negative news relthe ated to environment, society, and governance, respectively. The sample starts in the year 2007 due to the availability of ESG event data and ends in the year 2019. the

Panel A: All negative ESG news for firms from different industries (in %)

Variable	Mean (in %)	t Value	Median	Min	Max	N
All exclusion industries						
CAR[-1,1]_CAPM	-0.007	-0.16	-0.041	-21.541	23.821	6,998
CAR[-1,1]_FFC4	-0.042	-1.1	-0.007	-24.858	22.935	6,998
Tobacco						
CAR[-1,1]_CAPM	0.13	1.34	0.21	-9.171	16.633	514
CAR[-1,1]_FFC4	0.058	0.59	0.132	-9.461	17.663	514
Beer						
CAR[-1,1]_CAPM	-0.147	-0.43	-0.111	-8.793	8.523	61
CAR[-1,1]_FFC4	-0.109	-0.3	-0.063	-9.718	8.608	61
Gaming						
CAR[-1,1]_CAPM	0.221	0.7	-0.144	-21.541	16.598	216
CAR[-1,1]_FFC4	0.143	0.48	0.004	-21.203	17.652	216
Gun						
CAR[-1,1]_CAPM	0.055	0.39	0.025	-9.749	15.563	371
CAR[-1,1]_FFC4	0.037	0.26	0.047	-11.096	12.238	371
Coal						
CAR[-1,1]_CAPM	-0.634	-2.1	-0.617	-19.886	23.821	372
CAR[-1,1]_FFC4	-0.543	-1.86	-0.775	-24.858	22.935	372
Gas+Oil						
CAR[-1,1]_CAPM	0.012	0.27	-0.042	-21.541	23.821	5,464
CAR[-1,1]_FFC4	-0.029	-0.71	-0.003	-24.858	22.935	5,464
Non-exclusion industries						
CAR[-1,1]_CAPM	-0.079	-5.2	-0.044	-21.541	26.078	36,970
CAR[-1,1]_FFC4	-0.093	-6.36	-0.044	-24.858	22.935	36,970

Panel B: Full sample consisting of all negative ESG news

Dep. Variable:	CAR[-1,1]_CAPM(%)				CAR[-1,1]_FFC4(%)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Dummy(Sin)	0.058		0.059		0.026		0.028	
	(1.27)		(1.29)		(0.52)		(0.56)	
Dummy(Tobacco)		0.233***		0.236***		0.177***		0.187***
		(3.47)		(3.42)		(2.73)		(2.78)
Dummy(Alcohol)		-0.086		-0.080		-0.031		-0.010
		(-0.22)		(-0.20)		(-0.06)		(-0.02)
Dummy(Gaming)		0.306*		0.308*		0.260		0.266
		(1.93)		(1.92)		(1.59)		(1.62)
Dummy(Gun)		0.142		0.141		0.131		0.127
		(0.88)		(0.88)		(0.71)		(0.72)
Dummy(Coal)		-0.596		-0.595		-0.508		-0.503
		(-1.50)		(-1.51)		(-1.13)		(-1.17)
Dummy(Gas and oil)		0.064		0.064		0.024		0.025
		(1.49)		(1.50)		(0.53)		(0.54)
Dummy (Environment)	-0.030	-0.029	-0.030	-0.029	-0.028	-0.028	-0.029	-0.029
	(-0.89)	(-0.86)	(-0.89)	(-0.87)	(-0.87)	(-0.86)	(-0.91)	(-0.89)
Dummy (Governance)	0.022	0.019	0.022	0.019	0.032	0.030	0.033	0.031
	(0.19)	(0.16)	(0.19)	(0.17)	(0.28)	(0.26)	(0.29)	(0.27)
Dummy (Social)	0.019	0.019	0.019	0.019	0.040	0.040	0.042	0.042
	(0.59)	(0.59)	(0.60)	(0.60)	(1.38)	(1.37)	(1.43)	(1.43)
Dummy (Other)	-0.070	-0.072	-0.069	-0.071	-0.068	-0.069	-0.064	-0.066
	(-1.31)	(-1.34)	(-1.30)	(-1.33)	(-1.38)	(-1.40)	(-1.31)	(-1.34)
Dummy (Mid Severity)	0.060*	0.060*	0.059*	0.059*	0.057*	0.057*	0.056*	0.055*
	(1.77)	(1.77)	(1.76)	(1.76)	(1.74)	(1.72)	(1.69)	(1.67)
Dummy (High Severity)	-0.001	0.013	-0.000	0.013	0.029	0.042	0.030	0.044
	(-0.02)	(0.36)	(-0.01)	(0.37)	(0.88)	(1.24)	(0.93)	(1.28)
Dummy (Mid Reach)	0.010	0.010	0.011	0.010	-0.028	-0.028	-0.025	-0.025
	(0.30)	(0.29)	(0.32)	(0.31)	(-0.85)	(-0.84)	(-0.77)	(-0.76)
Dummy (High Reach)	-0.015	-0.015	-0.015	-0.014	-0.016	-0.015	-0.014	-0.013
	(-0.46)	(-0.44)	(-0.44)	(-0.42)	(-0.50)	(-0.47)	(-0.43)	(-0.40)
Dummy (High novelty)	-0.063*	-0.071**	-0.063*	-0.071**	-0.042	-0.049	-0.043	-0.050
	(-1.87)	(-2.14)	(-1.87)	(-2.13)	(-1.32)	(-1.57)	(-1.32)	(-1.57)
IO (total)			0.033	0.032			0.119	0.120
			(0.29)	(0.30)			(1.04)	(1.10)
Constant	-0.058	-0.057	-0.079	-0.077	-0.090**	-0.089**	-0.168*	-0.167**
	(-1.23)	(-1.21)	(-0.86)	(-0.89)	(-2.00)	(-1.98)	(-1.90)	(-1.99)
Observations	43,963	43,963	43,963	43,963	43,963	43,963	43,963	43,963
R-squared	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Panel C: A subsample consisting of all negative environment-related news

