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Corporate Scandals and Capital Structure

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ABSTRACT. We analyze whether companies involved in a security class action suit (SCAS) exhibit differential capital structure decisions, and if the information revealed by a corporate scandal affects the security issuances and stock prices of industry peers. Our findings show that before a SCAS is filed, companies involved in a scandal show a greater amount of security offerings than their peers and, due to equity mispricing, are more likely to use equity as a financing mechanism. Following a SCAS filing, these companies exhibit a decreasing amount of total external finance raised and lower levels of book and market leverage. Industry peers' issuance patterns exhibit significant contagion, with reduced debt and equity issuance following the SCAS filing. Corporate scandals also have meaningful negative effects on stock prices and bond ratings. Similar to capital structure, we document contagion at the industry level with peers' share prices yielding negative returns as well.

KEY WORDS: corporate scandals, security offerings, capital structure, contagion effect, market timing

JEL CLASSIFICATION: G32, G33, K41

Introduction

Another wave of corporate scandals has hit the market in the last decade, reviving attention to the effect of these events on shareholder value, corporate governance and stock market reactions. Academic research has shown that companies suffer a considerable decline in both stock prices and debt ratings upon Chapter 11 filing announcements, financial report restatements, or financial distress announcements (Brewer and Jackson, 1997; Lang and Stulz, 1992; Palmrose et al., 2004). The early detection of scandals, if not their prevention, is therefore valuable to stakeholders. Agrawal and Chadha (2005) documented that appropriate corporate governance mechanisms may positively influence the probability of earnings restatements. Agrawal and Cooper (2007) supported this evidence, highlighting the higher turnover of top management and top financial officers soon before and immediately after an accounting scandal. Dyck et al. (2010) showed that non-traditional mechanisms and stakeholders-at-large play considerable roles in triggering fraud detection. Given the documented far-reaching effects of corporate scandals, we ask whether managerial behavior in companies engaged in a corporate scandal also affects financial decisions regarding capital raising, and in particular, whether managers anticipating the risks of a corporate scandal exhibit different capital structure policies than those of their peers. Surprisingly, this question is still unanswered. In this article, we try to fill this gap by looking at the security issuance patterns of companies engaged in security class action suits (SCAS) between 1996 and 2005. In particular, we address three main research questions:

(a) What is the ex-ante and ex-post financing pattern of firms engaged in a corporate scandal?
(b) Do corporate scandals affect the price or quality of the company's financial securities?
(c) Is there a contagion effect in the capital structure and stock prices of the industry after a corporate scandal is revealed?

Previous literature addressed corporate scandals by studying cases of bankruptcy announcements, the public announcements of fraud in the press and earnings restatements. In this article, we adopt engagement in a SCAS as a proxy of a corporate

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scandal. We collected data from the Stanford Securities Class Action Clearinghouse (SSCAC) database.[1] This measure of corporate scandals allows us to generalize the results to a broader set of cases because it deals with actions that (a) are important enough to have permanent effects on securityholders value and (b) leave the company as a going concern, allowing meaningful ex-ante and ex-post differential analyses. In fact, less than 7% of cases included in the SSCAC database end up with a bankruptcy filing.

Our findings show that before a SCAS is filed, companies engaged in a scandal have a higher number of security offerings than the industry average. At the same time, we documented that because firms before the scandals experienced stock prices overvaluation, they were more likely to use equity as a financing mechanism. Compared to their peers, firms involved in a security class action consistently issued more equity in the 2-year period preceding the filing of the suit. Consistent with market timing, we found that SCAS firms exhibit decreasing book and market leverage before the filing due to abnormal volumes of equity offerings. Soon after the filing, however, market leverage increases sharply and significantly due to the readjustment in equity market value. Industry peers are also affected by the eruption of a scandal. Following a SCAS filing, we also observed small but significant decreases in debt and equity issuances for peer companies, indicating that company-specific information is interpreted as a potential industry-wide risk.

Finally, we investigated the effect of corporate scandals on stock prices and bond ratings. We support results in Gande and Lewis (2009) showing that SCAS firms experience large negative stock price returns around the filing date. Peers' stock prices show signs of contagion with significant negative cumulative abnormal returns. These results suggest that corporate scandals do negatively impact their industry. We also show that bond ratings for SCAS companies drop significantly after the filing and the downgrading is stable up to 3 years after the event, suggesting that managerial misconduct has meaningful effects on all classes of security holders.

These results allow us to shed light on the financing and security issuance behaviors of firms whose frauds or other corporate wrongdoings are revealed. We conclude that independent of their intensities, corporate scandals do generate effects at both the firm and industry levels by leading to contractions in security offerings and decreases in stock returns for all industry constituents.

The remainder of this article is organized as follows. "Motivation and hypotheses" section summarizes previous study on corporate scandals and presents the hypotheses that we tested in our study. "Data and summary statistics" section presents the data and summary statistics. "Corporate scandals and capital structure" section presents the results of the empirical analysis of the financing pattern of firms engaged in corporate scandals. "Corporate scandals and securities prices" section presents the results of the empirical analysis on security prices. "Robustness tests" section discusses the robustness tests performed, and "Conclusions" section concludes the article.

Motivation and hypotheses

Corporate scandals and security offerings

Corporate scandals can be defined as widely publicized incidents involving allegations of managerial wrongdoing, disgrace, or moral outrage on the part of one or more members of a company. Typical instances of fraudulent behavior include misstatements of financial figures on current, past or future investments, or operations, delay in disclosing or failure to disclose information, bribery, insider trading, and any other illegal activities that hurt the shareholders of the firm (Dyck et al., 2010). A common feature of such misconducts is the biased, deferred, or hindered revelation of information that would have had meaningful effects on managerial actions: first, such information would have significantly reduced stock prices, making security offerings increasingly diluting and costly; second, it would have reasonably reduced (or canceled altogether) managerial independence in making capital structure-related decisions; third, it would have heavily affected managers' payoffs, driving stock options out-of-the money, not triggering bonus payments, or determining managers' firing. Managers, arguably, are aware of these effects, and therefore have strong incentives to illegally preserve the information asymmetry and exploit it to increase the amount of funds that they collect in anticipation of

potential capital and managerial constraints, trying to "make the most out of it while it lasts." Funds are then used in connection with the hidden information to maintain or increase investments and R&D spending, to pursue acquisitions, to rebalance (at a lower cost) the financial structure of the company, or simply to enhance the stock's liquidity in a spirit similar to that in Ivashina and Scharfstein (2009). These managerial actions are likely to carry significant overinvestment costs for security holders as shown by Jensen (1986). SCAS filing documents provide meaningful examples of these agency costs. In Cisco (2001), the plaintiff alleged that "[…] After completing more than 20 major acquisitions between 9/99 and 2/01, by issuing more than 400 million shares of Cisco stock, […] on 2/6/01, Cisco announced extremely disappointing 2nd Q F01 results"; similarly, in Bay Networks (1997), it was alleged that: "[…] materially false or misleading statements enabled Bay Networks to Complete stock-for-stock acquisitions during the Class Period." Working capital financing was claimed by the plaintiff in SuperGen (2003): "[…] SuperGen sold millions of shares and notes […] so as to provide it with ample monies to fund its operations. However, this all took place prior to revelations concerning the veracity of the Company's statements regarding Mitozytrex [a drug]." These anecdotal pieces of evidence are supported by the analysis of the investment and dividend decisions of SCAS companies, reported in our Internet Appendix 1. We show that firms involved in a security class-action invest considerably more in R&D, are twice as active in the M&A market, and make acquisitions that are up to three times more costly than those of their peers. Inversely, and consistent with the results of Harford, Mansi and Maxwell (2008), their dividend yields are considerably lower and often close to zero, suggesting the existence of severe agency costs. In this spirit, we develop our first hypothesis:

Hypothesis 1: Ex-ante, firms engaged in wrongdoing leading to a corporate scandal have a greater amount of security offerings than the industry average.

The Market Timing Hypothesis states that when making decisions about funding, managers take into account the current conditions of the debt and equity markets. Managers will choose the funding mechanism that looks pro-tempore optimal. However, if market conditions are unfavorable for debt and equity issuance, fundraising may be deferred. Support for the market timing theory comes from empirical evidence of managerial opportunism in setting financing policies (Graham and Harvey, 2001). Although this theory falls short in explaining many of the factors that have been traditionally considered in studies of corporate capital structure, it is bolstered by strong empirical evidence that supports the existence of a behavioral component in managerial decisions. Baker and Wurgler (2002) built their capital structure predictions on the historical stock prices of firms, and further evidence confirms that stock prices indeed play an important role in explaining capital structure and capital structure changes (Welch, 2004). As for stock prices, the market timing hypothesis argues that firms tend to issue equity after the value of their stock has increased (Hovakimian et al., 2001) and that corporate leverage is the best understood as the cumulative effect of past attempts to time the market (Baker and Wurgler, 2002). One important assumption underlying the market timing hypothesis is the possible existence of stock price misvaluation. If this occurs, then managers of a firm that has an overvalued (undervalued) stock price will opportunistically exploit this mispricing by issuing equity (debt). This latter fact was confirmed by Graham and Harvey (2001). In an interview survey of 392 U.S. and Canadian CFOs, 76% of the sample reported that the amount by which their stock was overvalued or undervalued was an "important" or "very important" factor in decisions about equity issuance.

Corporate scandals act as information revelation mechanisms for equity market participants. A scandal sheds new light on the actual managerial and accounting practices of the firm, revealing information that was previously unavailable to investors. Evidence shows that in extreme cases ending in bankruptcy filing, investor reaction is strong and significant, with sharp declines in stock prices for the firms involved in the scandal (Agrawal and Chadha, 2005; Lang and Stulz, 1992; Rao and Hamilton, 1996). The stock price drop following such events can be interpreted as evidence of previous overvaluation either due to an accounting phenomenon (such as a misrepresentation of earnings) or because

some information regarding the company's investments or risk exposure was not fully available to the market. Accordingly, we expect the following:

Hypothesis 2: Ex-ante, firms engaged in wrongdoing leading to a corporate scandal make greater use of equity financing than the industry average.

If managers, due to information asymmetry that eventually leads to a scandal, time the market by issuing more equity when the stock is overvalued, then we can develop two ancillary predictions. First, once a scandal erupts, the abnormal security issuance pattern should revert toward the industry mean. Second, if their equity issuance is higher than that of their peers, their leverage by construction should be lower. Accordingly, we define the following two hypotheses:

Hypothesis 3: After the corporate scandal is unveiled, the stock price of SCAS firms adjusts to the fair price, and firms' securities issuance aligns to the industry's average.

Hypothesis 4: Ex-ante, firms engaged in wrongdoing leading to a corporate scandal have lower levels of leverage than the industry average.

Debt costs and volumes are highly sensitive to corporate information. Rating agencies are known to follow a rating stabilization objective that allows managers to plan the financial needs over a longer time horizon. Arguably, a timely revelation of negative news about the company prospects can lead to a rating downgrade that immediately raises debt-financing costs, increases financial rigidity, and makes debt financing less attractive or nonviable. Then, managers have an incentive to delay or prevent altogether the release of debt-price sensitive information. We therefore hypothesize the following:

Hypothesis 5: The information revealed in a corporate scandal determines a long-term deterioration of the debt quality measured by its debt rating.

