Journal of Business Economics
https://doi.org/10.1007/s11573-025-01255-6

ORIGINAL RESEARCH PAPER

Seeing is believing: the impact of corporate scandal documentaries on stock prices

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Received: 7 May 2025 / Accepted: 10 December 2025

Abstract
We investigate the behavior of stocks after the launch of Netflix's scandal documentaries on the corresponding firms. We document a significant fall in prices after the release of the documentaries that is not reversed in the weeks following their launch, resulting in an average cumulative abnormal return of −15.34% three months after the event day. We also find a significant increase in stocks' traded volumes and Google Search Volumes for the corresponding firms after the release of the documentaries. Moreover, we report a significant contemporaneous and lagged relation between stocks' returns and traded volumes in the event window that is not seen before the release day. Taken together, these results suggest that the fall in stock prices is driven by investor attention. Our findings have significant implications for corporate misconduct and how market participants become informed and consequently price this behavior.

Keywords Corporate scandals · Corporate misconduct · Reputation risk · Individual investors

1 Introduction

The literature examining corporate scandals documents that the revelation of firms' misbehavior is commonly followed by a significant decrease in stocks' price (Knittel and Stango 2014; Ding et al. 2020; Dyck et al. 2023). Different explanations are

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Published online: 27 January 2026

provided for this behavior such as: increase in risk perception due to potential future penalties from regulators (Fauser and Utz 2021), reputational hazard (Dyck et al. 2023), mistrust (Giannetti and Wang 2016), and ethical concerns (Ding et al. 2020). The common approach in this literature (e.g. Jory et al. 2015) is to define the event as the dates surrounding the leak of the scandal in traditional media under the plausible assumption that representative investors will be aware of firms' misconduct only after the information is publicized. In the era of social media and streaming platforms, however, traditional media is not the exclusive source of information for investors and stakeholders, as demonstrated by the recent Meme Stocks' frenzy (e.g. Anand and Pathak 2022; Lyócsa et al. 2022; Long et al. 2023). As a result, it is legitimate to conjecture whether these alternative sources play any relevant role in investment decision of market participants in the context of firms' misbehavior. This is the main objective of this paper.

More specifically, we examine how stock prices behave after the release of scandal documentaries by Netflix on the corresponding firms. In the realm of corporate scandals, using these shows to define events provides a unique insight for two main reasons. First, by their very nature, documentaries are based on well known facts about a given phenomenon. Consequently, they do not coincide with the publication of the misconduct by the traditional media, representing a perfect opportunity to investigate the role of less traditional information sources to the investors' decision-making. This feature enables us to test whether documentaries can be seen as a new information source that can still drive prices, even if the underlying information is already known. Second, by the unique reach of Netflix, whose capacity to influence viewership behavior has already been documented (Fazio 2020), we can conjecture that Netflix documentaries can affect stakeholders' behavior towards the corresponding firms after becoming aware of their misconduct.

Based on publicly traded firms featured in scandal documentaries on Netflix, we conduct an analysis of twelve films to investigate the influence on stock returns. We observe that after the release date, the stock prices fall over a period of sixty days when measured by Cumulative Abnormal Returns (CAR). We also report that the negative CARs become statistically significant four weeks after the documentary launch, suggesting a gradual and economically relevant incorporation of scandal information into stock prices. Additionally, we compare the risk and expected return of individual stocks before and after the event date. The findings reveal a significant decrease in expected returns and Sharpe ratios. When adjusting for idiosyncratic risk, the contrast becomes even more pronounced, as the portfolio's performance declines significantly in the event window. Taken together, these results suggest that Netflix's documentaries are indeed a relevant source of information to asset pricing.

The hypothesis that Netflix's shows influence investors' decisions implies a change in investors' behavior after watching the documentary. Obviously, it is unfeasible to directly measure this change in investor behavior. One way to circumvent this is to compare investor attention before and after the release. If the documentaries indeed impact investor's behavior, we would expect a significant increase in attention

towards the corresponding firm in the event window. Moreover, it would be plausible to expect that investor attention is more intrinsically associated with future price dynamics after the release, indicating that attention is indeed a driving force behind the documented price decline. Our results demonstrate that both assumptions are true.

To investigate these conjectures, we employ the traded volume as our proxy to attention (Baker and Stein 2004) and observe a significant increase in the volume of shares traded in the days following the release of the documentary (t-stat = 4.36). This phenomenon is consistent with the patterns observed in Google search volumes with respect to the names of the companies under scrutiny (t-stat = 6.67). In addition, our results indicate that the volume of traded shares negatively predicts the future price change of the sampled companies after the release date, while no such relationship is found prior to the release of the documentary, providing a strong indication that Netflix's documentaries play a relevant role in pricing firms' misconduct.

Due to the small sample size, we conduct several in-depth analyses and robustness checks to make sure that the results are not driven by random fluctuations. First, we calculate abnormal volume data and corroborate that the negative abnormal returns are indeed associated with higher trading volume. Second, we investigate the returns of competitor firms during the corresponding periods and find that the stocks of peer companies do not exhibit a similar performance. Third, we perform classical robustness checks such as testing for single firm bias and accounting or confounding events to rule out that the results are driven by these two effects. Finally, we analyze how the viewership of Netflix' shows evolves after their release and find that it coincides with the gradual decline in price that we document. Altogether, the empirical evidence robustly supports that Netflix scandal documentaries serve as a relevant source of information for investors, even though the corresponding facts are already known.

With our findings, we contribute to three streams of literature. First, the literature on how prices reflect available information commonly uses traditional media as the primary source for price dynamics. Recently, a bulk of studies (e.g. Anand and Pathak 2022; Lyócsa et al. 2022; Allen et al. 2023; Long et al. 2023) has demonstrated that social media also play an important role in the information flow of investors, eventually affecting stock prices. Our findings add to this literature by documenting that streaming platforms are also a relevant information source for investors that can influence firm's value. Moreover, studies on social media commonly document the information effect on firms more exposed to retail investors, as these are the traditional users of social platforms. Consequently, it is not yet clear whether these alternative information sources can influence prices of larger firms. Since our sample is primarily composed of large companies, our results contribute to this field by demonstrating that even in the case of large companies, alternative information sources can exert an influential role.

Still in the realm of asset pricing, it is well accepted that stocks price reflects all available information. If this were the case, one should not expect any price reaction after the launch of the scandal documentaries, since they are based on established facts. Therefore, our results suggest that the reach of information is also an important

aspect of information flow. In other words, if some investors and stakeholders are unaware of a given information affecting the firm, there is room for further price adjustments. This highlights the convenience of reinforcing multiple information channels as an effort to improve market efficiency.

Second, the literature on sustainable investing contains different findings on the effectiveness of negative screening (Humphrey and Tan 2014; Davies and Wesep 2018; Ding et al. 2020), a practice that for some particular stocks is driven by boycotts led by institutional investors and NGOs (Ding et al. 2020; Bassen et al. 2021). We provide new evidence regarding impact investing as our findings suggest that scandal documentaries can act as a catalyst for divestment.

Lastly, our findings contribute to the growing literature on the relevance of investor attention in financial markets. Recent studies emphasize investor attention can enhance liquidity during turbulent periods (Ozik et al. 2021), improve market informativeness (Li and Li 2021) and increase efficiency (Boehmer et al., 2021, Farrel et al., 2022; Welch 2022). Our results add to this body of literature by showing that investor attention can also influence and improve corporate behavior by leading spontaneous divestment actions.

2 Data and methodology

2.1 Sample of documentaries

Our sample is composed of publicly traded firms with scandal documentaries launched by Netflix. Our choice to focus on Netflix is justified by its unique position as the leading firm in the streaming industry, as it is available in over 190 countries, with almost double the number of users compared to Amazon Prime, which is ranked second in this market (Stoll 2023). Given its prominence, there is anecdotal evidence of the capacity of Netflix's products to influence consumer behavior. For example, after the launch of "*The Queen's Gambit*", one of the most successful original Netflix series, sales of chess boards on eBay increased by 215% (Fazio 2020). Similarly, eBay registered an increase of 43% in empire line dress and similar Regency-era products (Myers 2021) after the launch of the "*Bridgerton*" series, Netflix's most watched show in 2021. Given that our aim is to investigate the influence of scandal documentaries on investors' behavior, ultimately affecting the stock returns of related firms, focusing on Netflix shows provides a suitable fit in this respect, based on the reach of this platform.

A natural concern in a study of this nature is to avoid hand-picking events that meet the researchers' ex-ante expectations. To avoid this bias, we established the following criteria to filter the Netflix documentaries that make up our sample:

- The documentary focuses on a public traded company, since our goal is to evaluate the impact on firms' stocks prices.
- The documentary addresses a scandal, given that we aim to investigate the reac-

tion to unethical behavior of firms.

- The documentary is novel, as we aim to capture the surprise effect of a broad spectrum of less informed investors who are plausibly unaware of the scandal prior to the launch of the documentary.
- The documentary focuses on firms, rather than on an industry, given that investors must be able to clearly identify the firm behind the unethical behavior so that any hypothetical influence their investment behavior can be gauged.