Dep. Variable:	CAR[-1,1]_CAPM(%)				CAR[-1,1]_FFC4(%)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Dummy(Sin)	-0.013		-0.012		-0.003		-0.001	
	(-0.22)		(-0.21)		(-0.04)		(-0.02)	
Dummy(Tobacco)		0.717***		0.729***		0.666***		0.680***
		(3.89)		(3.86)		(5.66)		(5.33)
Dummy(Alcohol)		0.510		0.516		0.448		0.456
		(1.18)		(1.08)		(1.08)		(0.95)
Dummy(Gaming)		0.987		1.053		-0.562		-0.481
		(0.33)		(0.35)		(-0.19)		(-0.16)
Dummy(Gun)		0.035		0.019		-0.100		-0.119
		(0.12)		(0.07)		(-0.37)		(-0.55)
Dummy(Coal)		-0.626*		-0.612**		-0.528		-0.510
		(-1.89)		(-2.10)		(-1.22)		(-1.37)
Dummy(Gas and oil)		0.020		0.020		0.029		0.029
		(0.38)		(0.39)		(0.50)		(0.53)
Dummy (Mid Severity)	-0.103*	-0.102*	-0.103*	-0.102*	-0.057	-0.057	-0.057	-0.057
	(-1.88)	(-1.87)	(-1.89)	(-1.87)	(-1.16)	(-1.15)	(-1.16)	(-1.16)
Dummy (High Severity)	-0.049	-0.054	-0.044	-0.049	-0.112	-0.117	-0.107	-0.111
	(-0.28)	(-0.31)	(-0.26)	(-0.28)	(-0.70)	(-0.73)	(-0.66)	(-0.69)
Dummy (Mid Reach)	0.024	0.024	0.027	0.026	0.025	0.024	0.028	0.027
	(0.48)	(0.47)	(0.52)	(0.52)	(0.61)	(0.58)	(0.68)	(0.65)
Dummy (High Reach)	-0.018	-0.021	-0.009	-0.012	-0.008	-0.012	0.003	-0.001
	(-0.18)	(-0.21)	(-0.09)	(-0.12)	(-0.08)	(-0.12)	(0.03)	(-0.01)
Dummy (High novelty)	0.113**	0.113**	0.109**	0.110**	0.140***	0.142***	0.136***	0.137***
	(2.34)	(2.36)	(2.26)	(2.27)	(2.74)	(2.77)	(2.63)	(2.66)
IO (total)			0.378*	0.369**			0.460**	0.451**
			(1.92)	(2.08)			(2.29)	(2.56)
Constant	-0.093	-0.094	-0.329**	-0.323**	-0.135**	-0.135**	-0.421***	-0.416***
	(-1.54)	(-1.55)	(-2.38)	(-2.56)	(-2.22)	(-2.23)	(-3.11)	(-3.41)
Observations	15,333	15,333	15,333	15,333	15,333	15,333	15,333	15,333
R-squared	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Panel D: A subsample consisting of all negative social-related news