Corporate scandals and contagion effect

Academic research on contagion effects at the corporate level has focused on the spillover of shocks occurring in one entity to other entities. The previous literature explored the contagion effects on stock returns following bankruptcy (Lang and Stulz, 1992), earning restatements (Gleason et al., 2008), or managerial forecast announcements (Ramnath, 2002). Similarly, Gieseke (2004) and Theocharides (2007) explored contagion in the corporate bond market, showing that bond prices, yields, and spreads react to firm-specific information. However, no previous study has investigated the existence of a contagion effect on capital structure decisions by companies. Because listed companies raise capital in the market, they are exposed to investor sentiments, market momentum, and, possibly, to information concerning contiguous companies that investors may transfer to the entire industry. The financial crisis of 2008 provided an illuminating example of this phenomenon, in which inherently sound companies experienced the same dry-up in capital as weaker peers in their industry. Despite their managers' efforts, "the capital market window [was] just closed" for both high- and low-quality companies (Federal Reserve Board, 2008).

In this spirit, a SCAS filing is a signal that non-negligible mismanagement has occurred in a company. Investors may infer that this behavior can be common practice across the industry and therefore increase the competitors' capital constraints. A highly constrained financing environment leads to an increased cost of external financing and ultimately to a contraction of the total security offerings of the industry. Furthermore, this effect is amplified by the degree of similarity among the firms' cash flows (Lang and Stulz, 1992). Thus, we generate the following hypothesis:

Hypothesis 6: The eruption of a corporate scandal will produce a contagion effect on the financing pattern of industry peers, generating a contraction in both debt and equity issuances.

A natural second step would be to evaluate whether corporate scandals also affect competitors' returns. Most studies of contagion effects have focused mainly on US bank failures (Kanas, 2005). These studies state that the failure of a large bank can undermine public confidence in the banking system as a whole, which may in turn threaten the stability of the financial system by causing runs on other banks (Aharony and Swary, 1983; Diamond and

Dybvig, 1983; Swary, 1986). One seminal study on the topic of the contagion effect that departs from the banking industry investigates the effect of bankruptcy announcements on the equity value of a firm's competitors (Lang and Stulz, 1992). The authors find that on average, the market value of a weighted portfolio of the common stock of the bankrupt firm's competitors decreases by 1% at the time of the bankruptcy announcement and that this decline is statistically significant. Lang and Stulz (1992) tested the existence of a contagion effect for non-financial firms at an intraindustry level; later, Brewer and Jackson (2002) extended these results at the inter-industry level, working on a database of commercial banks and life insurance companies. Ferris et al. (1997) demonstrated that large firm bankruptcies generate a dominant contagion effect. Gande and Lewis (2009) documented statistically significant market price effects following a corporate scandal. Looking at security class actions, they used stock price returns, the legal environment, and the expected effects of a class action to develop a probabilistic model to predict the initiation of a SCAS. The corporate finance-related variables they use in their model are unexpected earnings and managerial compensation, but there is no metric addressing such a capital structure phenomena. However, it is reasonable to expect that corporate scandal has a different impact on the stock prices of industry peers of a company involved in a SCAS conditional on previous capital structure decisions such as leverage and cash flow level. To test this intuition, we generate the following hypotheses:

Hypothesis 7: Ex-post, a corporate scandal will cause a negative contagion effect on industry peers' stock prices, and the contagion intensity is affected by the peers' capital structure characteristics.

Data and summary statistics

Data

The previous literature on corporate scandals adopted earnings restatements, bankruptcy announcements, and announcements of fraud in the press as measures of a scandal. In this article, we depart from these approaches and proxy a corporate scandal by the filing of a SCAS in the United States, as emerging from the SSCAC database. This definition of corporate scandal helps us generalize the results to a broader set of corporate events because it deals with less severe cases than financial default as only less than 10% of cases end in bankruptcy announcements. By adopting data at the Security Class Action level, we can test whether scandals do affect firms' and their peers' behaviors conditional and unconditional on scandal intensity. Our database includes several types of corporate scandals, such as self-dealing frauds, disclosure failure, misrepresentation of accounting data, etc. One important concern, as highlighted by Dyck et al. (2010), is the possible inclusion of cases that may have simply been frivolous allegations. To deal with this potentially severe sample bias issue, we excluded actions filed before the passing of the Private Securities Litigation Reform Act of 1995 (PSLRA), which was designed with the goal, among others, of reducing courts' workload from frivolous claims. In addition, we excluded dismissed cases, i.e., closed cases in which the outcome was a discharge from allegations.

The original Class Action Suits database has 2479 cases from January 1996 to December 2006. We only kept cases filed between January 1996 and December 2005, to allow for the availability of at least 2 years of financial statement data after the suit filing. We then dropped highly specific SCASs classified as Analyst-related, IPO Allocation, Mutual Fund, and Option Backdating (thus leaving only the Classic SCAS cases).[2] The rationale for this decision is that these cases are generally related to one isolated event (listings or managerial compensation) that is less likely to have an impact on a broader cross section of security holders. Following Eckbo et al. (2008), we dropped private holdings, firms in the financial and utilities sectors (sic codes 6000–6999 and 4900–4999), and cases that did not have Compustat and CRSP information for the required period. The final sample reduces to 793 SCAS cases. Fifty-four percent (432) of the cases involved accounting allegations, and the remaining 46% (361) were classified as cases involving non-accounting allegations. At the time of data collection, 16% (127) of the cases were still pending, whereas the remaining 84% (666) of the cases were already settled. We matched the firms from the SCAS database with Compustat and CRSP using the firm's CUSIP. In

the final sample of SCAS cases, we had 765 CUSIPs, meaning several firms might have had more than one SCAS filing. The mean total assets in the filing year for these firms were 4642.62 million USD. The sample contained a total of 204 different 4-digit sic codes that we used to generate peer-groups comparisons. We classified each case according to the Fama and French (1997) industry classification to identify the dispersion of cases by industry; on average, we had 21 different Fama and French industries in each filing year (see Table I) and a total of 41 industries.

Finally, to ensure that SCASs are not a proxy of bankruptcy, or more specifically of Chapter 11 filings, we matched our data with LoPucki's UCLA Bankruptcy Research Database. We manually merged information from the two databases and observed that on average, only less than 7% of the firms in our final sample filed for Chapter 11 in the period 2 years before or after the filing of the suit. This result allows us to argue that because SCASs are not a proxy for bankruptcy, capital structure changes are not a result of bankruptcy-driven corporate restructuring. Table II provides the distribution of cases included in our sample by event year, type of allegations, and amount of companies that eventually filed for Chapter 11 in the 2 years before or after the filing of the SCAS.

To allow comparisons with the average financing behavior of industry peers, for each event year, we constructed a measure given by the value-weighted portfolio of firms classified with the same 4-digit sic code and not involved in a SCAS.

TABLE I

Yearly distribution of events and Fama and French industries

Filing year (SCAS)	*N*	Fama and French industries
1996	47	19
1997	66	22
1998	88	24
1999	75	22
2000	87	21
2001	81	20
2002	90	25
2003	63	21
2004	82	21
2005	67	24
2006	47	18
Total	793	41

This table reports the distribution of security class action suit cases by filing year, from January 1996 to December 2006. Fama and French industries were assigned using 4-digit sic codes and the classification provided in Fama and French (1997).

Variables definition

We constructed capital structure variables following Baker and Wurgler (2002). Book equity was measured as total assets minus total liabilities and preferred stock plus deferred taxes and convertible debt. Market equity was measured as the number of common shares outstanding multiplied by the stock price. Book debt was measured as total assets minus book equity. Book leverage was measured as book debt divided by total assets. Market leverage was measured as book debt divided by the sum of total assets minus book equity plus market equity. The amount of total (yearly) security offerings was measured as the sum of debt issuances and book equity issuances. Debt issuances were measured as the change in total assets minus the change in book equity divided by total assets. Book equity issuances were measured as the change in book equity minus the change in balance sheet retained earnings, divided by total assets.[3] In addition, because debt and equity issuance were sometimes negative, indicating repurchases or voluntary cancelations of debt and equity, we constructed a dummy variable that is equal to one when either equity or debt issuances are smaller than zero, and zero otherwise.

Corporate scandals and capital structure

Security offerings

We conjectured that because fraud detection may affect the availability and cost of future financing, managers have incentives to take advantage of this information asymmetry to increase the amount of funds they raise. Similarly, we expected a firm engaged in a fraudulent behavior – such as a lack of disclosure of information and/or misstatement of

TABLE II

Amount of cases studies by event year, type of allegation, and Chapter 11 filing

Year (event)	*N*	Accounting allegations (%)	Non-accounting allegations (%)	Filed for Chapter 11 in t = [−2, 2] (%)	Didn't file for Chapter 11 in t = [−2, 2] (%)
$t = -3$	735	55.50	44.50	8.50	91.50
$t = -2$	754	55.00	45.00	8.80	91.20
$t = -1$	717	54.30	45.70	7.60	92.40
$t = 0$	627	53.40	46.60	5.40	94.60
$t = 1$	551	53.40	46.60	4.40	95.60
$t = 2$	458	54.80	45.20	4.20	95.80
$t = 3$	366	54.80	45.20	4.00	96.00

This table reports the distribution of security class action suit cases by event year. The event year (t = 0) is defined as the year in which the security class action suit was filed against the firm. The percentages of cases according to the type of allegation (accounting and non-accounting), and to the filing of Chapter 11 (2 years after or before the filing) are also presented.

accounts – to have a greater need of cash and liquidity, which would translate into a greater amount of capital raised. Based on this intuition, we compared the weighted average amount of security offerings by the sample of firms engaged in a SCAS with the average amount of offerings made by their peers (the value-weighted portfolio of the remaining firms with the same 4-digit sic code). The comparison was performed using data from the 6-year window {−2, +3} around the filing of the SCAS. Results reported in Table III offer support for our hypotheses.

Ex-ante, firms engaged in a corporate scandal issued significantly more securities than their peers. However, this issuance pattern was abnormal and disappeared after the SCAS filing. On average, 2 years before an event, firms engaged in a corporate scandal issued 5.35 times more securities than their peer sample. One year before the filing, abnormal security issuance started decreasing, although it remained 2.52 times higher than that of industry peers. In the event year, i.e., when the SCAS was filed, abnormal issuance was twice that of the peer group. All differences are statistically significant at the 1% level on both one and two-tailed tests.

Hypothesis 3 predicted that once the information gap with the market that allowed abnormal security issuance is eliminated, the issuance pattern should revert to the market mean. Results reported in Table III confirm this intuition: in the 3 years following the SCAS filings, sued firms decreased their security offerings considerably, and their issuance pattern was not statistically different from that of their peers. In fact, there is some (though insignificant) evidence that their issuances were below the industry average. This result is not surprising and can be interpreted as evidence of an overshooting effect: the market reacts sharply to the SCAS, and prices drop below their ''fair'' value, reducing the chances for capital raising.

Financial mix: equity and debt offerings

The previous analysis shows robust evidence of greater security issuance before a scandal erupts, which supports the idea that firms and managers exploited temporary overpricing due to undisclosed information. However, this information gap should affect equity more heavily than debt issuances. According to the Market Timing Hypothesis, firms with higher current stock prices (relative to their past stock prices, book values or earnings) are more likely to issue equity rather than debt and repurchase debt rather than equity (Hovakimian et al., 2001). On this basis, we hypothesized that the retained information allows firms to maintain overvalued stocks, leading to higher equity issuances. Accordingly, we expect these firms to show smaller evidence of differential issuance of public debt.