Employing these criteria, we filter twelve documentaries, which are listed in Table 1.[1]

Table 1 Scandal documentaries list the table lists the scandal documentaries launched by Netflix that Meet the criteria described in subsection 2.1. In addition to the name of the documentary, the table informs the corresponding firm, the release date of the documentary and a brief description of its content. In two of the documentaries, the scandal firms were eventually acquired. In those cases, the list informs the acquiring company. See the corresponding notes for details

Documentary	Firm	Launch	Description
Betting on Zero	Herbalife	2017-06-21	Investigates the allegation that Herbalife is a pyramid scheme
Dirty Money − 1st Season	Volkswagen	2018-01-26	Hard NOX emission scandal
	HSBC	2018-01-26	Money laundering for the Sinaloa Cartel, Hezbollah and other terrorist organizations
	Bausch Health Companies Inc[1]	2018-01-26	Controversies surrounding drug price hikes and the use of a specialty pharmacy for the distribution of its drugs
Dirty Money − 2nd Season	Wells Fargo	2020-03-11	Former employees detail the ruthless and fraudulent practices that fueled its growth.
	Formosa Plastics Corporation	2020-03-11	Residents of small Texas town Point Comfort were eager to welcome Formosa Plastics — until toxic chemicals began to take a toll on their community.
The Social Dilemma	Facebook	2020-09-01	The dangerous impact of social media on democracy and humanity as a whole
The Social Dilemma	Twitter	2020-09-01	
The Billion Dollar Code	Google	2021-10-07	Google sue for patent infringement on Google Earth
Downfall: The Case Against Boeing	Boeing	2022-02-18	How Boeing's alleged priority of profit over safety could be responsible for two catastrophic accidents
White Hot: The Rise & Fall of Abercrombie & Fitch	Abercrombie & Fitch Co	2022-04-19	The brand was involved in several controversies for being considered discriminatory and exclusionary
Meltdown: Three Mile Island	FirstEnergy Corp.[2]	2022-05-05	Metropolitan Edison accident on Three Mile Island

[1]BHC acquired Valeant Pharmaceuticals

[2]First Energy acquired Metropolitan Edison

The table also shows the name of the firm featured in the documentary, the launch

[1] The authors have carefully watched all the documentaries and can confirm that they are all based on well-known scandals with extensive media coverage.

date, and a brief description of the corresponding scandal.[2] It is important to mention that in two cases (i.e., *Valeant Pharmaceutical* and *Metropolitan Edison*), the documented firm was acquired in the years after the scandal in question. In those cases, we analyze the returns of the acquiring companies, assuming that less informed investors could link the firm involved in the scandal to its purchaser. We regard this as a debatable supposition, but, in the worst scenario, this choice does not affect the returns of corresponding stocks, which could weaken our results.[3]

2.2 Event-study windows

We employ an event-study design as our empirical approach. In this case, the event window includes the release day (D0) and the following 60 working days (D + 60). Even though this can be seen as an arbitrary definition, we advocate that it is based

[2] All the documentaries were released globally on the same date. Two of them ("Betting on Zero" and "The Social Dilemma") debuted at restricted festivals. For these two events, the release date in the table refers to Netflix platform.

[3] The Three Mile Island incident took place more than 40 years before the release of the corresponding documentary. Therefore, one could question whether the documentary could cause any reputational damage, given the long timespan between the scandal and the documentary. Even though this is a legitimate concern, we chose to include this incident in our sample to avoid introducing a subjective criterion regarding the age of the scandal, which could unintentionally suggest that the selection criteria were designed to meet prior expectations. We acknowledge an anonymous referee for raising this point.

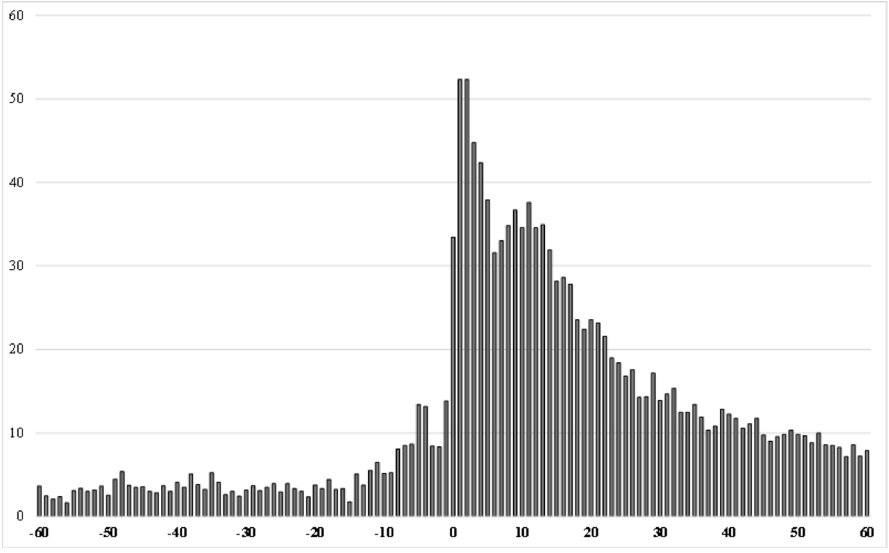

Fig. 1 Google Search Volumes of the scandal documentaries before and after the launch of the documentary. The figure displays the average Google Search Volumes for the names of the scandal documentaries covered by the study. In the chart, D0 is the documentary's release date. The GSV is informed by Google in relative terms, with the largest possible number of searches peaking at 100

on the plausible assumption that any divestment decision resulting from the documentary could only be made after watching its content, and that most of the audience would consume the show in the days following its release. To substantiate this intuition, we researched the attention paid to the documentaries listed in Table 1 on Google Trends, using their names as the search terminology worldwide. Figure 1 shows the average Google Search Volumes (GSV) during the 60 working days before and after the release day. The chart clearly reveals a spike in online searches on D+1 and D+2 that slowly decreases over the following days. By the end of the event window, the searches remain at a higher level than during the days before the release day.

A more attentive reader could observe an increase in the documentaries' GSV during the 10-day period before their release, which could be explained by the press and social media coverage on the documentaries due to their imminent release. Since this coverage would naturally mention the scandal involved in each documentary, as well as the firms in question, it is reasonable to expect some abnormal behavior of the corresponding stocks before a show's release, owing to trades by speculative investors aiming to profit from the "new" information. To address this issue, we also employ alternative event windows, beginning 20 (D-20) and 5 (D-5) working days before the event day and found consistent results, as discussed in the next subsection.

2.3 Abnormal returns

We employ two alternative specifications of abnormal returns ($AR_{i,t}$) that are commonly used in event studies in the field of financial economics (MacKinlay 1997), as expressed in Eqs. (5) and (14), aiming to avoid our results being driven by the way we define this variable.

$$AR_{i,t} = R_{i,t} - R_{M,t} \tag{1}$$

$$AR_{i,t} = (R_{i,t} - R_{f,t}) - (\widehat{b}_i MRP_t + \widehat{s}_i SMB_t + \widehat{h}_i HML_t + \widehat{r}_i RMW_t + \widehat{c}_i CMA_t + \widehat{m}_i MOM_t) \tag{2}$$

where $R_{i,t}$ is the stocks' return on day t, $R_{M,t}$ is the return of the local market index on day t, both calculated using the log-differences of the corresponding prices, $R_{f,t}$ is the local risk-free rate on day *t*, and MRP, SMB, HML, RMW and CMA are local risk factors in accordance with the Fama-French 5-factors (FF5) model and MOM is the momentum factor. The estimates of the risk factors' coefficients were obtained from a window ranging from D-125 to D-21.[4] The data for stocks prices and market indexes were obtained from Datastream, while the data for local risk factors and risk-free rates were accessed on Kenneth French's website.[5] In the specific case of Volkswagen and Formosa Plastic, the market indexes used were DAX (Germany) and TWSE50 (Taiwan), respectively, whereas the risk factors and risk-free rates for

[4] The choice to end the estimates on Day 21 was made to avoid biases with regard to stock returns from speculative investors trading on the rumors concerning the documentaries in the days running up to and following their release, as addressed in the analysis of Fig. 1.

[5] See https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

these companies are from FF5 and momentum data for Europe and Asia, excluding Japan (ex-Japan), respectively, both of which are also available on French's website.

The abnormal returns of each stock i were then accumulated during the event-window, resulting in the cumulative abnormal return (CAR) of the respective stock as:

$$CAR_{i,T} = \sum_{t=s}^{T} AR_{i,D+t} \tag{3}$$

Here s denotes the relative starting date of the cumulation, i.e. the event date ($s=0$) in the main case or -5 and -21 in case of the side specifications, and T the ending date of the cumulation (at most $T=60$).

The average cumulative abnormal return $ACAR_T$ (over all n stocks), defined as $ACAR_T = \frac{1}{n}\sum_{i=1}^{n} CAR_{i,T}$, is used to test the hypothesis. In this case, an ACAR that is statistically negative indicates that the corresponding stocks, on average, were negatively influenced by the launch of the documentary. To test the significance of the results, the t-statistic is calculated following Boehmer et al. (1991) and Mackinlay (1997) as expressed by Eq. 15:

$$t_T = \frac{ACAR_T}{\sigma_{AR}} \times \frac{1}{\sqrt{T-s}} \tag{4}$$

where $ACAR_T$ is the average cumulative abnormal returns of the sampled firms on a given day T of the event window, σ_{AR} is the estimated standard deviation of the average abnormal returns of the sampled firms during the estimation window, and $T-s$ is the number of days in the event window until day T. To enable a better understanding, Fig. 2 exhibits the estimation window adopted in the paper, together with the three previously mentioned specifications of the event window.

