

Confidential Advertising Expenditures

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Abstract

A substantial number of firms spend over 5% of pre-tax income on advertising but do not disclose this expenditure. We investigate whether keeping advertising expenditures confidential benefits outside shareholders. Contrary to our conjecture of higher valuations, confidential advertisers have lower price-to-book equity ratios and Tobin's Q than their reporting peers. Using a regulatory shock to reporting requirements, we find that financial analysts cannot overcome this information opacity, with confidential advertisers experiencing higher analyst forecast dispersion. Analysts also underestimate future earnings in confidential advertising firms. Conference calls reveal that participants ask confidential advertisers more advertising-related questions, but executives do not give more soft information about it. Our final tests reveal that firms with more recently appointed CEOs are considerably less likely to report their advertising expenditures than their longer-tenure peers. In sum, confidential advertiser expenditures are prevalent, the practice does not appear to increase shareholder value, analysts do not mitigate this information problem, and this opacity is more likely in firms with new CEOs.

1. Introduction

Firms often choose to suppress information to keep it from the hands of competitors and protect future earnings (Dye, 1985), even though it increases information asymmetry with capital market participants. Concealing price-relevant information to keep opponents from taking actions that impose proprietary costs on the firm can increase market participants' uncertainty but increase the market price because of higher earnings (Wagenhofer, 1990; Mohd, 2005). While investors want the most precise information to value the firm, propriety information can facilitate its competitiveness vis-à-vis its peers (Ellis et al., 2022). Proprietary costs arguments about financial reporting emphasize that managers keep information private to protect the firm's strategic advantages, benefiting shareholders.

Yet, another primary concern is agency costs; public disclosures help mitigate the equity return gap between insiders and external investors (Healy and Palepu 2001; Leuz and Wysocki 2016; Stiglitz 2017). External investors and regulators also rely on information intermediaries, including auditors and financial analysts, to ease concerns about managerial incentives to limit the dissemination of material information. A critical issue is how capital market participants interpret the omission of potentially material disclosures, especially when they observe other markers that let them know the expenditure exists. As Berger and Hann (2007) note, managers could conceal information because of proprietary or agency costs considerations.

Empirically, investigating material but propriety information is challenging because researchers cannot access unrevealed information. First, one must identify whether some firms systematically seek to keep material information private and limit their disclosures on that topic. A second challenge centers on evaluating how material, but proprietary information, influences firm value. Keeping expenditure data confidential to protect it from rivals (proprietary costs) should increase firm value by

enhancing future earnings. Alternatively, private information could arise from managerial attempts to reduce shareholder oversight (agency costs), thereby decreasing firm value by limiting the release of price-relevant information (Barth et al. 2001; Belo et al. 2014; Vitorino 2014).

We explore the scale and costs to capital market participants of propriety information using data on observed advertising to make inferences about reported and unreported advertising expenditures. First, we estimate the prevalence, magnitude, and materiality of unreported advertising expenditures of listed firms. We use a unique database from Kantar Group that tracks advertising expenditures across print, broadcast, and online mediums (Hollenbeck et al., 2019). We compare advertising expenditures collected and calculated by Kantar Group (which we refer to as "observed advertising expenditures") and those disclosed by firms (i.e., Compustat item "XAD," which we refer to as "reported advertising expenditures").

To identify unreported but potentially material advertising expenditures, we use a 5-percent-of-income threshold (e.g., Choudhary et al. 2019; Caskey et al. 2021; and Chung et al. 2022). Based on the Kantar Group advertising expenditure estimates, we label firms that do not report but exhibit advertising expenditures, over 5 percent of pre-tax income, as "confidential advertisers." One immediate concern with this approach is the precision of the Kantar Group advertising expenditure estimates. We repeat our analysis using various thresholds of pre-tax income (10% and 15%) to evaluate the sensitivity of our study to our research design decisions.

Our central research question is whether keeping advertising expenditures confidential benefits outside shareholders. Proprietary costs arguments rely on keeping information private to protect the firm's competitiveness, suggesting high capital market values for confidential advertisers. In contrast, information asymmetry arguments suggest investors discount firms that fail to report advertising

expenditures (e.g., Williams 2015; Hirshleifer et al. 2018; Hsu et al. 2021).

Using a sample of the intersection of US firms in the Compustat database and Kantar Group from 1995 to 2019, we find that firms without reported advertising make up 51.7% of Compustat firms. Among these non-reporting firms, 14.2% have observed advertising expenditures over 5 percent of pre-tax income. We label these 5% firms without reported advertising as confidential advertisers; they spend \$5 to \$10 billion annually to create brand value. Interestingly, when we group firms by their Kantar-based advertising expenditures ("observed advertising expenditures"), the groups with the highest amount of advertising often have some of the lowest advertising reporting ratios.¹

First, we examine how outside investors evaluate confidential advertisers through the lens of the price-to-book equity ratios (P/B) and Tobin's Q . Compared to reporting firms, confidential advertisers' price-to-book equity ratios and Tobin's Q are 7.5% and 3.8% lower, respectively. While the point estimates vary across specifications and assumptions, the critical result of lower stock values in confidential advertisers persists. These correlation results do not allow for causal inferences. One concern is that low-value firms need to protect the information about their advertising expenditures more than high-value competitors.

Another method to explore the proprietary cost explanation for firms concealing advertising expenditures centers on information intermediaries. Financial analysts offer a potential channel for partially mitigating the costs of hiding information. Information intermediaries are potentially aware of this proprietary information. They could question managers about it, seek alternative sources of information about particular expenditures, and incorporate the results of their investigations into their

¹ The list of confidential advertisers includes several prominent companies, such as Capital One and Disney. For instance, Capital One stopped reporting its advertising expenditures in 1999. Yet, their annual reports include many anecdotes and pictures from their extensive advertising campaigns.

forecasts. For instance, managers could give soft answers that facilitate analysts following earnings forecasts while limiting the ability of competitors to have specific expenditure estimates. In short, the costs of proprietary information could be relatively small, at least in firms with financial analysts following.²

To investigate if information intermediaries mitigate the costs of concealing information to protect the firm from competitors, we examine whether confidential advertising in the prior year affects analysts' forecasts. Confidential advertising is associated with higher analyst dispersion and downward forecast errors. These results suggest analysts encounter greater difficulty in evaluating the future performance of confidential advertisers, resulting in more forecast dispersion. In addition, analysts underestimate future earnings in confidential advertising firms.

Cross-sectional results on financial analysts and confidential advertisers are informative but do not allow causal inferences because they could affect analysts' coverage choices. A 1994 regulatory change from bright-line reporting to a materiality-based disclosure rule led to a substantial decrease in the percentage of firms reporting their advertising (Heitzman et al., 2010) over the next few years. Firms that switched from reporting their advertising to confidential advertisers experienced a substantial increase in analyst forecast dispersion. Financial analysts also underestimated future earnings in firms that became confidential advertisers after the regulatory shock.

Still, financial analysts could provide managers of firms that have substantial concerns about competitors learning the point estimate of their advertising expenditures safe avenue to reduce information asymmetry with capital market participants. We examine whether and how financial

² In contrast, if information intermediaries primarily aggregate corporate disclosures of information, they should have a limited impact on mitigating the cost of confidential information.

analysts seek to overcome such information disparity in annual earnings calls. We find analysts seek significantly more advertising-related information for confidential advertisers than reporting and non-advertising firms, indicating that advertising expenditures are material information and interest outside investors. For instance, the chance for financial analysts to ask questions containing keywords related to advertising and marketing is 51% for confidential advertisers and 46% for firms that report advertising expenditures.³

Strikingly, executives of confidential advertising firms do not provide more soft information on their advertising in conference calls or explain the lack of advertising-related information. While proprietary cost arguments suggest managers should seek to mitigate the costs of keeping advertising expenditures with financial analysts, agency cost arguments predict our conference call findings. To further investigate the role of information intermediaries in price discovery for confidential advertising firms, we examine whether analysts' pessimistic forecasts lead to the undervaluation of confidential advertisers and find supportive evidence: confidential advertisers' price-to-book ratios and Tobin's Q significantly decrease with analysts' downward forecast errors.

Our final tests center on CEO tenure to evaluate propriety and agency cost explanations for concealing advertising expenditures. Each year, almost 10% of the firms in the Compustat universe replace their CEOs. Hundreds of CEOs only keep their job for 2 to 3 years, with many executives becoming CEO but only a few surviving in the long run. Because of the uncertain benefits of investing in intangible assets, managers often hesitate to disclose this spending and create entry barriers for competitive managerial teams (Edlin and Stiglitz, 1995; Koh and Reeb, 2015). CEOs with shorter

³ As a benchmark, the chance is only 17% for true-zero firms (i.e., firms do not report advertising expenditures in the Compustat and are not covered by Kantar Group or have observed advertising expenditures being less than five percent of the absolute value of pretax income).

tenures are arguably more concerned with job security and have more substantial incentives not to disclose advertising expenditures. We find that firms with new CEOs systematically choose not to report advertising expenditures. As CEOs' tenure increases, their chance of reporting firms' advertising increases. For instance, 34% of firms with new CEOs are confidential advertisers among financial firms, declining to 27%, then 26%, and finally 7% in the last CEO-tenure bucket with the longest tenure. Using matched samples by size reveals similar results.

Our analyses contribute to the literature in three ways. First, this study adds additional evidence on proprietary cost considerations and offers novel insights into the literature on disclosures (e.g., Healy and Palepu 2001; Core 2001; Dye 2001; Verrecchia 2001). We provide systematic evidence that firms keep material advertising expenditures as proprietary information. Prior research observes that proprietary costs are a leading reason for firms to aggregate advertising expenditures with other expenditures (Simpson, 2008; Liang, 2018), which theory indicates could be optimal for shareholders (Verrecchia 1983; Bhattacharya and Ritter 1983). Since brand capital is an essential class of intangible assets and its establishment requires advertising investments (Barth et al. 1998; Belo et al. 2014), confidential advertising creates difficulties for outside investors in stock pricing. Rather than benefiting outside shareholders through higher valuations, keeping advertising expenditures confidential appears to translate into lower firm values.

Second, our study contributes to the literature on whether financial analysts mitigate the information gap through reviews of a company's financial reports (e.g., Barron et al. 1998; Hong et al. 2000; Healy and Palepu 2001; Brown et al. 2004; Amiram et al. 2016). We use advertising disclosures to highlight financial analysts' challenges and actions when confronted with firms that keep the information confidential. Financial analysts asking about confidential information (unreported

advertising) during earnings calls suggests that financial analysts likely sense advertising expenditures as a critical factor in evaluating a firm's future performance. Yet, the underestimation and dispersions in forecasts provide evidence against analysts investigating this unreported advertising through other sources. One interpretation of the underestimation of confidential advertisers' future earnings is that financial analysts aggregate public information about listed firms.

Finally, this analysis contributes to the literature on the role of executives in understanding proprietary information. Firms can keep data private to benefit investors or managers of the firm. Managers seeking to manage expectations about their future performance, or those focused on short horizons, arguably have strong incentives to keep advertising expenditures confidential. Several studies provide insights into keeping information proprietary to protect shareholder interests (Ellis et al., 2012; Lan and Sul, 2014; Bernard et al., 2018, Deng et al., 2021). These results highlight the potential incentives of managers to keep information private due to career concerns.

2. Sample construction

2.1. The data

We collect datasets from several vendors to construct our sample. The ubiquitous sources include CRSP/Compustat Merged for financial reports and stock prices of listed firms in North America, IBES for analyst forecasts, and Capital IQ for transcripts of earnings calls. Importantly, we use XAD from Compustat to reflect a firm's disclosed/reported advertising expenditures, which reflects how much it spends on advertising media (i.e., radio, television, and periodicals) and promotional expenses in a year.

We then merge these data with a novel dataset on observed advertising expenditures that we purchase from Kantar Group, which is available since 1995. That dataset has become widely used in

business strategy, marketing, and finance literature for observed advertising spending.⁴ Kantar Group uses different proprietary information gathering techniques to evaluate how much money a firm is spending on advertising by a brand in each medium outlets such as TV, newspapers and magazines, as well as internet, radio and outdoors/billboards, which can correspond closely to the components of XAD in the Compustat. We purchased the entire universe of brands belonging to Compustat-covered firms. In the data we received, each brand's advertising expenditures are classified into three groups: Broadcasting, Print & publishing, and Online.

Because Kantar Group's dataset is brand-specific and does not offer an identifier to be linked to firms in the Compustat, we first manually search each Compustat firm's brands in the dataset of Kantar Group and get their spending per year per outlet. We use a fuzzy match technique to pair firm name strings from Compustat and Kantar Group. Upon review, we find that most common discrepancies are name permutation, name misspelling, and company legal status. After several experiments on a randomized list of 500 firms, we find that the matching algorithm that works best uses the Jaccard Similarity with weights, which gives a higher score to less frequent text. We then sort our results by their similarity scores and find no instance where a correct matching (verified manually by us) receives a score lower than 0.9, and most correct matching receives a score of around 0.95. Therefore, we pick a threshold of 0.8.

We measure a firm's observed advertising expenditures by aggregating the spending on all its brands throughout all their outlets in each year. Of the 17,886 active firms in the Compustat during 1995-2019, we find that 6,342 firms have observed advertising expenditures according to Kantar Group. Importantly, this list includes both firms for which Kantar Group collects advertising activities (and calculates spending) and firms it does not.