The results reported in Table IV confirm our predictions. Ex-ante, SCAS firms issued far more

TABLE III

Mean security offerings by event year

t	Variable	Obs.	Mean	Mean (diff.)	$Pr(\|T\| > \|t\|)$[a]	$Pr(T > t)$[b]
−2	Security offerings SCAS	629	0.576			
−2	Security offerings PEERS	629	0.108	0.469	0.000***	0.000***
−1	Security offerings SCAS	638	0.390			
−1	Security offerings PEERS	638	0.111	0.279	0.000***	0.000***
0	Security offerings SCAS	553	0.184			
0	Security offerings PEERS	553	0.092	0.092	0.000***	0.000***
1	Security offerings SCAS	483	0.042			
1	Security offerings PEERS	483	0.072	−0.030	0.409	0.796
2	Security offerings SCAS	403	0.064			
2	Security offerings PEERS	403	0.069	−0.004	0.884	0.558
3	Security offerings SCAS	322	0.074			
3	Security offerings PEERS	322	0.067	0.007	0.928	0.464

This table reports the total mean security offerings of firms engaged in a corporate scandal (proxied by the filing of a security class action suit), and that of a value-weighted portfolio of the remaining firms with the same 4-digit sic code (by event year). The event year (t = 0) is defined as the year in which the security class action suit was filed against the firm. The amount of total-yearly-security offerings is measured as the sum of debt issuances and book equity issuances. Debt issuances are measured as the change in total assets minus change in book equity divided by total assets. Book equity issuances are measured as the change in book equity minus the change in balance sheet retained earnings, divided by total assets. The last two columns of the table present the results of the one and two-tailed mean-difference tests.
[a]Ha: mean (diff.) ≠ 0.
[b]Ha: mean (diff.) > 0.
Significance at the 1, 5, and 10% level is denoted by ***, **, and * respectively.

equity than their comparable weighted average portfolio of peers, and the difference is statistically significant for all years. Two years before the event, firms engaged in a corporate scandal issued 7.7 times more equity than did their peer sample. As with results observed for the security issuances test, this trend decreases over time, although its significance is consistently high at the 1% level. In particular, 1 year before the event (t = −1) SCAS firms issued 4.26 times more than their peers; during the year when the security class action was filed, the abnormal equity issuance dropped to 2.39 times the peer sample rate. As predicted, after the event, SCAS firms considerably reduced their equity issuances, which are never significantly different from the industry average.

Debt issuance evidence provides additional support to the hypotheses. Before the scandals were unveiled, SCAS firms made a remarkably smaller use of debt as opposed to equity. Cross-sectionally, debt offerings were aligned with those of the industry peers, with the exception of 1 year before the filing. However, financing decisions after the SCAS filing changed sharply: equity issuances shrank, and debt issuances turned negative and significant for the first 2 years of the event window. At t = 3, debt issuance is still negative but not significant.

Contagion effect on external financing decisions

Firms in the peer sample show significantly different behavior, with both debt and equity offerings being relatively stable in the two periods before and after the SCAS filing. Interestingly, issuance figures show strong evidence of discrete, one-time downward changes around the event date. Because figures are estimated over event windows distributed over a 10-year time horizon, it is not likely that this change is correlated with market conditions. Instead, we interpret this change as a possible consequence of a contagion effect on peers: when a SCAS is filed, investors may increase risk estimates indicating that other companies have engaged in similar practices, thus reducing stock prices and increasing debt

TABLE IV

Mean debt and equity issuances by event year

t	Variable	Obs.	Mean	Mean (diff.)	$\Pr(\vert T\vert > \vert t\vert)^{a}$	$\Pr(T > t)^{b}$	$\Pr(T < t)^{c}$
Equity							
−2	Equity issuances SCAS	629	0.538				
−2	Equity issuances PEERS	629	0.070	0.468	0.018**	0.009***	0.991
−1	Equity issuances SCAS	638	0.309				
−1	Equity issuances PEERS	638	0.072	0.236	0.000***	0.000***	1.000
0	Equity issuances SCAS	553	0.148				
0	Equity issuances PEERS	553	0.062	0.086	0.000***	0.000***	1.000
1	Equity issuances SCAS	483	0.074				
1	Equity issuances PEERS	483	0.045	0.029	0.256	0.128	0.872
2	Equity issuances SCAS	403	0.089				
2	Equity issuances PEERS	403	0.046	0.043	0.089*	0.044*	0.956
3	Equity issuances SCAS	322	0.082				
3	Equity issuances PEERS	322	0.043	0.039	0.091*	0.046*	0.955
Debt							
−2	Debt issuances SCAS	632	0.038				
−2	Debt issuances PEERS	632	0.040	−0.002	0.990	0.505	0.495
−1	Debt issuances SCAS	640	0.081				
−1	Debt issuances PEERS	640	0.039	0.042	0.008***	0.004***	0.996
0	Debt issuances SCAS	555	0.036				
0	Debt issuances PEERS	555	0.032	0.004	0.766	0.383	0.617
1	Debt issuances SCAS	485	−0.033				
1	Debt issuances PEERS	485	0.029	−0.062	0.003***	0.999	0.001***
2	Debt issuances SCAS	406	−0.025				
2	Debt issuances PEERS	406	0.024	−0.049	0.069*	0.966	0.034**
3	Debt issuances SCAS	325	−0.011				
3	Debt issuances PEERS	325	0.025	−0.035	0.568	0.716	0.284

This table reports mean equity and debt issuances of firms engaged in a corporate scandal (proxied by the filing of a security class action suit), and a value-weighted portfolio of the remaining firms with the same 4-digit sic code (by event year). The event year ($t = 0$) is defined as the year in which the security class action suit was filed against the firm. Debt issuances are measured as the change in total assets minus change in book equity divided by total assets. Book equity issuances are measured as the change in book equity minus the change in balance sheet retained earnings, divided by total assets. The last three columns of the table present the results of the one- and two-tailed mean-difference tests.

[a]Ha: mean (diff.) ≠ 0.

[b]Ha: mean (diff.) > 0.

[c]Ha: mean (diff.) < 0.

Significance at the 1, 5, and 10% level is denoted by ***, **, and * respectively.

required yields, which ultimately results in more costly capital and deferred or reduced capital raising.

We further explore this evidence by modeling a trend variable T that captures the evolution over time of external capital raising. The values of the trend variable range from {1, 6} and are linked to the event years so that T is equal to one when the event year is −2, T takes a value of two when the event year is −1 and so forth. We then explore trends in security offerings by performing the following cross-sectional random-effects GLS regression:

$$Y_{it} = \alpha_i + \beta_i T + \varepsilon_{iT} \qquad (1)$$

where Y_{it} is the dependent variable capturing the aggregate ith industry equity, debt, or total security offerings, T is the trend variable, and ε_{it} is the error term of the regression. The regression results are robust to exogenous factors like market momentum,

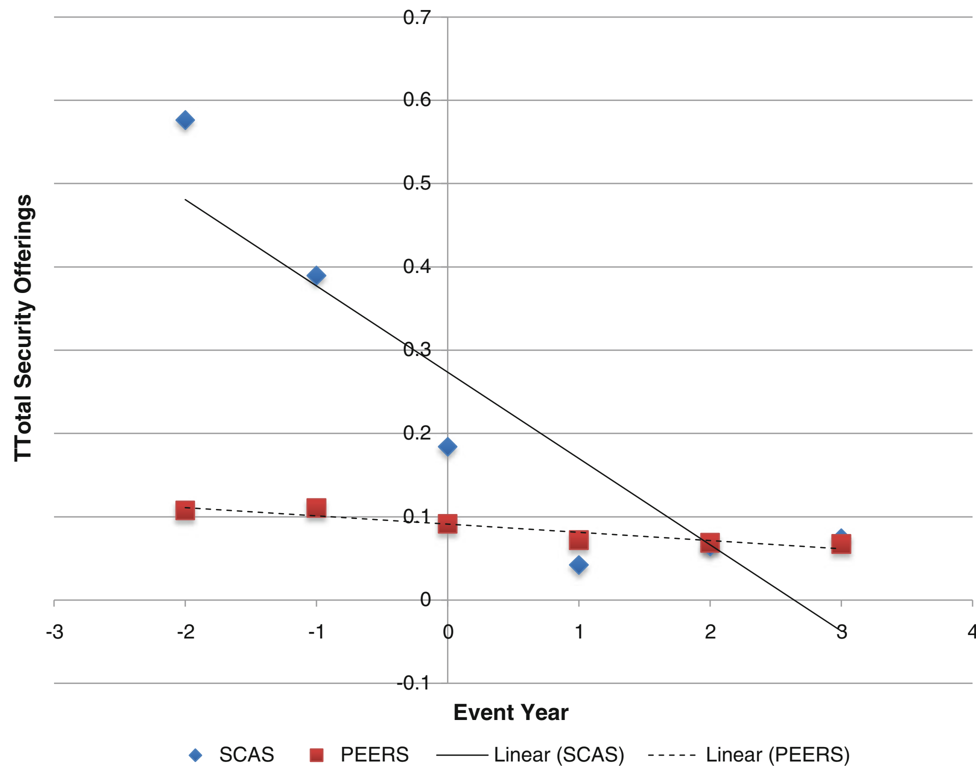


Figure 1. Total security offerings trend analysis. This figure reports the results of the regression: $Y_{jt} = \alpha_j + \beta_j(T) + \varepsilon_{jt}$; where, Y_{jt} are total security issuances, T is a trend variable that ranges from $\{1, 6\}$, and ε_{jt} is the error term of the regression. The amount of total-yearly-security offerings is measured as the sum of debt issuances and book equity issuances.

business cycles, and sentiment because we are working with event years and not calendar years. Additional robustness tests are presented in "Robustness tests" section.

Figure 1 and Table V show regression results for SCAS firms and their peers. Our results support the intuition in hypothesis 6: overall issuances decrease at an increasing rate over time for both subsamples. The trend coefficient for both subsamples is negative, statistically significant, and, not unexpectedly, larger for SCAS firms. The intercepts are large and positive, indicating positive net security issuance over time. Regression significance as captured by χ^2 in Wald statistics is robustly significant at the 1% level.

Breaking down the security issuance trend analysis by types of security, we find that debt and equity issuances decrease for both peers and SCAS firms. As reported in both Figure 2 and Table V, the trend coefficient of the troubled firms is over 13 times larger than that of their peers.

Still, peers experience a negative, strongly significant coefficient, which indicates a contraction in capital raising in public equity markets. The results for debt issuance are somewhat different. Not surprisingly, regression estimates for SCAS firms are not significant. This result can be explained by recalling the evidence of debt issuance and book leverage of SCAS firms, which showed a strong decrease in debt issuance after the filing followed at $t = +2$ by a recovery. On the other hand, results for the peer group are strongly significant, with a negative coefficient for the trend variable, which indicates that a SCAS against one competitor affects the debt capacity of the entire industry. As expected, results are stronger and more significant when inter-industry similarity is higher as reported in Internet Appendix 2.