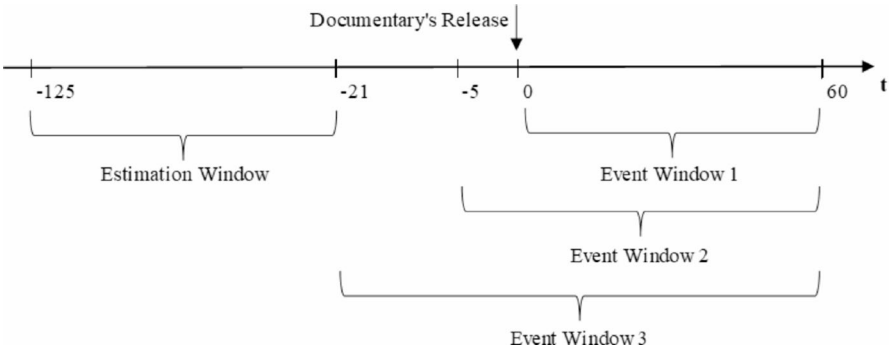

Fig. 2 Estimation window and event window definitions. The figure displays the definitions for the estimation window (D-125 to D-21) and three alternative specifications for the event window used in the analysis of the abnormal returns of the sampled firms. In the figure, the event date (D0) refers to the documentary's release date

Table 2 Stocks' performance before and after the release the table shows the cumulative abnormal return, standard deviation, and Sharpe ratio of the sampled firms during the Sixty days before and after the event (post-event window), as well as for a hypothetical equally weighted portfolio

	VOW3	HSBC	FB	TWTR	BHC	WFC	GOOGL	FORM	BA	ANF	FE	HLF	Portfolio
D-60 to D-1													
CAR	13.38%	−8.75%	8.50%	10.20%	29.49%	−15.88%	8.55%	−7.07%	−7.63%	31.54%	1.06%	22.80%	**7.18%**
Std Dev	1.58%	0.89%	2.65%	2.49%	4.40%	2.70%	1.27%	1.46%	2.59%	3.87%	1.48%	2.20%	**0.81%**
Sharpe	17.21%	−24.97%	9.29%	4.02%	17.08%	−19.73%	10.31%	−5.05%	5.43%	4.12%	10.58%	14.47%	**15.28%**
D0 to D+60													
CAR	−7.90%	−1.71%	−10.80%	−0.14%	13.44%	−15.93%	−4.42%	−37.11%	−49.60%	−72.20%	−4.32%	−0.09%	**−17.20%**
Std Dev	2.01%	1.39%	2.63%	4.39%	2.93%	6.03%	1.47%	2.45%	3.20%	5.81%	1.45%	1.68%	**1.01%**
Sharpe	−2.32%	4.90%	−6.13%	3.67%	−2.56%	−5.02%	−4.68%	−3.84%	−21.07%	−17.07%	−4.15%	−7.07%	**−19.15%**

The Sharpe ratios were calculated using the local market index as the benchmark. VOW3 is Volkswagen, FB is Facebook, TWTR is Twitter, BHC is Bausch health Companies, WFC is wells Fargo, GOOG is Google, FORM is the Formosa plastics Corporation, BA is Boeing, ANF is abercrombie & Fitch Co., FE is first Energy, and HLF is herbalife

3 Scandal documentaries and stock returns

We begin the empirical analysis by comparing the risk and return of individual stocks during the sixty days before and after the event (post-event window). To this end, Table 2 shows the cumulative abnormal returns, standard deviations, and Sharpe ratios for each stock, as well as for the equally weighted portfolio (last column) during these periods. While during the sixty days before the event most of the stocks exhibit positive CARs, in the post-event window ten stocks displayed negative CARs. In this context, the performance of Abercrombie & Fitch Co (ANF) is particularly striking, with a cumulative abnormal return of -72.20%. Since our data sample is small, it might be supposed that our results were driven by this particular stock. To address this concern, we excluded the stock and found that the main results remained observable. Section 5 contains a more detailed discussion of this procedure.

When adjusting stocks returns for volatility, the contrast becomes even more striking, as the portfolio's performance declines in the event window, with its mean return being significantly lower than in the days preceding the release, as the mean-comparison of the portfolio's returns across these windows yields a t-statistic of -2.04 (p-value $= 0.02$).

To provide an illustrative view of the behavior of the stock's prices surrounding the event day, Fig. 3 shows the cumulative raw returns of a hypothetical equally weighted portfolio composed of the sampled firms during the sixty days before and after the event. There is a clear contrast of the portfolio's performance in both windows. While during the sixty days before the event the stocks exhibit, on average, positive cumulative raw returns, in the event windows, they show a remarkable negative performance resulting in a cumulative raw return of -14% by the end of this window. It is also worth noting that the negative performance accelerates around D+15 only, which is compatible with the notion that the information from the scandal documentaries is smoothly incorporated into stock prices as long as the shows are consumed and processed by investors.[6]

We now move to the analysis of the abnormal returns. Table 3 shows the ACAR for the portfolio for three alternative specifications for the beginning day of the event window (D0; D-5 and D-20). In the table, ACAR1 (ACAR2) refers to abnormal returns calculated using Eq. 5 (Eq. 14). The t-statistics are in italics, below the respective $ACAR_t$. The significant ACARs (95% level) are in bold. For brevity, we only report the ACARs for some days of the event window. The results indicate that the sampled stocks exhibit negative returns during the entire window. Nevertheless, this performance is significant only after four weeks (20 working days), suggesting that the information from the documentaries is smoothly incorporated into stock prices, as long as a growing number of investors watch them. This performance is economically relevant, since for every specification adopted, the negative ACAR by the end of the window is remarkable. For example, in Panel A, based on the return in excess

[6] In an unreported investigation, we extend the event window to 126 days (i.e., 6 months) after the event, to examine the length of the attention-driven reaction. Our results indicate that the negative price trends cease after approximately 60 days. Due to potential confounding event bias, we do not report the results in the paper. However, we can make them available upon request. We acknowledge an anonymous referee for raising this point.

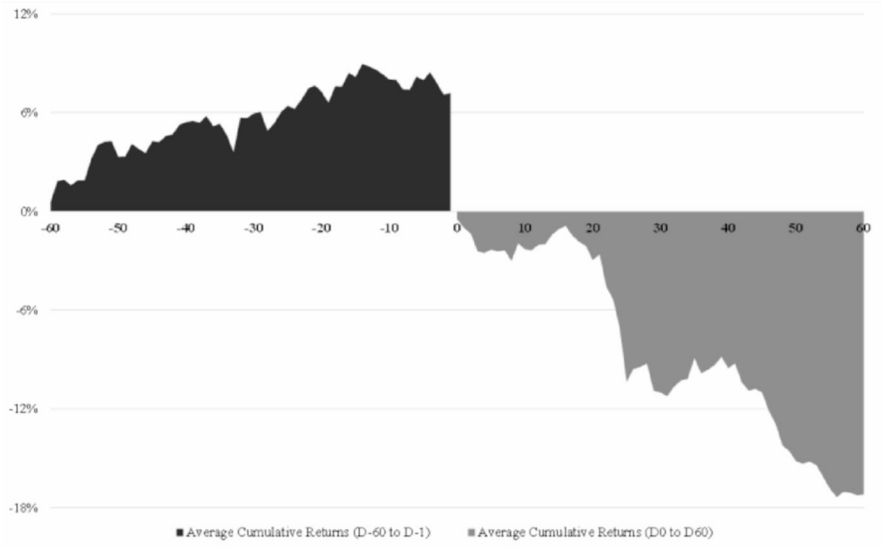

Fig. 3 Average Cumulative Returns of stocks before and after the launch of the scandal documentaries. The figure displays the cumulative raw returns of an equally weighted portfolio formed by firms enrolled in scandal documentaries launched by Netflix. The returns are accumulated through sixty days before and after the event (black and gray areas, respectively), where D0 is the documentary's release date

of the market, the portfolio accumulates a negative return of -15.96% by the end of the window, which corresponds to a decrease of over 50% in annual terms.[7]

To provide a more detailed view of the ACARs through the event window (in this case, D0 to D+60), Figs. 4 and 6. plot the ACAR employing Eqs. (5) and (14), respectively (solid lines), whereas the confidence bands for the 95% level are represented by the dotted lines. As previously mentioned, the sampled stocks, on average, exhibited negative returns throughout the window, leading to a decreasing ACAR that did not rebound even 60 days after the launch of the documentaries. This negative performance, however, began to be statistically significant only after four weeks, providing additional evidence that the content of a documentary is slowly incorporated into prices (Fig. 4).

