The Role of Fact-Checkers in Capital Markets*

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Abstract

In this study, I provide the first evidence on the role of fact-checkers as a new information intermediary in capital markets. Using data from four major fact-checkers in the United States, I first examine the factors that influence fact-checkers' coverage on firms. I find that profit-oriented fact-checkers are more likely to provide coverage on firms. Furthermore, fact-checkers tend to focus on firms with higher visibility, greater proportions of retail investors, and those that align with their political ideology. These findings are consistent with fact-checkers' incentives to generate revenue and to establish a reputation for impactful and high-quality fact-checking. A difference-in-differences analysis based on *PolitiFact's* transition from a for-profit to a not-for-profit operational model further demonstrates that business incentives play an important role in fact-checkers' coverage decisions. Lastly, I examine the consequences of fact-checking. I find that firms covered by fact-checkers issue less voluntary disclosure, suggesting that external fact-checking may reduce the need of corporate disclosure.

Keywords: Fact-Checker, Misinformation, Disclosure

JEL codes: D02, G20, M40

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1. Introduction

Credible information is important for well-functioning capital markets. However, misinformation poses a significant threat to capital markets, and the growing use of artificial intelligence to create deceptive content has further amplified this misinformation risk.[1] In recent years, misinformation has gained attention in areas such as politics, vaccination, nutrition, and stock valuation (Lazer et al., 2018). It can undermine social, political, and economic relationships. In the financial market, misinformation can erode the trust in markets, leading to a decline in trading activities (Kogan et al., 2023). To debunk false information, fact-checking organizations—often known as fact-checkers—have emerged to monitor the factual accuracy of claims made by public figures, news outlets, and online contents. According to Duke Reporters' Lab (2023), the number of fact-checkers has increased from 11 in 2008 to 424 in 2022. Google also partners with fact-checkers to fight against false information.[2] In this study, I provide the first evidence on the role of fact-checkers as a new information intermediary in capital markets.

As a new information intermediary, fact-checkers' primary goal is to monitor the factual accuracy of claims and to provide verified contents. However, information intermediaries are influenced by their ideologies and incentives (Roychowdhury & Srinivasan, 2019). To understand the role of fact-checkers, I start with examining the incentives of fact-checkers to provide coverage on firms.[3] I hypothesize that fact-checkers' economic and reputation incentives affect their coverage decisions. My first hypothesis is motivated by the diverse operational models in the fact-checking industry. Unlike information intermediaries primarily

[1] Misinformation refers to objectively false news. Following Vosoughi et al. (2018), I do not examine the intentions behind the false information and do not distinguish between objectively false news (i.e., misinformation) and wilful distortion of information (i.e., disinformation).
[2] More information at: https://blog.google/outreach-initiatives/google-news-initiative/how-google-and-youtube-are-investing-in-fact-checking/
[3] I focus on fact-checkers' coverage decisions instead of the outcomes from fact-checking articles for two reasons: 1) coverage decision is the initial step fact-checkers take; and 2) a recent study shows that fact-checkers have high agreement on similar claims but exist significant differences in their coverage decisions (Lee et al., 2023).

driven by profit motives, such as auditors and credit rating agencies, many fact-checkers operate as not-for-profit organizations. According to International Fact-Checking Network (IFCN, 2023), 58.1% of the fact-checkers are not-for-profit organizations or attached to an academic institution. Their main funding is from foundation grants or individual donations. The rest of fact-checkers are affiliated with for-profit media outlets, which have incentives to attract readership and rely on advertising revenue to generate profits. Compared to not-for-profit fact-checkers, whose funding depends on grants or donations that are not tied to the audience engagement, profit-oriented fact-checkers face pressure to generate revenue to sustain financial performances. Thus, I expect profit-oriented fact-checkers to provide more coverage on firms compared to not-for-profit fact-checkers.

My second hypothesis focuses on fact-checkers' incentives to establish and maintain their reputation as authoritative information sources. As the fact-checking industry is new and still developing, fact-checkers' incentives to establish reputation and increase their market shares are even stronger than other matured information intermediaries such as auditors and credit rating agencies. For fact-checkers, reputation benefits involve building and maintaining trust among audiences by producing verified contents. To enhance their reputation and increase the future demand for their services, they have incentives to cover firms that will have greatest potential to make an impact. By covering firms with higher visibility, fact-checkers can reach a broader audience and enhance their reputation among the public. Furthermore, retail investors often lack resources to evaluate the accuracy of information and are directly impacted by misinformation. By checking misinformation targeting more retail investors, fact-checkers can build trust among the audiences who are most affected by misinformation to enhance their reputation. Therefore, addressing misinformation from firms with higher visibility and a larger proportion of retail investors aligns with fact-checkers' reputation incentives.

Another key factor influencing fact-checkers' coverage decisions is political ideology. Objectivity is important for fact-checkers but the public trust in their objectivity is divided. According to a survey by Pew Research Center (2019), about half of the participants believe that fact-checkers are fair with all sides, whereas the other half believe that fact-checkers tend to favour one side. Fact-checkers usually claim that they are non-partisan, while theoretical and empirical studies suggest that media outlets slant their reports to cater to the belief of their audiences (Gentzkow & Shapiro, 2006; Rees & Twedt, 2021). Similarly, fact-checkers may cover firms with the same political ideology to build their credibility in the group of audience with the same political ideology. On the other hand, fact-checkers may scrutinize more firms with opposing political ideologies. Thus, whether political congruence with firms affects fact-checkers' coverage on firms is ex-ante unclear.

To explore fact-checkers' coverage on firms, I collect data from four main fact-checkers: *PolitiFact*, *Snopes*, *Factcheck* and *TruthOrFiction*. Usually, fact-checkers start a fact-checking article if they want to check the accuracy of a claim—a statement or assertion that can be evaluated for its truthfulness. I use ChatGPT to identify the firms mentioned in the claims. After manual verification, I match them with corresponding firms from Compustat. Finally, I identify 3,513 fact-checking articles about 439 firms from 2007 to 2023. I find that firms in business equipment and retail industry are the main target of fact-checkers. The fact-checking articles cover a variety of topics, spanning from firms' product or services quality, operating policies, rumours about executives to employee safety and hiring policy. The breadth of fact-checking articles shows that fact-checking is relevant to capital markets. Furthermore, I find that the publication of fact-checking articles is associated with a positive and significant abnormal return of 0.5%, suggesting investors view fact-checking articles favourably.

To examine the factors that influence fact-checkers' coverage decisions, I construct a panel data of fact-checker, firm, and year-quarter. This research design allows me to examine

the variation of coverage decisions across fact-checkers, firms and time. An empirical challenge to examine fact-checkers' coverage decisions is to measure and control for firms' misinformation risk.[4] To compare firms with similar misinformation risk, I only keep the firms that have ever been covered by any fact-checker in the sample (Full Sample). I also supplement the analyses using an industry-matched subsample (Matched Sample). In the matched sample, I restrict the control group (i.e., firms without fact-checker coverage) in each year-quarter to be in the same industry (two-digit sic) as the firms being covered by any fact-checker in the same year-quarter. The assumption of this research design is that firms from the same industry have similar likelihoods to be targeted by misinformation in the same year-quarter.

The regression analyses reveal several findings. I find that profit-oriented fact-checkers are more likely to provide coverage on firms than not-for-profit fact-checkers. Firms with higher visibility and more retail investors are more likely to be covered. Fact-checkers are also more likely to check firms with the same political ideology, suggesting that they cater to the political belief of their audience. The results are robust to including industry and year-quarter fixed effects, controlling for unobservable industry-invariant characteristics and common time factors. Collectively, these results are consistent with my predictions that both economic and reputation incentives shape fact-checkers' coverage decisions.

To strengthen the analyses on the economic incentives that drive fact-checkers to provide more coverage on firms, I further explore the influence of commercial ties between fact-checkers and firms. Compared to not-for-profit fact-checkers, a unique business incentive of profit-oriented fact-checkers is to cater to their potential clients to gain advertising fees. The

[4] Measuring misinformation risk is empirically challenging due to the absence of a comprehensive list of revealed misinformation events. Prior studies on financial misinformation identify fake news by 1) using the fact-checking articles to identify misinformation (Xu, 2021); and 2) relying on the 171 identified fake news about 47 firms by an industry whistle-blower and SEC (Kogan et al., 2023). However, these two methods are not suitable in my setting. First, using fact-checking articles presupposes the existence of fact-checker coverage rather than identifying misinformation. Second, the list of fake news by an industry whistle-blower is not publicly available and the number of revealed misinformation events is limited.

commercial ties between the fact-checker and firms can affect fact-checkers' coverage decisions. To investigate this possibility, I use a difference-in-differences design by exploiting the change in *PolitiFact's* operation model. In February 2018, *PolitiFact* changed its operational model. Prior to the change, *PolitiFact* was affiliated with *Tampa Bay Times*, a profit-oriented news organization. Since *Tampa Bay Times* relies on advertising fees, it would be more likely to cover firms who pay advertising fees. However, firms' advertising expenditure on *Tampa Bay Times* is unobservable. Thus, I regard the firms with potential commercial ties as firms that have been covered by *PolitiFact* but not by other fact-checkers before the change of the operational model. After the change of operational model, *PolitiFact* functions fully as a not-for-profit national news organization and the potential commercial ties disappear. Using *PolitiFact's* change to a not-for-profit operational model, I find that firms with potential commercial ties with *PolitiFact* are less likely to be checked after the change compared to firms without such ties. The parallel trend test confirms that there are no pre-trends before the change in the operation model. These results suggest that commercial ties with firms affect fact-checkers' coverage decisions and further support the economic incentives of fact-checkers.

Next, I explore the consequences of fact-checkers' coverage. I start with examining whether firms change their voluntary disclosure decisions after being covered by fact-checkers. Voluntary disclosure is important in shaping firms' information environment (Beyer et al., 2010). Theory predicts that an increase in information uncertainty can lead managers to provide more voluntary disclosure (Verrecchia, 1990). If fact-checkers can effectively mitigate firms' misinformation concerns by lowering the information uncertainty, firms being fact-checked may provide less voluntary disclosure. Using the frequency of management forecasts as the proxy for voluntary disclosure, I find that firms issue fewer management forecasts after being

fact-checked. This result suggests that fact-checking can reduce managers' incentives to provide costly disclosure.