Leverage

The previous analyses show remarkable differences in the security issuance patterns of companies targeted by a SCAS and peers. However, these figures

TABLE V

Security offering trend analysis

Dependent variable	Total security offerings	Equity issuances	Debt issuances
SCAS			
Intercept	0.586***	0.510***	0.082
$P > \|z\|$	0.000	0.000	0.313
Trend coeff.	−0.093***	−0.078***	−0.019
$P > \|z\|$	0.000	0.001	0.392
N	721	721	724
Wald chi-square	32.05***	10.67***	0.73
$P >$ chi-square	0.000	−0.001	−0.392
PEERS			
Intercept	0.120***	0.078***	0.045***
$P > \|z\|$	0.000	0.000	0.000
Trend coeff.	−0.009***	−0.006***	−0.004***
$P > \|z\|$	0.000	0.000	0.000
N	782	782	782
Wald chi-square	57.18***	47.75***	21.96***
$P >$ chi-square	0.000	0.000	0.000

This table reports the results of the regression: $Y_{iT} = \alpha_i + \beta_i T + \varepsilon_{it}$; where Y_{iT} are either equity, debt, or total security issuances, T is a trend variable that ranges from $\{1, 6\}$ representing event years $\{-2, 3\}$, and ε_{iT} is the error term of the regression. The amount of total-yearly-security offerings is measured as the sum of debt issuances and book equity issuances. Debt issuances are measured as the change in total assets minus change in book equity divided by total assets. Book equity issuances are measured as the change in book equity minus the change in balance sheet retained earnings, divided by total assets.

Significance at the 1, 5, and 10% level is denoted by ***, **, and * respectively.

may not fully capture the complete set of financing decisions by companies. In fact, privately negotiated financing (e.g., bank loans) is by construction excluded from the data. This source of capital is largely used, in addition to publicly placed securities, to shape up companies' financial structures. In particular, following hypothesis 4 and previous results, we should expect market leverage to not be significantly different from that of the industry due to overpriced equity before the SCAS; we should also expect it to increase soon thereafter due to the strong adjustment in prices following the SCAS announcement. Similarly, book leverage should decrease before the filing as an effect of incremental equity increases and rise in the years that follow as evidence of greater use of non-public debt by the company due to too costly or closed market conditions.

We test these intuitions by analyzing the market and book leverage figures for companies sued by security holders and the control peer group around the event date. The results reported in Table VI confirm these predictions.

Firms engaged in SCAS showed decreasing levels of book leverage before the event date, although differences with the peer groups were not significant except for the event year −2. In contrast, book leverage differences increased significantly for all periods following the filing date. This result was fully generated by SCAS firms' changes because the peer group did not show any significant change in the average book leverage over the 5-year event window.

Market leverage figures were not largely different between the two groups before the filing date. However, we documented a strongly significant increase in market leverage on the event date and for all the years that follow. Similar to book leverage figures, market leverage figures for the peer group were constant over time, suggesting that differences are determined by drops in the market value of the equity of SCAS firms.

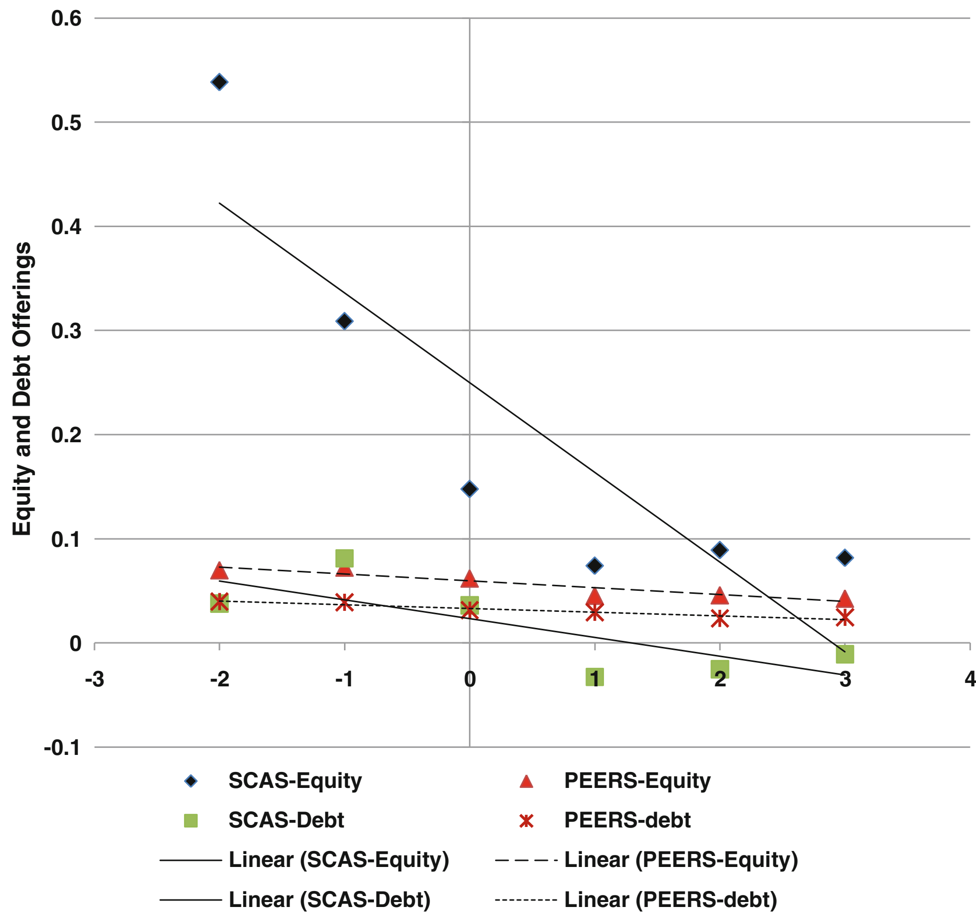


Figure 2. Equity and Debt issuance trend analysis. This figure reports the results of the regression: $Y_{jt} = \alpha_j + \beta_j(T) + \varepsilon_{jt}$; where, Y_{jt} are either equity, debt, or total security issuances, T is a trend variable that ranges from {1, 6}, and ε_{jt} is the error term of the regression. Debt issuances are measured as the change in total assets minus change in book equity divided by total assets. Book equity issuances are measured as the change in book equity minus the change in balance sheet retained earnings, divided by total assets.

Negative issuance

Previous results have shown that both SCAS firms and their peers have a lower level of security issuance after a security class action filing. Interestingly, this phenomenon also generates cases of "negative issuance." Negative debt issuance can often be the simple repayment of outstanding debt without any rollover. In such a case, assuming that companies have a fairly stable short-term financial structure, the negative issuance pattern should be rather stable throughout the event window. However, if some extraordinary event occurs affecting the company's current and expected cash-flows, an abnormal negative issuance pattern becomes a signal of a debt restructuring process involving some degree of debt-cutting. Negative equity interpretation is less intuitive because book equity is a permanent liability on a company's balance sheet that is harder to renegotiate. One possible scenario could be that the information revealed in a scandal triggers a profound restructuring that forces equity holders to write off some equity. However, it is extremely unlikely that this may happen without a formal procedure such as a Chapter 11; this situation occurs in our sample in less than 7% of cases. In contrast, it is possible that once the information is revealed, the firm may be prevented from investing – and overinvesting – and thus be left with excess cash that is paid out to shareholders through buybacks, as the stock price would most likely not be overpriced.

TABLE VI

Market and book leverage by event year

t	Variable	Obs.	Mean	Mean (diff.)	$\Pr(\lvert T\rvert > \lvert t\rvert)$[a]	$\Pr(T > t)$[b]
Market leverage						
−2	Market leverage SCAS	607	0.236			
−2	Market leverage PEERS	607	0.233	0.003	0.719	0.359
−1	Market leverage SCAS	633	0.252			
−1	Market leverage PEERS	633	0.234	0.018	0.050**	0.025**
0	Market leverage SCAS	570	0.372			
0	Market leverage PEERS	570	0.237	0.135	0.000***	0.000***
1	Market leverage SCAS	498	0.381			
1	Market leverage PEERS	498	0.239	0.142	0.000***	0.000***
2	Market leverage SCAS	417	0.360			
2	Market leverage PEERS	417	0.231	0.129	0.000***	0.000***
3	Market leverage SCAS	327	0.365			
3	Market leverage PEERS	327	0.230	0.135	0.000***	0.000***
Book leverage						
−2	Book leverage SCAS	706	0.653			
−2	Book leverage PEERS	706	0.430	0.223	0.027**	0.013**
−1	Book leverage SCAS	660	0.483			
−1	Book leverage PEERS	660	0.423	0.060	0.106	0.053*
0	Book leverage SCAS	572	0.526			
0	Book leverage PEERS	572	0.425	0.101	0.000***	0.000***
1	Book leverage SCAS	501	0.626			
1	Book leverage PEERS	501	0.435	0.191	0.007***	0.003***
2	Book leverage SCAS	420	0.581			
2	Book leverage PEERS	420	0.421	0.161	0.000***	0.000***
3	Book leverage SCAS	330	0.755			
3	Book leverage PEERS	330	0.419	0.336	0.037**	0.019**

This table reports the mean market and book leverage of firms engaged in a corporate scandal (proxied by the filing of a security class action suit), and for the value-weighted portfolio of firms with the same 4-digit sic code by event year, excluding the SCAS firm. The event year (t = 0) is defined as the year in which the security class action suit was filed against the firm. Market leverage is measured as book debt divided by the sum of total assets minus book equity plus market equity. Book leverage is measured as book debt divided by total assets. The last two columns of the table present the results of the one and two-tailed mean-difference tests.

[a]Ha: mean (diff.) ≠ 0.

[b]Ha: mean (diff.) > 0.

Significance at the 1, 5, and 10% level is denoted by ***, **, and * respectively.

In Table VII, we report figures for a simple discrete analysis of the number of firms for which debt and equity issuances figures were less than or equal to zero during the {−2, +3} years surrounding the event.

The results show that after the filing, SCAS firms retired and/or repurchased about 88% more equity and 74% more debt. In the SCAS subsample, negative debt issuance may be the result of debt repayment and cancelation due to restructuring taking place after the suit was filed. Agrawal and Cooper (2007) show, in fact, that immediately after a scandal, most of the companies change their top management and initiate profound restructuring processes encompassing debt renegotiation as well. This same interpretation may apply to the equity figures because most of the restructuring plans imply large dilutions for existing shareholders, which result in negative changes in book equity and retained earnings.

Surprisingly, however, companies in the peer group also showed an increasing amount of negative

TABLE VII

Negative issuance

Equity issuances

t	SCAS			PEERS		
	Obs.	Eq_iss ≤ 0	% Eq_iss ≤ 0	Obs	Eq_iss ≤ 0	% Eq_iss ≤ 0
−2	629	90	14.31	754	91	12.10
−1	638	95	14.89	717	103	14.40
0	553	145	26.22	627	99	15.80
1	483	135	27.95	551	108	19.60
2	403	105	26.05	458	97	21.20
3	322	96	29.81	366	73	19.90

Debt issuances

t	SCAS			PEERS		
	Obs.	Debt_iss ≤ 0	% Debt_iss ≤ 0	Obs.	Debt_iss ≤ 0	% Debt_iss ≤ 0
−2	632	175	27.69	754	154	20.40
−1	640	174	27.19	717	135	18.80
0	555	211	38.02	627	153	24.40
1	485	244	50.31	551	128	23.20
2	406	217	53.45	458	109	23.80
3	325	159	48.92	366	92	25.10

This table reports the results of a discrete analysis of negative debt and equity issuances in the different event years. For each event year, we calculated the number of case where debt/equity issuances were less than or equal to zero. Percentage are calculated on the total number of observations.

issuances. The differences are strong and significant across both samples and time. In line with our conjecture, we interpret this result as a contagion effect of the filing of a SCAS in the industry, which results in decreased opportunities for security offerings in the peer group around the event.