These findings align with prior research indicating a correlation between firms' misconduct and declines in stock prices (Karpoff et al., 2008; Knittel and Stango 2014; Ding et al. 2020; Dyck et al. 2023). However, unlike previous studies, our research reveals a gradual integration of the additional reputation loss, which caused by the documentary, into prices. This distinctive behavior could be plausibly attributed to the gradual consumption of scandalous documentary content by Netflix's viewership, resulting in a progressive decline in prices.[8] Moreover, since the documentaries are based on well-known facts and do not introduce new information to the

[7] The annualization of the ACAR is obtained as follows: $(1\text{-}0.1596)^{252/60}\text{-}1$.

[8] Since the documentaries are based on widely publicized misconduct that occurred several years prior to their release, we argue that any associated legal risk should have already been incorporated into prices

Table 3 Average Cumulative Abnormal Returns of scandal firms

Event Day	-20	-15	-10	-5	0	5	10	15	20	25	30	45	60
Panel A: Event window starting on D0													
ACAR1					−0.46%	−1.25%	−1.53%	−1.22%	−3.45%	**−10.13%**	**−11.26%**	**−10.92%**	**−15.96%**
					−0.79	*−0.87*	*−0.79*	*−0.52*	*−1.29*	*−3.40*	*−3.46*	*−2.76*	*−3.50*
ACAR2					−0.18%	−0.33%	−0.77%	−0.37%	−1.90%	**−8.86%**	**−9.88%**	**−8.93%**	**−11.75%**
					−0.31	*−0.23*	*−0.40*	*−0.16*	*−0.71*	*−2.97*	*−3.03*	*−2.25*	*−2.57*
Panel B: Event window starting on D-5													
ACAR1				−0.40%	−1.50%	−2.29%	−2.57%	−2.26%	−4.49%	**−11.17%**	**−12.30%**	**−11.96%**	**−17.00%**
				−0.69	*−1.05*	*−1.18*	*−1.10*	*−0.84*	*−1.51*	*−3.43*	*−3.51*	*−2.87*	*−3.58*
ACAR2				−0.19%	−1.08%	−1.23%	−1.67%	−1.27%	−2.80%	**−9.76%**	**−10.77%**	**−9.82%**	**−12.64%**
				−0.28	*−0.66*	*−0.55*	*−0.62*	*−0.41*	*−0.82*	*−2.63*	*−2.69*	*−2.06*	*−2.33*
Panel C: Event window starting on D-20													
ACAR1	−0.42%	0.27%	0.17%	0.16%	−0.93%	−1.72%	−2.00%	−1.69%	−3.92%	**−10.61%**	**−11.74%**	**−11.39%**	**−16.44%**
	−0.72	*0.19*	*0.09*	*0.07*	*−0.35*	*−0.58*	*−0.61*	*−0.48*	*−1.05*	*−2.68*	*−2.81*	*−2.40*	*−3.12*
ACAR2	−0.64%	-0.38%	0.00%	−0.23%	−1.12%	−1.27%	−1.71%	−1.31%	−2.85%	**−9.81%**	**−10.82%**	−9.87%	**−12.69%**
	−0.96	*-0.23*	*0.00*	*−0.09*	*−0.37*	*−0.37*	*−0.46*	*−0.33*	*−0.67*	*−2.17*	*−2.27*	*−1.82*	*−2.11*

The table shows the Average Cumulative Abnormal Returns (ACAR) of the sampled firms for three event windows starting on D-20, D-5 and D0 (the release date of the documentary). The abnormal returns of ACAR1 and ACAR2 were calculated using the following specifications, respectively

$$AR_{i,t} = R_{i,t} - R_{M,t} \qquad (5)$$

$$AR_{i,t} = (R_{i,t} - R_{f,t}) - \left(\hat{b}_i MRP_t + \widehat{s_i} SMB_t + \hat{h}_i HML_t + \hat{r}_i RMW_t + \hat{c}_i CMA_t + \hat{m}_i MOM_t\right) \qquad (5)$$

where R_i is the stock's return, R_M is the return of the local market index, R_f is the local risk-free rate, and MRP, SMB, HML, RMW and CMA are the FF5 risk factors, while MOM is the momentum factor. All the returns were calculated using the log-difference approach. The coefficients of the risk factors were obtained by employing an estimation window ranging from D-125 to D-21. The stock prices and market indexes were obtained from Datastream, whereas the local risk-free rates and risk factors were obtained from Kenneth French's website. The t-statistics are in italics below the corresponding ACAR and were calculated using Eq. 3, as shown in Sect. 2.2. The numbers in bold mean significance at the 5% level

broader market, we posit that this price behavior is driven by less informed investors. These investors, unaware of the firm's misconduct prior to the documentary, decide to sell the firm's shares after gaining awareness through the featured show. The fact that less informed investors are more likely to ingress into active investing initiatives (Baber et al., 2022; Long et al. 2023), lends additional support to this explanation, which is further explored in the subsequent section.[9]

4 Investor attention and price decreases

Since documentaries do not release novel information, we hypothesize that the negative returns during the event window are driven by less informed investors who penalize firms' misbehavior when they become aware of its practices.[10] This assumption aligns with the work of Giannetti and Wang (2016), who document that corporate scandals lead to a decrease in local household market participation due to newfound mistrust in regional firms. Under this hypothesis, it would be reasonable to expect that the documentaries grab investors' attention and that this rise in attention leads to a decrease in stock prices. Within this framework, we hypothesize a negative relationship between attention and the returns of the sampled firms.

To explore this, we employ the natural logarithm of the number of shares traded on a given day (i.e., stock volume) as our proxy to investors' attention. This assumption is based on the influential paper of Black (1986, p. 530), who argues that "if there is no noise trading, there will be very little trading in individual assets". Since less informed investors are more prone to trade based on noise, we advocate that the daily traded volume is a consistent proxy for attention in the stock market, as assumed in other classical studies (e.g., Baker and Stein 2004).

In our first empirical exercise, we compare the traded volume of our sampled stocks between the estimation and event windows. Evidently, the volumes vary with the firms' size, precluding a comparison using the raw traded volume. To address this matter, we employ an abnormal volume definition that is given by the ratio between the stock's volume on a given day of the event windows ($vol_{i,t}$), and the average volume during the estimation window ($\overline{vol}\ (\tau_1, \tau_2)$). To control for a general increase in market volatility during the event window, we scaled each volume by the market volatility of the corresponding window. Equation (12) specifies our abnormal volume measure $avol_{i,t}$.

once the events were first reported. Therefore, it is unlikely that our CARs are influenced by legal concerns relating to the firms in question.

[9] In our sample, ten out of twelve firms exhibit a free float larger than 80%. Given this low ownership concentration, these firms are plausibly more exposed to retail investors' behavior. Consequently, our results should be interpreted with caution when analyzing more concentrated companies. We acknowledge an anonymous referee for raising this point.

[10] This assumption does not necessarily imply that ethical concerns are the main driving force underlying the behavior here documented. Alternatively, the price decrease could be motivated by rational concerns, as market participants could be cautious on how stakeholders would react to firm's misconduct. We recognize that both motivations are not mutually exclusive and acknowledge that disentangling the underlying motivations for the price decreases exceeds the scope of this paper.