⁴ For example, Xu et al. (2014), Robinson et al. (2015), Gao et al. (2015), Kaniel and Parham (2017), Aizawa and Kim (2018), Liang (2018), Hock and Raithel (2020), Beattie et al. (2021), Grullon et al. (2020), Petrova et al. (2021), Focke et al. (2020), Xu et al. (2020), Cheong et al. (2021), Du et al. (2021), and Liaukonyte and Zaldokas (2022).

2.2. The disclosure and materiality threshold of advertising expenditures

We first need an objective materiality threshold for our investigation of unreported/confidential advertising expenditures. SEC Staff Accounting Bulletin 99, *Materiality*, (SAB 99), issued in 1999, cautions against a certain quantitative benchmark to assess materiality,⁵ but mentions that quantitative thresholds such as five percent of pretax income have long been used in practice. Prior literature has also documented that five percent of pretax income is like a rule of thumb in determining materiality for audits (e.g., Leslie 1985; Messier et al. 2005; Nelson et al. 2005; Eilifsen and Messier 2015; Choudhary et al. 2019). In order to infer managerial materiality assessment, Acito et al. (2009), Keune and Johnstone (2012), and Acito et al. (2019) examine what triggers a material restatement. These studies corroborate earlier literature and point out that earnings serve as the dominant quantitative benchmark for explaining managers' error correction decisions, not sales or total assets. Following the literature, we use five percent of pretax income as our materiality threshold to identify confidential advertisers.

Panel A of Table 1 reports summary statistics of firm-year observations with observed advertising expenditures from Kantar Group. In the Kantar sample of 48,905 firm-year observations (i.e., firm-year observations with observed advertising expenditures), the average observed advertising expenditure is \$26.6 million. In addition, the averages in three outlets (broadcasting, print & publishing, and online) are \$16.7, \$7.1, and \$2.8 million, respectively. We then classify all firm-year observations into three groups: confidential advertisers, reporting firms, and true-zero firms. We define confidential advertisers as firms whose advertising expenditures are missing (not zero) in the Compustat, while their advertising expenditures in Kantar are equal to or over five percent of the absolute value of pretax income. We define reporting firms as those with advertising expenditures in the Compustat. True-zero firms are those that do not report advertising expenditures in the Compustat but have observed advertising expenditures being less than five percent of the absolute value of pretax income.

⁵ See <https://www.sec.gov/interps/account/sab99.htm#foot1>.

Among all 48,905 firm-year observations, 48% are reporting firms with Compustat advertising expenditures; their average observed advertising expenditure is \$43.0 million, and average reported advertising expenditure is \$132.8 million. The observed amount is not perfectly equal to the reported amount probably because, unlike the reported advertising expenditures in the Compustat that include a broader range of marketing-related expenditures such as production costs for catalog costs, Kantar Group's observed advertising expenditures include advertising expenditures directly associated with attention-grabbing advertising and marketing activities. Despite such a difference, Panel B of Table 1 shows that the observed and reported advertising expenditures are highly correlated at 0.704, which is similar to 0.79 reported by Focke et al. (2020). More importantly, as we use Kantar Group's observed advertising expenditures (which tend to be more conservative as discussed earlier) to identify confidential advertisers, we are less likely to misclassify firms as confidential advertisers.

Among the 52% of Compustat firm-year observations that do not report advertising, their observed advertising expenditures are not zero. We further divide this group into true-zero firms and confidential advertisers to distinguish between firms that genuinely do not advertise (i.e., those with observed advertising expenditures below the materiality threshold) and those with substantial observed spending that choose not to disclose related information. We find that 3,598 firm-year observations are confidential advertisers, representing 7.36% of our entire sample. It is noteworthy that these confidential advertisers' observed spending is as high as \$53.4 million in mean and \$3.9 million in median. The disjoint from mean to median results from a sizeable standard deviation of \$163.8 million as some well-known firms do not report advertising expenditures worth billions. More importantly, confidential advertisers' observed spending is higher than those of reporting firms in both mean and median (\$43.0 million and \$1.0 million, respectively).

On the other hand, for true-zero firms, their average (median) observed advertising expenditures are \$4.3 million (\$0.1 million), with a standard deviation of \$32.6 million. We repeat this analysis for different thresholds of 10 percent or 15 percent of pretax income, and find similar results.

3. Main Analyses

3.1. *The magnitude and distribution of unreported advertising expenditures*

We aggregate all unreported yet observed advertising expenditures of all confidential advertisers in each year, and present the annual time series of this total amount in Figure 1. The figure suggests that these unreported expenditures are of a sizeable economic magnitude: they are in the range between 5-10 billion dollars, which suggests a significant amount of advertising expenditures are not disclosed in their financial reports.

To further illustrate which types of firms choose not to disclose advertising expenditures, we group all firm-year observations into quintiles based on their observed advertising expenditures. We then plot the mean of each quintile's observed spending in a red line (based on the right vertical axis) and the ratio of confidential advertisers in bars (based on the left vertical axis) in Figure 2. It is striking to observe a steady *increase* in the proportion of confidential advertisers from left to right (i.e., from low to high observed spending). The highest group of the 95th-99th percentile that spends \$485 Million on average has the highest ratio: about 18% of high-advertising firms choose not to report related spending. Such a pattern suggests that heavy advertising spenders are more likely to hide their advertising. In addition, we find a prevailing pattern that, in every quintile, there are always firms which choose not to disclose their advertising expenditures.

Next, we report the distributions of observed advertising expenditures (in natural log) of confidential advertisers (yellow) and other firms (i.e., reporting firms and true-zero firms) (green) in Figure 3. We first show that numerous firms choose to report even small advertising expenditures, totting up to thousands of dollars, whereas some firms decide not to disclose advertising expenses in the hundreds of millions (for example, the average of Capital One's observed advertising expenditures is about 410 million from 1999 to 2019, which is about 11% of its pretax earnings). The fact that the distribution of confidential advertisers is on the right of that of other firms is consistent with Figure 2 and indicates that confidential advertisers tend to spend more on advertising.

It is worth noting that we use the absolute value of the pretax income to determine materiality

because some firms may report losses. Nevertheless, in unreported robustness check, we consider only firms with positive pretax income and redraw Figure 1 to Figure 3. We find similar patterns.

3.2. Analyst forecast errors and dispersion

Financial analysts have long been regarded as information intermediaries that could lower information asymmetry (Gilson et al. 2001; Bowen et al. 2008; Yu 2008). Thus, financial analysts' reactions to confidential advertisers are worth investigation in several dimensions. First, do analysts face more information uncertainty, and therefore are they less likely to reach a consensus for confidential advertisers' earnings per share (EPS)? Second, do analysts' forecasts become more optimistic or pessimistic for confidential advertisers relative to other firms? To examine these research questions, we estimate the following regression for all Compustat firm-year observations in our sample period:

$$Analyst\ Forecast_t = \alpha_1 + \beta_1 Confidential\ Advertisers_{t-1} + \Sigma Control_t + Firm\ effects + Year\ effects + \varepsilon_t, (1)$$

where *Analyst Forecast_t* represents analysts' forecast property variables, including *Overestimation #M (Mean/Median)_t* and *Forecast Dispersion #M (Mean/Median)_t*. *Overestimation #M (Mean/Median)* denotes analysts' overestimation in EPS forecasts that are measured as their forecasted EPS minus actual EPS in each year. Since forecast horizon might affect the magnitude of forecast errors (Gu and Wu 2003), we construct *Overestimation #M (Mean/Median)* by using the mean or median of overestimation in EPS from forecasts made by analysts in 1, 2, or 3 month(s) prior to annual earnings announcements. For instance, *Overestimation 3M (Mean)* denotes the mean overestimation in EPS of forecasts made by analysts 3 months before the announcement. We then measure the dispersion of analyst forecasts, *Forecast Dispersion #M (Mean/Median)*, as the standard deviation of analyst forecasts errors scaled by the absolute value of mean/median forecast errors. For instance, *Forecast Dispersion 3M (Mean)* denotes the standard deviation of analysts' 3-month ahead forecasts errors scaled by the absolute value of mean forecast errors. Our variable of interest is *Confidential*

$Advertisers_{t-1}$, which is equal to 1 if a firm's observed advertising expenditures are over or equal to 5 percent of pretax earnings and it does report advertising expenditures, and zero otherwise. We include year fixed effects and firm fixed effects and cluster standard errors by firm. Continuous variables are winsorized at 1 percent and 99 percent.

We provide the variable definitions and descriptive statistics for all regression variables in Equation (1) in Panel A of Table 2. As shown in Panel A of Table 2, the sample mean of *Overestimation 3M (Mean)* is about 0.008, suggesting that the mean difference between analysts 3-month ahead forecasts and corresponding actual earnings is about 0.8 percent of the lagged stock price. This result is consistent with the optimistic bias reported in prior literature (Das et al. 1998; Kothari 2001). The sample mean of *Forecast Dispersion 3M (Mean)* is 0.077, which suggests that the average forecast dispersion is 8 percent of the absolute value of mean forecast errors.

Confidential Advertiser's sample mean value is 0.061, indicating that 6% of the sample firm-year observations should report advertising expenditures but actually do not. We also include an extensive list of control variables including follows: firm size (*Size*), market-to-book ratio (*MB*), firm age (*Firm Age*), return on assets (*ROA*), an indicator variable for loss-reporting (*LOSS*), whether the auditor is a Big N auditor (*Big N*), long-term debt ratio (*Leverage*), the standard deviation of return on assets (*ROA Volatility*), and the number of analysts in log ($\text{Log}(\#Analyst\ Following)$).⁶ The control variables have a distribution similar to those reported by prior studies (e.g., Gu and Wu 2003; Behn et al. 2008; Lobo et al. 2017).

We estimate Equation (1) using *Forecast Dispersion #M (Mean/Median)* and *Overestimation #M (Mean/Median)*, as the dependent variable in Table 3 and Table 4, respectively. In Table 3 for forecast dispersion, the coefficient on $Confidential\ Advertiser_{t-1}$ is positive and significant at the 1% level across

⁶ The average firm size (*Size*), the logarithm of the mean total assets, is 7.755, equal to about 23 million. The mean market-to-book ratio (*MB*) is 3.346 and firm age (*Firm Age*) is about 12. The average return on assets (*ROA*) is 8.2 percent and about 18.1 percent of the sample observation report loss (*LOSS*) for the year. The majority of sample observations have hired a Big N auditor since the mean *Big N* is 0.905. The mean long-term debt ratio (*Leverage*) is 23.2 percent and the standard deviation of return on assets (*ROA Volatility*) is 0.042. $\text{Log}(\#Analyst\ Following)$ has the mean value of 2.089, indicating that each firm-year observation is followed by 8 analysts on average.

different specifications. These results suggest that analysts' forecasts diverge more on confidential advertisers. Put it differently, there is greater consensus among analysts when they could have received advertising expenditure information from financial reports. For example, in column (2) where dependent variable is *Forecast Dispersion 2M_t (Median)*, the coefficient is 0.050, which suggests that the average standard deviation of forecast errors increases by 5 percent for confidential advertisers. Such an increase is substantial as it is about 70 percent of the mean of *Forecast Dispersion 2M_t (Median)* (which is 0.07).

In Table 4, we use overestimation in EPS as the dependent variable to examine if analysts take an optimistic (pessimistic) view for confidential advertisers, which corresponds to a significantly positive (negative) coefficient on *Confidential Advertiser_{t-1}*. The results show that for 1- and 2-month ahead forecasts, the coefficients on *Confidential Advertiser_{t-1}* are negative and significant at the 5% level, suggesting that analysts make more pessimistic forecasts on confidential advertisers. When we use the estimated coefficients in column (2), the confidential advertisers have an estimated downward forecast error of 0.004, which means the average difference between forecasted and actual earnings is about -0.4% of the lagged stock price.⁷ For other firms, the estimated forecast error is 0.5%, which is much higher than that of confidential firms.

In columns (3) and (6), where overestimation in EPS is calculated based on analyst forecast made 3 months prior to the earnings announcement, the coefficients of *Confidential Advertiser_{t-1}* are negative yet insignificant, probably because analysts tend to be more optimistic if the forecast is made earlier (Gu and Wu 2003). Overall, Table 4 suggests that analysts take a more pessimistic view of confidential advertisers. This pattern can be interpreted in two ways: analysts may underestimate future earnings or may overestimate the actual (yet unreported) advertising expenditures.

⁷ To examine the economic significance of our finding, we calculate the expected forecast errors by placing all the variables at their respective mean values except *Confidential Advertiser_{t-1}* and setting firms as hiring a Big N auditor and having positive earnings.

3.3. Firm values and hidden advertising expenditures

Prior research has documented that one of the most well-known reasons for equity misvaluation is information asymmetry (e.g., Healy and Palepu 2001). Such misvaluation can be improved by high-quality corporate disclosures which enables investors better impound accounting information into prices (Drake et al., 2009). Brown and Hillegeist (2007) find that an increase in disclosure quality decreases informed trading and makes buying based on private information less lucrative. Moreover, an increase in voluntarily information disclosures also leads to reductions in information asymmetry and costs of equity (Shroff et al. 2013).