Finally, I examine the capital market consequences of fact-checkers' coverage. Specifically, I focus on trading activities to capture investors' reaction to fact-checking articles. Similar to Kogan et al. (2023), I separately examine retail trading activities versus institutional trading activities. I find that retail trading volume increases after the fact-checker coverage, which corroborates the earlier evidence that fact-checkers view retail investors as beneficiaries of fact-checking articles. In contrast, I do not find significant changes in institutional trading activities. Collectively, these analyses suggest that fact-checking articles have an impact on capital markets, particularly on retail investors.

My study introduces fact-checkers as a new information intermediary to the accounting and finance literatures and provides the first evidence on their incentives to cover firms. The rise of fact-checkers has gained attention from research in politics and a considerable number of communication studies support the effectiveness of fact-checking messages in reducing misperceptions and decreasing the intention to share false information (Graves & Cherubini, 2016; Liu et al., 2023). However, their role in capital markets remains unexplored. Prior literature focuses on financial journalists, analysts, and media as information intermediaries in capital markets (Blankespoor et al., 2020). Distinct from those information intermediaries, fact-checkers' primary goal is to verify the accuracy of certain claims. My study takes the first step in examining fact-checkers' coverage on firms and identifying the factors that influence their coverage decisions.

This study also contributes to the growing literature on misinformation in financial markets. Prior studies have shown the effects of misinformation in capital markets. Xu (2021) provides evidence that misinformation, which mostly originates from social media, distorts stock prices, and affects corporate disclosure decisions. Kogan et al. (2023) provide empirical

evidence that misleading information from Seeking Alpha can lead to a decline in trading activities through the lens of deteriorated public trust. Distinct from Xu (2021), who studies misinformation identified by fact-checkers, my study examines the determinants of fact-checkers' coverage decisions and the consequences of their coverage. My paper extends this line of research to the role of fact-checkers, serving as the first line of defence against misinformation.

Furthermore, the study also speaks to regulatory and corporate concerns about the financial information environment in recent years. The SEC has expressed concerns that investors increasingly rely on social media for investing information, warning that the social media may convey false information (SEC, 2022). The rise of artificial technologies and social media platforms has transformed the way information is created and disseminated, enabling unverified news to spread and heightening corporates' misinformation risk. Edelman—a public relations and marketing consultant firm—conducted a survey on nearly 400 top communications and marketing executives. The survey finds that eight in 10 executives worry about the impact of AI-driven misinformation on their businesses (Edelman, 2024). Fact-checkers emerge to address this increasingly challenging information environment. My study shows that their coverage can substitute costly disclosure and enhance retail trading activities, underscoring their potential in affecting the information environment of capital markets.

2. Institutional Background and Hypotheses

2.1 Institutional Background

Unlike other information intermediaries (i.e., traditional media, analysts, and social media) that create and disseminate the contents, the primary role of fact-checkers is to monitor the factual accuracy of claims. Without creating new content, fact-checkers primarily verify

whether the existing claims by public figures, news outlets, and online contents are accurate or not. Beyond the role as reporters, survey evidence from the Europe shows that fact-checkers identify themselves as reformers who promote specific policy reforms and experts who establish themselves as authoritative sources of information on often complex areas of public policy (Graves & Cherubini, 2016).

Fact-checkers have emerged as a response to the growing prevalence and impact of misinformation given the rise of social media platforms and online forums. The prevalence of misinformation is particularly concerning given that general trust in the mass media has plummeted to historic lows since 2016 (Pew Research Center, 2024). There are potential interventions that might be effective at curbing the spread and impact of misinformation. One method is implementing structural changes on internet platforms (Lazer et al., 2018). For example, social media platforms such as X and Facebook have taken various interventions on the platforms to curb misinformation, including removing the content and adding a warning label to the content.[5] Another method to combat the misinformation is fact-checking, which help individuals evaluate the misinformation themselves (Lazer et al., 2018). Survey evidence suggests that U.S. adults evaluate fact-checking labels created by professional fact-checkers as more effective than labels by algorithms and other users (Jia & Lee, 2024).

The goal of this paper is to take an initial step in examining the role of fact-checkers in capital markets. Fact-checkers write about events that readers care about or viral rumours that could lead to misunderstandings. As *Snopes* discusses in its editorial process, it is open to claims on any given subject, regardless of its perceived importance, controversiality, obviousness, or superficiality.[6] Kogan et al. (2023) show that the stock market reaction to misinformation is as strong as to true news, underscoring the difficulty investors have in

[5] More information about fact-checking on X and Facebook at: https://blog.x.com/en_us/topics/company/2022/introducing-our-crisis-misinformation-policy and https://www.facebook.com/combating-misinfo.
[6] More information about *Snopes'* fact-checking procedure at https://www.snopes.com/transparency/.

differentiating misinformation from the true news. In the era of heightened misinformation risk, fact-checkers' coverage on firms can play a critical role in safeguarding information environment. Ideally, fact-checkers can monitor the accuracy of each piece of information, but most fact-checkers face challenges related to funding and financial constraints, access to technology tools, and staffing and expertise (IFCN, 2023). Thus, it is important to understand the determinants of fact-checker coverage in capital markets.

2.2 Hypothesis Development

My primary objective is to provide insights into the factors that drive fact-checkers' coverage decisions on firms. I argue that fact-checkers are driven by two important incentives to provide coverage: economic benefits and reputation benefits. Economic benefits arise from fact-checkers' incentives to attract readership or funding, while reputation benefits stem from fact-checkers' incentives to establish themselves as reliable and authoritative information sources. Although I develop hypotheses separately for economic and reputation incentives below, these two incentives are not mutually exclusive. Like other gatekeepers (e.g., auditors and credit rating agencies), the reputation damage from failing to identify and correct important misinformation can impair fact-checkers' ability to retain and attract clients (DeFond and Zhang, 2014; Bonsall et al., 2018). Finally, I argue that partisanship is another important consideration when fact-checkers make coverage decisions.

My first hypothesis is regarding fact-checkers' incentives to provide coverage to gain economic benefits. Specifically, I choose to study the effects of fact-checkers' operational models. Unlike information intermediaries that are incentivized to generate profit, most of the fact-checkers are not-for-profit organizations in 2023 (IFCN, 2023). Their main funding is from foundation grants or individual donations. However, the rest of fact-checkers are affiliated with for-profit media outlets that are under the pressure of generating revenues via advertising fees. Given profit-oriented fact-checkers face pressure to demonstrate financial sustainability, I

expect profit-oriented fact-checkers to provide more coverage on firms and state the hypothesis in the alternative form:

H1: Fact-checkers with incentives to gain economic benefits are more likely to provide coverage on firms.

The next set of determinants is motivated by fact-checkers' incentives to establish their reputation. Fact-checkers cover viral rumours that could lead to misunderstandings. Their reputation is built on the impact of their fact-checking articles, their benefit to the target audience, and their credibility. One key factor influencing their coverage decision is the visibility of the firms involved in the claims to be checked. Fact-checkers are more likely to focus on firms with higher visibility because these firms have a broader readership, which can help fact-checkers reach a broader audience and amplify their potential impact. Furthermore, failing to uncover misinformation for higher visible firms can be particularly costly for fact-checkers. Misinformation about high-visible firms is often high-profile due to the significant public interest and extensive media coverage these firms attract. Thus, I state the hypothesis in the alternative form:

H2a: Fact-checkers are more likely to cover firms with higher visibility.

Next, I hypothesize that fact-checkers enhance their reputation by prioritizing coverage for people who are more likely to be misled by misinformation. Unlike institutional investors, who have access to specialized knowledge and professional analyses to evaluate the creditability of information, retail investors lack knowledge and resources to assess the accuracy of information. This disparity places retail investors at a greater risk of being misled. Rumours and misinformation spread rapidly on social media and studies also highlight the pervasive influence of social media on retail trading activities (Barber et al., 2022; Cookson et al., 2024). By addressing the misinformation targeting retail investors, fact-checkers can build

trust among audiences who are most affected by misinformation. In doing so, fact-checkers can establish their role in curbing the widespread effects of misinformation and enhance their reputation. Thus, I state the hypothesis in the alternative form:

H2b: Fact-checkers are more likely to cover firms with higher retail ownership.

My last hypothesis examines whether partisanship is associated with fact-checkers' coverage decisions. To fact-checkers, objectivity is important and they usually state that they are non-partisan. However, the public trust in their objectivity is divided as a survey by Pew Research Center (2019) suggests that about half of the respondents think fact-checkers tend to favour one side. This raises a question of whether political congruence affects fact-checker coverage. On the one hand, theory suggests that media outlets will slant their reports toward the prior belief of their audiences to build a reputation for quality when the true quality of the information is hard to observe directly (Gentzkow & Shapiro, 2006). Empirically, Rees and Twedt (2021) find that media outlets negatively slant their coverage of earnings announcements when the political leanings of the outlet are incongruent with the political ideology of the firm. Similar to media outlets, fact-checkers can also be affected by their political ideology. If fact-checkers aim to bolster their reputation, covering firms with the same political ideology can help them establish their credibility in the group of audience with the same political ideology. However, firms with opposing political ideologies might be subject to greater scrutiny by fact-checkers. Evidence suggests that in the crowdsourced fact-checking program on X, users are more likely to write negative evaluations of tweets from counter-partisans (Allen et. al., 2022). Thus, whether and how political congruence affects fact-checker coverage decision is unclear and I state the hypothesis in the null form:

H3: Fact-checkers' coverage decision is not associated with the political congruence with firms.