Dep. Variable:	CAR[-1,1]_CAPM(%)				CAR[-1,1]_FFC4(%)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Dummy(Sin)	-0.098		-0.098		-0.086		-0.086	
	(-1.56)		(-1.56)		(-1.22)		(-1.21)	
Dummy(Tobacco)		0.359**		0.356**		0.279**		0.281**
		(2.49)		(2.44)		(1.98)		(1.99)
Dummy(Alcohol)		-0.172		-0.175		-0.136		-0.133
		(-0.81)		(-0.86)		(-0.47)		(-0.45)
Dummy(Gaming)		-0.702**		-0.701**		-0.348		-0.348
		(-2.38)		(-2.38)		(-1.07)		(-1.07)
Dummy(Gun)		0.000		0.004		0.026		0.024
		(0.00)		(0.03)		(0.19)		(0.18)
Dummy(Coal)		-1.208***		-1.210***		-1.159***		-1.157***
		(-2.73)		(-2.75)		(-4.86)		(-4.87)
Dummy(Gas and oil)		-0.033		-0.033		-0.030		-0.030
		(-0.56)		(-0.56)		(-0.46)		(-0.46)
Dummy (Mid Severity)	-0.062	-0.064	-0.062	-0.064	-0.038	-0.039	-0.038	-0.039
	(-1.37)	(-1.40)	(-1.36)	(-1.39)	(-0.91)	(-0.93)	(-0.91)	(-0.93)
Dummy (High Severity)	0.065	0.052	0.065	0.051	0.061	0.049	0.061	0.049
	(0.54)	(0.42)	(0.54)	(0.42)	(0.51)	(0.40)	(0.51)	(0.41)
Dummy (Mid Reach)	0.061	0.061	0.061	0.060	0.051	0.050	0.051	0.051
	(1.48)	(1.46)	(1.47)	(1.45)	(1.33)	(1.31)	(1.34)	(1.32)
Dummy (High Reach)	0.031	0.028	0.030	0.027	-0.010	-0.015	-0.009	-0.014
	(0.48)	(0.44)	(0.47)	(0.42)	(-0.18)	(-0.26)	(-0.16)	(-0.25)
Dummy (High novelty)	0.094**	0.095**	0.094**	0.095**	0.114***	0.116***	0.114***	0.115***

	(2.02)	(2.05)	(2.02)	(2.05)	(2.58)	(2.62)	(2.58)	(2.62)
IO (total)			-0.050	-0.055			0.048	0.042
			(-0.43)	(-0.48)			(0.39)	(0.37)
Constant	-0.131***	-0.131***	-0.100	-0.096	-0.158***	-0.157***	-0.188**	-0.183**
	(-2.59)	(-2.58)	(-1.10)	(-1.06)	(-3.21)	(-3.19)	(-2.05)	(-2.11)
Observations	23,693	23,693	23,693	23,693	23,693	23,693	23,693	23,693
R-squared	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Panel E: A subsample consisting of all negative governance-related news

Dep. Variable:	CAR[-1,1]_CAPM(%)				CAR[-1,1]_FFC4(%)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Dummy(Sin)	0.166*		0.159*		-0.013		-0.014	
	(1.87)		(1.79)		(-0.14)		(-0.15)	
Dummy(Tobacco)		0.309		0.295		0.345		0.342
		(1.38)		(1.35)		(1.44)		(1.43)
Dummy(Alcohol)		-0.721**		-0.748***		-0.767*		-0.773*
		(-2.52)		(-2.75)		(-1.87)		(-1.91)
Dummy(Gaming)		0.891***		0.879***		0.655**		0.652**
		(3.26)		(3.10)		(2.22)		(2.19)
Dummy(Gun)		0.008		0.019		-0.156		-0.154
		(0.03)		(0.06)		(-0.39)		(-0.39)
Dummy(Coal)		-0.825***		-0.857***		-1.396***		-1.403***
		(-4.22)		(-4.04)		(-3.09)		(-3.07)
Dummy(Gas and oil)		0.137		0.133		-0.055		-0.056
		(1.37)		(1.34)		(-0.51)		(-0.52)
Dummy (Mid Severity)	0.046	0.048	0.048	0.050	-0.006	-0.004	-0.005	-0.003
	(0.87)	(0.90)	(0.91)	(0.94)	(-0.11)	(-0.07)	(-0.10)	(-0.06)
Dummy (High Severity)	0.073	0.086	0.069	0.082	0.169	0.187	0.169	0.186
	(0.40)	(0.47)	(0.38)	(0.44)	(0.90)	(1.00)	(0.90)	(1.00)
Dummy (Mid Reach)	-0.033	-0.037	-0.038	-0.042	0.029	0.023	0.028	0.022
	(-0.58)	(-0.64)	(-0.66)	(-0.73)	(0.53)	(0.43)	(0.51)	(0.41)
Dummy (High Reach)	-0.167**	-0.174**	-0.174**	-0.182**	-0.093	-0.102	-0.094	-0.104
	(-2.09)	(-2.17)	(-2.19)	(-2.27)	(-1.23)	(-1.35)	(-1.24)	(-1.38)
Dummy (High novelty)	0.024	0.028	0.027	0.031	0.013	0.017	0.014	0.018
	(0.41)	(0.47)	(0.45)	(0.52)	(0.22)	(0.29)	(0.23)	(0.30)
IO (total)			-0.153	-0.164			-0.024	-0.037
			(-1.02)	(-1.12)			(-0.15)	(-0.24)
Constant	-0.065	-0.065	0.032	0.039	-0.110*	-0.109*	-0.095	-0.086
	(-1.04)	(-1.04)	(0.26)	(0.32)	(-1.74)	(-1.72)	(-0.75)	(-0.71)
Observations	14,185	14,185	14,185	14,185	14,185	14,185	14,185	14,185
R-squared	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 10: The effect of exclusion on investors' engagement via ESG proposals