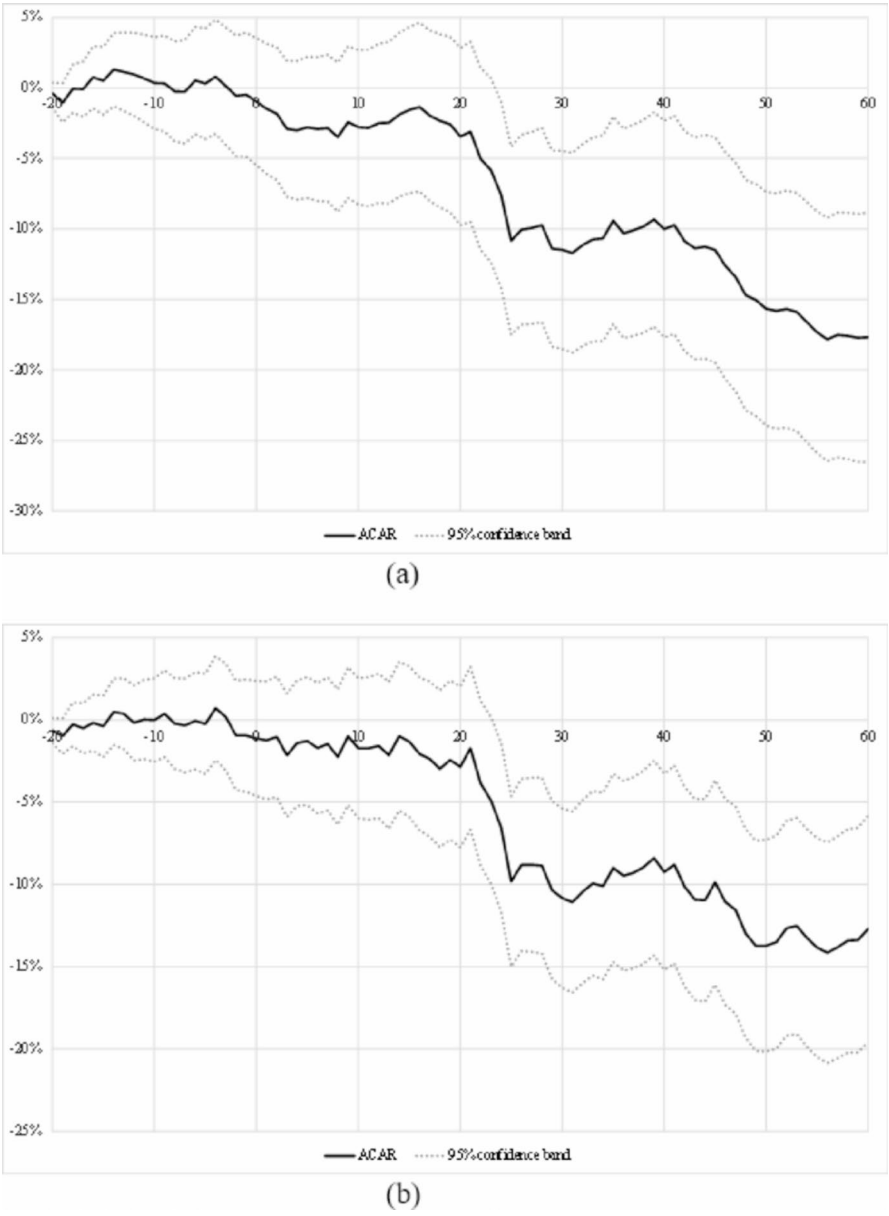

Fig. 4 Average Cumulative Abnormal Returns of the sampled firms' stocks in the event window. The figure displays the ACARs of the sampled firms' stocks during the event window. In a and b, the abnormal returns are calculated using Eqs. (1) and (2), respectively. See Sect. 2.3 for further details. In both figures, the ACARs are represented by the solid lines, while the 95% confidence bands are represented by the dotted lines

$$avol_{i,t} = \frac{vol_{i,t}}{\overline{vol}\ (\tau_1, \tau_2)}. \tag{5}$$

The data for the traded volumes were obtained from Compustat. When a company is traded on more than one stock exchange (e.g. Volkswagen), we use the trading volumes from the relevant local stock exchange (e.g. Frankfurt Stock Exchange for Volkswagen). We then average the individual abnormal volume over the twelve companies to test whether the traded volumes are larger in the event window compared with normal occasions. The results indicate that the volumes are, on average, 17% higher during the event window, and that this difference is statistically representative (t-stat = 4.36 from the two-sample mean-comparison test), clearly demonstrating that the traded volume of the sampled firms increases after the launch of the corresponding documentaries. Since the documentaries do not contain new information, we argue that the spike in volume is more likely attributed to less informed investors who, upon learning about the unethical behavior exposed in the documentary, trade against the implicated firm, justifying the corresponding increase in volume.

One could argue that our abnormal volume definition does not necessarily correspond to an increase in the trades of individual investors. To address this, in an alternative approach, we downloaded the Google Search Volume (GSV) of the names of the sample firms during both windows, based on the evidence that the GSV of firms' names are a consistent proxy for future investors' trades (Castro and Piccoli 2023). We then average the firms' GSV's and compare the two samples (i.e., sixty days before and after the release date).[11] The results indicate that the online searches on scandal firms after the launch of their documentaries are 15% higher than during normal circumstances (t-stat = 6.67), which strongly supports the view that the increase in abnormal volume is indeed driven by less informed investors. To further explore the volume-return relation, we regress the stock returns on contemporaneous and lagged traded volumes in two different panel models that are similar to Bajzik (2021), but controlling for the FF5 risk factors plus the momentum factor, as expressed in Eqs. (13) and (7). The choice to analyze the volume-return relation using these two specifications is justified by the pertinent literature, since a number of studies has explored the influence of past volumes on future returns (e.g., Brennan et al. 1998; Chordia, 2001), while others have investigated the contemporaneous relation (e.g., Datar et al. 1998; Epps and Epps 1976). Since both approaches are employed often (Bajzik 2021), we address both to avoid the results being driven by model specifications.

$$R_{i,t} = a_i + b_i vol_{i,t} + \varnothing\ X_t + c_i R_{i,t-1} + \delta_i + \epsilon_{i,t} \tag{6}$$

[11] Google Trends data for a given period are standardized with the largest number of searches peaking at 100. This characteristic makes it possible to average the GSV of different terminologies (e.g., firms' names) even when the absolute number of searches differing from one terminology to another. Consequently, using the average of firms' GSV to compare the online searches before and after the launch of documentaries will not be biased by investors' attention focusing on more prominent firms.

$$R_{i,t} = a_i + b_i vol_{i,t-1} + \varnothing X_t + c_i R_{i,t-1} + \delta_i + \epsilon_{i,t}, \tag{7}$$

where $vol_{i,t}$ is the natural logarithm of the total traded volume of stocks i on day t, and X_t is a vector containing the FF5 risk factors plus the momentum factor for the given market, as explained in Sect. 2.2. The lagged return ($R_{i,t-1}$) aims to control for autocorrelation. The parameter δ_i is the unobservable heterogeneity or the firm's unobservable individual effects to control for idiosyncratic characteristics of each firm. Finally, $\epsilon_{i,t}$ is the random disturbance. To investigate the influence of the documentaries on the volume-return relation, we use Eqs. (13) and (7) during the sixty days before and after the release separately. We expect a negative and significant b_i during the event-window as this would suggest that the increase in volume is negatively associated with stock returns. The results are shown in Table 4. For brevity, we have omitted the parameters for the risk factors.

While there is no relation between volume and returns before the event, after the release of the documentaries we document a significant negative relation among the variables for all specifications, which indicates that the increase in volume is associated with a decrease in stock prices. Given that the traded volume in the event window is significantly higher, the significance of the volume-return relation appears to have been driven by investors' attention. This relation is also economically remarkable, since a change of one standard deviation on vol is associated with a contemporaneous decrease of 1.04% ($= 0.0087 \bullet 1.19$) of the stocks' price even when controlling for the FF5 and momentum risk factors (column (3)). It is also worth mentioning that the volume-return relation in the event window remains virtually untouched by the inclusion of the risk factors, which indicates that volume provides additional explanatory power for price changes in the days following the launch of the documentaries.

These findings also contribute to the literature on the economic consequences of trust. Since general trust is plausibly influenced by omitted variables, studying the causal impact of trust on economic variables such as stock price and trading volume is problematic due to endogeneity (Fehr 2009; Giannetti and Wang 2016). In this context, Fehr (2009) points out that the most recommended design for examining the economic influence of trust is to investigate whether exogenous shocks to trust lead to changes in economic behavior. As the launch of scandal documentaries are exogenous shocks to trust for less informed investors, the fact that we document a significant ex-post change in both volumes and returns makes a novel contribution to this field, reinforcing the view that trust influences economic transactions (Giannetti and Wang 2016).

5 Scandal documentaries and competitor stocks' performance

Hitherto, the results have indicated that firms that are the subject of scandal documentaries exhibit negative returns after the launch of the show, and that this performance seems to be influenced by investors' attention. Given that our sample

Table 4 Volume-return relation before and after the documentary's release

	D-60 to D-1				D0 to D+60			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
vol_t	0.0004		0.0029		−0.0123		−0.0087	
	(0.19)		(1.73)*		(−4.13)***		(−3.56)***	
vol_{t-1}		0.0011		0.0009		−0.0094		−0.0079
		(0.61)		(0.54)		(−3.15)***		(−3.26)***
r_{t-1}	0.093	0.093	−0.188	−0.202	−0.176	−0.168	0.098	0.075
	(2.43)***	(2.43)***	(−0.67)***	(−0.71)***	(−4.77)***	(−4.55)***	(0.39)***	(0.30)***
Intercept	−0.004	−0.017	0.107	0.107	0.191	0.146	−0.089	−0.083
	(−0.15)	(−0.57)	(3.19)*	(3.19)	(4.08)***	(3.10)***	(−2.91)***	(−2.74)***
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FF 5 plus MOM	No	No	Yes	Yes	No	No	Yes	Yes
N	720	720	720	720	732	732	732	732
R^2	1.2	1.0	23.8	24.7	0.4	0.4	30.0	31.1

The table shows the estimates for the relationship between the stock's return R_i and the natural logarithm of its traded volume vol_i using Eqs. (12) and (13):

$$R_{i,t} = a_i + b_i vol_{i,t} + \emptyset X_t + c_i R_{i,t-1} + \delta_i + \varepsilon_{i,t} \quad (10)$$

$$R_{i,t} = a_i + b_i vol_{i,t-1} + \emptyset X_t + c_i R_{i,t-1} + \delta_i + \varepsilon_{i,t} \quad (11)$$

where X_t is a vector containing the FF5 risk factors plus the momentum factor for the given market, as explained in Sect. 2.2, and whose parameters were omitted in the table for brevity. The left (right) panel shows the estimates for the sixty days before and after the event. The traded volumes were obtained from Datastream. The R^2 are expressed in percentages. ***Significant at the 1%, **5%, and *10% levels

covers only twelve firms, a plausible alternative explanation would involve structural effects that influence some of the industries of the sampled firms, driving the results towards a false positive bias. To address this issue, a natural approach is to investigate the returns of competitor firms during the corresponding periods to see whether the stocks of peer companies exhibit a performance similar to that of our sample firms. The findings of this approach are presented in this subsection.