Since confidential advertisers do not disclose material, advertising-related spending, we would expect that investors encounter greater difficulties in valuing these firms. In this section, we examine the relation between firm types (confidential advertisers vs. others) and stock valuation because the choice not to disclose expensed advertising (turning confidential advertisers) makes it harder for market participants to speculate how much resources engaged in marketing activities to build/maintain customer relationship (Verrecchia 1983; Aboody and Lev 1998; Aboody and Lev 2000; Mohd 2005; Epstein and Schneider 2008; Hirshleifer et al. 2013; Williams 2015; Hirshleifer et al. 2018; Hsu et al. 2021). We thus estimate the following equation:

$$Firm\ Value_t = \alpha_1 + \beta_1 Confidential\ Advertiser_t + \Sigma Control_t + Firm\ effects + Year\ effects + \varepsilon_t, \quad (2)$$

where *Firm Value_t* represents the value of firm, including $\text{Log}(P/B)_t$ or $\text{Log}(\text{Tobin's } Q)_t$. The price-to-book equity ratio (*P/B*) and *Tobin's Q* are commonly used in a variety of contexts by analysts to evaluate the value of a firm (e.g., Nezlobin et al. 2016; Palepu et al. 2019). The detailed variable definitions and descriptive statistics for all variables in Equation (2) are shown in Panel B of Table 2. The mean (median) of the shareholder value measures, *P/B* and *Tobin's Q*, are 3.257 (2.149) and 1.828 (1.431), respectively. About 6% of observations are confidential advertisers since the mean of *Confidential Advertiser* is 0.059. All control variables follow the literature (e.g., Nissim and Penman 2003; Rao et al. 2004; Zolotoy et al. 2019) and have been defined earlier. We include year fixed effects

and firm fixed effects and cluster standard errors by firm. Continuous variables are winsorized at 1 percent and 99 percent.

We report the estimation results for Equation (2) in Table 5. In column (1) for P/B , the coefficient on *Confidential Advertiser* is -0.075 in column (1) with statistical significance at the 5% level. These estimates suggest that when a firm switch to be a confidential advertiser, its price-to-book equity ratio reduces by a 7.5% drop. In column (2), we present the results from regressing Tobin's Q on the indicator variable *Confidential Advertiser*. The estimated coefficient on *Confidential Advertiser* is -0.038 in column (2) for Tobin's Q, with statistical significance at the 5% level and indicates that confidential advertisers are about 4% lower in stock valuation.

Our results suggest that confidential advertisers are discounted in their stock price relative to other firms. This finding, together with analysts' underestimated earnings in the prior subsection, supports analysts' pessimistic forecasts on confidential advertisers' future revenue and growth. Such pessimistic estimates can be attributed to investors' difficulties in evaluating confidential advertisers. Moreover, under the market efficiency hypothesis, the difference in stock valuations associated with firms' disclosure policy of advertising expenditure highlights that financial intermediaries such as auditors and analysts cannot fill the knowledge gap about confidential advertisers for general stock investors.

3.4. Analyses of Earnings Calls

Throughout this paper, we investigate the existence and capital market consequences of a firm's decision not to disclose material advertising expenditures. Although some managers exercise their discretion and choose to be confidential advertisers, financial analysts may still obtain that information through other channels, such as actively participating and even raising related questions in earnings conference calls. Tasker (1998) shows that firms with less informative financial statements are more likely to host conference calls, thereby serving as an important voluntary disclosure channel. Brown and Hillegeist (2007) demonstrate that conference calls reduce information asymmetry and the cost of capital. Even the linguistic tone executives and analysts use during the talk is shown to be a significant

predictor of abnormal returns (Price et al., 2012).

On the other hand, with the hopes of staying on management's good side, or due to the desire not to disclose costly private information, analysts may opt not to ask contentious questions in conference calls, thereby preserving private access to management (Ke and Yu 2006; Chen and Matsumoto 2006). In line with this strategic behavior, Lauren et al. (2017) find that some firms tend to "cast" their conference calls by disproportionately taking questions from bullish analysts and consequently tend to underperform in the future.

Given the aforementioned discussion, we are motivated to examine whether and to what extent analysts choose to ask about undisclosed advertising. Analysts' questions and executives' answers about advertising-related information in confidential advertisers (as opposed to other firms) can reveal related information about material advertising expenditures.

We employ Python to identify advertising-related words (i.e., marketing, brand, advertising, branding, and promotion) in transcripts of annual earnings conference calls between 2007 and 2019 from Capital IQ. We limit our analyses to the earnings calls that hold on the same day as the announcement of the annual report because analysts are more likely to pose a question based on financial reports rather than other news.⁸ We totally collect 14,754 earnings calls. We report the results regarding advertising-related words mentioned by analysts in the earnings calls in Table 6. Then, we turn to report the results on advertising-related words mentioned by executives in Table 7.

3.3.1 Analysts' questions

Panel A of Table 6 presents the frequency of all advertising-related words mentioned by analysts in the Q&A section. Among the 14,754 calls, reporting firms have 8,337 earnings calls, confidential advertisers have 617 earnings calls, and true-zero firms have 5,800 earnings calls. We find 50.5% of earnings calls of confidential advertisers contain advertising-related questions by analysts, which is

⁸ Our results are unchanged if we include the earnings calls within 3 days, 10 days, or 15 days after the announcement of annual reports.

significantly higher than those of reporting firms (45.8%). We find that only 17.1% of earnings calls of true-zero firms contain advertising-related questions from analysts, implying that disclosure of advertising expenditures indeed is less relevant for these firms.

Panel B of Table 6 presents the frequency of each advertising-related word (marketing, brand, advertising, branding, and promotion) cast by analysts in the Q&A section. We find, on average, analysts mention “marketing” and “brand” at least one time. Then, we examine the magnitude of advertising-related words mentioned by analysts in Panel C of Table 6. Specifically, we calculate the ratio of advertising-related words mentioned by analysts, which is defined as the number of advertising-related words mentioned by analysts to the total number of words spoken by analysts. The results show that, on average, about one out of one hundred words spoken by analysts is advertising-related for confidential advertisers and reporting firms. Moreover, from the results of t test, it shows that analysts of confidential advertisers mention advertising-related words more often than analysts of reporting firms whenever they speak in the Q&A section.

In Panel D of Table 6, we turn to use a linear probability regression with firm fixed effects to examine whether analysts are more likely to mention advertising-related words if firms choose to hide this information in Panel D of Table 5. In particular, we estimate the following equation using 12,006 firm-year observations from merging earnings calls data with the Compustat sample:

$$\text{Mentioned by Analysts}_i = \alpha_1 + \beta_1 \text{Confidential Advertisers}_i + \sum \text{Control}_i + \text{Firm effects} + \text{Year effects} + \varepsilon_i, (3)$$

where *Mentioned by Analysts_i*, including *Mentioned by Analysts (Dummy)* and *Mentioned by Analysts (Ratio)*, refers to whether financial analysts mention advertising-related words and how often they mention them. Specifically, *Mentioned by Analysts_i (Dummy)* is equal to 1 if an analyst mentions any advertising-related words such as marketing, brand, advertising, branding, and promotion, and 0 otherwise. *Mentioned by Analysts_i (Ratio)* is the ratio of the number of advertising-related words mentioned by analysts to the total number of words spoken by analysts. We include year fixed effects and firm fixed effects and cluster standard errors by firm. Continuous variables are winsorized at 1

percent and 99 percent.

Though firms can justify not disclosing advertising expenses if immaterial, they should disclose selling, general, and administrative (SG&A) expenses. The amounts and magnitude of SG&A expenses could be a source for analysts to refer to a firm's marketing activities, so we control them in our regressions. Besides, the market value and sales of a firm could affect an analyst's focus on advertising-related activities, and we also control them in regressions.

In columns (1) and (2) of Panel D of Table 6, where dependent variables are *Mentioned by Analysts (Dummy)* and *Mentioned by Analysts (Ratio)*, respectively, we find the coefficients on *Confidential Advertiser* are positive and significant (i.e., 0.061 and 0.002). Regarding economic significance, take the coefficient of column (1) for example, it means if other firms' analysts mentioned advertising-related words one time out of 100 earnings calls, confidential advertisers' analysts would mention them six times out of 100 earnings calls.

3.3.2 Executives' responses

Next, in Table 6, we desire to know whether it exhibit a higher tendency that executives of confidential advertisers respond analysts advertising-related questions or provide an extra advertising-activity elaboration. Similar to Panel A of Table 6, Panel A of Table 7 shows the frequency of advertising-related words mentioned by executives in earnings calls. We find about 68%, 71%, and 36% of executives in reporting firms, confidential advertisers, and zero-zero firms will mention advertising-related words in earnings calls. That is, executives of confidential advertisers have the highest frequency of referring to advertising-related words. Panel B of Table 7 indicates that generally "marketing" and "brand" appear most frequently in the Q&A transcripts of executives.

When we examine the magnitude of advertising-related words relative to all words mentioned by executives, Panel C of Table 7 indicates that executives of confidential advertisers mention merely one advertising-related word out of two hundred words. The result of *t*-test also shows statistically insignificant between the ratio of advertising-related words mentioned by executives of reporting firms

and that by executives of confidential advertisers. Panel A and Panel C in Table 7 suggest that while executives of confidential advertisers have a higher likelihood to mention advertising-related words, they do not spend relatively more time explaining advertising activities.

We go further to employ a linear probability regression model with firm fixed effects in Panel D of Table 7 to examine whether executives of confidential advertisers are more likely to mention advertising-related activities in the Q&A section of earnings calls. We estimate the following equation using 12,006 firm-year observations from merging earnings calls data with the Compustat sample:

$$\text{Answered by Executives}_i = \alpha_1 + \beta_1 \text{ Confidential Advertisers}_i + \Sigma \text{ Control}_i + \text{Firm effects} + \text{Year effects} + \varepsilon_i, \quad (4)$$

where *Answered by Executives_i*, including *Answered by Executives (Dummy)* and *Answered by Executives (Ratio)*, refers to whether executives mention advertising-related words and how often they mention them. Specifically, *Answered by Executives (Dummy)* is equal to 1 if an executive mentions any advertising-related words such as marketing, brand, advertising, branding, and promotion, and 0 otherwise. *Answered by Executives (Ratio)* is the ratio of the number of advertising-related words mentioned by executives to the total number of words spoken by executives. We include year fixed effects and firm fixed effects and cluster standard errors by firm. Continuous variables are winsorized at 1 percent and 99 percent. All other variables and regression settings are the same as Equation (4).

Both coefficients on *Confidential Advertiser* in columns (1) and (2) are not statistically significant, indicating that executives of confidential advertisers do not disclose anything more than other firms.

Our evidence from Table 6 and Table 7 offers three important implications. First, analysts of confidential advertisers thirst for advertising information when making decisions, suggesting that they consider marketing and promotion as “material” information. Second, in comparison with other firms, confidential advertisers receive more questions about advertising/marketing activities from stock analysts, but they do not intend to talk more about such activities in earnings calls. This finding indicates that the amount of information released by executives in earnings calls is limited, consistent with their choice in financial statement. The lack of disclosure of advertising expenditures is thus

inconsistent with materiality-based disclosure. Third, managers leave participants on an earnings conference call in the dark by not providing the corresponding amount of information leads to negative interpretations by financial analysts (Hollander et al. 2010). This result echoes our previous findings that analysts face greater challenges in evaluating confidential advertisers.

3.5 CEO tenure

It is well documented that CEOs are subject to high turnover risk. Each year, roughly 9.7% of firms in the Compustat universe replace their CEOs. Hundreds of CEOs only keep their job for 2 to 3 years, with many executives becoming CEO but only a few surviving in the long run. Because of the uncertain benefits of investing in intangible assets, managers often hesitate to disclose this spending and create entry barriers for competitive managerial teams (Edlin and Stiglitz, 1995; Koh and Reeb 2015). In line with job retention goals, Ali and Zhang (2015) find that CEOs are more likely to overstate their earnings in their early years on the job. Hazarika et al. (2012) document that a short-tenure CEO manage earnings aggressively through discretionary accruals when he/she is forced out. Bamber et al. (2010) indicate that CEOs with less job security are afraid of reporting volatile comprehensive income in an income statement. Consequently, we expect that CEOs with shorter tenures are arguably more concerned with job security and have more substantial incentives not to disclose advertising expenditures. To examine this proposition, we estimate the following regression:

$$Confidential\ Advertisers_t = \alpha_1 + \beta_1 Short\ CEO\ Tenure_t + \Sigma Control_t + Firm\ effects + Year\ effects + \varepsilon_t, (5)$$

where *Confidential Advertisers_{t-1}* is an indicator variable which equals 1 if a firm's observed advertising expenditures are over or equal to 5 percent of pretax earnings and it does not report advertising expenditures, and zero otherwise. *Short CEO Tenure* includes *Short CEO Tenure 3 Years* and *Short CEO Tenure 4 Years*, which are indicator variables that equal 1 if CEO tenure is less than 3 and 4 years, respectively, and zero otherwise. Since industry competitiveness, firm accounting performance, and firm characteristics could the incidence of being a confidential advertiser (Simpson 2008; Liang 2018),

we include Herfindahl-Hirschman Index (*HHI*), returns on assets (*ROA*), firm size (*Size*), firm age (*Firm Age*), and leverage ratio (*Leverage*) as our control variables. We include year fixed effects and firm fixed effects and cluster standard errors by firm. Continuous variables are winsorized at 1 percent and 99 percent.