This table reports the effect of firms' industry exclusion status on the number of ESG proposals voted and passed. *# of voted ESG proposals (# of passed ESG proposals*) is the number of ESG proposals voted (passed) in the firm's annual meetings in year *t*+1. *Dummy(Sin)* is an indicator that equals one for firms operating in any of the six exclusion industries (tobacco, alcohol, gaming, gun, coal, and gas & oil, and zero for firms not in these exclusion industries. All control variables are lagged by one year relative to the dependent variable. ***, ** and * represent significance levels at 1%, 5%, and 10%, respectively.

Panel A: Using the number of ESG proposals voted in the annual meeting as the dependent variable

Dep. Variable:	# of voted ESG proposals $_{t+1}$			
	(1)	(2)	(3)	(4)
Dummy(Sin)	0.123***		0.111***	
	(2.80)		(2.64)	
Dummy(Tobacco)		0.575**		0.550**
		(2.12)		(2.04)
Dummy(Alcohol)		-0.038		-0.065**
		(-1.24)		(-2.26)
Dummy(Gaming)		0.005		-0.013
		(0.29)		(-0.73)
Dummy(Gun)		0.103***		0.084**
		(2.71)		(2.44)
Dummy(Coal)		0.260**		0.259**
		(2.05)		(1.98)
Dummy(Gas and oil)		0.120**		0.111*
		(2.02)		(1.94)
Log(TA)	0.059***	0.058***	0.069***	0.069***
	(9.98)	(9.97)	(9.83)	(9.79)
EBITDA/TA	-0.098***	-0.093***	-0.055***	-0.050***
	(-7.03)	(-6.77)	(-4.97)	(-4.48)
Log(Age)	0.009***	0.010***	0.010***	0.010***
	(4.54)	(5.00)	(4.87)	(5.32)
Capex/TA	-0.014	0.005	-0.002	0.010
	(-0.20)	(0.06)	(-0.03)	(0.12)
R&D/Sale	0.001**	0.001**	0.001***	0.001***
	(2.29)	(2.38)	(3.08)	(3.12)
Cash/TA	0.057***	0.055***	0.078***	0.076***
	(4.08)	(3.90)	(5.26)	(5.10)
Dividend/TA	0.781***	0.653***	0.629***	0.504***
	(5.17)	(5.05)	(4.41)	(4.23)
Repurchase/TA	0.060	0.060	0.127	0.128
	(0.74)	(0.73)	(1.56)	(1.55)
Debt/TA	-0.076***	-0.076***	-0.082***	-0.082***
	(-3.28)	(-3.49)	(-3.51)	(-3.71)
SG&A/TA	0.075***	0.074***	0.081***	0.080***
	(5.55)	(5.23)	(5.90)	(5.57)
IO (total)			-0.157***	-0.158***
			(-7.22)	(-7.10)
Constant	-0.411***	-0.409***	-0.394***	-0.392***
	(-9.88)	(-9.99)	(-10.28)	(-10.43)
Year Fixed Effects	Y	Y	Y	Y
Observations	37,417	37,417	37,417	37,417

R-squared	0.10	0.10	0.11	0.11

Panel B: Using the number of ESG proposals passed in the annual meeting as the dependent variable