In this regard, like Knittel and Stango (2014), we define competitor firms as the first three publicly traded companies listed by Yahoo Finance as "similar to" the firm in question at the time of the corresponding documentary's release. Furthermore, for the comparison to remain consistent, we restrict the list to firms traded on the same stock exchange as the corresponding scandal firm. Finally, when we collected the data, Twitter had already become a privately held company, making it unfeasible to capture similar firms through Yahoo Finance, as it does not inform equivalent firms of private companies. In this case, we considered the same competitors of Facebook, since Twitter is classified as a social media platform along the same lines as Facebook. The list of competitor firms used in this subsection is shown in Appendix A.

In the first empirical analysis, we compare the raw returns of the equally weighted portfolios of scandal and competitor firms in the pre and event windows. The data of the peer firms were also obtained from Datastream. Whereas in the 60 days before the launch of the documentaries the average returns of both portfolios are statistically equivalent (t-stat = 0.54), in the event window the average performance of the peer firms is significantly superior to that of the scandal firms (t-stat = 2.02), suggesting that the negative performance of the latter is not driven by industry-related factors. To delve deeper into this analysis, we calculate the abnormal returns of competitor firms using Eq. (14) to form an equally weighted portfolio and accumulate its abnormal returns. Figure 5 shows the chart of the ACARs for the competitor portfolio (solid line), together with the 95% level confidence bands (dotted lines). The graph shows that the competitor firms virtually do not exhibit abnormal returns distinct from zero during the entire event window, which is the expected behavior for a diversified portfolio in an efficient market, providing further support to the view that our results were not driven by industry idiosyncrasies.

Our second analysis of competitor firms focuses on the volume-return relation. If the negative performance of firms that were the subject of scandal documentaries is driven by investors' attention, we would expect a negligible relation between the volume traded and price changes of competitor firms after the launch of the documentaries, since less informed investors would not have the motivation to trade against these companies, as they are not embroiled in a scandal. To test this, we run a panel analysis for the competitor firms using Eqs. (12) and (13) during the pre and event windows. The results are shown in Table 5.

As expected, for none of the models we document a significant negative relationship between volume and contemporaneous or future returns. Furthermore, since the coefficients of the pre and event window are not statistically different,

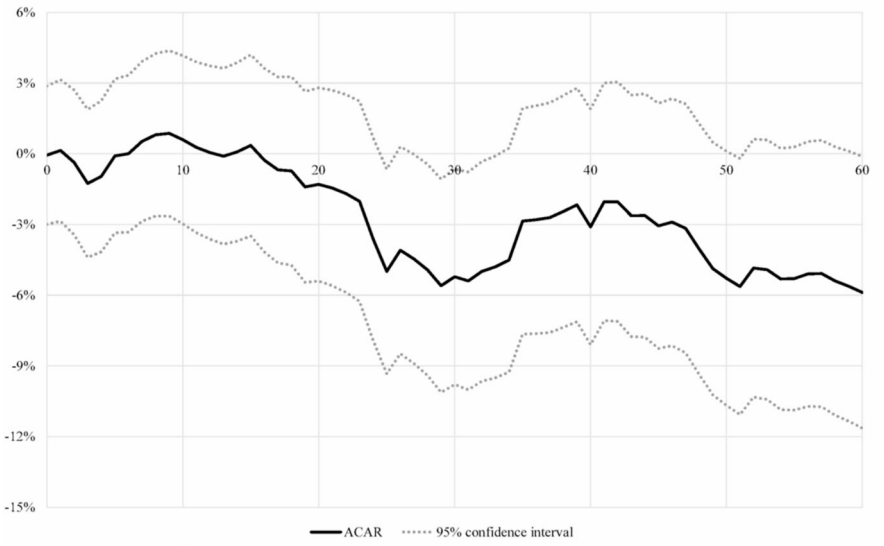

Fig. 5 Average Cumulative Abnormal Returns of competitor firms in the event window. The figure displays the ACARs of competitor firms during the event window. These competitor firms were selected based on the top 3 list of similar firms displayed in Yahoo Finance. The full list of firms is shown in Appendix A. The abnormal returns are calculated using Eq. (2). See Sect. 2.3 for further details. The ACARs are represented by the solid line, while the 95% confidence bands are represented by the dotted lines

we cannot claim that the significant volume-return relation is driven by the launch of the documentaries. Consequently, the findings of the present subsection support the view that firms exhibit negative returns after the launch of related scandal documentaries, and that this performance is driven by the investors' attention.

6 Robustness check

6.1 Single firm bias

Since our dataset is limited to twelve firms, a natural concern is whether our results are driven by a single firm, whose documentary could be interpreted as especially scandalous or, by coincidence, launched during a period of particularly poor idiosyncratic performance. To address this, we excluded one company at a time from the original sample and calculated the ACAR of the resulting portfolio using Eq. (14). The results are presented in Table 6, where the first line informs the firm that was excluded from the portfolio.

The ACARs in Panel A clearly demonstrate that the negative performance of stocks after the launch of the documentary is not driven by a single firm, since the same behavior is documented in all the portfolios. The only exception is for the

Table 5 Volume-return relation of competitor firms

	D-60 to D-1				D0 to D+60			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
vol_t	−0.0021		0.0006		−0.0018		0.0003	
	(−1.95)*		(0.63)**		(−1.15)		(0.25)	
vol_{t-1}		−0.0007		−0.0002		−0.0001		0.0003
		(−0.66)		(−0.19)		(−0.10)		(0.22)
r_{t-1}	−0.014	−0.012	0.038	0.037	−0.151	−0.151	0.075	0.074
	(−0.60)	(−0.53)	(0.74)	(0.72)	(−6.83)***	(−6.79)***	(1.65)*	(1.64)*
Intercept	0.031	0.011	0.009	0.007	0.027	0.002	−0.064	−0.064
	(1.98)**	(0.69)	(0.43)	(0.37)	(1.15)	(0.10)	(−3.55)***	(−3.56)***
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FF 5 plus MOM	No	No	Yes	Yes	No	No	Yes	Yes
N	1947	1947	1947	1947	2013	2013	2013	2013
R^2	0.1	0.0	25.0	25.2	0.7	1.7	38.5	38.5

The table shows the estimates for the relationship between the stock's return R_i and the natural logarithm of its traded volume vol_i for competitors of the scandal firms in our sample. These competitor firms were selected based on the top 3 list of similar firms displayed in Yahoo Finance. Appendix A contains the complete list of firms. The relationship was examined using Eqs. (12) and (13):

$$R_{i,t} = a_i + b_i vol_{i,t} + \emptyset X_t + c_i R_{i,t-1} + \delta_i + \varepsilon_{i,t} \quad (12)$$

$$R_{i,t} = a_i + b_i vol_{i,t-1} + \emptyset X_t + c_i R_{i,t-1} + \delta_i + \varepsilon_{i,t} \quad (13)$$

where X_t is a vector containing the FF5 risk factors plus the momentum factor for the given market, as explained in Sect. 2.2, and whose parameters were omitted from the table for brevity. The left (right) panel shows the estimates for the sixty days before and after the event. The traded volumes were obtained from Datastream. The R^2 are expressed in percentages. ***Significant at the 1%, **5%, and *10% levels

portfolio that excludes Abercrombie & Fitch Co. (ANF), since for this portfolio, we document significant negative ACARs, starting at the beginning of the event window, and not after four weeks. In other words, when Abercrombie & Fitch Co. is excluded from the sample, the results are even more striking with regard to our central hypothesis. Moreover, these results show that the criteria described in Sect. 2.1 for the selection of the documentaries are not designed to meet a prior expectation, since if this were the case, we could have established arbitrary criteria that exclude this firm from the main sample, leading to more striking results.

Regarding the trading volume analysis, Panel B shows the mean-comparison test between traded volumes in the estimation window and after a documentary's launch, employing the same method described at the beginning of Sect. 2.2. Consistently, for all the subsamples we document that the traded volumes during the event window are significantly higher than during the estimation window. Overall, these findings do not indicate that our main results are driven by the peculiar behavior of a specific firm.