The descriptive statistics in Panel C of Table 3 show that about one third of our sample, CEO's tenure is less than 3 years and 40 percent of their tenure is less than 4 years, which implies over one third of CEOs experience a turnover within 3 years. The estimation results of equation (5) are presented in Table 8. The coefficients on *Short CEO Tenure 4 Years_{it}* and *Short CEO Tenure 3 Years_{it}* are both significantly positive, suggesting that CEOs with shorter tenure tend to choose not to report material advertising expenditures. Our results are in line with the finding of Jenter and Lewellen (2020) that the probability of performance-induced CEO turnover is the highest when CEO tenure is short. Therefore, CEOs of shorter tenure have incentives to hide investment expenditures with high uncertainty to avoid monitoring and unwanted questions regarding investment performance from analysts and shareholders.

4. Financial Reporting Release No. 44 (FRR44)

In the second part of this research, we implement a difference-in-differences design based on a change in the SEC disclosure rule on advertising expenditures in the 10-K in 1994, that is, Financial Reporting Release No. 44 (FRR44), as an exogenous shock. Prior to the change of FRR44, managers should disclose advertising expenditures if it exceeds 1% of sales, while after the change, managers can determine the material threshold for disclosing advertising expenditures themselves. Thus, after the change of FRR44, managers are not required to reveal advertising expenditures if they consider such information is not decision-useful for investors. Heitzman et al. (2010) document that around 20% of the Compustat firms switch to not revealing their' advertising expenditures right after the change of FRR44. However, as the amount of advertising expenditures of Compustat firms increases steadily before the period of the change of FRR44, it is unlikely to expect so many firms' advertising costs

suddenly drop below the 1% of sales. As a result, we use FRR44 to identify confidential advertisers, which are firms hiding the advertising costs after the effective date of the change of FRR44, yet disclosing the costs before.

The effective date of FRR44 is of December 1994, and firms have to comply with the change of FRR44 if their 10-Ks were filed after the effective date. Exploiting the change of FRR44, we identify the confidential advertisers three years after the effective date because firms do not need to switch their accounting disclosure policy immediately. Then, we create a five-year window in this experiment, which includes two years before and after each firm's switching year. If a firm has never switched to confidential advertisers, we use 1994 as its switching year and use the five-year window around 1994. We examine the analyses of analyst forecast dispersion and errors using the following equation:

$$\begin{aligned} \text{Analyst Forecast}_t = & \alpha_1 + \beta_1 \text{ Confidential Advertisers (FRR44)} \times \text{Post} + \Sigma \text{ Control}_t + \text{Firm effects} \\ & + \text{Year effects} + \varepsilon_t, \end{aligned} \quad (6)$$

where *Confidential Advertisers (FRR44)* is equal to 1 if a firm stops revealing its' advertising costs after the change of Financial Reporting Release 44, and 0 otherwise. *Post* is an indicator variable that equals 1 if a year is in the post-switching period, and 0 otherwise. The coefficient of *Confidential Advertisers (FRR44) × Post* indicates the differences of analyst forecast characteristics between confidential advertisers and other firms after the change of FRR44. All the control variables are same as those in equation (1). We include year fixed effects and firm fixed effects and cluster standard errors by firm. Continuous variables are winsorized at 1 percent and 99 percent.

The descriptive statistics are shown in Panel A of Table 9. Similar to what is reported in Heitzman et al. (2010), about 23% of the sample firms decide not to disclose material advertising costs after the change of FRR44. In Tables 10 and 11, we show that confidential advertisers have substantially higher analyst forecast dispersion and more pessimistic forecasts than other firms in the post-change of the FRR44 period. Moreover, these results suggest that the change of FRR 44 in 1994 indeed generates more information uncertainty for outside insiders.

We also examine if CEO tenure affects firms' decision to switch to confidential advertisers.

Specifically, we use a logistic regression to conduct this analysis.

$$\Pr (\text{Confidential Advertisers}(\text{RFF44})_{it}=1) = \Pr (\alpha_1 + \beta_1 \text{Short CEO Tenure}_{it} + \Sigma \text{Control}_{it} + \text{Industry effects}_{it} + \text{Year effects}_{it} + \varepsilon_{it}), \quad (7)$$

where *Confidential Advertisers (FRR44)* is our dependent variable. We estimate equation (7) in a cross-sectional format: we only examine the observations in the switching years, and every firm is a regression sample. *Short CEO Tenure* includes *Short CEO Tenure 3 Years* and *Short CEO Tenure 4 Years*, which are indicator variables that equal 1 if CEO tenure is less than 3 and 4 years, respectively, and zero otherwise. We include year fixed effects and industry fixed effects, and cluster standard errors by industry. We use Fama-French 12 industrial classification to define industry. Continuous variables are winsorized at 1 percent and 99 percent.

The estimation results are presented in Table 12, in which the coefficients of *Short CEO Tenure 3 Years* and *Short CEO Tenure 4 Years* are both significantly positive, suggesting that, upon the change of FRR44, CEOs of shorter tenure have higher incentives to skip material advertising expenditures in financial statements.

Overall, by exploiting the change of FRR44 that exogenously creates/increases confidential advertisers, we find supportive evidence for our hypotheses that the choice of not disclosing advertising expenditures leads to higher analyst dispersion, more pessimistic analyst forecasts; in addition, CEOs with shorter tenure are more likely to make a decision of skipping advertising expenditures in financial statements. All these results are consistent with the first part of our empirical analyses based on the Kantar Group database.

5. Conclusion

The purpose of financial reporting is to provide financial information about the firm that is useful to investors for decision-making (FASB 2018; IASB 2018). Starting from Ball and Brown (1968), decision usefulness has been recognized as the main criterion for accounting policy (Dechow et al. 2010; Lo 2010; Kothari 2019). A strand of discretionary disclosure literature shows that managerial

decision to withhold information to investors is determined by the threat of entry by competitors or confidential costs (e.g., Verrecchia, 1983; Verrecchia 2001; Dye 2001; Healy and Palepu 2001). However, there is limited empirical evidence of the consequences of such omission of material information on investors' decision-making. In our study, we intend to fill this gap by comparing observed and reported advertising expenditures to identify firms that withhold material advertising information and the economic magnitude and possible effects of such omission.

We acquire the Kantar Group's data on companies' actual advertising by media channel and brand and label firms that spend in advertising over or equal to 5% of pretax income but choose not to report it, leaving the reported advertising item blank in their financial reports as confidential advertisers. We find some substantial consequences of such a choice: A large portion of listed firms do not disclose their advertising expenditures and confidential advertisers leave billions of unreported dollars each year.

To assess whether there exists a systematic bias in the decision-making process of reasonable investors, we examine whether financial analysts behave differently toward confidential advertisers. We find that confidential advertisers have a higher forecast dispersion of financial analysts than other firms do, implying that financial analysts face more information uncertainty when firms withhold material information. Additionally, financial analysts tend to provide downward forecast earnings for confidential advertisers. These results reiterate that material advertising expenditures are strongly related to the future growth of a firm; therefore, without such information will bias the decisions of a reasonable investor.

Next, we investigate whether financial analysts help mitigate these knowledge gaps through earnings conference calls as a channel to seek more information. We find that participating analysts are more likely to mention advertising-related words when asking questions, primarily in confidential advertisers, where the expenditure is not divulged. By contrast, executives of confidential advertisers do not provide a corresponding amount of advertising-related information because we do not find that they mention more advertising-related words when answering the questions raised by financial

analysts. These results highlight that reasonable investors are disadvantaged users of financial information. We also examine whether CEOs choose not to report material advertising expenditures due to their job security concerns. Our evidence shows that short-tenure CEOs tend to withhold advertising information.

In our last analyses, we exploit the regulatory change of FRR44, which states that managers have discretion in reporting advertising costs. We redefine a confidential advertiser as a firm that switches to withhold advertising costs after the change. We continue to find that analysts encounter more information asymmetry when forecasting confidential advertisers, and the switching firms are more likely to have short-tenure CEOs.

Our study offers several implications for regulators, managers, and investors. First, the SEC argues that voluntary disclosing advertising costs would reduce the regulatory burdens and the disclosing costs of the firms without losing critical information. However, the SEC also noted in FRR 44 that several analysts state that the benefits of providing this information exceed the costs, and the reduction of disclosure could cause an increase in investor uncertainty.⁹ Our results provides empirical evidence supporting such a view. Second, the confidential costs motive generally posits that managers opt for incomplete or absent disclosure to avoid intense competition (e.g., Verrecchia 1983; Darrough and Stoughton 1990; Wagenhofer 1990). At the same time, the confidential costs could offer a legitimate excuse for managers to escape from the monitoring of outsiders. Our findings that short-tenure CEOs tend to withhold advertising costs echo such a concern. Finally, our study is related to the project of FASB regarding the disaggregation of expenses on the income statement. There has been a need for the disaggregation of expenses. Not until February 2022 did FASB begin the project about the improvement of the decision usefulness through the disaggregation of expenses on the income statement. Our results provide frontier evidence that individual expense information, such as advertising costs, benefits investors.

⁹ Please see “[Federal Register, Volume 59 Issue 243 \(Tuesday, December 20, 1994\) \(govinfo.gov\)](https://www.govinfo.gov/FR/1994-12-20/vol59/iss243/).”

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Figure 1: Unreported Advertising Yearly Aggregate

The following table depicts the total yearly aggregate advertising spending of confidential advertisers, in billions as observed by Kantar Group, and begins in 1995 due to data availability. We define confidential advertisers as firms whose advertising expenditure is missing on Compustat, while appearing in Kantar and at the meanwhile is over 5% of pretax income.

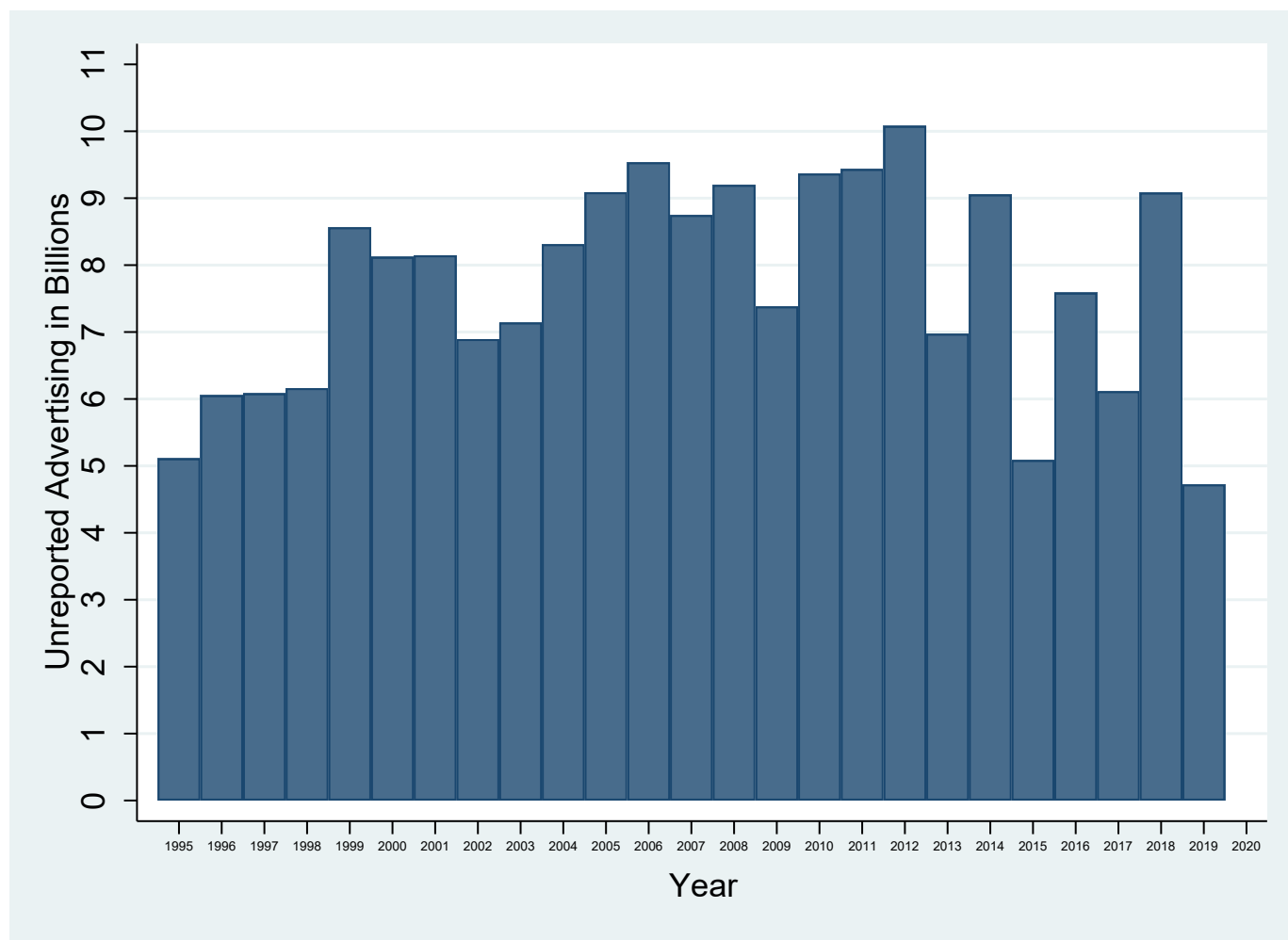


Figure 2: Confidential Advertisers Ratios by Observed Advertising Quantiles

The following figure depicts confidential advertisers' ratio by twenty quantiles of observed advertising reported by Kantar Group, sorted by spending amount. The left-hand Y-axis reports the proportion of confidential advertisers, while the right-hand Y-axis depicts the natural log of the mean observed advertising per quantile. We define confidential advertisers as firms whose advertising expenditure is missing on Compustat, while appearing in Kantar and at the meanwhile is over 5% of pretax income.