3. Data and Research Design

3.1 Data and Sample Selection

Fact-checkers publish articles to verify the factual accuracy of a claim—a statement or assertion that can be evaluated for its truthfulness. To examine fact-checker coverage on firms, I collect the fact-checking articles from four major fact-checkers: *PolitiFact*, *Snopes*, *Factcheck* and *TruthOrFiction*. I keep the articles from 2007 to 2023 as 2007 is the first year when four fact-checkers are founded and 2023 is the latest full year when I collect the data. A fact-checking article is considered as firm-related if the claim being checked is about a firm. The claim can be about companies' subsidiaries, brands, products, or people. To identify firm-related claims, I use GPT-4o model to extract company names from the claims. I then manually check whether the extracted names are indeed company names. This process results in 7,597 articles about firms. Appendix A presents the detailed procedure for identifying fact-checker coverage of firms. For the claims related to news channel or social media platforms (e.g., CNN, ABC News, Twitter, Facebook), I manually check the claims and include only claims about the firms themselves rather than claims disseminated on their platforms. Next, I match the firms with those in Compustat based on their names. The final sample consists of 3,513 firm-related fact-checking articles about 439 unique firms. Table 1 Panel A presents the sample selection process.

Figure 1 presents the number of firm-related fact-checking articles by year. In general, the number of fact-checking articles is increasing over time, consistent with increased demand for fact-checking. In particular, there is a spike in fact-checking articles in every election year (2012, 2016 and 2020), suggesting that political uncertainty may spill over to the capital markets and increase the demand for firm-related fact-checking. Additionally, the number of fact-checking articles peaked in 2021, primarily due to the COVID-19 outbreak.

Table 1 Panel B presents the number of fact-checking articles by the Fama-French 12 industry classification. I find that consumer-facing industries, such as business equipment and wholesale and retail, have the highest number of fact-checking articles. This suggests that fact-checkers may prioritize firms that are more recognizable to investors.

I further examine the content of the fact-checking articles to understand what events drive fact-checkers' attention. I manually read the claims covered by fact-checkers to categorize the topics addressed in the articles. These fact-checking articles cover a variety of topics, spanning from product or services quality, operating policies, rumours about leaders to employee safety and hiring policy. In some cases, the firms are being checked because politicians mention the firms in the statements. Interestingly, I also observe some claims related to the local community and environmental issues, such as giving money to local street repairs and discussion about emission level.

After manually reading all fact-check articles, I classify the claims into eight categories (Products and Services, Operation, Leader, Politics, Community, Employee, Environmental and Other). Each claim can be classified into multiple categories. In Appendix B, I present the definitions and examples for each category. An example of fact-checking related to products and services quality is *Snopes* verifying the claim spreading online—"A worker at a Pepsi or Frooti plant has contaminated those beverage products by injecting HIV-infected blood into them"—is not true. Within the operation category, fact-checkers cover many different issues, such as loan repayment, bankruptcy filing, opening and closure of factory, change in store location, and the lawsuits against the corporates. For example, *Snopes* concludes that the *Huffington Post* report claiming "retail chain Nordstrom filed for Chapter 11 bankruptcy after Scott Baio boycotts" is false. The diverse topics that fact-checkers cover increases the credibility that the fact-checker coverage is relevant to capital markets.

Table 1 Panel C shows the number of articles by each category. Products and services category has the highest number of articles among the eight categories. Since products and services are the most direct way a firm interacts with its consumers, fact-checkers' focus on products and services issues suggest that they pay more attention to events that can potentially gain public interest.

To provide more direct evidence on the impact of fact-checker coverage in capital markets, I examine the market reaction to the publication of fact-checking articles. Specifically, I test the cumulative abnormal return around the publication days using an event study approach. The event day is the first trading day when the fact-checking articles are published. I calculate the cumulative market-adjusted return over the three-day window around the event days (*CAR[-1, +1]*). Table 1 Panel D shows that the mean of *CAR[-1, +1]* is 0.5%, which is significantly positive and different from zero (t-statistic = 2.524). This suggests that investors view fact-checking articles favourably.

3.2 Research Design

To examine the determinants of fact-checkers' coverage decisions, I construct a panel data of fact-checker, firm, and year-quarter, which allows me to examine the variation between fact-checkers, firms and time. Ideally, I want to compare firms that fact-checkers choose to cover versus firms that fact-checkers do not cover, holding the likelihood of being targeted by misinformation the same. However, one empirical challenge is that there is no comprehensive list of revealed misinformation events. To compare firms with similar likelihood of being targeted by misinformation, I thus only keep firms that have ever been covered by any fact-checker (Full Sample). The assumption is that firms that have ever been covered by any fact-checker have similar likelihood to be targeted by misinformation in each year-quarter. I also supplement the analyses using a matched sample by restricting the control group in each year-quarter to be in the same industry (two-digit sic) as the firms being covered by any fact-checker

in that year-quarter (Matched Sample). The assumption of the construction of matched sample is that firms from the same industry have similar likelihood to be targeted by misinformation in each year-quarter.

To facilitate the inclusion of various fixed effects and the interpretation of coefficients, I then estimate the following model using OLS regression:

$$Checked_{i,k,t} = \beta_0 + \beta_1 Profit\ Oriented_{k,t} + \beta_2 Firm\ Visibility_{i,t} + \beta_3 Retail\ Ownership_{i,t} + \beta_4 Congruent_{i,k,t} + \beta_5 Other_{i,t} + FixedEffects + \varepsilon_{i,k,t}, \quad (1)$$

where $Checked$ is an indicator variable equal to one if the firm is checked by a fact-checker in a given year-quarter. *i* indexes the firm, *k* indexes the fact-checker, and *t* indexes the year-quarter.

To test the relationship between fact-checkers' economic incentives and the likelihood of fact-checker coverage (H1), I use fact-checkers' operational model to capture the economic incentives of fact-checkers. *Profit Oriented* equals to one if the fact-checker relies on advertising revenue as part of the funding; it equals to zero if the fact-checker is a not-for-profit organization or academic institution. In my sample, *Snopes* and *TruthOrFiction* are privately owned and rely on advertising revenue. *Factcheck* is funded by research centres and foundations. *PolitiFact* was affiliated with a media outlet before 2018 (i.e., considered as profit-oriented) and was affiliated with not-for-profit organization after 2018 after being acquired by the Poynter Institute.[7]

To test the association between firm visibility and the likelihood of fact-checker coverage (H2a), I use four variables to measure firm visibility, including firm size, analyst following, media coverage, and SG&A expenses. *Firm Size* is the logarithm of market

[7] Details about the funding of four fact-checkers are available here: (*Snopes*) https://www.snopes.com/disclosures/, (*TruthOrFiction*) https://www.truthorfiction.com/disclosures/, (*Factcheck*) https://www.factcheck.org/our-funding/, and (*PolitiFact*) https://www.politifact.com/who-pays-for-politifact/.

capitalization. *Analyst* is the logarithm of one plus the number of analysts following the firm and *Media Coverage* is the logarithm of one plus the number of news articles covering the firm in the previous year-quarter. *SG&A* captures the expenses the firm puts in building investor relationship. To test the association between retail ownership and the likelihood of fact-checker coverage (H2b), I use *Retail Ownership*, which is one minus the percentage of outstanding shares held by institutional investors.

To test the association between political congruence and the likelihood of fact-checker coverage (H3), I define *Political Congruence* as one if the fact-checker and the firm have the same political alignments and zero otherwise. I obtain the political alignment for fact-checkers from AllSides and measure firms' political alignment based on their political contribution from Federal Election Commission (FEC) website. A firm is left (right) leaning if its percentage of political action committee (PAC) contributions to Democratic candidates over total PAC contributions to both Republican and Democratic is higher (smaller) than 0.5 in the latest year.[8]

I also include other variables that may be associated with fact-checker coverage. They are return on asset *(ROA)*, book-to-market ratio (*BTM*), the number of business segment (*Segment*) and the average monthly return in the last year (*Past Return*). The four variables reflect firms' operating environment from different perspectives. *ROA* captures firms' profitability and *BTM* measures the growth opportunities. The number of business segments captures (*Segment*) the business complexity and the past stock return measures the historical performances. Following Liu and Moss (2024), I include industry fixed effects (two-digit SIC) to control for unobserved factors within each industry. I also include year-quarter fixed effects to account for the general time-trends, such as the potential shifts in the attention on

[8] *Political Congruence* equals to one and the firm is left (right) leaning and covered by left (right) learning fact-checker. According to Allsides, all four fact-checkers are labelled as left leaning (democratic). However, there is a strong disagreement for the rating of *Snopes* (https://www.allsides.com/media-bias/fact-check-bias-chart). Thus, I consider *Snopes* as neutral.

misinformation. Standard errors are clustered at firm level. All continuous variables are winsorised at 1% and 99%. Appendix C provides detailed variable definitions.

I collect data about four fact-checkers from their official websites and firm characteristics from Compustat and CRSP. The news coverage data are from RavenPack. Analyst following data are from I/B/E/S and institutional ownership data are from Thomas Reuters. After excluding observations without available control variables, the full (matched) sample consists of 79,488 (37,830) observations about 387 (372) unique firms. Table 1 Panel B presents the sample selection process for the regression analyses.

Table 3 presents the summary statistics for the full (matched) sample. In the full (matched) sample, 3% (6%) of firm-year-quarter is being fact-checked by any fact-checker, which suggests the infrequency of fact-checker coverage. More than half (66%) are covered by profit-oriented fact-checkers. In the full sample, the mean (median) sample firm has retail ownership of 27% (22%).

4. The Determinants of Fact-Checker Coverage

4.1 Main Results

Table 4 presents the regression results. Column (1) presents the regression results using the full sample and Column (2) presents the regression results using the matched sample. In both columns, the coefficients on *Profit Oriented* are significantly positive, consistent with the hypothesis that profit oriented fact-checkers are more likely to provide fact-checking articles (H1). In terms of the economic significance, being a profit-oriented fact-checker is associated with 0.019 (0.034) increase in the likelihood of providing fact-checking article, which is 11.9% (14.7%) of one standard deviation of *Checked* in the full (matched) sample. Given only 3% (6%) of firm and year-quarter receives fact-checking article, this is economically significant.