Corporate scandals and securities prices

Equity

The previous results build on the arguments that corporate scandals convey information about a firm's cash flows and accounting or management practices and investors may consider the scandals as signals of an industry-wide phenomenon rather than as isolated, company-specific events. Such an inference should determine a negative effect on the stock prices of both SCAS firms and their peers following the revelation of the scandal. Initial evidence of this effect and of the spillover to competitors was provided by Gande and Lewis (2009). However, in their study, there is no evidence of any differential effect on stock prices conditional on capital structure and financial characteristics of the industry, which may arguably impact the magnitude of the investors' response to scandals at the inter-industry level. In this section, we begin by testing general effects on stock prices following a SCAS announcement and control for the settlement size, leverage, and correlation of returns. We examine abnormal returns on a set of short-term windows (2, 3, 11, 13, and 21 days around the event). We chose to restrict our study to short-term windows, as working within a longer perspective could intro-

duce noise into our results. The specific bracketings are constructed to capture quasi-instantaneous and anticipated or delayed stock price reactions to the filing announcement.

Following MacKinley (1997) and Khotari and Warner (2006), we estimate the normal performance using a standard market model with the following equation:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \tag{2}$$

where R_{it} is the predicted normal rate of return of security i at time t, R_{mt} is the value-weighted return of the S&P500 index, α_i and β_i are the estimated parameters, and ε_{it} is the error term of the regression. The distributions of stock returns are assumed to be jointly normal, independent and identically distributed over time: thus $E(\varepsilon_{it}) = 0$ and $\text{var}(\varepsilon_{it}) = \sigma^2_{\varepsilon_i}$. Equation 2 is estimated using trading days observations over the period $\{t - 250, t - 50\}$ preceding the filing of the class action suit at $t = 0$. Using the estimated market model parameters, we compute daily abnormal returns for both sued firms and their peers' weighted average observations. The daily abnormal return of a security is computed by subtracting the predicted normal return from the actual return for each day in the event window. Letting $\widehat{\text{AR}}_{it}$ be the abnormal returns for firm i at time t, the sample abnormal return is:

$$\widehat{\text{AR}}_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt}) \tag{3}$$

where $\widehat{\text{AR}}_{i\tau}$ is the abnormal rate of return of the security i in the event window, R_{it} is the actual rate of return of the security i in the event window, and $(\hat{\alpha}_i + \hat{\beta}_i R_{m\tau})$ is the expected normal rate of return of the security i in the event window calculated using the market model. The aggregation of abnormal returns is bi-dimensional: through time and across securities and follows the following process. We first compute the average abnormal returns for all i as:

$$\overline{\text{AR}}_t = \frac{1}{N} \sum_{i=1}^{N} \widehat{\text{AR}}_{it} \tag{4}$$

For any security i, we then compute the cumulative abnormal return from τ_1 to τ_2 as the sum of the abnormal returns within that event window:

$$\widehat{\text{CAR}}_i(t_1, t_2) = \sum_{t=t_1}^{t_2} \widehat{\text{AR}}_{it} \tag{5}$$

The average abnormal returns, across the N SCAS companies, are aggregated over the event window as follows:

$$\overline{\text{CAR}}(t_1, t_2) = \sum_{t=t_1}^{t_2} \overline{\text{AR}}_t \tag{6}$$

Finally, we test whether the cumulative abnormal returns are statistically different from zero using the following:

$$\theta_1 = \frac{\overline{\text{CAR}}(t_1, t_2)}{\text{var}(\overline{\text{CAR}}(t_1, t_2))^{1/2}} \sim N(0; 1) \tag{7}$$

This distributional result is asymptotic with respect to the N number of securities and the length of the estimation window (201 trading days in this study).

We follow the same procedure for calculating AR and CAR for the 4-digit SIC code peer group of the sued company, excluding the latter from the estimations.

Event study results

Table VIII reports the event study results.

For SCAS firms, we observed significant, large negative returns for all estimation windows. In the 21-day window, the market price of sued firms dropped by −19.84%. Most of the observed CAR (−17.64%) was generated in the [−10, +1] window, with −7.12% CAR observed in the 3 days around the filing date. The price adjustment process extends, with significant daily abnormal returns up to 3 days after the filing and an additional −2.2% significant CAR up to 10 days after the filing. Interestingly, our results are stronger in size and significance than those reported in Gande and Lewis (2009). We ascribe this evidence to the different nature of the sample adopted. In our sample, we have excluded financial companies and non-capital structure-relevant allegations such as IPO and option backdating-related filings. This different composition suggests that investors in industrial firms react to the information conveyed by the filing as a signal of greater risk exposure associated with all securities and adjust their portfolios accordingly. This adjustment is confirmed by looking at the peer group. Stock price reactions are less strong but still significant, both around the event date and in a longer window, with CAR equal to −0.21, −0.56, and

TABLE VIII

Equity price reaction

Day/window relative to SCAS filing	Reaction of SCAS firms				Reaction of PEERS			
	N	AR/CAR (%)	t	$P > \|t\|$	N	AR/CAR (%)	t	$P > \|t\|$
−10	693	−0.60	−2.63	0.009***	705	−0.04	−0.64	0.520
−9	694	−0.50	−1.89	0.060**	705	−0.05	−0.76	0.448
−8	692	−1.11	−4.18	0.000***	705	−0.04	−0.52	0.602
−7	692	−0.90	−3.56	0.000***	705	0.04	0.44	0.658
−6	693	−1.38	−4.26	0.000***	705	−0.04	−0.47	0.640
−5	692	−0.88	−1.55	0.122	705	−0.01	−0.11	0.915
−4	693	−1.77	−4.89	0.000***	705	−0.03	−0.38	0.700
−3	693	−1.90	−5.68	0.000***	705	−0.17	−2.39	0.017**
−2	688	−1.68	−3.84	0.000***	705	0.16	1.81	0.070*
−1	685	−3.21	−6.81	0.000***	705	−0.10	−1.35	0.177
0	686	−2.34	−5.17	0.000***	705	−0.11	−1.64	0.101
1	687	−1.77	−6.42	0.000***	705	−0.02	−0.21	0.834
2	687	−0.80	−3.30	0.001***	705	−0.29	−3.68	0.000***
3	686	−0.49	−1.86	0.063*	705	−0.06	−0.86	0.389
4	686	−0.23	−0.83	0.405	705	0.04	0.55	0.581
5	685	−0.03	−0.10	0.924	705	0.02	0.30	0.761
6	686	0.05	0.18	0.854	705	−0.04	−0.47	0.637
7	686	−0.43	−1.73	0.084*	705	−0.05	−0.70	0.484
8	686	0.21	0.79	0.431	705	0.08	0.93	0.352
9	686	−0.34	−1.22	0.225	705	−0.04	−0.60	0.550
10	687	−0.20	−0.83	0.406	705	−0.01	−0.20	0.840
[−1, 0]	705	−5.40	−8.38	0.000***	705	−0.21	−2.11	0.036*
[0, +1]	705	−4.00	−7.80	0.000***	705	−0.12	−1.27	0.206
[−1, +1]	705	−7.12	−10.03	0.000***	705	−0.23	−1.73	0.084*
[−5, +5]	705	−14.73	−12.60	0.000***	705	−0.56	−1.98	0.048**
[−10, +10]	705	−19.84	−14.01	0.000***	705	−0.75	−1.92	0.056*
[−10, −2]	705	−10.52	−9.69	0.000***	705	−0.18	−0.73	0.465
[−10, +1]	705	−17.64	−14.04	0.000***	705	−0.41	−1.36	0.173
[+2, +10]	705	−2.20	−3.34	0.001***	705	−0.35	−1.53	0.127

This table reports the cumulative abnormal returns of firms engaged in a corporate scandal (proxied by the filing of a security class action suit), and a value-weighted portfolio of the remaining firms with the same 4-digit sic code (by event year). The event year (t = 0) is defined as the year in which the security class action suit was filed against the firm. The daily abnormal return of a security is computed by subtracting the predicted normal return (estimated using the market model) from the actual return for each day in the event window.
Significance at the 1, 5, and 10% level is denoted by ***, **, and * respectively.

−0.75% for, respectively, the [−1, 0], [−5, +5], and [−10, +10] windows.

These price drops may seem somewhat abnormal because companies' litigation damages are generally fully insured and the expected direct and indirect costs should be recovered. Gande and Lewis (2009) suggest that the downward adjustments are the result of shareholders' capitalization of future higher insurance premia, legal costs, and loss of reputation. However, these additional costs are unlikely to be large enough to motivate these price adjustments. A different explanation is related with our previous evidence that companies were involved in a security class action issue significantly more than their peers due to overvaluation. In this spirit, investors may therefore interpret the SCAS filing as a credible

signal of previous overvaluation, thus sharply adjusting stock prices. Such a case carries a straightforward, testable implication: if SCAS reaction is a consequence of previous overvaluation, the magnitude of the reaction should be a function of the severity of the managerial misbehavior that supported inflated prices. Unfortunately, class actions are filed without any explicit monetary claim, making a direct test impossible. However, the filing claims and support documentation should allow investors to understand the likely outcome of the suit. In other words, investors may be able to measure the extent of managerial misbehavior by anticipating the potential monetary outcome. In such a case, CARs should be correlated with the realized SCAS settlements. We test this intuition by regressing the CARs of SCAS firms and peers over the monetary payments imposed by courts, as recorded by court documents extracted from a companion data set of the SSCAC database. Our regressions take the following functional form:

$$\overline{\text{CAR}}_i(t_1, t_2) = \alpha + \beta S_i + \varepsilon_i \tag{8}$$

where $\overline{\text{CAR}}_i$ is the average Cumulative Abnormal Return over the event window $[t_1, t_2]$ for the i SCAS firms or the control group, and S is the natural logarithm of the monetary settlement at the closing of the Security Class Action measured in millions. Table IX reports outcomes for these tests.

The results support the intuition for all prediction windows with CAR size and significance increasing over the length of the event window. In particular, the larger the monetary settlement, the higher the reactions of the ex-ante investors. This result suggests that investors can meaningfully discriminate between class actions and react accordingly. Peers results are unsurprisingly insignificant: the in-depth analysis of security class action filings is a highly firm-specific task, and investors in other firms most likely react to the filing information per se without extensively screening the case. This generates a contagion effect that is less affected by expected settlement issues for the sued firms.

Similar to the arguments put forth on financing policy decisions, stock price reactions following the announcement of a corporate scandal should be

TABLE IX

CARs and settlement size

	[−1; 0]	[0; 1]	[−1; 1]	[−5; 5]	[−10; 10]	[−10; −2]	[−10; 1]
SCAS							
Intercept	−0.016	−0.032***	−0.048***	−0.080***	−0.135***	−0.071***	−0.118***
$p > \|t\|$	0.161	0.001	0	0	0	0	0
Sett size log	−0.022***	−0.007*	−0.016***	−0.036***	−0.037***	−0.016*	−0.032***
$p > \|t\|$	0.000	0.068	0.002	0.000	0.001	0.051	0.001
R^2	0.035	0.006	0.015	0.028	0.021	0.007	0.020
F	22.14	3.35	9.97	17.78	12.09	3.82	12.1
$p > F$	0.000	0.067	0.001	0.000	0.001	0.051	0.001
PEERS							
Intercept	−0.004	−0.004	−0.005	−0.012	−0.009	−0.004	−0.009
$p > \|t\|$	0.022**	0.010***	0.020**	0.009***	0.177	0.358	0.065*
Sett size log	0.001	0.001	0.001	0.002	0.000	0.001	0.002
$p > \|t\|$	0.381	0.047**	0.265	0.182	0.918	0.727	0.422
R^2	0.001	0.006	0.002	0.003	0.000	0.007	0.001
F	0.77	3.95	1.25	1.79	0.01	3.82	0.65
$p > F$	0.387	0.048	0.265	0.182	0.918	0.051	0.422

This table reports the results of a set of regressions of average CARs of SCAS firms and peers over the monetary payments imposed by courts, as recorded by courts documents and extracted from a companion dataset to the SSCASC database. Court documents report settlement in dollar terms. We transformed data in millions and then adopted a natural logarithm transformation. Significance at the 1, 5 and 10% level is denoted with ***, **, and *, respectively.