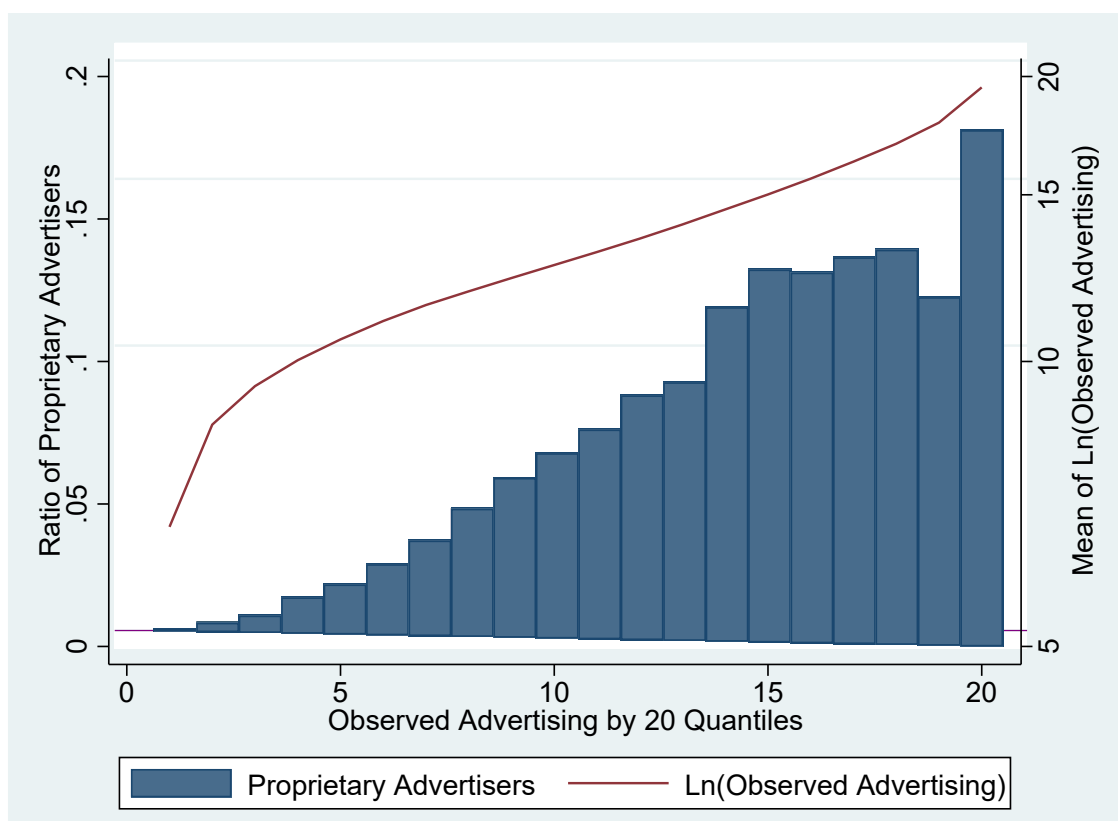


Figure 3: Other Advertisers and Confidential Advertisers Histograms

This figure plots the density histograms of confidential advertisers compared with non-confidential advertisers. We define confidential advertisers as firms whose advertising expenditure is missing on Compustat, while appearing in Kantar and at the meanwhile is over 5% of pretax income. Other advertisers include reporting firms and true-zero firms. We provide the raw number of observed advertising for each tick on the X-axis before taking its natural log.

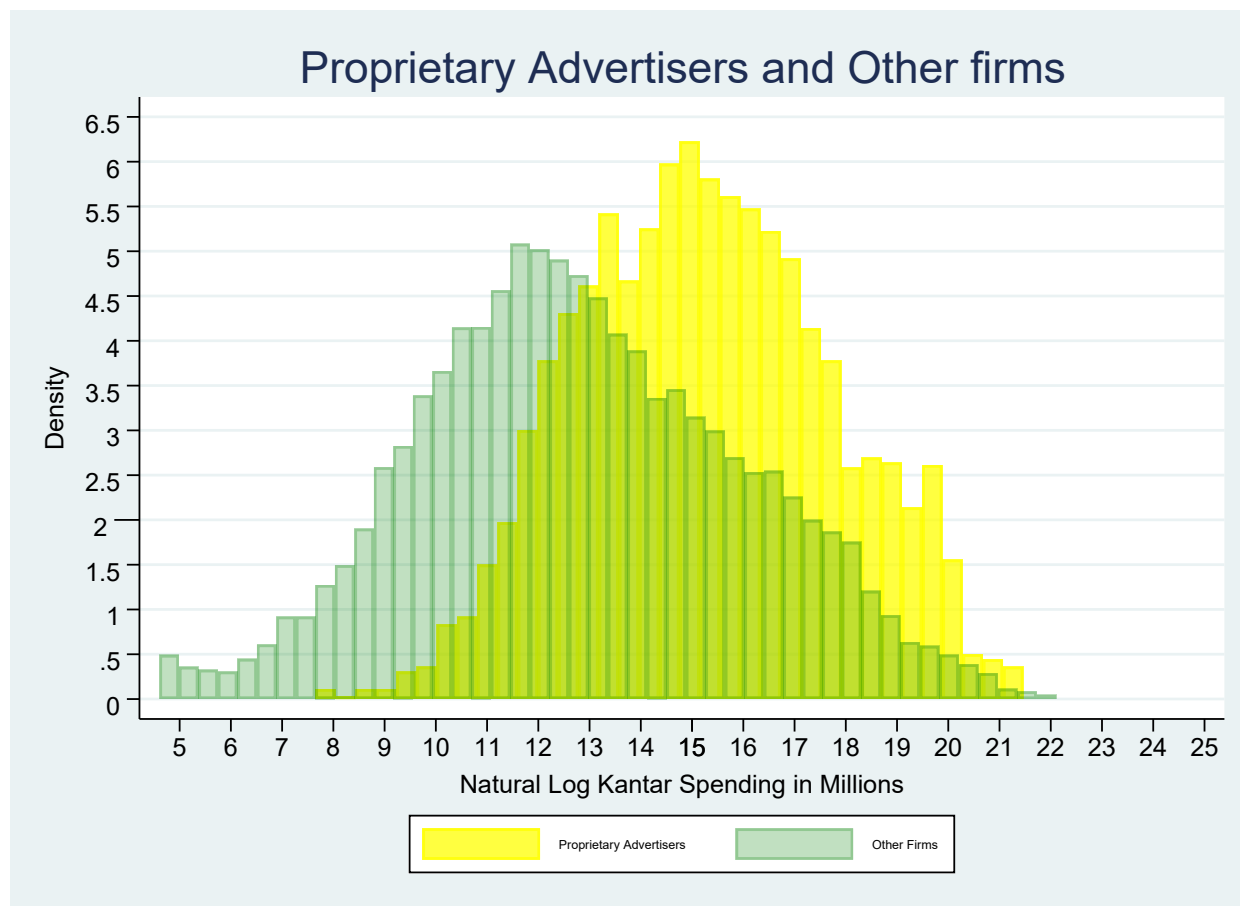


Table 1: Summary Statistics of Observed Advertising Expenditures

Panel A: Summary Statistics						
	N	Mean	St. Dev	1st quartile	Median	3rd quartile
For all firms:						
Observed Advertising (from Kantar Group)	48,905	26.602	140.603	0.049	0.377	4.385
• Print & Publishing	48,905	7.090	39.343	0.019	0.169	1.456
• Online	48,905	2.844	20.395	0.000	0.000	0.088
• Broadcast	48,905	16.678	97.574	0.000	0.001	0.803
For reporting firms:						
Reported Advertising (from Compustat)	23,625	132.808	527.379	1.454	7.800	47.305
Observed Advertising (from Kantar Group)	23,625	43.034	187.158	0.099	0.985	12.428
For confidential advertisers:						
Observed Advertising (from Kantar Group)	3,598	53.370	163.745	0.654	3.935	23.814
For true-zero firms:						
Observed Advertising (from Kantar Group)	21,682	4.256	32.615	0.022	0.127	0.749
Panel B: Correlation Matrix						
	Observed Advertising (from Kantar Group)					
Reported Advertising (from Compustat)	0.704*** (0.000)					

Note: In this table, we focus on sample firm-year observations with observed advertising expenditures from the Kantar Group. Panel A presents the summary statistics of observed advertising expenditures of different group of sample firm-year observations. “Reported Advertising” documents the firm's reported advertising among the firms that disclosed it in the annual report and showed in Compustat. “Observed Advertising” reports the observed advertising by the firm per year, as recorded by Kantar Group. We further break each row to the three advertising mediums Kantar Group classifies: Print & Publishing, Broadcast, and Online. The confidential advertisers and true-zero firms designations are based on the observed advertising from Kantar Group. For true-zero firms, their observed advertising expenditures are below 5% of pretax earnings. Panel B shows the correlations between advertising expenditures reported in Kantar Group and that in Compustat. *** indicates statistically significant at the 1% level in the two-tailed tests.

Table 2: Summary Statistics of Confidential Advertiser Regression Analyses

Panel A: Analyst Forecast and Confidential Advertiser Sample Variables (Used in Table 3 and Table 4)						
	N	Mean	S.D.	1st quartile	Median	3rd quartile
Dependent Variables						
<i>Forecast Dispersion 1M_t (Median)</i>	24,751	0.067	0.196	0.008	0.017	0.044
<i>Forecast Dispersion 2M_t (Median)</i>	24,538	0.069	0.205	0.009	0.018	0.045
<i>Forecast Dispersion 3M_t (Median)</i>	24,329	0.076	0.212	0.010	0.021	0.052
<i>Forecast Dispersion 1M_t (Mean)</i>	24,734	0.066	0.191	0.008	0.017	0.044
<i>Forecast Dispersion 2M_t (Mean)</i>	24,525	0.068	0.199	0.009	0.018	0.045
<i>Forecast Dispersion 3M_t (Mean)</i>	24,323	0.077	0.219	0.010	0.021	0.052
<i>Overestimation 1M_t (Median)</i>	24,717	0.007	0.039	-0.002	0.000	0.004
<i>Overestimation 2M_t (Median)</i>	24,609	0.008	0.039	-0.002	0.000	0.005
<i>Overestimation 3M_t (Median)</i>	24,493	0.008	0.040	-0.002	0.000	0.007
<i>Overestimation 1M_t (Mean)</i>	24,717	0.007	0.039	-0.002	0.000	0.004
<i>Overestimation 2M_t (Mean)</i>	24,609	0.008	0.040	-0.002	0.000	0.005
<i>Overestimation 3M_t (Mean)</i>	24,493	0.008	0.040	-0.002	0.000	0.007
Independent Variables						
<i>Confidential Advertisers_{t-1}</i>	24,751	0.061	0.239	0.000	0.000	0.000
<i>Size_t</i>	24,751	7.755	1.853	6.411	7.655	8.974
<i>MB_t</i>	24,751	3.346	4.724	1.438	2.299	3.915
<i>ROA_t</i>	24,751	0.082	0.113	0.032	0.081	0.136
<i>ROA Volatility_t</i>	24,751	0.042	0.058	0.011	0.024	0.049
<i>Leverage_t</i>	24,751	0.232	0.201	0.060	0.204	0.349
<i>BigN_t</i>	24,751	0.905	0.294	1.000	1.000	1.000
<i>Log(#Analyst Following)_t</i>	24,751	2.089	0.757	1.609	2.079	2.708
<i>Firm Age_t</i>	24,751	11.717	7.318	6.000	11.000	17.000
<i>Loss_t</i>	24,751	0.181	0.385	0.000	0.000	0.000

Panel A provides descriptive statistics for the sample used in Table 2 and Table 3. Continuous variables are winsorized at 1 percent and 99 percent.