Furthermore, the coefficients on *Size*, *Media Coverage* and *SG&A* are significantly positive in Columns (1) and (2) of Table 4, indicating that fact-checkers are more likely to cover firms with larger size, high news coverage and higher expenses in investor relationship. These factors are indicative of firm visibility and general public interest. Larger firms tend to attract greater media attention, and firms with higher SG&A expenses are likely to invest in investor relationship, strengthening firm visibility. However, I do not find evidence that the likelihood of fact-checker coverage is associated with the number of analysts following. As analyst coverage reflects market interest particularly from professional investors, these results suggest that fact-checkers are more likely to cover firms with high public visibility than firms with greater institutional interest. For the association between investor sophistication and the likelihood of fact-checker coverage (H2b), the coefficients of *Retail Ownership* are significantly positive in the two columns. This suggests that fact-checkers view retail investors as the primary beneficiaries of fact-checking.

Regarding the political congruence between fact-checker and firms (H3), the positive coefficients on *Political Congruence* suggest that fact-checkers are more likely to provide coverage for firms with the same political ideology. In terms of the economic significance, political congruence between firms and fact-checkers is associated with 0.021 (0.038) increase in the likelihood of fact-checker coverage on firms, which is 13% (16.5%) of one standard deviation of *Checked* in the full (matched) sample. Collectively, the evidence suggests that fact-checkers cover firms with higher visibility, larger percentage of retail investors and the same political ideology.

4.2 Fact-checkers' Commercial Incentives and Coverage Decision

In this section, I further explore the economic incentives of fact-checker using the change of operation model of *PolitiFact*. Profit-oriented fact-checkers rely on revenue from advertising. In the previous section, I find that profit-oriented fact-checkers are more likely to

provide coverage on firms. Compared to not-for-profit fact-checkers, a unique business incentive of profit-oriented fact-checkers is to cater to their clients. Gurun and Butler (2012) show that positive media slant about local companies is strongly positively related to the local advertising budgets of those companies. Fact-checker coverage decision can be affected by the advertising fees they receive from the firms. The commercial ties between the fact-checker and firms can influence fact-checkers' coverage decisions.

I use the change in *PolitiFact's* operation model to examine the influence of commercial ties on coverage decision. In February 2018, *PolitiFact* changed its operational model from a for-profit to not-for-profit organization. Prior to the change, *PolitiFact* was affiliated with *Tampa Bay Times*, a for-profit news organization owned by the not-for-profit Poynter Institute. Since *Tampa Bay Times* relies on advertising fees, *PolitiFact* would be more likely to cover firms with potential commercial ties. After the change, *PolitiFact* functions as a not-for-profit national news organization. The potential commercial ties disappear. However, the advertising expenditure firms spend on *Tampa Bay Times* is unobservable. Thus, I regard the firms with potential commercial ties (i.e., treated firms) as firms that have been covered by *PolitiFact* but not by other fact-checkers before the change of the operational model. Control firms are other firms that have been covered by any other fact-checker.

In this analysis, I examine *PolitiFact*'s coverage decision and employ a firm and year-quarter panel. Similar to the sample in the determinant analyses, the sample includes firms that have ever been covered by any fact-checkers. I only include observations in years from 2015 to 2020 (i.e., three years before and after the change of operational model). To examine whether the potential commercial ties between fact-checkers and firms affect the coverage decision, I estimate the following model using OLS regression:

$$\begin{aligned} Checked\ by\ PolitiFact_{i,t} = {} & \beta_0 + \beta_1 Treat_i + \beta_2 Treat_i \times Post_t \\ & + \beta_3 Controls_{i,t} + FixedEffects + \varepsilon_{i,t}, \end{aligned} \quad (2)$$

where *Checked by PolitiFact* is an indicator variable equal to one if the firm is checked by *PolitiFact* in the year-quarter. *Treat* is an indicator variable equal to one if the firm has been covered by *PolitiFact* but not by other fact-checkers before the change of operational model in 2018. *Post* is an indicator variable equal to one if the observation falls after the change of operational model in 2018. I add the same firm characteristics as in the Model (1). *Profit Oriented* is excluded since it is captured by the change in the operational model. The model includes industry fixed effects (two-digit SIC) and year-quarter fixed effects. Standard errors are clustered at firm level. The standalone coefficient on *Post* is absorbed by the year-quarter fixed effects in the model.

Table 5 presents the results. In Column (1), the coefficient of $Treated \times Post$ is significantly negative. In Column (2), I exclude the observations in 2018, the year when the changes happen to mitigate the effects during the transition period. The coefficient of $Treated \times Post$ remains significantly negative. These suggest that compared to the firms without coverage by *PolitiFact* before 2018, firms covered by *PolitiFact* before 2018 are less likely to be checked by *PolitiFact* after *PolitiFact* became a not-for-profit organization. In terms of economic significance, using the sample with three years around the change in the operational model (Column (1)), losing the commercial ties decreases the probability of being fact-checked by 0.047, which is 25% of the standard deviation of *Checked by PolitiFact*. The results suggest that potential commercial ties are an important factor in fact-checkers' coverage decisions.

Next, I explore the trends of being covered by *PolitiFact* of treated firms and control firms before and after the change in operational model. To do so, I interact *Treated* with each year-quarter indicator (using 2017q4 as the baseline year-quarter) and include these interaction terms in the regression. Specifically, I estimate the following model:

$$Checked\ by\ PolitiFact_{i,t} = \beta_0 + \beta_1 Treat + \sum_{2015q1}^{2020q4} Treat \times YearQuarter_t + \beta_3 Controls_{i,t} + FixedEffects + \varepsilon_{i,t}, \quad (3)$$

where *Treat* is an indicator variable equal to one if the firm is covered by PolitiFact but not by other fact-checkers before the change of operational model in 2018 and *YearQuarter* is an indicator variable equal to one if the observation is in the year-quarter. *Checked by PolitiFact* is an indicator variable equal to one if the firm is being covered by *PolitiFact* in the year-quarter. The baseline year-quarter is 2017q4. The model also includes the same set of control variables in Model (2). I also include industry (two-digit SIC) and year-quarter fixed effects. The standard errors are clustered at firm level. Figure 2 presents the coefficient estimates graphically. There is no significant change in the likelihood of being covered by *PolitiFact* before the change in the operation model and the significant decrease occurs in the third quarter in 2019. Taken together, the results on the change in commercial incentives further support the economic incentives of fact-checkers.

5. The Consequences of Fact-Checking

5.1 Firms' Voluntary Disclosures

After exploring the factors that influence fact-checkers' coverage decisions about firms, I examine the consequences of fact-checker coverage on firms. Specifically, I examine whether firms change their voluntary disclosure decisions in response to fact-checking since voluntary disclosure is important in shaping firms' information environment (Beyer et al., 2010). For corporate voluntary disclosure, I use the frequency of management forecast as the proxy. Management forecast is an important voluntary disclosure channel as it provides approximately 55% of accounting-based information (Beyer et al., 2010).

I examine the consequences of fact-checker coverage using a firm and year-quarter panel. Similar to the sample construction process in determinant analyses, I include the firms that have been covered by any fact-checker in the sample and construct a similar matched sample. I measure *Management Forecast* as the number of management forecasts issued by a firm within the next year starting from the beginning of the next year-quarter. Table 2 Panel C presents the sample construction process and Table 6 presents the summary statistics for the full sample and matched sample in the consequence analyses.

To examine the consequences of fact-checker coverage on firms' voluntary disclosure, I estimate the following model using OLS regression:

$$Management\ Forecast_{i,t} = \beta_0 + \beta_1 Checked_{i,t} + \beta_2 Controls_{i,t} + FixedEffects + \varepsilon_{i,t}, \quad (4)$$

where *i* indexes the firm and *t* indexes the year-quarter. The dependent variable (*Management Forecast*) is the number of management forecasts in the next year and the variable of interest (*Checked*) is an indicator variable equal to one if the firm is checked by any fact-checker in the year-quarter. *Controls* is the same set of firm characteristics as in the Model (1). I do not include fact-checker related characteristics, *Profit Oriented* and *Political Congruence*, in this model since I am interested in the consequences of any fact-checker coverage. The model includes industry fixed effects (two-digit SIC) and year-quarter fixed effects. Standard errors are clustered at firm level.

Table 7 presents the regression results with management forecast as the dependent variable. Column (1) presents the results in the full sample and Column (2) presents the results in the matched sample. In both columns, the coefficients on *Checked* are significantly negative, suggesting that firms decrease the number of management forecasts after being covered by

fact-checker.[9] In terms of the economic significance, in the full (matched) sample, one standard deviation increase in *Checked* is associated with a decline in forecast frequency by 0.19 (0.21), which is economically meaningful relative to the standard deviation of management forecast frequency of 3.71 (3.54).[10] These results suggest that fact-checkers enhance investors' confidence in the information environment and reduce managers' incentives to provide costly disclosure.

5.2 Market Consequences

Next, I examine the relationship between fact-checker coverage and market consequences. Specifically, I focus on trading activities to capture investors' reaction to fact-checking articles. Similar to Kogan et al. (2023), I separately examine retail trading activities versus institutional trading activities. This is motivated by the consideration that fact-checkers view firms with a greater proportion of retail investors as the primary beneficiaries. I measure retail trades using Boehmer et al. (2021) method and classify the other trades as institutional trades. Daily retail trading volume is scaled by the number of shares outstanding. I measure *Retail* (*Institutional*) *Volume* as the average of daily shares outstanding-scaled retail (institutional) trading volume, multiplied by 1,000 for easy of presentation.

I examine the market outcomes of fact-checker coverage using the same sample as the tests on voluntary disclosure. The sample using *Retail (Institutional) Volume* as the dependent variable starts from October 2006 since the retail identification measure is valid then. It ends in 2021 since the data subscription to TAQ ends in 2021. I use Model (4) to examine the market

[9] Since the number of management forecasts is a count-like variable, I also run the analyses using Poisson regression. In untabulated tables, the results are robust to using Poisson regression.