6.2 Confounding events

An intrinsic concern with event studies lies in the potential influence of confounding events. This implies that abnormal returns observed during the event window

Table 6 Average Cumulative Abnormal Returns excluding one company at a time from the original sample

	Excluded Firm →:											
↓ Day	VOW3	HSBC	FB	TWTR	BHC	WFC	GOOG	FORM	BA	ANF	FE	HLF
Panel A: ACAR												
−5	−0.005	-0.006	-0.006	-0.003	-0.003	-0.004	-0.005	-0.004	-0.001	-0.003	-0.004	-0.006
	(−0.79)	(-0.95)	(-0.99)	(-0.48)	(-0.53)	(-0.56)	(-0.80)	(-0.63)	(-0.18)	(-0.53)	(-0.56)	(-0.94)
0	−0.016	-0.016	-0.016	-0.012	0.001	-0.012	-0.019	-0.017	-0.013	-0.026	-0.012	-0.023
	(-1.04)	(-1.01)	(-1.08)	(-0.85)	(0.05)	(-0.77)	(-1.19)	(-1.09)	(-0.90)	(-1.90)	(-0.75)	(-1.54)
5	-0.022	-0.028	-0.021	-0.019	-0.010	-0.022	-0.027	-0.023	-0.018	-0.037	-0.020	-0.028
	(-1.04)	(-1.33)	(-1.02)	(-1.02)	(-0.59)	(-1.08)	(-1.28)	(-1.11)	(-0.91)	(-1.96)	(-0.97)	(-1.38)
10	-0.026	-0.034	-0.021	-0.020	-0.025	-0.024	-0.027	-0.027	-0.005	-0.042	-0.024	-0.033
	(-1.04)	(-1.34)	(-0.87)	(-0.90)	(-1.16)	(-0.94)	(-1.06)	(-1.09)	(-0.19)	(-1.89)	(-0.94)	(-1.36)
15	-0.022	-0.029	-0.014	-0.033	-0.020	-0.015	-0.025	-0.014	-0.006	-0.041	-0.021	-0.030
	(-0.78)	(-1.01)	(-0.51)	(-1.29)	(-0.83)	(-0.52)	(-0.86)	(-0.48)	(-0.22)	(-1.60)	(-0.71)	(-1.07)
20	-0.046	-0.057	-0.038	-0.050	-0.043	-0.040	-0.047	-0.034	-0.030	-0.062	-0.042	-0.050
	(-1.44)	(-1.76)	(-1.23)	(-1.77)	(-1.57)	(-1.25)	(-1.46)	(-1.05)	(-0.96)	(-2.17)	(-1.3)	(-1.61)
25	-0.116	-0.133	-0.110	-0.122	-0.099	-0.107	-0.120	-0.111	-0.102	-0.090	-0.113	-0.119
	(-3.33)	(-3.78)	(-3.24)	(-3.93)	(-3.31)	(-3.06)	(-3.39)	(-3.18)	(-3.01)	(-2.87)	(-3.22)	(-3.49)
30	-0.125	-0.141	-0.124	-0.133	-0.111	-0.117	-0.134	-0.121	-0.115	-0.105	-0.118	-0.132
	(-3.34)	(-3.70)	(-3.40)	(-3.99)	(-3.45)	(-3.12)	(-3.49)	(-3.22)	(-3.16)	(-3.11)	(-3.12)	(-3.6)
45	-0.125	-0.139	-0.123	-0.118	-0.120	-0.109	-0.133	-0.117	-0.107	-0.088	-0.119	-0.138
	(-2.79)	(-3.07)	(-2.83)	(-2.98)	(-3.14)	(-2.45)	(-2.91)	(-2.60)	(-2.47)	(-2.20)	(-2.63)	(-3.15)
60	-0.178	-0.185	-0.175	-0.172	-0.184	-0.167	-0.184	-0.166	-0.138	-0.128	-0.178	-0.184
	(-3.50)	(-3.60)	(-3.54)	(-3.80)	(-4.23)	(-3.29)	(-3.54)	(-3.26)	(-2.81)	(-2.81)	(-3.48)	(-3.70)

Table 6 (continued)

	Excluded Firm →:											
↓ Day	VOW3	HSBC	FB	TWTR	BHC	WFC	GOOG	FORM	BA	ANF	FE	HLF
Panel B: Abnormal volume test												
t-stat	3.86	2.63	5.29	6.78	5.21	2.54	4.39	2.94	3.82	4.39	4.93	4.96

Panel A shows the Average Cumulative Abnormal Returns (ACAR) of the sampled firms excluding one company at a time to investigate whether the results are driven by a single firm. The abnormal returns were calculated using Eq. (14):

$$AR_{i,t} = (R_{i,t} - R_{f,t}) - (\hat{b}_i MRP_t + \widehat{s_i} SMB_t + \hat{h}_i HML_t + \hat{r}_i RMW_t + \hat{c}_i CMA_t + \hat{m}_i MOM_t) \quad (14)$$

Section 2.3 shows a detailed description of the variables used in Eq. (14). In the table, the first row informs the firm that was excluded to form the alternative portfolio. The t-statistics are in parenthesis below the corresponding ACAR and were calculated using Eq. 3, as defined in Sect. 2.2. Panel B shows the t-statistics for the mean-comparison test between the abnormal traded volume in the event window and the estimation window. The abnormal volume is defined by Eq. (15) as$avol_{i,t} = \frac{vol_{i,t}}{\bar{vol}(\tau_1,\tau_2)}$ (15)

where $vol_{i,t}$ is the traded volume of the stock in the given day t of the event window, and $\bar{vol}\ (\tau_1, \tau_2)$ is the average traded volume in the estimation window. The volumes are scaled by the market volatility. The traded volumes were obtained from Datastream. The numbers in bold mean significance at the 5% level

Table 7 Average cumulative abnormal returns of scandal firms before confounding events

Day	0	5	10	15	20	25	30	35	40
Event window starting on D-20									
ACAR for all event window	-0.46%	-1.25%	-1.53%	-1.22%	-3.45%	**-10.13%**	**-11.26%**	**-10.92%**	**-15.96%**
	−0.79	*−0.87*	*−0.79*	*−0.52*	*−1.29*	*−3.40*	*−3.46*	*−2.76*	*−3.50*
ACAR before confounding events only	-0.93%	-1.72%	-2.00%	-2.08%	-4.74%	**−8.03%**	**−10.41%**	**−8.70%**	**−7.63%**
	−0.35	*−0.58*	*−0.61*	*−0.59*	*−1.27*	*−2.02*	*−2.49*	*−1.99*	*−1.67*
Event window starting on D-5									
ACAR for all event window	-1.50%	-2.29%	-2.57%	-2.26%	-4.49%	**−11.17%**	**−12.30%**	**−11.96%**	**−17.00%**
	−1.05	*−1.18*	*−1.10*	*−0.84*	*−1.51*	*−3.43*	*−3.51*	*−2.87*	*−3.58*
ACAR before confounding events only	-1.50%	-2.29%	-2.57%	-2.65%	-5.31%	**−8.59%**	**−10.97%**	**−9.26%**	**−8.20%**
	−1.05	*−1.18*	*−1.10*	*−0.99*	*−1.78*	*−2.64*	*−3.13*	*−2.48*	*−2.07*
Event window starting on D0									
ACAR for all event window	-0.93%	-1.72%	-2.00%	-1.69%	-3.92%	**−10.61%**	**−11.74%**	**−11.39%**	**−16.44%**
	−0.35	*−0.58*	*−0.61*	*−0.48*	*−1.05*	*−2.68*	*−2.81*	*−2.40*	*−3.12*
ACAR before confounding events only	-0.46%	-1.25%	-1.53%	-1.61%	-4.27%	**−7.55%**	**−9.93%**	**−8.23%**	**−7.16%**
	−0.79	*−0.87*	*−0.79*	*−0.69*	*−1.59*	*−2.53*	*−3.05*	*−2.35*	*−1.91*

The table shows the average cumulative abnormal returns (ACAR) of the sampled firms before the occurrence of a confounding event for the given firm (ACAR before confounding events only) together with the ACAR for the original portfolio (ACAR for all event window), aiming to control for abnormal returns provoked by confounding events. these events were obtained from Refinitiv, through the "Corporate Events" filter available in this platform. Appendix B brings a detailed list of these events. the table informs the ACARs only until day 40 because only two firms exhibited confounding events after this period. the numbers in bold mean significance at the 10% level

might be attributed to other events occurring in the same period, rather than the primary event of interest. This concern is particularly relevant in our study due to the extended length of our event window and the limited number of firms in our sample. Therefore, it is reasonable to question whether our results might be biased by concurrent competitor events affecting some firms within our event window.

To address this concern, we conduct a thorough search in the Refinitiv database for firm-level events using the "Corporate Events" filter during the event window for each firm in our sample. The detailed list of confounding events is available in Appendix B. To mitigate potential bias from these concurrent events, we consider only abnormal returns before the occurrence of the event in question for each firm. For instance, in the case of Volkswagen, with an Earnings Release on 3/13/2018, we only consider abnormal returns from the release date of its scandal documentary (i.e., 1/26/2018) until 3/12/2018, the day before its confounding event. This process is repeated for all other firms, forming a portfolio immune to confounding event bias, consisting exclusively of abnormal returns that occurred before such events. Table 7 presents the ACARs for this alternative portfolio ("before confounding events") alongside those for the original portfolio for easy comparison. The table excludes ACARs beyond day 40, as only two firms exhibited confounding events after this period.

The fact that the ACARs of the alternative portfolio are very similar to the ones exhibited by the original strongly suggests that our results are not driven by confounding events. It is noteworthy that on some days, the ACARs of the immune portfolio are more pronounced than those of the original portfolio. This can be attributed to concurrent events bringing positive news, resulting in positive ex-post abnormal returns. Consequently, excluding these abnormal returns from the alternative portfolio led to even more negative ACARs. Overall, these results indicate that our findings are not compromised by confounding events.