Variable Definitions:

<i>Forecast Dispersion #M (Median)</i>	=	the dispersion in analyst forecasts, measured as the standard deviation of analyst forecasts errors made # months prior to a firm's actual announcement of EPS, scaled by the absolute value of median forecast errors;
<i>Forecast Dispersion #M (Mean)</i>	=	the dispersion in analyst forecasts, measured as the standard deviation of analyst forecasts errors made # months prior to a firm's actual announcement of EPS, scaled by the absolute value of mean forecast errors;
<i>Overestimation #M (Median)</i>	=	the mean overestimation in EPS of analysts forecast made # months prior to a firm's actual announcement of EPS, scaled by the prior year-end stock price. Overestimation in EPS defines as analyst forecast minus actual EPS;
<i>Overestimation #M (Mean)</i>	=	the median overestimation in EPS of analysts forecast made # months prior to a firm's actual announcement of EPS, scaled by the prior year-end stock price. Overestimation in EPS defines as analyst forecast minus actual EPS;
<i>Confidential Advertisers</i>	=	an indicator which equals 1 if advertising costs is missing on Compustat but appearing in Kantar and at the meanwhile is over 5% of pretax income, and 0 otherwise;
<i>Size</i>	=	the natural log of total assets;
<i>MB</i>	=	the firm's market value of equity scaled by the book value of equity;
<i>ROA</i>	=	the firm's ROA (earnings before interests and taxes divided by the average of total assets);
<i>ROA Volatility</i>	=	the standard deviation of ROA over the five years before the current year;
<i>Leverage</i>	=	book value of long-term debt divided by total assets;

<i>BigN</i>	=	an indicator set to 1 if the auditor is a Big N auditor, and set to 0 otherwise;
<i>Log(#Analyst Following)</i>	=	the number of analysts following the firm;
<i>Firm Age</i>	=	age of the firm as appear on CRSP;
<i>Loss</i>	=	an indicator set to 1 if a firm has net loss, and set to 0 otherwise.

Panel B: Earnings Calls and Confidential Advertiser Sample Variables (Used in Table 5 and Table 6)

	N	Mean	S.D.	1st quartile	Median	3rd quartile
Dependent Variables						
<i>Mentioned by Analysts_t (Dummy)</i>	12,006	0.373	0.484	0.000	0.000	1.000
<i>Mentioned by Analysts_t (Ratio)</i>	12,006	0.008	0.013	0.000	0.000	0.015
<i>Answered by Executives_t (Dummy)</i>	12,006	0.585	0.493	0.000	1.000	1.000
<i>Answered by Executives_t (Ratio)</i>	12,006	0.006	0.010	0.000	0.004	0.010
Independent Variables						
<i>Confidential Advertisers_t</i>	12,006	0.039	0.194	0.000	0.000	0.000
<i>Size_t</i>	12,006	7.637	1.881	6.283	7.573	8.894
<i>MB_t</i>	12,006	3.490	6.367	1.405	2.432	4.314
<i>BigN_t</i>	12,006	0.880	0.325	1.000	1.000	1.000
<i>ROA_t</i>	12,006	0.076	0.119	0.032	0.080	0.133
<i>ROA Volatility_t</i>	12,006	0.044	0.051	0.014	0.026	0.052
<i>Firm Age_t</i>	12,006	14.680	7.419	10.000	15.000	20.000
<i>Log(Market Value)_t</i>	12,006	7.694	1.888	6.382	7.658	9.005
<i>Log(Sales)_t</i>	12,006	7.408	1.803	6.122	7.380	8.633
<i>Leverage_t</i>	12,006	0.242	0.219	0.051	0.206	0.364
<i>Loss_t</i>	12,006	0.239	0.426	0.000	0.000	0.000
<i>Sales Growth_t</i>	12,006	0.093	0.221	-0.012	0.061	0.155
<i>Log (SG&A)_t</i>	12,006	5.985	1.565	4.895	5.865	7.020
<i>SG&A ratio_t</i>	12,006	0.376	0.240	0.179	0.328	0.536

Panel B provides descriptive statistics for the sample used in Table 5 and Table 6. Continuous variables are winsorized at 1 percent and 99 percent.

Variable Definitions:

<i>Mentioned by Analysts_t (Dummy)</i>	=	a dummy variable that is equal to 1 if an analyst mentions any advertising-related words such as marketing, brand, advertising, branding, and promotion, and 0 otherwise;
<i>Mentioned by Analysts_t (Ratio)</i>	=	the ratio calculated by advertising-related words mentioned by analysts to the total number of words spoken by analysts;
<i>Answered by Executives_t (Dummy)</i>	=	a dummy variable that is equal to 1 if an executive mentions any advertising-related words such as marketing, brand, advertising, branding, and promotion, and 0 otherwise;
<i>Answered by Executives_t (Ratio)</i>	=	the ratio of advertising-related words mentioned by executives to the total number of words spoken by executives;
<i>Log(Market Value)</i>	=	the natural log of market value;
<i>Log(Sales)_t</i>	=	the natural log of sales;
<i>Log (SG&A)_t</i>	=	the natural log of selling, general, and administrative expenses;
<i>SG&A ratio_t</i>	=	The ratio of selling, general, and administrative expenses to the sum of selling, general, and administrative expenses and cost of goods sold.

Panel C: CEO Tenure and Confidential Advertiser Sample Variables (Used in Table 7)

	N	Mean	S.D.	1st quartile	Median	3rd quartile
Dependent Variables						
<i>Confidential Advertisers</i>	26,184	0.057	0.233	0.000	0.000	0.000
Independent Variables						
<i>Short CEO Tenure 4 Years</i>	26,184	0.394	0.489	0.000	0.000	1.000
<i>Short CEO Tenure 3 Years</i>	26,184	0.305	0.460	0.000	0.000	1.000
<i>Firm Age</i>	26,184	12.074	7.229	6.000	12.000	18.000
<i>Size</i>	26,184	8.025	1.777	6.711	7.909	9.205
<i>Leverage</i>	26,184	0.235	0.192	0.074	0.215	0.350
<i>HHI</i>	26,184	0.097	0.071	0.054	0.078	0.110
<i>ROA</i>	26,184	0.039	0.109	0.012	0.044	0.083

Panel C provides descriptive statistics for the sample used in Table 7. Continuous variables are winsorized at 1 percent and 99 percent.

Variable Definitions:

<i>Short CEO Tenure 4 Years</i>	=	an indicator variable if CEO tenure is less than 4 years, and 0 otherwise.
<i>Short CEO Tenure 3 Years</i>	=	an indicator variable if CEO tenure is less than 3 years, and 0 otherwise.
<i>HHI</i>	=	Herfindahl-Hirschman Index calculated annually based on two-digit SIC codes.

Table 3: Confidential Advertisers and Analysts Forecast Dispersion

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Forecast Dispersion</i>	<i>Forecast Dispersion</i>	<i>Forecast Dispersion</i>	<i>Forecast Dispersion</i>	<i>Forecast Dispersion</i>	<i>Forecast Dispersion</i>
	$1M_t$	$2M_t$	$3M_t$	$1M_t$	$2M_t$	$3M_t$
Variable	(Median)	(Median)	(Median)	(Mean)	(Mean)	(Mean)
<i>Confidential Advertisers_{t-1}</i>	0.044*** (3.959)	0.050*** (4.378)	0.043*** (3.860)	0.048*** (4.295)	0.045*** (4.093)	0.046*** (3.714)
<i>Size_t</i>	-0.009** (-2.005)	-0.010** (-2.048)	-0.014*** (-2.869)	-0.010** (-2.141)	-0.012** (-2.479)	-0.013*** (-2.694)
<i>MB_t</i>	0.000 (0.162)	0.000 (0.269)	-0.000 (-0.266)	0.000 (0.392)	0.000 (0.292)	-0.000 (-0.450)
<i>ROA_t</i>	-0.156*** (-5.398)	-0.167*** (-5.116)	-0.198*** (-6.008)	-0.148*** (-5.058)	-0.154*** (-4.905)	-0.184*** (-5.673)
<i>ROA Volatility_t</i>	0.116** (1.998)	0.146** (2.500)	0.174*** (2.909)	0.138** (2.257)	0.139** (2.395)	0.209*** (3.158)
<i>Leverage_t</i>	0.042*** (3.022)	0.047*** (3.014)	0.058*** (3.843)	0.041*** (2.940)	0.048*** (3.193)	0.055*** (3.473)
<i>BigN_t</i>	-0.001 (-0.119)	0.003 (0.275)	0.006 (0.574)	-0.001 (-0.130)	-0.001 (-0.131)	0.005 (0.394)
<i>Log(#Analyst Following)_t</i>	-0.025*** (-5.902)	-0.026*** (-5.320)	-0.023*** (-4.716)	-0.027*** (-6.585)	-0.026*** (-5.593)	-0.026*** (-5.229)
<i>Firm Age_t</i>	-0.005** (-1.971)	-0.004 (-1.506)	-0.004 (-0.925)	-0.005* (-1.959)	-0.004 (-1.577)	-0.003 (-0.685)
<i>Loss_t</i>	0.051*** (7.567)	0.048*** (6.473)	0.048*** (6.338)	0.049*** (7.282)	0.048*** (6.564)	0.054*** (6.686)
Constant	0.235*** (5.377)	0.235*** (4.866)	0.261*** (4.188)	0.239*** (5.597)	0.247*** (5.486)	0.249*** (3.988)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	24643	24599	24511	24643	24598	24508
Adjusted <i>R</i> ²	0.184	0.183	0.195	0.191	0.189	0.187
F	23.939	21.336	19.517	24.105	21.546	19.483

This table reports the information uncertainty that analysts face in the presence of material unrevealed advertising expenditures. Our variable of interest is *Confidential Advertisers*, which equals 1 if advertising costs is missing on Compustat but appearing in Kantar and at the meanwhile is over 5% of pretax income, and 0 otherwise. Dependent variable is *Forecast Dispersion #M (Median/Mean)*, which is measured as the standard deviation of analyst forecasts errors made # months prior to a firm's actual announcement of EPS, scaled by the absolute value of median or mean forecast errors. Other variables are defined in Table 2. We winsorize all variables at the 1% and 99% levels. *, **, *** represent significance at 10 percent, 5 percent, and 1 percent, respectively. Standard errors are clustered by firm; t-statistics are in parentheses.

Table 4: Confidential Advertisers and Analysts Overestimation in EPS

Variable	(1) <i>Overestimate</i> $1M_t$ (Median)	(2) <i>Overestimate</i> $2M_t$ (Median)	(3) <i>Overestimate</i> $3M_t$ (Median)	(4) <i>Overestimate</i> $1M_t$ (Mean)	(5) <i>Overestimate</i> $2M_t$ (Mean)	(6) <i>Overestimate</i> $3M_t$ (Mean)
<i>Confidential Advertiser</i>	-0.004**	-0.004**	-0.003	-0.004**	-0.004**	-0.003
rs_{t-1}	(-2.186)	(-2.411)	(-1.615)	(-2.092)	(-2.178)	(-1.445)
$Size_t$	-0.002*	-0.002	-0.002*	-0.002*	-0.002*	-0.002*
	(-1.665)	(-1.644)	(-1.876)	(-1.792)	(-1.648)	(-1.756)
MB_t	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.625)	(-0.417)	(-0.242)	(-0.628)	(-0.272)	(-0.323)
ROA_t	-0.010	-0.011	-0.011	-0.010	-0.011	-0.010
	(-1.266)	(-1.329)	(-1.260)	(-1.257)	(-1.336)	(-1.089)
ROA	-0.013	-0.014	-0.014	-0.014	-0.013	-0.012
<i>Volatility</i>						
t	(-1.315)	(-1.410)	(-1.214)	(-1.313)	(-1.283)	(-0.999)
<i>Leverage</i>	0.019***	0.019***	0.021***	0.019***	0.020***	0.022***
t	(3.384)	(3.312)	(3.719)	(3.437)	(3.396)	(3.799)
$BigN_t$	0.002	0.003	0.002	0.002	0.003	0.002
	(1.060)	(1.525)	(0.965)	(1.015)	(1.516)	(0.982)
$Log(\#Analyst$	-0.004***	-0.004***	-0.005***	-0.004***	-0.004***	-0.005***
$Following$						
$gs)_t$	(-3.979)	(-4.021)	(-4.282)	(-3.898)	(-3.883)	(-4.181)
<i>Firm Age</i>	-0.004***	-0.004***	-0.004**	-0.004***	-0.004***	-0.004***
t	(-3.622)	(-3.664)	(-2.266)	(-4.035)	(-3.913)	(-2.762)
$Loss_t$	0.006***	0.006***	0.009***	0.006***	0.006***	0.009***
	(4.069)	(3.701)	(5.763)	(4.141)	(3.879)	(5.909)
Constant	0.072***	0.070***	0.071***	0.074***	0.075***	0.076***
	(4.911)	(4.969)	(3.569)	(5.369)	(5.148)	(4.038)
Year	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects						
Firm	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects						
N	26821	26684	26536	26821	26684	26536
Adjusted R^2	0.280	0.275	0.281	0.279	0.271	0.281
F	7.180	7.038	8.345	7.549	7.186	8.429

This table reports whether analysts make a pessimistic or optimistic forecast when a firm choose to withhold material advertising expenditures. Our variable of interest is *Confidential Advertisers*, which equals 1 if advertising costs is

missing on Compustat but appearing in Kantar and at the meanwhile is over 5% of pretax income, and 0 otherwise. Dependent variable is *Forecast Error #M (Median/Mean)*, the mean or median forecast errors of analysts forecast made # months prior to a firm's actual announcement of EPS, scaled by the prior year-end stock price. Forecast errors defines as analyst forecast minus actual EPS. Other variables are defined in Table 2. We winsorize all variables at the 1% and 99% levels. *, **, *** represent significance at 10 percent, 5 percent, and 1 percent, respectively. Standard errors are clustered by firm; t-statistics are in parentheses.