[10] This is comparable to previous study on management forecast frequency. Chen et al. (2018) find that one standard deviation increase in internal information asymmetry is associated with 0.04 (standard deviation is 0.963) decrease in management forecasts.

outcomes of fact-checker coverage and replace *Management Forecast* as one of the two market outcome measures (*Retail* or *Institutional Volume*).

Table 8 presents the regression results with market outcomes as dependent variables. Columns (1) and (3) present the results for the full sample and Columns (2) and (4) present the results for the matched sample. In Columns (1) and (2), the significantly positive coefficients on *Checked* suggest that retail trading activities increase for firms covered by fact-checker. In terms of the economic significance, in the full (matched) sample, one standard deviation increase in *Checked* is associated with an increase in retail trading volume by 0.055 (0.073), which is modest economically meaningful relative to the standard deviation of retail trading volume of 1.36 (1.28). This corroborates the earlier evidence that fact-checkers view retail investors as beneficiaries of fact-checking articles. However, in Columns (3) and (4), I do not find significant change in institutional trading activities after the fact-checker coverage. This finding further alleviates the concerns that the increase in retail trading volume is driven by the overall market trends. Collectively, these analyses suggest that fact-checking articles have an impact on capital markets, particularly on retail investors.

6. Conclusion

Misinformation has become a key challenge for capital markets, and fact-checkers have emerged to monitor the accuracy of claims to combat misinformation. Using data from four major fact-checkers in the United States, I examine the determinants and consequences of fact-checker coverage on firms and find evidence consistent with fact-checkers' economic and reputation incentives. Specifically, I find that profit-oriented fact-checkers are more likely to provide coverage on firms. Furthermore, fact-checkers tend to focus on firms with high visibility, a greater proportion of retail investors, and those aligned with their political ideology.

Exploiting a difference-in-differences design based on *PolitiFact's* transition to a not-for-profit operational model, I observe that firms with potential commercial ties with *PolitiFact* were less likely to be checked after this transition compared to firms without such ties. The results on the change in commercial incentives further support the fact-checkers' economic incentives.

As fact-checker coverage improves firms' information environment, firms provide less voluntary disclosure after being fact-checked. Lastly, I find that fact-checker coverage encourages retail trading volume. My study provides the first evidence of fact-checker coverage on firms and extends the literature on misinformation in financial markets. Collectively, my findings suggest that fact-checkers are driven by their economic and reputation incentives as well as their political congruence, and they have the potential to affect firms' information environment.

References

Allen, J., Martel, C. & Rand, D. G. (2022). Birds of a feather don't fact-check each other: Partisanship and the evaluation of news in Twitter's Birdwatch crowdsourced fact-checking program. *CHI Conference on Human Factors in Computing Systems*, 1–19. https://doi.org/10.1145/3491102.3502040

Blankespoor, E., deHaan, E. & Marinovic, I. (2020). Disclosure processing costs, investors' information choice, and equity market outcomes: A review. *Journal of Accounting and Economics, 70*(2–3), 101344. https://doi.org/10.1016/j.jacceco.2020.101344

Barber, B. M., Huang, X., Odean, T. & Schwarz, C. (2022). Attention-Induced Trading and Returns: Evidence from Robinhood Users. *The Journal of Finance*, *77*(6), 3141–3190. https://doi.org/10.1111/jofi.13183

Beyer, A., Cohen, D. A., Lys, T. Z. & Walther, B. R. (2010). The financial reporting environment: Review of the recent literature. *Journal of Accounting and Economics*, *50*(2–3), 296–343. https://doi.org/10.1016/j.jacceco.2010.10.003

Boehmer, E., Jones, C. M., Zhang, X. & Zhang, X. (2021). Tracking Retail Investor Activity. *The Journal of Finance*, *76*(5), 2249–2305. https://doi.org/10.1111/jofi.13033

Bonsall, S., Green, J. & Muller, K. (2018). Are Credit Ratings More Rigorous for Widely Covered Firms? *The Accounting Review*, *93*(6), 61–94. https://doi.org/10.2308/accr-52044

Chen, C., Martin, X., Roychowdhury, S., Wang, X. & Billett, M. (2018). Clarity Begins at Home: Internal Information Asymmetry and External Communication Quality. *The Accounting Review*, *93*(1), 71–101. https://doi.org/10.2308/accr-51842

Cookson, J. A., Lu, R., Mullins, W. & Niessner, M. (2024). The social signal. *Journal of Financial Economics*, *158*, 103870. https://doi.org/10.1016/j.jfineco.2024.103870

DeFond, M. & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics*, *58*(2–3), 275–326. https://doi.org/10.1016/j.jacceco.2014.09.002

Duke Reporters' Lab (2023). Misinformation spreads, but fact-checking has leveled off. Available at: https://reporterslab.org/misinformation-spreads-but-fact-checking-has-leveled-off/

Edelman (2024). 2024 Edelman Crisis & Risk Thought Leadership Report. Retrieved from https://www.edelman.com/sites/g/files/aatuss191/files/2024-09/2024%20Connected%20Crisis%20Study%20-%20Edelman%20Crisis%20and%20Risk.pdf

Gentzkow, M. & Shapiro, J. M. (2006). Media Bias and Reputation. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.642362

Graves, L., & Cherubini, F. (2016). The rise of fact-checking sites in Europe. Digital News Project Report.

Gurun, U. G. & Butler, A. W. (2012). Don't Believe the Hype: Local Media Slant, Local Advertising, and Firm Value. *The Journal of Finance*, *67*(2), 561–598.

https://doi.org/10.1111/j.1540-6261.2012.01725.x

International Fact-Checking Network (2023). State of the Fact-Checkers Report. Available at: https://www.poynter.org/wp-content/uploads/2024/04/State-of-Fact-Checkers-2023.pdf

Jia, C. & Lee, T. (2024). Journalistic interventions matter: Understanding how Americans perceive fact-checking labels. *Harvard Kennedy School Misinformation Review*. https://doi.org/10.37016/mr-2020-138

Kogan, S., Moskowitz, T. J. & Niessner, M. (2023). Social Media and Financial News Manipulation. *Review of Finance, 27*(4), 1229–1268. https://doi.org/10.1093/rof/rfac058

Lazer, D. M. J., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., Menczer, F., Metzger, M. J., Nyhan, B., Pennycook, G., Rothschild, D., Schudson, M., Sloman, S. A., Sunstein, C. R., Thorson, E. A., Watts, D. J. & Zittrain, J. L. (2018). The science of fake news. *Science*, *359*(6380), 1094–1096. https://doi.org/10.1126/science.aao2998

Lee, S., Xiong, A., Seo, H., & Lee, D. (2023). "Fact-checking" fact checkers: A data-driven approach. *Harvard Kennedy School (HKS) Misinformation Review*, Volume 4(5). https://doi.org/10.37016/mr-2020-126

Liu, X., Qi, L., Wang, L., & Metzger, M. J. (2023). Checking the Fact-Checkers: The Role of Source Type, Perceived Credibility, and Individual Differences in Fact-Checking Effectiveness. *Communication Research.* https://doi.org/10.1177/00936502231206419

Liu, B. & Moss, A. (2024). The Role of Accounting Information in an Era of Fake News. *Journal of Accounting and Economics*, 101764. https://doi.org/10.1016/j.jacceco.2024.101764

Pew Research Centre (2019). Republicans far more likely than Democrats to say fact-checkers tend to favor one side. Available at: https://www.pewresearch.org/short-reads/2019/06/27/republicans-far-more-likely-than-democrats-to-say-fact-checkers-tend-to-favor-one-side/

Pew Research Centre (2024). Republicans, young adults now nearly as likely to trust info from social media as from national news outlets. Available at: https://www.pewresearch.org/short-reads/2024/10/16/republicans-young-adults-now-nearly-as-likely-to-trust-info-from-social-media-as-from-national-news-outlets/

Rees, L. & Twedt, B. J. (2021). Political Bias in the Media's Coverage of Firms' Earnings Announcements. *The Accounting Review*, *97*(1), 389–411. https://doi.org/10.2308/tar-2019-0516

Roychowdhury, S. & Srinivasan, S. (2019). The Role of Gatekeepers in Capital Markets. *Journal of Accounting Research*, *57*(2), 295–322. https://doi.org/10.1111/1475-679x.12266

SEC (2022). Social Media and Investment Fraud – Investor Alert. Available at https://www.investor.gov/introduction-investing/general-resources/news-alerts/alerts-bulletins/investor-alerts/social-media-and-investment-fraud-investor-alert

Xu, R. (2021). Corporate Fake News on Social Media. University of Miami. PhD

dissertation.

Verrecchia, R. E. (1990). Information quality and discretionary disclosure. *Journal of Accounting and Economics*, *12*(4), 365–380. https://doi.org/10.1016/0165-4101(90)90021-u

Vosoughi, S., Roy, D. & Aral, S. (2018). The spread of true and false news online. *Science*, *359*(6380), 1146–1151. https://doi.org/10.1126/science.aap9559

Appendix A. Identifying Fact-checker Coverage on Firms

To construct a sample of fact-checking articles on firms, I first scrape the fact-checking websites to collect all the articles and parse the publication date, title and claim. A claim is considered as firm-related if it mentions the company name, subsidiaries, brands, products, or people. To identify whether the claim is firm-related, I use GPT model, a state-of-art method for natural language processing to lower the Type II error (i.e., the error that a claim is related to company but identified as not related). After extracting the company names from the claim, I match the companies with firms in Compustat. If the company's parent company is in Compustat, I also consider it as matched with firms in Compustat. To match with firms in Compustat, I use fuzzy match and then manually check the matched cases to ensure the accuracy.

Validation (Compare performance using NER and GPT):

To validate the use of GPT model in identifying whether the claim is related to company, I sampled 500 claims to compare the performance of NER method and GPT model. NER (named entity recognition) is a natural language processing method that extracts information from text. After using NER method to extract the organization names (i.e., companies, agencies, institutions, etc.), 202 (40.4%) claims are identified as with organization names. However, NER method also identifies legislative bodies or governing body as organization names. I then manually check whether the selected claims are related to company. After manual checks, 53 (10.6%) claims are selected as firm-related.