TABLE X

Contagion effect by leverage

Day/window relative to SCAS filing	Reaction of SCAS firms				Reaction of PEERS			
	N	CAR (%)	t	$P > \|t\|$	N	CAR (%)	t	$P > \|t\|$
Sample A: HIGH leverage								
[−1, 0]	242	−5.86	−5.42	0.000***	242	−0.21	−1.35	0.178
[0, +1]	242	−3.43	−4.59	0.000***	242	−0.19	−1.15	0.251
[−1, +1]	242	−7.38	−6.68	0.000***	242	−0.27	−1.36	0.176
[−5, +5]	242	−13.53	−7.24	0.000***	242	−0.46	−1.07	0.285
[−10, +10]	242	−18.66	−8.04	0.000***	242	−0.49	−0.81	0.417
[−10, −2]	242	−8.06	−4.42	0.000***	242	−0.28	−0.83	0.409
[−10, +1]	242	−15.44	−7.54	0.000***	242	−0.55	−1.30	0.195
[+2, +10]	242	−3.22	−3.05	0.003***	242	0.06	0.17	0.869
Sample B: LOW Leverage								
[−1, 0]	251	−4.95	−4.46	0.000***	251	0.00	0.03	0.979
[0, +1]	251	−4.93	−5.31	0.000***	251	−0.02	−0.13	0.896
[−1, +1]	251	−6.93	−5.67	0.000***	251	−0.03	−0.17	0.865
[−5, +5]	251	−14.45	−7.20	0.000***	251	−0.71	−1.80	0.074*
[−10, +10]	251	−20.20	−8.39	0.000***	251	−0.77	−1.28	0.203
[−10, −2]	251	−12.14	−6.95	0.000***	251	−0.57	−1.67	0.097*
[−10, +1]	251	−19.06	−8.83	0.000***	251	−0.61	−1.62	0.107
[+2, +10]	251	−1.13	−1.01	0.315	251	−0.16	−0.42	0.674

This table reports the cumulative abnormal returns of firms engaged in a corporate scandal (proxied by the filing of a security class action suit or a bankruptcy announcement), and a value-weighted portfolio of the remaining firms with the same 4-digit sic code. The sample is divided using a dummy variable equal to one if the SCAS firm was within the 51–100 percentile of book leverage. Results of the market leverage analysis are not presented but remain unchanged. Significance at the 1, 5, and 10% level is denoted by ***, **, and * respectively.

affected by the existing capital structure of the company and should generate larger effects on the higher degree of similarity of the industry peers across firms, as conjectured in hypothesis 7. Table X provides results for stock price reactions conditional on the degree of leverage of SCAS companies and their peers. Following Lang and Stulz (1992), we sorted firms according to a dummy variable equal to zero if the industry leverage mean was within the 1st and the 50th percentile of the sample in the year of the filing (LOW leverage) and 1 otherwise.

The results show that price reactions for SCAS firms are stronger for LOW-leverage industries than for HIGH-leverage ones. In particular, SCAS firms experience −20.2% CAR over the [−10, +10] window, whereas peers experience a significant −0.71% CAR over the [−5, +5] window. This result is only apparently counterintuitive: unlike in the capital structure analysis, in these tests, we are looking at price reactions to events that may carry a signal of overvaluation. In such a case, an overvalued stock market price would result in lower market leverage. Therefore, when investors react to the SCAS announcement, the price adjustments generate a sharper reduction in price for companies that have high levels of equity and, therefore, low levels of leverage.

In Table XI, we control for cash flow similarity by introducing a dummy variable capturing the correlation of returns between the industry portfolio and the firms engaged in the corporate scandal in the years before the filing of the class action suit. This dummy takes a value of 1 if the correlation of returns falls within the top 50th percentile of the distribution (HIGH correlation) and zero otherwise (LOW correlation).

The results validate the hypothesis highlighting that, for the HIGH correlation group, the contagion effect is approximately 25% stronger in both the [−5, +5] and [−10, +10] windows. In addition,

TABLE XI

Contagion effect and correlation of stock returns

Day/window relative to SCAS filing	Reaction of SCAS firms				Reaction of PEERS			
	N	AR/CAR (%)	t	$P > \|t\|$	N	AR/CAR (%)	t	$P > \|t\|$
Sample A: HIGH correlation of returns								
[−1, 0]	344	−5.99	−6.71	0.000***	344	−0.21	−1.68	0.093*
[0, +1]	344	−3.91	−5.18	0.000***	344	−0.13	−0.88	0.379
[−1, +1]	344	−7.31	−7.34	0.000***	344	−0.24	−1.32	0.188
[−5, +5]	344	−14.69	−9.70	0.000***	344	−0.72	−2.00	0.046**
[−10, +10]	344	−18.74	−9.98	0.000***	344	−0.94	−1.71	0.089*
[−10, −2]	344	−10.56	−7.86	0.000***	344	−0.54	−1.84	0.067*
[−10, +1]	344	−17.88	−10.62	0.000***	344	−0.77	−2.10	0.036**
[+2, +10]	344	−0.86	−1.09	0.278	344	−0.16	−0.48	0.629
Sample B: LOW correlation of returns								
[−1, 0]	361	−4.83	−5.22	0.000***	361	−0.21	−1.37	0.173
[0, +1]	361	−4.09	−5.86	0.000***	361	−0.12	−0.91	0.365
[−1, +1]	361	−6.94	−6.86	0.000***	361	−0.22	−1.14	0.256
[−5, +5]	361	−14.77	−8.34	0.000***	361	−0.40	−0.94	0.349
[−10, +10]	361	−20.89	−9.9	0.000***	361	−0.58	−1.03	0.304
[−10, −2]	361	−10.49	−6.19	0.000***	361	0.16	0.40	0.687
[−10, +1]	361	−17.42	−9.37	0.000***	361	−0.06	−0.12	0.901
[+2, +10]	361	−3.46	−3.36	0.001***	361	−0.52	−1.71	0.088

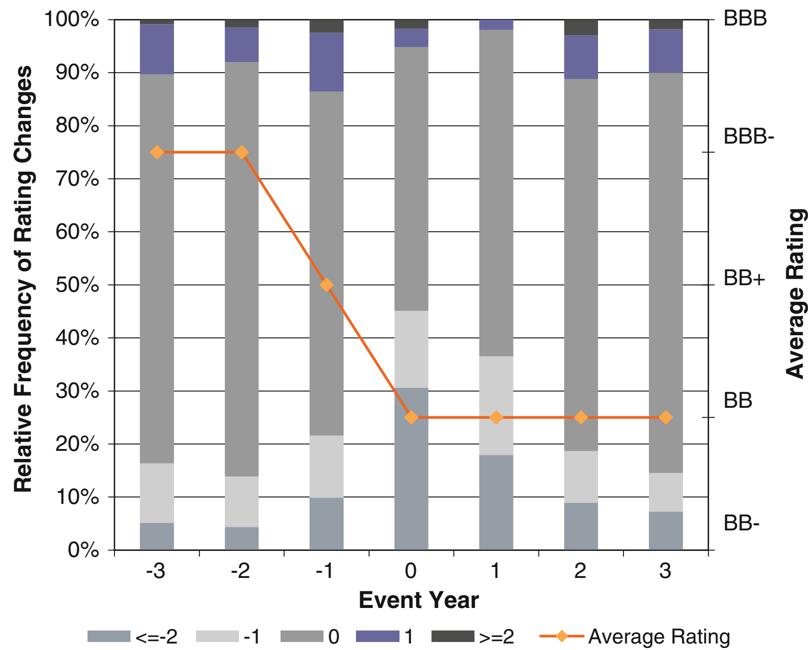
This table reports the cumulative abnormal returns of firms engaged in a corporate scandal (proxied by the filing of a security class action suit), and a value-weighted portfolio of the remaining firms with the same 4-digit sic code (by event year). The event year ($t = 0$) is defined as the year in which the security class action suit was filed against the firm. The daily abnormal return of a security is computed by subtracting the predicted normal return (estimated using the market model) from the actual return for each day in the event window. The high/low correlation of returns dummy is defined as: 0 if correlations of returns (between SCAS and PEERS in the year preceding the filing) lies within the [1–50th] percentile, and 1 if it lies within the [51–100]th percentile in the year before the filing of the SCAS.
Significance at the 1, 5, and 10% level is denoted by ***, **, and * respectively.

significant negative reactions are observed for the [−10, −2] and [−10, +1] windows, supporting the idea that investors in the peer group are sensitive to the information incorporated in the SCAS filing if the sued firm and its competitors have similar operations and, therefore, similar risk exposure.

This intuition is confirmed by the insignificance of the results for the LOW correlation sub-sample in any window.

Debt

The previous results highlight that SCAS companies raise more equity than their peers by fraudulently exploiting information asymmetries with outside investors. The value of this information is captured by the sharp stock price reactions following the disclosure of managerial misconduct. However, our results show that SCAS companies also issued more debt in the period before the SCAS filing and that debtholders may be similarly affected by losses in value. If the information kept undisclosed at debt issuance is valuable, then we should observe two effects upon its disclosure through the SCAS filing: first, a larger number of downgrades and a smaller number of upgrades in the period following the filing; and second, a consistent and stable drop in the average rating after the SCAS. We test this intuition by looking at the ratings and rating



Variable	Obs	Mean	Mean (diff)	$Pr(\lvert T\rvert>\lvert t\rvert)^{(1)}$	$Pr(T>t)^{(2)}$	$Pr(T<t)^{(3)}$
SCAS companies rating before the SCAS filing	3205	10.789 (BB+)				
SCAS companies rating before the SCAS filing	3119	11.891 (BB)	-1.102	0.000 (***)	1.000	0.000 (***)

[(1)]Ha: mean(diff) $\neq$ 0
[(2)]Ha: mean(diff) $>$ 0
[(3)]Ha: mean(diff) $<$ 0

Figure 3. Ratings and rating changes. This figure reports the average rating of SCAS companies over the period {−3; 3} where 0 is the SCAS filing event date, the relative frequencies of rating yearly changes and the *t*-test for difference in the sample's rating means before and after the event. The average yearly rating is plotted by the *solid line* on the *right axis* scale; the relative frequencies of rating changes for the five different notch change classes are measured by the bar stacks on the *left axis* scale; the notch change classes measure rating changes on the same company in two contiguous dates and read as follows: " ≤−2" indicating a two or more notches downgrading; "−1" indicating a one notch downgrading; "0" indicating a confirmed rating; "1" indicating a one notch upgrading; "≥2" indicating a positive two or more notch upgrading. Difference in the means are tested against the null hypothesis of no difference. Significance at the 1, 5, and 10% level is denoted by ***, **, and * respectively.

changes of the companies involved in a security class action, before and after the filing date. We collected S&P ratings for SCAS companies in the 7-year period around the event date, i.e., {−3; 3}, and we calculated the average rating and changes in rating. S&P ratings were expressed using a nominal 21-step scale ranging from AAA (highest quality) to D (default). We ordinally converted each rating into a numeric format with 1 representing AAA and 21 representing D. A one-notch change is expressed by a one-integer decrease for downgrades and a one-integer increase for upgrades. We then used the numeric rating to calculate the average rating and rating changes over the event window. The results reported in Figure 3 robustly support the hypothesis that debtholders' value is affected by managerial misconduct.