Table 5: Firm Value and Hidden Advertisers

Variable	(1) Log (P/B) _{<i>t</i>}	(2) Log(<i>Tobin's Q</i>) _{<i>t</i>}
<i>Confidential Advertisers_t</i>	-0.075** (-2.526)	-0.038** (-2.231)
<i>ROA_t</i>	2.665*** (14.044)	1.724*** (14.752)
<i>ROA Volatility_t</i>	0.659** (2.098)	0.653*** (3.354)
<i>Size_t</i>	-0.241*** (-11.483)	-0.123*** (-10.772)
<i>Leverage_t</i>	1.211*** (14.062)	0.002 (0.060)
<i>Sales Growth_t</i>	0.188*** (5.781)	0.081*** (4.419)
Log(# <i>Analyst Followings</i>) _{<i>t</i>}	0.028*** (2.770)	0.025*** (4.502)
<i>BigN_t</i>	-0.151*** (-4.442)	-0.032** (-1.981)
Log(<i>Intangible Assets</i>) _{<i>t</i>}	-0.407*** (-4.448)	-0.270*** (-5.658)
Constant	2.360*** (14.962)	1.297*** (14.709)
Year Fixed Effects	Yes	Yes
Firm Fixed Effects	Yes	Yes
<i>N</i>	20,066	20,811
Adjusted <i>R</i> ²	0.743	0.809
F	88.857	93.192

This table reports how investors value the firm in the presence of unrevealed material advertising expenditures. Our variable of interest is *Confidential Advertisers*, which equals 1 if advertising costs is missing on Compustat but appearing in Kantar and at the meanwhile is over 5% of pretax income, and 0 otherwise. Dependent variable in column (1) is Log (P/B), which is the natural log of the price to book equity ratio. Dependent variable in column (2) is Log(*Tobin's Q*), which is the natural log of the sum of market value of equity and book value of debt divided by total assets. Other variables are defined in Table 2. We winsorize all variables at the 1% and 99% levels. *, **, *** represent significance at 10 percent, 5 percent, and 1 percent, respectively. Standard errors are clustered by firm; t-statistics are in parentheses.

Table 6: Advertising-related Words Mentioned by Analysts in the Earnings Call

Panel A: The frequency of advertising-related words mentioned by analysts in Q&A section

	Firm Type			All Observation	<i>t</i> -test			
	Reporting Firms	Confidential Advertisers	True-Zero Firms		(1)-(2)	(p-value)	(2)-(3)	(p-value)
	(1)	(2)	(3)					
Earnings Call Available	8337	617	5800	14754				
Questions from Analysts	3821	312	990	5123				
% of Transcript	45.83%	50.57%	17.07%	34.72%	-4.74%	(0.0228)	33.50%	(0.0000)

Panel B: Average number of occurrences for each advertising-related word mentioned by analysts in Q&A section

	Firm Type		
	Reporting Firms	Confidential Advertisers	True-Zero Firms
	(1)	(2)	(3)
Marketing	1.037	1.394	0.818
Brand	1.304	1.042	0.792
Advertising	0.513	0.506	0.213
Branding	0.060	0.032	0.063
Promotion	0.610	0.564	0.207

Panel C: The ratio of advertising-related words mentioned by analysts in Q&A section

	Firm Type			<i>t</i> -test			
	Reporting Firms	Confidential Advertisers	True-Zero Firms	(1)-(2)	(p-value)	(2)-(3)	(p-value)
	(1)	(2)	(3)				
Questions from Analysts	0.99%	1.14%	0.35%	-0.03%	(0.0133)	0.43%	(0.0000)

Panel D: Confidential advertiser and advertising-related words mentioned by analysts using a linear probability regression with firm fixed effects

Variable	(1)	(2)
	<i>Mentioned by Analysts_i (Dummy)</i>	<i>Mentioned by Analysts_i (Ratio)</i>
<i>Confidential Advertisers_i</i>	0.061** (2.078)	0.002* (1.675)
<i>Size_i</i>	0.026 (1.064)	-0.000 (-0.193)
<i>MB_i</i>	-0.003*** (-3.414)	-0.000** (-2.229)
<i>BigN_i</i>	0.041	-0.000

	(1.212)	(-0.029)
ROA_t	-0.061	-0.004
	(-0.688)	(-1.452)
$ROA\ Volatility_t$	-0.031	-0.005
	(-0.193)	(-0.951)
$Firm\ Age_t$	-0.014**	-0.002***
	(-2.195)	(-12.703)
$Log(Market\ Value)_t$	0.027**	0.000
	(2.452)	(1.062)
$Log(Sales)_t$	0.023	0.002
	(0.578)	(1.335)
$Leverage_t$	0.008	-0.000
	(0.171)	(-0.361)
$Loss_t$	-0.003	-0.000
	(-0.213)	(-0.300)
$Sales\ Growth_t$	0.053**	0.000
	(2.337)	(0.355)
$Log\ (SG\&A)_t$	-0.049	-0.002*
	(-1.229)	(-1.659)
$SG\&A\ ratio_t$	0.166	0.007*
	(1.428)	(1.895)
Constant	0.194	0.028***
	(1.165)	(6.513)
Year Fixed Effects	Yes	Yes
Firm Fixed Effects	Yes	Yes
N	12,006	12,006
Adjusted R^2	0.389	0.251
F	3.751	31.421

This table presents how often advertising-related words was mentioned by analysts in the earnings calls. In Panel A, we calculate the frequency that analysts mention advertising-related words in earnings calls. Panel B shows the average number of occurrences for each advertising-related word we used. In Panel C, we calculate the ratio of advertising-related words mentioned by analysts. The ratio is defined as the number of advertising-related words mentioned by analysts to the total number of words spoken by analysts. Panel D presents the results whether confidential advertisers received more questions from analysts using a linear probability model with firm fixed effects. Our variable of interest is *Confidential Advertiser*, which equals 1 if advertising costs is missing on Compustat but appearing in Kantar and at the meanwhile is over 5% of pretax income, and 0 otherwise. In column (1), *Mentioned by Analysts (Dummy)* equals 1 if analysts mentioned advertising-related words in Q&A section of the earnings call, and 0 otherwise. *Mentioned by Analysts (Ratio)* is the number of advertising-related words mentioned by analysts to the total number of words spoken by analysts. Other variables are defined in Table 2. We winsorize all variables at the 1% and 99% levels. *, **, *** represent significance at 10 percent, 5 percent, and 1 percent, respectively. Standard errors are clustered by firm; t-statistics are in parentheses.

Table 7: Advertising-related Words Answered by Executives in the Earnings Call

Panel A: The frequency of advertising-related words mentioned by executives in Q&A section

	Firm Type			All Observation		t-test	
	Reporting Firms	Confidential Advertisers	True-Zero Firms	(1)-(2)	(p-value)	(2)-(3)	(p-value)
	(1)	(2)	(3)				
Earnings Call Available	8337	617	5800	14754			
Answered by Executives	5639	435	2087	8161			
% of Transcript	67.64%	70.50%	35.98%	55.31%	-2.86%	(0.1417)	34.52% (0.0000)

Panel B: Average number of occurrences for each advertising-related word mentioned by executives in Q&A section

	Firm Type		
	Reporting Firms	Confidential Advertisers	True-Zero Firms
	(1)	(2)	(3)
Marketing	1.964	2.547	1.118
Brand	4.000	2.966	1.611
Advertising	0.796	0.837	0.250
Branding	0.086	0.067	0.070
Promotion	0.877	0.986	0.232

Panel C: The ratio of advertising-related words mentioned by executives in Q&A section

	Firm Type			t-test			
	Reporting Firms	Confidential Advertisers	True-Zero Firms	(1)-(2)	(p-value)	(2)-(3)	(p-value)
	(1)	(2)	(3)				
Answered by Executives	0.75%	0.78%	0.37%	-0.15%	(0.5009)	0.77%	(0.0000)

Panel D: Confidential advertisers and advertising-related words mentioned by analysts using a linear probability regression with firm fixed effects

	(1) <i>Answered by Executives_i (Dummy)</i>	(2) <i>Answered by Executives_i (Ratio)</i>
<i>Confidential Advertisers_i</i>	0.021 (0.688)	0.001 (1.138)
<i>Size_i</i>	-0.002 (-0.091)	-0.000 (-0.204)
<i>MB_i</i>	0.000 (0.022)	0.000 (0.378)
<i>BigN_i</i>	0.087** (2.467)	-0.000 (-0.353)

<i>ROA_t</i>	-0.035 (-0.379)	-0.000 (-0.154)
<i>ROA Volatility_t</i>	-0.065 (-0.408)	0.002 (0.568)
<i>Firm Age_t</i>	-0.010 (-1.093)	0.001*** (4.084)
<i>Log(Market Value)_t</i>	0.027** (2.423)	0.000 (0.050)
<i>Log(Sales)_t</i>	0.050 (1.102)	0.001 (0.828)
<i>Leverage_t</i>	-0.036 (-0.826)	-0.001 (-0.590)
<i>Loss_t</i>	-0.007 (-0.488)	-0.000 (-1.053)
<i>Sales Growth_t</i>	0.050** (2.067)	0.000 (0.989)
<i>Log (SG&A)_t</i>	-0.051 (-1.202)	-0.001 (-1.185)
<i>SG&A ratio_t</i>	0.251* (1.707)	0.003 (1.188)
Constant	0.315 (1.575)	-0.003 (-0.785)
Year Fixed Effects	Yes	Yes
Firm Fixed Effects	Yes	Yes
<i>N</i>	12,006	12,006
Adjusted <i>R</i> ²	0.363	0.159

This table presents how often advertising-related words was mentioned by executives in the earnings calls. In Panel A, we calculate the frequency that executives mention advertising-related words in earnings calls. Panel B shows the average number of occurrences for each advertising-related word we used. In Panel C, we calculate the ratio of advertising-related words mentioned by executives. The ratio is defined as the number of advertising-related words mentioned by executives to the total number of words spoken by analysts. Panel D presents the results whether confidential advertisers received more questions from executives using a linear probability model with firm fixed effects. Our variable of interest is *Confidential Advertisers*, which equals 1 if advertising costs is missing on Compustat but appearing in Kantar and at the meanwhile is over 5% of pretax income, and 0 otherwise. In column (1), *Mentioned by Executives (Dummy)* equals 1 if executives mentioned advertising-related words in Q&A section of the earnings call, and 0 otherwise. *Mentioned by Executives (Ratio)* is the number of advertising-related words mentioned by executives to the total number of words spoken by executives. Other variables are defined in Table 2. We winsorize all variables at the 1% and 99% levels. *, **, *** represent significance at 10 percent, 5 percent, and 1 percent, respectively. Standard errors are clustered by firm; t-statistics are in parentheses. Variables are defined in Table 1.

Table 8: Confidential advertisers and CEO tenure

Variable	<i>Confidential advertisers_t</i>	
	(1)	(2)
<i>Short CEO Tenure 4 Years_t</i>	0.009*** (2.586)	
<i>Short CEO Tenure 3 Years_t</i>		0.006* (1.924)
<i>Firm Age_t</i>	0.017* (1.887)	0.017* (1.879)
<i>Size_t</i>	-0.009 (-1.605)	-0.009 (-1.638)
<i>Leverage_t</i>	0.025 (1.240)	0.025 (1.237)
<i>HHI_t</i>	-0.024 (-0.353)	-0.023 (-0.332)
<i>ROA_t</i>	0.008 (0.448)	0.008 (0.443)
Constant	-0.086 (-0.744)	-0.082 (-0.711)
Year Fixed Effects	Yes	Yes
Firm Fixed Effects	Yes	Yes
<i>N</i>	26,184	26,184
Adjusted R ²	0.412	0.412

This table reports whether firms with short CEO tenure are more likely to be a confidential advertiser. Our variable of interest is *Confidential advertisers*, which equals 1 if advertising costs is missing on Compustat but appearing in Kantar and at the meanwhile is over 5% of pretax income, and 0 otherwise. Independent variable is *Short CEO Tenure 4 Years* in columns (1) and (2) and *Short CEO Tenure 3 Years* in columns (3) and (4), respectively. *Short CEO Tenure 4 Years* is an indicator variable if CEO tenure is less than 4 years, and 0 otherwise. *Short CEO Tenure 3 Years* is an indicator variable if CEO tenure is less than 3 years, and 0 otherwise. Other variables are defined in Table 2. We winsorize all variables at the 1% and 99% levels. *, **, *** represent significance at 10 percent, 5 percent, and 1 percent, respectively. Standard errors are clustered by firm; t-statistics are in parentheses.