GPT (Generative Pre-trained Transformer) is a text generation model developed by OpenAI for processing natural language. In the prompt engineering process, I first ask GPT to extract all company-related names from the statement. After the first step, there are 284 (56.8%) claims identified as potentially corporate related. I then ask it to find the corresponding full company names. This step helps exclude claims only mentioning politician names and claims only mentioning legislative bodies or governing body. After using GPT model to extract the company names, 130 (26.0%) claims are left. I then manually check whether these claims are company related. After manual checks, 91 (18.2%) claims are left.

I use "gpt-4o-2024-08-06" model to perform the task, with the following prompt:

Task: Extract all company-related names (like subsidiaries, brands, products, people, etc.) from the statement. If there are no company-related names, return "0". After extracting the names, find the corresponding full company name for each.

Rules: Answer using JSON in the following format:

{{"Name": string // Names separated by "," if more than one,

"Company": string// Full company name, "0" if not found}}

Statement: {statement}

Appendix B. Category of Fact-checking Articles

1.Products and Services

The claim being checked is related to firms' products or services, or marketing activities.

Examples (Related firm):

PlayStation and Xbox announced that refunds would be available for customers who digitally purchased Cyberpunk 2077. (MICROSOFT CORP)

A worker at a Pepsi or Frooti plant has contaminated those beverage products by injecting HIV-infected blood into them. (PEPSICO INC)

A Facebook coupon offering 50% off at Target retail stores is just another survey scam. (TARGET CORP)

2. Operation

The claim being checked is related to firms' operation, spanning from financing activities (e.g., funding, stock), investment activities (e.g., merges and acquisitions), and operating activates (e.g., opening and closure of factory, changes in business location). This category also includes the claims about the corporate governance (e.g., CEO compensation).

Examples (Related firm):

Last year, ExxonMobil made $19 billion in profit. Guess what. They paid zero in taxes. They got a $156 million refund from the IRS. (EXXON MOBIL CORP)

(GM and Chrysler) repaid their loans. (GENERAL MOTORS CO and STELLANTIS NV)

Retail chain Nordstrom filed for Chapter 11 bankruptcy after Scott Baio boycotts. (NORDSTROM INC)

Jason Brian Dalton, who as accused of killing six people during a shooting spree in February 2016, is suing Uber for $10 million in damages. (UBER TECHNOLOGIES INC)

The online review site Yelp filed a $10 million lawsuit against the Comedy Central show 'South Park.' (YELP INC)

In 2017, the CEO of McDonalds got paid $21.8 million. The median pay for a McDonald's worker that year was $7,000. This is a moral outrage. We need a $15 minimum wage so that no one is paid a poverty wage. (MCDONALD'S CORP)

Starbucks has a long history of supporting LGBTQ rights and same-sex marriage. But a post on social media twists a 2013 statement from its CEO at the time to falsely claim he said don't buy Starbucks coffee "if you support traditional marriage." (STARBUCKS CORP)

3. Leader

The claim being checked is related to the leader of the company him/herself, which does not affect the firm directly. If the claim is related to the compensation, it is classified as “Operation”.

Examples (Related firm):

Facebook CEO Mark Zuckerberg bought a ""super-yacht"" for $150 million. (META PLATFORMS INC)

The Walton family of Walmart ... This one family owns more wealth than the bottom 40 percent of the American people. (WALMART INC)

4. Politics

The claim being checked is from politicians’ statements, which does not originate from companies.

Examples (Related firm):

Nancy Pelosi ordered a 220-seat Boeing 757 to fly to her home state, costing taxpayers nearly $5.8 million annually. (BOEING CO)

Donald Trump called for a boycott of all Apple products in a tweet sent from his iPhone. (APPLE INC)

5. Community

The claim being checked is related to the local community (e.g., local economy, or social events).

Examples (Related firm):

In mid-2018, Domino's Pizza began giving cities and towns grants for street repairs. (DOMINO'S PIZZA INC)

Bank of America just pledged $1 billion dollars to Black Lives Matter. (BANK OF AMERICA CORP)

Police discover meth lab in back room of Alabama Walmart. (WALMART INC)

6. Employee

The claim being checked is related to the employees, including employee safety, firing and hiring employees.

Examples (Related firm):

Five JetBlue pilots died as the result of receiving the COVID-19 vaccine. (JETBLUE AIRWAYS CORP)

Is Lockheed Martin going to lay off 123,000 workers due to military downsizing? (LOCKHEED MARTIN CORP)

7. Environmental

The claim being checked is related to the environment (e.g., climate, pollution).

Examples (Related firm):

The emissions generated by watching 30 minutes of Netflix is the same as driving almost 4 miles. (NETFLIX INC)

The North Face refused to fulfill a clothing order to Innovex Downhole Solutions, a Houston-based oil and gas company, over concerns about the company's environmental practices. (VF CORP)

8. Other

Examples (Related firm):

A video shows a passenger's view as a Boeing 737 plane crashed in China in March 2022. (BOEING CO)

Kanye West is the richest Black man in American history, thanks to sneaker and apparel deals made with Adidas and Gap. (GAP INC)

Appendix C. Variable Definitions

Variable	Definition	Source
Determinant Analyses		
Checked	An indicator variable equal to one if the firm is checked by the fact-checker in the year-quarter.	Fact-checkers' websites
Profit Oriented	An indicator variable equal to one if the fact-checker's funding relies on advertising revenue (i.e., the fact-checker is not affiliated with not-for-profit organization).	Fact-checkers' websites
Size	The natural logarithm of market capitalization in the latest year-quarter.	Compustat
Analysts	The natural logarithm of one plus the number of analysts following the firm in the latest year-quarter.	I/B/E/S
Media Coverage	The natural logarithm of one plus the number of news articles about the firm in the latest year-quarter.	RavenPack
SG&A	Selling, general and administrative expense in the latest year-quarter.	Compustat
Retail Ownership	One minus the percentage of institutional investors for the firm in the latest year-quarter.	Thomas Reuters
Political Congruence	An indicator variable equal to one if the fact-checker and the firm have the same political ideology.	FEC and AllSides
ROA	Return on assets (i.e., earnings before extraordinary items divided by total assets) in the latest year-quarter.	Compustat
BTM	Book to market ratio in the latest year-quarter.	Compustat
Segment	The number of business segments with non-zero revenue in the latest fiscal year end.	Compustat
Past Return	The average monthly stock return over the past 12 months period ending the latest year-quarter end.	CRSP
Consequence Analyses		
Checked	An indicator variable equal to one if the firm is checked by any fact-checker in the year-quarter.	Fact-checkers' websites
CAR[-1, +1]	Cumulative market-adjusted return over the three-day window around the publication of fact-checking articles. Day 0 is the first trading day after the publication of fact-checking articles.	CRSP
Management Forecast	The number of management forecast in the next year starting from the beginning of the next year-quarter.	I/B/E/S
Retail Volume	The average daily retail trading volume for the firm in the next year-quarter. Daily retail trading volume is scaled by the total shares outstanding. Multiplied by 1,000 for ease of presentation.	TAQ Intraday Indicators and CRSP
Institutional Volume	The average daily institutional trading volume for the firm in the next year-quarter. Daily institutional trading volume is scaled by the total shares outstanding. Multiplied by 1,000 for ease of presentation.	TAQ Intraday Indicators and CRSP

Difference-in-Difference Design		
Checked by PolitiFact	Indicator variable equal to one if the firm is checked by PolitiFact in the year-quarter.	PolitiFact
Treated	An indicator variable equal to one if the firm is covered by PolitiFact but not by other fact-checkers before 2018.	Fact-checkers' websites

Figure 1. Number of Fact-Checking Articles on Firm by Year

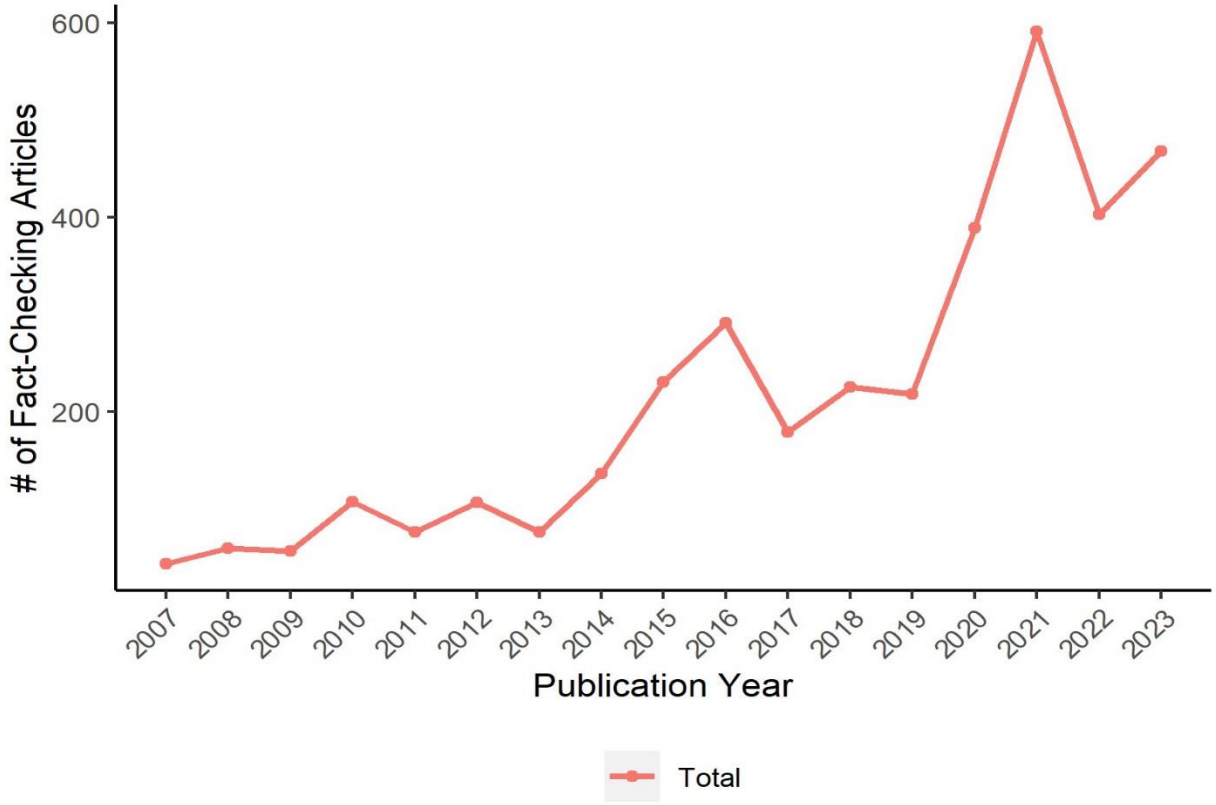

Figure 1 presents the number of fact-checking articles on firms by year from 2007 to 2023. X-axis represents the year, and Y-axis represents the total number of fact-checking articles on firms in the year.