Following the filing of a SCAS, the average rating dropped by more than one notch, from an average rating of BB+ to BB, and the difference is significant

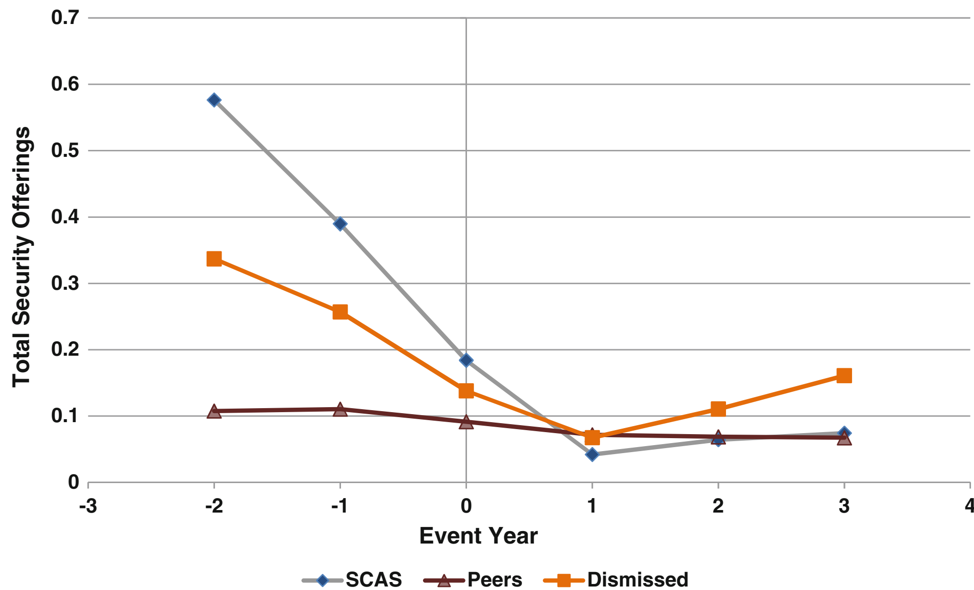


Figure 4. SCAS, Dismissed and Industry security issuance. This figure plots security issuances for SCAS companies, the Industry peers and the Dismissed control group. *Dots* represent the actual amount of total security issuance (Debt and equity). *zero* represent the event year.

at the 1% level. The frequency of downgrades increases significantly, and downgrades are much more severe than before the filing. Inversely, upgrades decrease significantly, and large upgrades disappear. Up to 3 years after the event, there is no evidence of a recovery in rating quality, indicating that the information disclosed in the SCAS filing was extremely valuable in the assessment of the long-term prospects of the issuing company (Figure 4).

Robustness tests

Capital structure regressions

Our results show robust evidence of abnormally higher security issuance by SCAS companies. We interpret this result as a rational choice by managers who did not fully disclose information on the company because truthful revelation may have resulted in higher financing costs, affect managerial independence, and reduce personal benefits. However, our evidence may be the result of a genuine higher need for capital by SCAS companies rather than the effect of a strategic use of asymmetric information. Following Rajan and Zingales (1995) and Baker and Wurgler (2002), we control the robustness of our conclusions for a set of additional determinants of capital structure. Previous results showed that SCAS firms issue largely in excess of their peers before the scandal but insignificantly different from peers after the class-action filing. The abnormal issuance pattern is downward sloping, i.e., it reduces the closer the company is to the filing date, which we argued is a signal that managers can approximately anticipate the lawsuit filing. Because our objective was to test whether a SCAS triggers a significant change in the issuance decisions by SCAS companies and their peers conditional on the scandal revelation, we minimized the trend effect in our data by aggregating SCAS and peers observations into two groups: PRE and POST. In the PRE group, we calculated average security issuances and control variables figures for 4 years before the filing, i.e., $\{-3, 0\}$. In the POST group, we calculated averages for the same variables for 3 years following the filing, $\{+1, +3\}$. This approach has the additional advantage of minimizing the problems associated with serial correlation in yearly-security issuance data, as highlighted in Bertrand et al. (2004). Our multivariate industry's fixed-effects regression takes the following form:

$$Y_i = \alpha + \beta_1 \text{GROUP} + \beta_2 \text{EVENT} + \beta_3 \text{GROUP} \star \text{EVENT} + \beta_4 \text{MTB}_i + \beta_5 \text{LogSIZE}_i + \beta_6 \text{EBITDA/TA}_i + \beta_7 \text{PPE/TA}_i + \beta_8 \text{BETA}_i + \text{FE} + \varepsilon_i \quad (9)$$

where Y_i is the dependent variable capturing total issuance by firm i, GROUP is the group operator taking value of 1 for SCAS companies, and 0 otherwise; and *EVENT* is the time operator taking value of 1 for pre-filing figures and 0 for post-filing observations, GROUP $\star$ EVENT is the interaction term, MTB is the Market-to-Book ratio, LogSIZE is the natural logarithm of the market capitalization of the company, EBITDA/TA is a profitability measure calculated by scaling operating profits by total assets, PPE/TA is a fixed assets intensity measure calculated as the total fixed assets scaled by total assets, BETA is the risk of the company measured by the CRSP stock beta, and FE captures the industry's Fixed Effects based on the 41 Fama–French industries in our sample. Our previous results could be confirmed by a significant and positive parameter for the interaction term.

Results reported in Table XII support our previous analysis and provide additional intuitions.

Column 1–3 report results for the full sample of SCAS companies and peers. The interaction term is positive and strongly significant for all issuance measures. The EVENT parameter is small but positive, which suggests the existence of a weak contagion effect as both peers and SCAS issue less after the event, consistent with results reported in Figure 2 and Table V. The GROUP parameter is negative and significant for debt issuance and for total security offerings, supporting arguments put forth in "Financial mix: equity and debt offerings" section. The control variables are significant in total security and equity issuance models only. Variables signs for all models are aligned with those estimated in Rajan and Zingales (1995) and in Baker and Wurgler (2002), with the exception of the profitability variable for equity issuances that should be positive because raising equity determines a contraction in leverage. The signs of the estimated parameter for the Beta regressors, although insignificant, are aligned with standard literature prediction, indicating that riskier firms issue comparably more equity than debt. The relatively low R^2 is not surprising because approximately 25% of our observations capture an issuance behavior by SCAS companies that we argue is abnormal and eventually disappears. The sign and significance of the interaction term support this interpretation but we provide further supporting evidence by running a set of regressions on the peers group only, including both PRE and POST data. We expected to obtain higher explanatory power of the regressions and parameters' significance. Results reported in column 4–6 confirm our intuition: R^2 increases sharply, and signs in the Debt and Equity models are largely significant and aligned with the previous literature with the only exception given by the EBITDA/TA parameter that is positive and significant for Debt issuance, whereas it is negative in Rajan and Zingales (1995) and in Baker and Wurgler (2002). Similarly, the sign is inverted in the Equity model although the estimated parameter is very small and insignificant. Finally, BETA parameters align with previous regressions and become significant, providing further support to the economic interpretation of our results.

Reverse causality

A possible concern in our analysis is the existence of a reverse-causality issue, i.e., the possibility that SCAS are initiated because investors observe abnormal security issuances, suggesting a "deep pocket" motivation for the initiation of the legal action. Intuitively, this should not be the case because the amendment to the Security Class Action regulation requires accurate and grounded hints of possible mismanagement and of the alleged effects on securities value. However, we cannot rule out the possibility of selection biases in the decision to initiate a class-action suit. In particular, we argue that if reverse-causality is in effect, we should observe differential evidence with respect to size and risk. Larger firms may be more likely than smaller firms to be sued because of the expectation of larger monetary settlements. On a different level, high-risk firms may show increased vulnerability to legal actions because of a behavioral bias on the part of investors in interpreting risk. More precisely, higher volatility in returns and valuations may be interpreted as a sign of managerial misconduct rather than as a normal effect of higher intrinsic risk, triggering a larger number of filings for high-risk companies. To

TABLE XII

Determinants of security offerings

Dependent variable	SCAS and Peers sample			Peers only		
	Total security offerings	Equity offerings	Debt offerings	Total security offerings	Equity offerings	Debt offerings
Intercept	0.250*** (2.93)	0.254*** (3.30)	−0.003 (−0.11)	0.150*** (6.00)	0.120*** (9.36)	0.033* (1.89)
Group	−0.069** (−2.42)	−0.028 (−1.59)	−0.045** (−2.52)			
Event	0.032*** (3.07)	0.019*** (3.05)	0.013** (1.97)			
Group*Event	0.336*** (6.44)	0.211*** (5.53)	0.127*** (4.33)			
MTB	−0.000 (−0.29)	−0.001 (−0.49)	0.000 (0.91)	0.002** (2.43)	0.001** (2.55)	0.000 (1.19)
LogSize	−0.032** (−2.32)	−0.036*** (−3.03)	0.000 (0.80)	−0.013*** (−3.67)	−0.014*** (−6.95)	0.000 (0.39)
EBITDA/TA	−0.019 (−1.43)	−0.011* (−1.71)	−0.009 (−0.89)	0.003*** (3.21)	−0.000 (−1.25)	0.004*** (5.13)
PPE/TA	−0.005 (−0.58)	−0.007 (−1.19)	0.002 (0.49)	−0.000 (−0.30)	−0.003* (−1.88)	0.003** (2.28)
Beta	0.039 (0.75)	0.049 (1.49)	−0.009 (−0.39)	0.037*** (2.69)	0.040*** (4.89)	−0.006 (−0.63)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	2385	2385	2389	1331	1331	1331
R^2	0.075	0.096	0.022	0.257	0.291	0.237
F	15.25	17.30	5.852	4.967	12.69	7.669

In this table, we test the robustness of previous results controlling for alternative determinants of Capital Structure. We run a set of Multivariate Fixed Effects regressions taking the following functional form: $Y_i = \alpha + \beta_1 \text{GROUP} + \beta_2 \text{EVENT} + \beta_3 \text{GROUP} \star \text{EVENT} + \beta_4 \text{MTBi} + \beta_6 \text{LogSize}_i + \beta_6 \text{EBITDA/TAi} + \beta_7 \text{PPE/TA}_i + \beta_8 \text{Beta} + \text{FE} + \varepsilon$, where Y_i is the dependent variable capturing Total issuance, Equity issuance, or Debt issuance; GROUP is the group operator taking value of 1 for SCAS companies, and 0 otherwise; EVENT is the time operator taking value of 1 for pre-filing figures and 0 for post-filing observations; GROUP*EVENT is the interaction term; MTB is the Market-to-Book ratio; Beta is the risk of the company measured by the average stock beta; LogSIZE is the natural logarithm market capitalization of the company, and EBITDA/TA is the ratio of EBITDA over Total Assets; PPE/TA is the level of Fixed Assets scaled by Total assets and Beta is the CRSP market Beta. All independent variables are calculated as average values before and after the filing. Robust standard error are reported in parentheses. Significance at the 1, 5, and 10% level is denoted by ***, **, *, respectively.

control for these possible effects, we ran a separate set of tests controlling whether larger companies were more likely to be sued than smaller companies, as measured by the average and median size of companies in the SCAS sample as opposed to that of their peers. Similarly, we sorted firms by risk level as measured by beta and controlled for the sample characteristics and the empirical evidence of capital raising and stock price reaction. For both tests, we found no evidence of a differential role for size and risk.[4] Finally, we introduced an instrumental variable to conclusively test for reverse causality issues. We identified as the appropriate instrument the set of companies involved in a security class action, where the lawsuit outcome has been a dismissal. The rationale for this approach is that if investors are more likely to initiate a legal action against companies that issue more because they correlate abnormal issuance with a higher probability of managerial misconduct, then we should observe a similar security issuance pattern for SCAS and dismissed companies before the filing and no differences within the two groups or with the peer group after the filing. The empirical results do not support this hypothesis; we observe a significantly different pattern of security issuance between the SCAS group and the dismissed group.