6.3 Netflix's viewership over time

As previously mentioned, we observe that the abnormal returns of the sampled stocks only turn significantly negative 20 days after the launch of the scandal documentary. To validate the credibility of this pattern, we explore how the viewership of Netflix's shows evolves over time. If the peak in visualizations occurs a few days after the launch, it would be inconsistent with the delayed reaction we document, suggesting a potentially spurious influence of the documentary on stock returns.

To address this, we employed the following approach. On its website (https://www.netflix.com/tudum/top10), Netflix makes available the global weekly hours viewed of the shows that ranked among the Top-10 list at any given week. We downloaded this list and retained only the shows belonging the Top-10 rank for 8 weeks at least. The intuition underlying this procedure is twofold. First, to minimize the survivorship bias from documentaries figuring only a few weeks in this list, since they would distort the viewership peak as the report does not inform

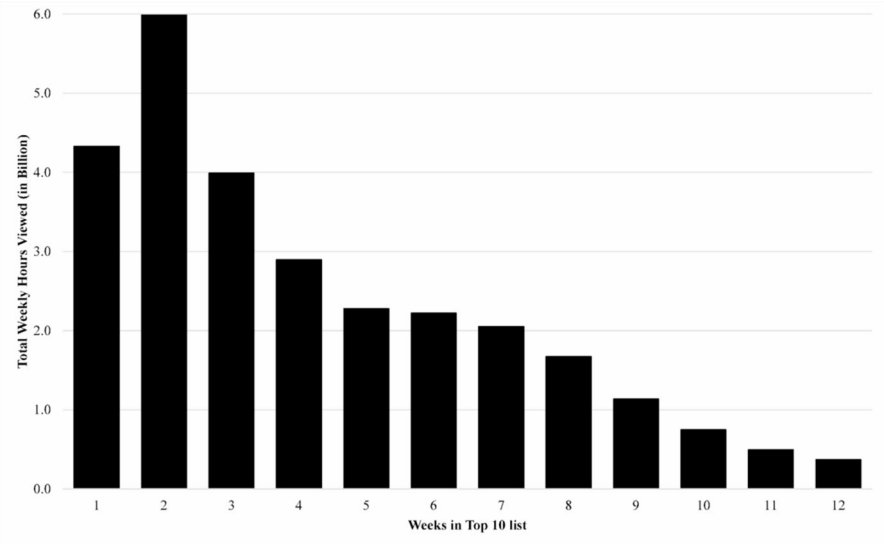

Fig. 6 Netflix's Top-10 list viewership. The figure displays total weekly hours viewed (in Billion) of shows that were ranked among the Top-10 list for 8 weeks at least. The data is made available by Netflix at: https://www.netflix.com/tudum/top10

the views of a show after it exits the Top-10 rank. Second, to have a viewership window that is consistent with our event window. Regarding this second aspect, one could conjecture that it would be more appropriate to include only shows in the list for 12 weeks at least, since this range would perfectly match with our event window (i.e. 60 working days). The downside of this approach is that it is a rigorous filter that would exclude 98.1% of the shows, compromising the generalization power of the sample. On this regard, it is important to mention that, even though our baseline analysis is based on this 8-weeks filter, we employ alternative filters of weeks in the Top-10 list ranging from 4 to 12 weeks and find very consistent viewership patterns.

Figure 6 displays the evolution of total viewed hours of the sampled shows, with the peak occurring in week two. However, this does not imply that viewership happens two weeks after the show's release. Instead, it indicates that a show reaches its peak two weeks after entering the Top-10 list. The next step is to determine how many weeks from its release a show takes to enter the Top-10 list. This information is not available in Netflix's report, so we manually searched the release date of every show in the baseline sample and calculated the weeks between the release date and its first appearance in the Top-10 list. The median duration is 1.9 weeks.12 Based on this approach, we advocate that it is reasonable to assume that a show on Netflix takes, on average, 3.9 weeks (or approximately 20 working days) to reach its viewership peak, what is very consistent with the delayed reaction that we document, if we additionally assume that it takes a few days from viewing the documentary to selling it from the securities account.

While this viewership behavior requires careful interpretation as it is based on a list of top-viewed shows, we argue that it offers an intriguing insight into how Netflix's viewership behaves over time, sharing similar patterns with the cumulative abnormal returns reported in the paper.

7 Conclusion

This study explores the impact of Netflix scandal documentaries on the stock behavior of featured publicly traded firms. Analyzing twelve films, we apply an event study methodology, which reveals a significant decrease in stock prices, resulting in an average cumulative abnormal return of -15.96% three months post-release. The findings suggest that the observed price decline is attributed to investors' attention, which is supported by increased traded volumes and Google Search Volumes for the sampled firms. The results indicate a significant influence of Netflix scandal documentaries on market participants' pricing of corporate misconduct. The robustness of the results is confirmed through various analyses, including abnormal volume data, examination of competitor firms' returns, and classical robustness checks, providing strong evidence that Netflix documentaries induce additional trading volume possibly from less informed investors that were unaware of the firms' practices before watching the documentaries.

For practitioners, a relevant implication refers to the importance of streaming platforms in disseminating information about unethical conduct by organizations to the general public. In tandem with this, our results highlight the important role of less informed investors in pricing corporate misconduct, what could be of particularly interest for activists and policymakers concerned with social responsibility issues.

It is essential to note, however, that our evidence should be approached with caution. The study relies on a small sample of documentaries and does not directly observe the motivations of investors selling stocks in the firms implicated in scandals. Moreover, since the majority of the sampled firms exhibit large free floats, making them naturally more exposed to retail investors' behavior, our results are not directly generalizable to firms with highly concentrated ownership. Therefore, we believe that future studies with larger datasets and evidence emerging from interviews or experiments with investors can provide a more comprehensive understanding of these dynamics.

8 Appendix A

See Table 8.

Table 8 The table shows the list of competitor firms of the sampled companies

Sample Firms	Competitor Firms
Volkswagen	BMW, Bayerische Motoren Werke Aktiengesellschaft
	Porsche Automobil Holding SE
	Mercedes-Benz Group AG
HSBC	Citigroup Inc.
	Bank of America Corporation
	UBS Group AG
Facebook	Snap Inc.
	Pinterest, Inc.
	Baidu, Inc.
Twitter	Snap Inc.
	Pinterest, Inc.
	Baidu, Inc.
Bausch Health Companies Inc.	Teva Pharmaceutical Industries Limited
	Viatris Inc.
	Takeda Pharmaceutical Company Limited
Wells Fargo	Citigroup Inc.
	Bank of America Corporation
	JP Morgan Chase & Co.
Google	Microsoft Corporation
	Apple Inc.
	Meta Platforms, Inc.
Formosa Plastics Corporation	Nan Ya Plastics Corporation
	China Steel Corporation
	Formosa Petrochemical Corporation
The Boeing Company	Airbus SE
	Lockheed Martin Corporation
	Raytheon Technologies Corporation
Abercrombie & Fitch Co.	American Eagle Outfitters, Inc.
	The Gap, Inc.
	Urban Outfitters, Inc.
FirstEnergy Corp.	Exelon Corporation
	American Electric Power Company, Inc.
	Entergy Corporation
Herbalife	USANA Health Sciences, Inc.
	The Hain Celestial Group, Inc.
	Lancaster Colony Corporation

These competitor firms were selected based on the top 3 list of similar firms displayed in Yahoo finance

9 Appendix B

See Table 9.

Table 9 The table shows the list of confounding events that took place during the event window of the corresponding firms

Firm	Confounding Event Date	Description
Volkswagen	13/03/2018	Earnings Release
HSBC	20/02/2018	Earnings Release
Facebook	26/10/2020	Stock Split
	29/10/2020	Earnings Release
Twitter	25/09/2020	M&A Deal
	10/26/2020	Stock Split
	29/10/2020	Earnings Release
Bausch Health Companies Inc.	28/02/2018	Earnings Release
	12/03/2018	M&A Deal
Wells Fargo	14/04/2020	Earnings Release
Google	26/10/2021	Earnings Release
	18/11/2021	M&A Deal
Formosa Plastics Corporation	13/05/2020	Earnings Release
The Boeing Company	27/04/2022	Earnings Release
Abercrombie & Fitch Co.	24/05/2022	Earnings Release
FirstEnergy Co.	26/07/2022	Earnings Release
Herbalife	01/08/2017	Earnings Release
	21/08/2017	Shares repurchase

The events were obtained from refinitiv using the filter "Corporate Events" available in this platform

Acknowledgements The authors wish to thank Zeming Li, Michael Frömmel, Sabrina Silva participants of the 3rd Conference on International Finance and of the Sustainable and Climate Finance and Growth and of the XXIV Brazilian Finance Conference for helpful comments.

Funding The Article Processing Charge (APC) for the publication of this research was funded by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) (ROR identifier: 00x0ma614). This study is part of the project 405726/2023-6 financed by CNPq – Conselho Nacional de Desenvolvimento Científico e Tecnológico. Pedro Piccoli acknowledges financial support from CNPq.

Data availability The datasets generated and analyzed during the current study are not publicly available due to licensing restrictions and the proprietary nature of some data sources. However, they are available from the corresponding author upon reasonable request for academic and non-commercial purposes.

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