Table 9: Summary Statistics of Confidential Advertiser (FRR44) Regression Analyses

Panel A: Analyst Forecast and Confidential Advertiser (FRR44) Sample Variables (Used in Table 9 and Table 10)						
	N	Mean	S.D.	1st quartile	Median	3rd quartile
Dependent Variables						
<i>Forecast Dispersion 1M_t (Median)</i>	6,129	0.092	0.214	0.014	0.029	0.071
<i>Forecast Dispersion 2M_t (Median)</i>	6,065	0.099	0.236	0.016	0.031	0.075
<i>Forecast Dispersion 3M_t (Median)</i>	6,002	0.107	0.242	0.018	0.036	0.083
<i>Forecast Dispersion 1M_t (Mean)</i>	6,126	0.096	0.232	0.014	0.029	0.071
<i>Forecast Dispersion 2M_t (Mean)</i>	6,074	0.101	0.241	0.016	0.031	0.076
<i>Forecast Dispersion 3M_t (Mean)</i>	6,009	0.106	0.237	0.018	0.036	0.083
<i>Overestimation 1M_t (Median)</i>	6,129	0.015	0.024	-0.001	0.004	0.031
<i>Overestimation 2M_t (Median)</i>	6,123	0.016	0.024	-0.001	0.006	0.032
<i>Overestimation 3M_t (Median)</i>	6,111	0.017	0.025	-0.000	0.009	0.033
<i>Overestimation 1M_t (Mean)</i>	6,129	0.015	0.023	-0.001	0.005	0.031
<i>Overestimation 2M_t (Mean)</i>	6,123	0.016	0.024	-0.001	0.007	0.032
<i>Overestimation 3M_t (Mean)</i>	6,111	0.018	0.025	-0.000	0.010	0.033
Independent Variables						
<i>Confidential Advertisers (FRR44)</i>	6,129	0.227	0.419	0.000	0.000	0.000
<i>Post_{t-1}</i>	6,129	0.576	0.494	0.000	1.000	1.000
<i>Size_t</i>	6,129	6.549	1.779	5.220	6.403	7.690
<i>MB_t</i>	6,129	2.891	2.424	1.522	2.193	3.406
<i>ROA_t</i>	6,129	0.162	0.136	0.093	0.160	0.231
<i>ROA Volatility_t</i>	6,129	0.054	0.074	0.015	0.032	0.064
<i>Leverage_t</i>	6,129	0.250	0.239	0.071	0.212	0.362
<i>BigN_t</i>	6,129	0.897	0.304	1.000	1.000	1.000
<i>Log(#Analyst Following)_t</i>	6,129	1.915	0.785	1.386	1.792	2.485
<i>Firm Age_t</i>	6,129	19.632	16.191	7.000	14.000	26.000
<i>Loss_t</i>	6,129	0.133	0.340	0.000	0.000	0.000

Panel A provides descriptive statistics for the sample used in Table 9 and Table 10. Continuous variables are winsorized at 1 percent and 99 percent.

Variable Definition

- Confidential Advertisers (FRR44)* = a confidential advertiser indicator that equals 1 if a firm stop revealing its' advertising costs after the change of Financial Reporting Release 44, and 0 otherwise.
- Post* = an indicator variable that equals 1 if a year is in the post-switching period, and 0 otherwise.

Panel B: CEO Tenure and Confidential Advertiser (FRR44) Sample Variables (Used in Table 11)

	N	Mean	S.D.	1st quartile	Median	3rd quartile
Dependent Variables						
<i>Confidential Advertisers(FRR44)_t</i>	828	0.202	0.402	0.000	0.000	0.000
Independent Variables						
<i>Short CEO Tenure 4 Years_t</i>	828	0.454	0.498	0.000	0.000	1.000
<i>Short CEO Tenure 3 Years_t</i>	828	0.388	0.488	0.000	0.000	1.000
<i>Firm Age_t</i>	828	24.036	18.526	9.000	23.000	29.000
<i>Size_t</i>	828	7.076	1.658	5.800	6.894	8.198

<i>Leverage_t</i>	828	0.213	0.158	0.090	0.197	0.306
<i>HHI_t</i>	828	0.076	0.082	0.028	0.062	0.079
<i>ROA_t</i>	828	0.156	0.103	0.097	0.151	0.211

Panel B provides descriptive statistics for the sample used in Table 11. Other variables are defined in Table 2. Continuous variables are winsorized at 1 percent and 99 percent.

Table 10: Confidential Advertisers (FRR44) and Analysts Forecast Dispersion

Variable	(1) <i>Forecast Dispersion 1M_t (Median)</i>	(2) <i>Forecast Dispersion 2M_t (Median)</i>	(3) <i>Forecast Dispersion 3M_t (Median)</i>	(4) <i>Forecast Dispersion 1M_t (Mean)</i>	(5) <i>Forecast Dispersion 2M_t (Mean)</i>	(6) <i>Forecast Dispersion 3M_t (Mean)</i>
<i>Confidential advertisers</i>						
<i>(FRR44) × Post</i>	0.013 (1.020)	0.026* (1.767)	0.027* (1.864)	0.026* (1.786)	0.029** (1.974)	0.039*** (2.673)
<i>Post</i>	0.001 (0.065)	-0.012 (-0.937)	-0.006 (-0.438)	-0.011 (-0.755)	-0.016 (-1.137)	-0.017 (-1.246)
<i>Size_t</i>	-0.033* (-1.865)	-0.043** (-2.136)	-0.058*** (-2.859)	-0.034* (-1.825)	-0.038* (-1.893)	-0.061*** (-2.909)
<i>MB_t</i>	-0.002 (-1.255)	-0.005** (-2.141)	-0.006** (-2.086)	-0.002 (-1.045)	-0.004 (-1.433)	-0.004 (-1.190)
<i>ROA_t</i>	-0.338*** (-5.771)	-0.359*** (-5.183)	-0.447*** (-5.397)	-0.411*** (-5.302)	-0.409*** (-4.798)	-0.506*** (-5.510)
<i>ROA Volatility_t</i>	-0.054 (-0.498)	-0.176 (-1.259)	-0.195 (-1.199)	-0.100 (-0.802)	-0.246* (-1.663)	-0.198 (-1.150)
<i>Log(#Analyst Followings)_t</i>	-0.013 (-1.006)	-0.003 (-0.237)	-0.010 (-0.717)	-0.021 (-1.535)	-0.020 (-1.482)	-0.011 (-0.832)
<i>Loss_t</i>	0.007 (0.394)	0.008 (0.421)	-0.005 (-0.250)	-0.002 (-0.111)	-0.004 (-0.188)	-0.004 (-0.215)
<i>BigN_t</i>	0.024 (1.221)	0.051* (1.819)	0.037 (1.491)	0.039** (2.042)	0.034* (1.736)	0.035 (1.466)
<i>Leverage_t</i>	0.046** (2.348)	0.058** (2.454)	0.059** (2.094)	0.056** (2.353)	0.053** (2.090)	0.076*** (2.918)
<i>Firm Age_t</i>	0.061** (2.473)	0.065*** (2.606)	0.075** (2.409)	0.063** (2.346)	0.065** (2.266)	0.072** (2.431)
<i>Constant</i>	-0.846* (-1.761)	-0.868* (-1.771)	-0.924 (-1.525)	-0.846 (-1.630)	-0.839 (-1.515)	-0.845 (-1.463)
Firm-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	6,114	6,065	6,002	6,126	6,074	6,009
Adjusted <i>R</i> ²	0.275	0.267	0.271	0.264	0.266	0.276

This table reports the information uncertainty that analysts face in the presence of material unrevealed advertising expenditures. The coefficients of *Confidential advertisers(FRR44) × Post* suggest the differences in analyst forecast dispersion between firms changes their disclosure policies on advertising costs and firms do not change their disclosure policies in the post period of FRR44. *Confidential advertisers(FRR44)* equals 1 if a firm stop revealing its' advertising costs after the change of Financial Reporting Release 44, and 0 otherwise. Dependent variable is *Forecast Dispersion #M (Median/Mean)*, which is measured as the standard deviation of analyst forecasts errors made # months prior to a firm's actual announcement of EPS, scaled by the absolute value of median or mean forecast errors. Other variables are defined in Table 2. We winsorize all variables at the 1% and 99% levels. *, **, *** represent significance at 10 percent, 5 percent, and 1 percent, respectively. Standard errors are clustered by firm; t-statistics are in parentheses.

Table 11: Confidential Advertisers (FRR44) and Analysts Forecast Errors

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	<i>Overestimate</i>	<i>Overestimate</i>	<i>Overestimate</i> ³	<i>Overestimate</i>	<i>Overestimate</i>	<i>Overestimate</i>
s	$1M_t$	$2M_t$	M_t	$1M_t$	$2M_t$	$3M_t$
	(Median)	(Median)	(Median)	(Mean)	(Mean)	(Mean)
<i>Confidential</i>						
<i>advertisers</i>						
<i>(FRR44)</i>						
$\times Post$	-0.003** (-2.114)	-0.003** (-2.270)	-0.002 (-1.335)	-0.002** (-2.016)	-0.003** (-2.031)	-0.001 (-0.965)
$Post$	0.002* (1.689)	0.002 (1.151)	-0.000 (-0.190)	0.003* (1.778)	0.002 (1.140)	-0.000 (-0.276)
$Size_t$	-0.004*** (-2.858)	-0.004*** (-2.682)	-0.005*** (-3.225)	-0.004*** (-3.046)	-0.004*** (-2.696)	-0.005*** (-3.059)
MB_t	-0.001*** (-4.651)	-0.001*** (-4.086)	-0.001*** (-3.660)	-0.001*** (-4.883)	-0.001*** (-4.262)	-0.001*** (-3.568)
ROA_t	-0.012** (-2.471)	-0.014*** (-2.647)	-0.022*** (-3.669)	-0.013** (-2.569)	-0.017*** (-3.112)	-0.023*** (-3.992)
ROA	-0.011	-0.016*	-0.020**	-0.009	-0.015*	-0.019**
<i>Volatility</i>						
t	(-1.286)	(-1.844)	(-1.962)	(-1.051)	(-1.701)	(-1.990)
$Log(\#Analysts)$	0.002*	0.001	0.002	0.002**	0.002	0.002
$Followings_t$	(1.687)	(1.190)	(1.639)	(2.005)	(1.363)	(1.610)
$Loss_t$	0.003** (2.258)	0.003*** (2.785)	0.004*** (2.693)	0.002** (2.205)	0.003** (2.571)	0.004*** (2.677)
$BigN_t$	-0.002 (-0.800)	-0.002 (-0.589)	-0.002 (-0.719)	-0.002 (-0.615)	-0.002 (-0.560)	-0.002 (-0.802)
$Leverage_t$	0.002	0.002	0.003	0.002	0.002	0.002
t	(1.245)	(0.880)	(1.483)	(1.308)	(0.911)	(1.124)
$FirmAge_t$	-0.002	-0.002	-0.003	-0.002	-0.002	-0.003
$Constant$	(-1.319) 0.086** (2.554)	(-1.007) 0.081** (2.204)	(-1.408) 0.105*** (2.830)	(-1.216) 0.084** (2.454)	(-1.044) 0.082** (2.259)	(-1.618) 0.111*** (3.022)
Firm-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	6,129	6,123	6,111	6,129	6,123	6,111
Adjusted	0.438	0.422	0.387	0.443	0.420	0.390

This table reports the information uncertainty that analysts face in the presence of material unrevealed advertising expenditures. The coefficients of *Confidential advertisers* \times *Post* suggest the differences in analyst forecast errors between firms changes their disclosure policies on advertising costs and firms do not change their disclosure policies in the post period of FRR44. *Confidential advertisers*(FRR44) equals 1 if a firm stop revealing its' advertising costs after the change of Financial Reporting Release 44, and 0 otherwise. Dependent variable is Forecast Error #M (Median/Mean), the mean or median forecast errors of analysts forecast made # months prior to a firm's actual announcement of EPS, scaled by the prior year-end stock price. Forecast errors defines as analyst forecast minus actual EPS. Other variables are defined in Table 2. We winsorize all variables at the 1% and 99% levels. *, **, *** represent significance at 10 percent, 5 percent, and 1 percent, respectively. Standard errors are clustered by firm; t-statistics are in parentheses.

Table 12: Confidential Advertisers (FRR44) and CEO tenure

Variable	<i>Confidential advertisers (FRR44)_t</i>	
	(1)	(2)
<i>Short CEO Tenure 4 Years_t</i>	0.412** (2.488)	
<i>Short CEO Tenure 3 Years_t</i>		0.298* (1.764)
<i>Firm Age_t</i>	-0.003 (-0.311)	-0.002 (-0.239)
<i>Size_t</i>	-0.093 (-0.892)	-0.094 (-0.903)
<i>Leverage_t</i>	1.427* (1.652)	1.483* (1.709)
<i>HHI_t</i>	0.493 (0.377)	0.431 (0.330)
<i>ROA_t</i>	2.658** (2.427)	2.647** (2.415)
Constant	-1.184 (-1.599)	-1.123 (-1.507)
Year-fixed Effects	Yes	Yes
Industry-fixed Effects	Yes	Yes
<i>N</i>	825	825
Pseudo R ²	0.108	0.105

This table reports whether firms with short CEO tenure are more likely to be switchers. *Confidential advertisers (FRR44)_t* equals 1 if a firm stop revealing its' advertising costs after the change of Financial Reporting Release 44, and 0 otherwise. Dependent variable is *Short CEO Tenure 4 Years* in column (1) and *Short CEO Tenure 3 Years* in column (2), respectively. *Short CEO Tenure 4 Years* is an indicator variable if CEO tenure is less than 4 years, and 0 otherwise. *Short CEO Tenure 3 Years* is an indicator variable if CEO tenure is less than 3 years, and 0 otherwise. We use Fama-French 12 industry classification. Other variables are defined in Table 2. We winsorize all variables at the 1% and 99% levels. * and ** represent significance at 10 percent and 5 percent, respectively. Standard errors are clustered by industry; t-statistics are in parentheses.