In particular, the dismissed group shows a much more stable level of abnormal security issuance, clustered at about twice the level for the industry. In addition, the dismissed group issuance before the filing is up to 60% lower than that of the SCAS sample. Also, and not surprisingly, the issuance pattern decreases around the filing date but reverts back to a level above the industry average and its own average after 1 year, indicating that security issuance above the peers' average level was motivated by actual financing needs related to development, operations, and expansion. Lastly, though the SCAS group security issuance pattern did not differ meaningfully from that of their peer group after the filing, the dismissed group's capital-raising pattern was significantly above the industry's average.

Market sentiment, Chapter 11, size, and type of allegation effects on capital structure and stock prices

Several factors may likely have affected the intensity of our results. In this section, we perform a set of robustness tests by checking the capital structure and event study outcomes, conditional on the market sentiment in the year of the SCAS filing, the severity of the allegations as measured by whether the sued firm files for bankruptcy, the size of the companies (both the SCAS-targeted company and its peers), and the type of allegation.

Table XIII summarizes the tests' outcomes.

Sentiment of the filing year

Arguably, market reactions should be stronger in negative market-sentiment years: if the market is already in a downturn, then additional negative news will further increase the negative momentum of the stock and the expectations of the industry. In contrast, in positive market sentiment years, investors may be more lenient toward both sued companies and their peers, which will result in weaker reactions to both capital structure adjustments and prices. Using the sentiment index of Baker and Wurgler (2006), we ran analyses to identify whether the market sentiment of the SCAS filing year was high or low. All of the results were robust for both the capital structure and stock price hypotheses; as expected, the results were relatively stronger in low sentiment years.

Chapter 11 filing

In the previous section, we showed that investors seem to possess the ability to determine the severity of SCAS cases and react accordingly. In this spirit, particularly severe cases ultimately ending in a bankruptcy filing should generate stronger effects on both SCAS firms and their peers. We control for this possible effect by matching our data with LoPucki's Bankruptcy Research Database at UCLA, generating a subsample given by sued companies that filed for Chapter 11 in the 2 years before and 2 years after the SCAS filing. The results support the concept, with the exception of the book leverage pattern of SCAS firms, which did not decrease significantly before the filing.

Size

In the previous paragraph, we controlled for a possible selection bias toward bigger firms. However, size may still be important in interpreting some cross-sectional variation in the results because information on large firms may provide stronger signals to the industry than those delivered by smaller firms. In a set of tests, we controlled for size using two different measures: first,

TABLE XIII

Robustness tests summary outcomes

Control 1: Sentiment of the filing year	High sentiment	Low sentiment
Hypothesis 1: ex-ante SCAS issuances > PEERS issuances	Yes	Yes (higher means)
Hypothesis 2: ex-ante SCAS equity issuance > PEERS equity issuance	Yes	Yes
Hypothesis 3: ex-ante SCAS book leverage < PEERS book leverage	Yes	Yes
Hypothesis 4: ex-post SCAS issuances = PEERS issuances	Yes	Yes
Hypothesis 6 (Contagion): ex-post contraction of both debt and equity issuances for PEERS	Yes	Yes
Hypothesis 7 (Contagion 2): stock prices drop also for PEERS around SCAS filing date	Yes	Yes
Control 2: Chapter 11 filing	**Bankruptcy filing**	**No bankruptcy filing**
Hypothesis 1: ex-ante SCAS issuances > PEERS issuances	Yes (smaller difference)	Yes
Hypothesis 2: ex-ante SCAS equity issuance > PEERS equity issuance	Yes (smaller difference)	Yes
Hypothesis 3: ex-ante SCAS book leverage < PEERS book leverage	No (stable book leverage before SCAS filing)	Yes
Hypothesis 4: ex-post SCAS issuances = PEERS issuances	Yes	Yes
Hypothesis 6 (Contagion): ex-post contraction of both debt and equity issuances for PEERS	Yes	Yes
Hypothesis 7 (Contagion 2): stock prices drop also for PEERS around SCAS filing date	Yes	Yes
Control 3a: Firms size in the filing year (within SCAS cases)	**Large firms**	**Small firms**
Hypothesis 1: ex-ante SCAS issuances > PEERS issuances	Yes	Yes
Hypothesis 2: ex-ante SCAS equity issuance > PEERS equity issuance	Yes (smaller difference)	Yes (greater difference)
Hypothesis 3: ex-ante SCAS book leverage < PEERS book leverage	Yes	Yes
Hypothesis 4: ex-post SCAS issuances = PEERS issuances	Yes	Yes
Hypothesis 6 (Contagion): ex-post contraction of both debt and equity issuances for PEERS	Yes	Yes
Hypothesis 7 (Contagion 2): stock prices drop also for PEERS around SCAS filing date	Yes	Yes
Control 3b: Firms size in the filing year (within industry)	**Large firms**	**Small firms**
Hypothesis 1: ex-ante SCAS issuances > PEERS issuances	Yes (greater difference)	Yes (greater difference)
Hypothesis 2: ex-ante SCAS equity issuance > PEERS equity issuance	Yes (smaller difference)	Yes
Hypothesis 3: ex-ante SCAS book leverage < PEERS book leverage	Yes	Yes
Hypothesis 4: ex-post SCAS issuances = PEERS issuances	Yes	Yes

TABLE XIII

continued

Control 3b: Firms size in the filing year (within industry)	Large firms	Small firms
Hypothesis 6 (Contagion): ex-post contraction of both debt and equity issuances for PEERS	Yes	Yes
Hypothesis 7 (Contagion 2): stock prices drop also for PEERS around SCAS filing date	Yes	Yes
Control 4: Type of allegations	**Accounting**	**Non-accounting**
Hypothesis 1: ex-ante SCAS issuances > PEERS issuances	Yes	Yes
Hypothesis 2: ex-ante SCAS equity issuance > PEERS equity issuance	Yes	Yes
Hypothesis 3: ex-ante SCAS book leverage < PEERS book leverage	No	Yes
Hypothesis 4: ex-post SCAS issuances = PEERS issuances	Yes	Yes
Hypothesis 6 (Contagion): ex-post contraction of both debt and equity issuances for PEERS	Yes	Yes
Hypothesis 7 (Contagion 2): stock prices drop also for PEERS around SCAS filing date	Yes	Yes

This table presents qualitative results for a set of robustness tests on all six hypothesis. The first set of tests controls for the sentiment of the SCAS filing year as measured by the Sentiment index in Baker and Wurgler (2006). The second set of tests controls for the bankruptcy filing of the SCAS firms in the 2 years after the SCAS filing. The third and fourth sets of tests control for the company size measured as the market value of Total Assets relative to the SCAS sample (control 3a) and the market value of Total Assets relative to the industry (control 3b). The fifth set of test controls for the type of SCAS allegation. All controls are performed by dividing the sample into two subgroups according to the test criterion. In all tests "Yes" indicate that the results are significant and aligned in sign and size with the hypothesis. If results are significant and aligned in size but different in magnitude, then the observed difference is reported in parentheses. "No" indicates insignificant results or results not confirming the hypothesis.

we looked at the size of the SCAS firms as measured by total assets, dividing the sample into BIG and SMALL based on whether the SCAS firm total assets fall within the 51st and 100th percentile of the SCAS firms sample. We modeled the second measure in a similar fashion looking at the relative ranking of total assets with respect to the whole industry. The results are aligned with the expectations and offer some interesting additional evidence. In particular, the volume of security issuance for big SCAS firms according to the industry measure decreases sharply, falling below the peer average after the filing; this result suggests that the market penalizes big firms relatively more than small ones. This effect seems to be known to small firms, which issue more than the aggregate SCAS' firm samples.

Type of allegations

Finally, we control for the security issuance pattern conditional on the type of allegation of the SCAS. We have previously shown that accounting allegations generate stronger price reactions around the filing date. However, though investors may be immediately less sensitive to the information conveyed by a non-accounting-related filing, they may process this additional information in the long term, which will affect the future financing patterns of sued companies and, through contagion, those of their peers as well. The results fully support this intuition, showing no meaningful differences in the outcomes of the capital structure tests for accounting- and non-accounting-related security class actions.

Conclusions

Corporate scandals have attracted considerable attention because their large, negative effects on shareholder value. In this article, we argue that corporate managers are aware of these effects and try to anticipate higher future costs in capital raising by abnormally issuing more securities before a corporate scandal is unveiled. By measuring corporate scandals as the filing of SCASs, we additionally argue that investors may interpret such an event as a signal of deterioration in the industry as a whole, thus generating significant negative contagion effects on the capital-raising opportunities and share price levels of a firm's competitors. Our results provide robust evidence that firms involved in a corporate scandal issue significantly more securities before the filing; also, in particular, they raise more equity than their industry peers. After a scandal surfaces, both sued firms and their peers face constraints in further capital raising, which results in decreasing issuance and lower bond ratings. In addition, we document significant stock and bond price effects around the SCAS filing date that affect all industry constituents. Both capital structure and the share price reactions increase based on the similarity of the operating and financial characteristics of sued firms and their industry peers. Our results suggest that managers ''time'' the market by exploiting transient overvaluation in anticipation of future more costly or reduced fund-raising opportunities. However, markets evaluate information revealed in a corporate scandal as a possibly widespread phenomenon, generating negative fall-out that also affects peers' financing opportunities. These results have important implications because they suggest that financial structures are the result of not only firm-level choices and market conditions, as suggested by Baker and Wurgler (2006), but also of industry-level information and behavioral components of managerial decisions.

Notes

[1] Database is maintained in cooperation with Cornerstone Research.

[2] The majority of cases in the database were classified as Classic. ''Classic'' cases are cases involving 10(b) claims (misstatements or omissions) and/or other common securities law violations. Classic cases are also all cases that are not IPO Allocation, Analyst, or Mutual Fund cases. IPO Allocation cases are cases filed from 2001 to 2002 alleging that underwriters engaged in undisclosed practices in connection with the distribution of certain IPO shares. Analyst-related cases are cases filed from 2001 to 2004 alleging that the brokerage firm analysts falsely provided favorable coverage for certain issuers. These Analyst cases involved securities directly affected by allegedly false analyst research reports. Mutual Fund cases are cases filed from 2003 to 2004 alleging wrongful acts in the management of the funds.

[3] Debt and equity issues could also be measured using cash flow data. We used balance sheet data because there were more data available, and thus, the amount of cases under analysis was larger.

[4] The full set of tests is available through the Internet Appendix.

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