Figure 2. Parallel Trends

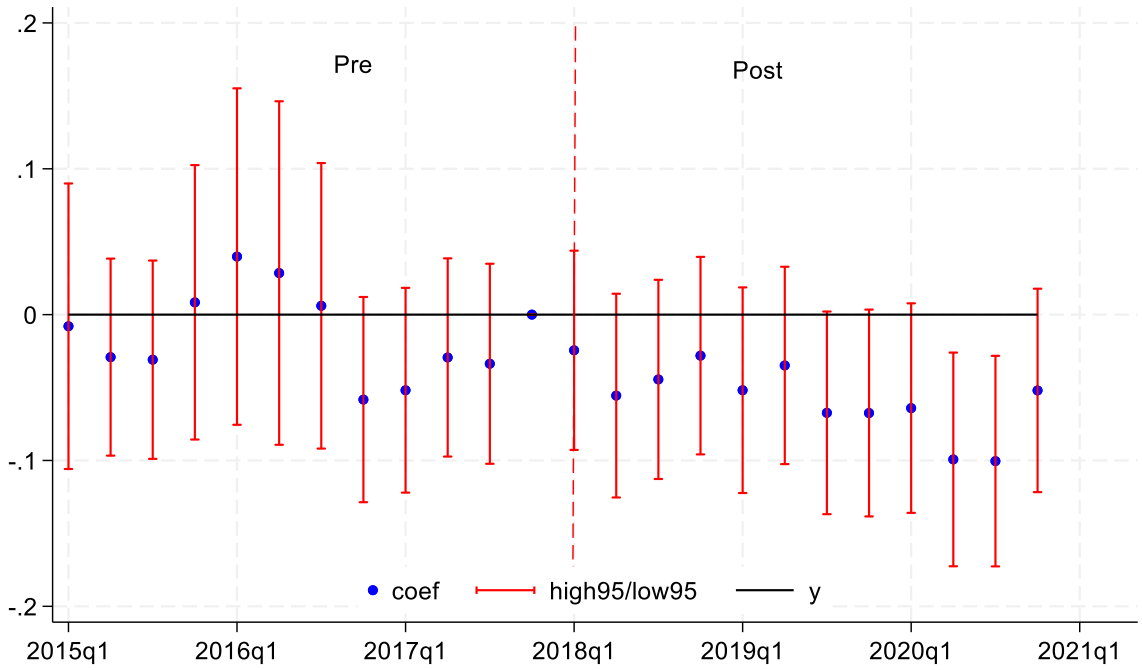

Figure 2 presents the parallel trend analysis for the relationship between fact-checkers' commercial incentives and their coverage decisions. The figure presents the estimation coefficients and 95% confidence intervals from the following regression: $Checked\ by\ PolitiFact_{i,t} = \beta_0 + \beta_1 Treat + \sum_{2015q1}^{2020q4} Treat \times YearQuarter_t + Controls_{i,t} + +FixedEffects + \varepsilon_{i,t}$, where *Treat* is an indicator variable equal to one if the firm is covered by PolitiFact but not by other fact-checkers before the change in operational model in 2018 and *YearQuarter* is an indicator variable equal to one if the observation is in the year-quarter. *Checked by PolitiFact* is an indicator variable equal to one if the firm is being covered by PolitiFact in the year-quarter. The baseline year-quarter is 2017q4. I include industry fixed effects (two-digit SIC) and year-quarter fixed effects in the regressions. All continuous variables are winsorised at 1% and 99%. Standard errors are clustered at firm level. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels.

Table 1. Fact-Checking Articles

Panel A: Sample Construction

	# of firm-articles	# of unique articles	# of unique firms
All firm-related fact-checking articles from 2007 to 2023	9,383	7,597	2,046
(Less: firms without Compustat information)	(5,470)	(4,084)	(1,607)
Total	**3,913**	**3,513**	**439**

Panel B: Number of Fact-Checking Articles by Industry

Industry	N
1. Consumer Nondurables	361
2. Consumer Durables	293
3. Manufacturing	154
4. Energy	66
5. Chemicals	115
6. Business Equipment	**771**
7. Telecom	462
8. Utilities	26
9. Wholesale and Retail	**841**
10. Healthcare	375
11. Finance	153
12. Other	296

Panel C: Number of Fact-Checking Articles by Category

Category	N
1. Products and Services	**2,038**
2. Operation	678
3. Leader	445
4. Politics	333
5. Community	182
6. Employee	172
7. Environmental	41
8. Other	103

Panel D: Market Reaction to Fact-Checking Articles

	Mean	t-statistic	p-value
CAR[-1, +1]	0.005	2.524	0.011

Table 1 presents the descriptive statistics about fact-checking articles. Panel A presents the sample construction process for the fact-checking articles. Panel B presents the number of fact-checking articles about firms by Fama-French 12 industry. Panel C presents the number of fact-checking articles about firms by category. *N* is the number of fact-checking articles about firms in each industry (category). Panel D presents the market reaction to fact-checking articles. CAR[-1, +1] is the cumulative market-adjusted return over the three-day window around the publication of fact-checking articles. The corresponding t-statistic and p-value are obtained from a two-tailed t-test.

Table 2. Sample Construction

Panel A: Determinant Analyses Sample (Fact-Checker Firm Quarter)

	Obs.	# of unique firms
All firm-quarters with available Compustat information from 2007 to 2023 for each fact-checker	95,860	439
(Less: observations without available control variables)	(16,372)	(52)
Total – Full Sample	**79,488**	**387**
(Less: observations without a firm in the same industry being covered by any fact-checker in the same year-quarter)	(41,658)	(15)
Total – Matched Sample	**37,830**	**372**

Panel B: Consequence Analyses Sample (Firm Quarter)

	Obs.	# of unique firms
All firm-quarters with available Compustat information from 2007 to 2023	23,965	439
(Less: observations without available control variables or market outcomes)	(4,474)	(56)
Total – Full Sample	**19,491**	**383**
(Less: observations without a firm in the same industry being covered by any fact-checker in the same year-quarter)	(9,141)	(17)
Total – Matched Sample	**10,350**	**366**

Table 2 presents the sample construction process. Panel A presents the sample construction process for the determinant analyses and Panel B presents the sample construction process for the consequence analyses. The industry classification is based on two-digit SIC.

Table 3. Summary Statistics - Determinant Analyses

Panel A: Full Sample

	N	Mean	SD	p5	p25	Median	p75	p95
Checked	79,488	0.03	0.16	0	0	0	0	0
Profit Oriented	79,488	0.66	0.48	0	0	1	1	1
Size	79,488	9.24	1.89	5.98	7.92	9.39	10.6	12.2
Analysts	79,488	2.52	0.73	1.10	2.20	2.71	3.05	3.40
Media Coverage	79,488	3.69	1.84	0	3.18	4.14	4.86	5.99
SG&A	79,488	0.98	1.82	0	0.05	0.28	0.87	4.86
Retail Ownership	79,488	0.27	0.22	0	0.12	0.22	0.36	0.76
Political Congruence	79,488	0.76	0.43	0	1	1	1	1
ROA	79,488	0.01	0.03	-0.03	0.00	0.01	0.03	0.05
BTM	79,488	0.40	0.40	-0.05	0.15	0.32	0.57	1.14
Segment	79,488	5.72	5.16	0	2	3	9	16
Past Return	79,488	0.01	0.03	-0.04	-0.01	0.01	0.03	0.07

Panel B: Matched Sample

	N	Mean	SD	p5	p25	Median	p75	p95
Checked	37,830	0.06	0.23	0	0	0	0	1
Profit Oriented	37,830	0.65	0.48	0	0	1	1	1
Size	37,830	9.16	1.95	5.80	7.83	9.32	10.5	12.2
Analysts	37,830	2.53	0.74	1.10	2.08	2.71	3.05	3.40
Media Coverage	37,830	3.68	1.80	0	3.18	4.13	4.84	5.94
SG&A	37,830	1.03	1.86	0	0.07	0.32	0.90	5.42
Retail Ownership	37,830	0.27	0.23	0	0.11	0.21	0.36	0.77
Political Congruence	37,830	0.79	0.41	0	1	1	1	1
ROA	37,830	0.01	0.03	-0.03	0.00	0.01	0.03	0.06
BTM	37,830	0.37	0.39	-0.06	0.13	0.28	0.53	1.10
Segment	37,830	5.48	4.94	0	3	3	9	16
Past Return	37,830	0.01	0.03	-0.04	-0.01	0.01	0.03	0.07

Table 3 presents the summary statistics for the determinant analyses sample. Panel A presents the summary statistics for the full sample and Panel B presents the summary statistics for the matched sample. The matched sample only includes firms from the same industry (two-digit SIC) as checked firms in each year-quarter in the control group. All continuous variables are winsorised at 1% and 99%.