Dep. Variable:	# of passed ESG proposals $_{t+1}$			
	(1)	(2)	(3)	(4)
Dummy(Sin)t	0.003*		0.003*	
	(1.84)		(1.81)	
Dummy(Tobacco)		-0.001*		-0.001*
		(-1.79)		(-1.84)
Dummy(Alcohol)		-0.001***		-0.001***
		(-2.58)		(-2.64)
Dummy(Gaming)		-0.001**		-0.001**
		(-2.20)		(-2.22)
Dummy(Gun)		0.026		0.026
		(1.48)		(1.48)
Dummy(Coal)		0.009		0.009
		(0.86)		(0.86)
Dummy(Gas and oil)		0.002		0.002
		(1.17)		(1.14)
Log(TA)	0.001***	0.001***	0.001***	0.001***
	(4.00)	(4.11)	(3.76)	(3.83)
EBITDA/TA	-0.002*	-0.002**	-0.001*	-0.002**
	(-1.89)	(-2.14)	(-1.70)	(-1.98)
Log(Age)	0.000**	0.000**	0.000**	0.000**
	(2.26)	(2.26)	(2.27)	(2.27)
Capex/TA	-0.000	0.002	-0.000	0.002
	(-0.11)	(0.45)	(-0.10)	(0.45)
R&D/Sale	-0.000**	-0.000**	-0.000*	-0.000**
	(-2.02)	(-2.43)	(-1.94)	(-2.36)
Cash/TA	-0.000	-0.000	-0.000	-0.000
	(-0.71)	(-0.53)	(-0.55)	(-0.38)
Dividend/TA	-0.003	-0.002	-0.003	-0.003
	(-0.60)	(-0.52)	(-0.70)	(-0.63)
Repurchase/TA	0.003	0.002	0.003	0.003
	(0.62)	(0.57)	(0.68)	(0.63)
Debt/TA	-0.002**	-0.002**	-0.002**	-0.002**
	(-2.45)	(-2.07)	(-2.49)	(-2.10)
SG&A/TA	-0.000	-0.000	-0.000	-0.000
	(-0.53)	(-0.49)	(-0.49)	(-0.45)
IO (total)			-0.001	-0.001
			(-0.92)	(-0.97)
Constant	-0.004***	-0.005***	-0.004***	-0.004***
	(-3.50)	(-3.71)	(-3.54)	(-3.78)
Year Fixed Effects	Y	Y	Y	Y
Observations	37,417	37,417	37,417	37,417
R-squared	0.00	0.00	0.00	0.00

Appendix

Table A1. Definitions

Variables	Definitions
Dependent variables	
Tobin's Q	(Market value of equity + Total Liability + Preferred Stock - deferred taxes and investment tax credit (if available))/Total Asset, i.e., (me + lt + pstkl - txditc)/at.
M/B	Market value of equity/Book common equity, where Book common equity is defined as the COMPUSTAT book value of stockholders'equity, plus balance-sheet deferred taxes and investment tax credit (if available), minus the book value of the preferred stock., i.e., abs(prcc_f)*csho / (at - lt + txditc - prf). prf is the Preferred Stock – Liquidating Value (pstkl), and if pstkl is missing, prf equals Preferred Stock – Redemption Value (pstkrv).
Institution Own. (total)t+1	# Total shares held by all institutions / # outstanding shares
Dummy(Sin)	Indicator for firms in any of the six excluded industries
Dummy(Tobacco)	Indicator for the tobacco industry
Dummy(Alcohol)	Indicator for the alcohol industry
Dummy(Gaming)	Indicator for the gaming industry
Dummy(Gun)	Indicator for the gun industry
Dummy(Coal)	Indicator for the coal industry
Dummy(Gas and oil)	Indicator for the gas and oil industry
ROS	Return on Sales (ROS) = Net Income /Sales
ROA	Profitability Return on Assets (ROA) = Net Income/lagged asset
ROE	Total Assets Return on Equity (ROE) = Net Income/ lagged Equity
SALEFF	Sales Efficiency (SALEFF) = Sales/lagged assets
OPERFF	Operating efficiency = Net Income/lagged employees
CESA	Capital Expenditures to Sales (CESA) = Capital Expenditures/lagged sales
Log real sales	Log(nominal sales scaled by CPI to 2000 level)
Employment	Log(# of employees)
Leverage	Long-term debt to equity
Dividend payout	Cash dividends/lagged asset
Total payout	(Cash dividends +stock repurchases)/lagged asset
Equity Issue	Equity capital raised relative to assets
Debt Issue	Debt capital raised relative to assets
Retained Earnings Pct	Retained earnings as a proportion of lagged assets
Acquisition Pct	Acquisition expense as a proportion of lagged sales