Table 4. The Determinants of Fact-Checker Coverage

	Checked	
	(1) Full Sample	(2) Matched Sample
Profit Oriented	0.019***	0.034***
	(8.492)	(9.481)
Size	0.008***	0.014***
	(3.717)	(2.798)
Analysts	0.001	0.002
	(0.180)	(0.297)
Media Coverage	0.004**	0.007**
	(2.491)	(2.173)
SG&A	0.011***	0.022***
	(3.449)	(2.854)
Retail Ownership	0.024***	0.048**
	(2.715)	(2.245)
Political Congruence	0.021***	0.038***
	(5.512)	(4.713)
ROA	0.010	0.003
	(0.207)	(0.029)
BTM	0.001	0.005
	(0.360)	(0.615)
Segment	-0.001**	-0.004***
	(-2.586)	(-2.733)
Past Return	-0.010	0.003
	(-0.284)	(0.031)
Industry FE	Yes	Yes
Year-Qtr FE	Yes	Yes
Obs.	79,488	37,830
Adj.R-squared	0.062	0.114

Table 4 presents the determinants of fact-checker coverage on firms. The dependent variable (*Checked*) is an indicator variable, which equals to one if the firm is being checked by the fact-checker in the year-quarter. Column (1) presents the results for the full sample and Column (2) presents the results for the matched sample. I include industry fixed effects (two-digit SIC) and year-quarter fixed effects in the regressions. All continuous variables are winsorised at 1% and 99%. Standard errors are clustered at firm level. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels.

Table 5. Fact-Checkers' Commercial Incentives and Coverage Decision

	Checked by PolitiFact	
	(1)	(2)
	All Years	Exclude Event Year
Treat	0.013	0.013
	(1.062)	(1.092)
Treat × Post	**-0.047*** **	**-0.053*** **
	(-5.681)	**(-5.965)**
Size	0.009**	0.010**
	(2.425)	(2.531)
Analysts	-0.003	-0.003
	(-0.553)	(-0.500)
Media Coverage	0.008**	0.009***
	(2.518)	(2.827)
SG&A	0.019***	0.019***
	(3.782)	(3.628)
Retail Ownership	0.036*	0.039**
	(1.963)	(2.207)
Political Congruence	0.003	0.001
	(0.356)	(0.123)
ROA	-0.021	-0.033
	(-0.185)	(-0.270)
BTM	0.008	0.010
	(0.969)	(1.226)
Segment	-0.002***	-0.002***
	(-2.867)	(-2.812)
Past Return	0.145	0.176
	(1.339)	(1.413)
Industry FE	Yes	Yes
Year-Qtr FE	Yes	Yes
Obs.	8,472	7,257
Adj.R-squared	0.100	0.102

Table 5 presents the relationship between fact-checkers' commercial incentives and their coverage decisions. The sample period is from 2015 to 2020 (three years before and after the change of operational model of *PolitiFact* in 2018). *Checked by PolitiFact* equals to one if the firm is being covered by *PolitiFact* in this year-quarter. $Treated$ equals to one if the firm was covered by *PolitiFact* but not by any other fact-checkers before the change of operational model and $Post$ equals to one if the time is during or after the change of operational model. In Column (2), observations in 2018 are excluded. I include industry fixed effects (two-digit SIC) and year-quarter fixed effects in the regressions. All continuous variables are winsorised at 1% and 99%. Standard errors are clustered at firm level. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels.

Table 6. Summary Statistics - Consequence Analyses

Panel A: Full Sample

	N	Mean	SD	p5	p25	Median	p75	p95
Management Forecast	19,491	3.13	3.71	0	0	1	6	10
Retail Volume	16,281	0.76	1.36	0	0.20	0.36	0.68	2.85
Institutional Volume	16,281	11.5	10.3	2.93	5.28	8.17	13.8	31.1
Checked	19,491	0.08	0.28	0	0	0	0	1
Size	19,491	9.24	1.89	6.00	7.92	9.39	10.6	12.2
Analysts	19,491	2.53	0.73	1.10	2.20	2.71	3.05	3.40
Media Coverage	19,491	3.81	1.62	0.69	3.22	4.14	4.87	6.00
SG&A	19,491	0.98	1.82	0	0.05	0.28	0.87	4.85
Retail Ownership	19,491	0.27	0.22	0	0.12	0.22	0.36	0.76
ROA	19,491	0.01	0.03	-0.03	0.00	0.01	0.03	0.05
BTM	19,491	0.40	0.40	-0.05	0.15	0.32	0.57	1.14
Segment	19,491	5.77	5.18	0	3	3	9	16
Past Return	19,491	0.01	0.03	-0.04	-0.01	0.01	0.03	0.07

Panel B: Matched Sample

	N	Mean	SD	p5	p25	Median	p75	p95
Management Forecast	10,350	3.02	3.54	0	0	2	5	10
Retail Volume	8,668	0.73	1.28	0	0.2	0.37	0.69	2.68
Institutional Volume	8,668	11.0	9.43	2.85	5.13	7.97	13.4	29.3
Checked	10,350	0.16	0.36	0	0	0	0	1
Size	10,350	9.33	1.98	5.94	8.00	9.47	10.7	12.3
Analysts	10,350	2.57	0.74	1.10	2.20	2.77	3.09	3.47
Media Coverage	10,350	3.90	1.63	0.69	3.30	4.23	4.96	6.15
SG&A	10,350	1.23	2.31	0	0.07	0.35	1.1	6.19
Retail Ownership	10,350	0.27	0.22	0	0.12	0.22	0.36	0.77
ROA	10,350	0.01	0.03	-0.03	0.00	0.02	0.03	0.06
BTM	10,350	0.36	0.38	-0.06	0.12	0.28	0.52	1.07
Segment	10,350	5.50	5.00	0	3	3	9	16
Past Return	10,350	0.01	0.03	-0.04	-0.01	0.01	0.03	0.07

Table 6 presents the summary statistics for the consequence analyses. Panel A presents the summary statistics for the full sample and Panel B presents the summary statistics for the matched sample. The matched sample only includes firms from the same industry (two-digit SIC) as checked firms in each year-quarter in the control group. All continuous variables are winsorised at 1% and 99%.

Table 7. Fact-checker Coverage and Firms' Voluntary Disclosure

	Management Forecast	
	(1)	(2)
	Full Sample	Matched Sample
Checked	-0.666***	-0.580***
	(-3.667)	(-3.188)
Size	0.104	0.240*
	(0.820)	(1.704)
Analysts	0.991***	0.786***
	(4.255)	(3.101)
Media Coverage	-0.113	-0.159
	(-1.066)	(-1.186)
SG&A	0.051	-0.054
	(0.536)	(-0.570)
Retail Ownership	-1.613***	-1.735***
	(-3.076)	(-2.753)
ROA	9.198***	6.462*
	(2.751)	(1.780)
BTM	-0.337	-0.188
	(-1.182)	(-0.601)
Segment	0.063**	0.047
	(2.050)	(1.243)
Past Return	-1.916	-3.813**
	(-1.141)	(-2.007)
Industry FE	Yes	Yes
Year-Qtr FE	Yes	Yes
Obs.	19,491	10,350
Adj.R-squared	0.294	0.228

Table 7 presents the relationship between fact-checker coverage and firms' voluntary disclosure. The dependent variable (*Management Forecast*) is the number of management forecast in the next year. The key independent variable (*Checked*) is an indicator variable, which equals to one if the firm is being checked by any fact-checker in the year-quarter. Column (1) presents the results for the full sample and Column (2) presents the results for the matched sample. I include industry fixed effects (two-digit SIC) and year-quarter fixed effects in the regressions. All continuous variables are winsorised at 1% and 99%. Standard errors are clustered at firm level. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels.

Table 8. Fact-checker Coverage and Market Consequences

	Retail Volume		Institutional Volume	
	(1)	(2)	(3)	(4)
	Full Sample	Matched Sample	Full Sample	Matched Sample
Checked	0.196***	0.202***	0.521	0.445
	(3.037)	(3.318)	(1.165)	(1.032)
Size	-0.222***	-0.219***	-2.112***	-2.244***
	(-6.260)	(-5.520)	(-6.699)	(-6.913)
Analysts	0.442***	0.472***	5.044***	5.479***
	(5.895)	(5.364)	(8.376)	(8.482)
Media Coverage	0.092***	0.129***	0.336*	0.571**
	(3.681)	(3.920)	(1.692)	(2.519)
SG&A	-0.028	-0.049**	-0.492***	-0.531***
	(-1.356)	(-2.272)	(-2.935)	(-3.241)
Retail Ownership	0.836***	0.857***	-1.289	-1.000
	(4.310)	(3.964)	(-0.983)	(-0.703)
ROA	-8.367***	-9.494***	-64.317***	-65.691***
	(-4.949)	(-4.532)	(-6.242)	(-5.724)
BTM	-0.218	-0.282*	-1.708*	-2.133**
	(-1.582)	(-1.842)	(-1.782)	(-2.071)
Segment	-0.017***	-0.018***	-0.119**	-0.127**
	(-2.952)	(-2.927)	(-2.232)	(-2.531)
Past Return	4.162***	4.732***	25.630***	24.709***
	(3.236)	(3.112)	(3.474)	(3.203)
Industry FE	Yes	Yes	Yes	Yes
Year-Qtr FE	Yes	Yes	Yes	Yes
Obs.	16,281	8,668	16,281	8,668
Adj.R-squared	0.317	0.253	0.400	0.335

Table 8 presents the relationship between fact-checker coverage and market outcomes. The dependent variable (*Retail /Institutional Volume*) is the average daily shares outstanding-scaled retail/institutional trading volume in the next year-quarter for the firm. The key independent variable (*Checked*) is an indicator variable, which equals to one if the firm is being checked by any fact-checker in the year-quarter. Columns (1) and (3) present the results for the full sample and Columns (2) and (4) present the results for the matched sample. I include industry fixed effects (two-digit SIC) and year-quarter fixed effects in the regressions. All continuous variables are winsorised at 1% and 99%. Standard errors are clustered at firm level. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels.