REDACTED DISCLOSURE AND ANALYSTS' WEIGHTING OF PRIVATE AND PUBLIC INFORMATION

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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

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Abstract

This paper investigates whether and how redacting proprietary information in regulatory filings affects financial analysts' weighting of private and public information. I examine this issue in the context of initial public offerings (IPO) where firms are allowed to redact value-relevant, proprietary information in relation to material agreements. To the extent that redaction affects firm information environment, I expect redaction to incentivize analysts to overweight their private information relative to public information. As predicted, I find that analysts' overweighting of private information is greater for redacted IPO firms. Moreover, this result prevails particularly when analysts involved rely more on private information. Next, I find analysts' overweighting of private information is more pronounced for analysts who have limited resources, ability, and attention, and when IPO firms do not receive venture capital financing. Finally, I find that the redaction-overweighting relation is attenuated after the passage of Regulation Fair Disclosure. I also find that analysts' overweighting of private information increases redacted IPO firms' idiosyncratic return volatility. Overall, my results extend prior research by examining the role of firm information environment on analysts' decision-making process.

I. INTRODUCTION

It has been long recognized that firm information environment impacts analysts' forecast behavior. Prior studies document that firm information environment affects analysts' costs and benefits of following a firm and alters the properties of analysts' realized forecasts, such as earnings forecast accuracy and dispersion.[1] However, these studies do not distinguish between proprietary and non-proprietary information. This distinction is important because proprietary information provides firms with sustainable competitive advantage (Berger and Hann, 2007; Boone et al., 2016). In this paper, I focus on initial public offering (IPO) firms permitted by the US Securities and Exchange Commission (SEC) to redact proprietary information from material agreements in their regulatory filings, ensuring that my sample firms retain proprietary information and take actions to avoid disclosure. Using this unique setting, this paper sheds light on the level of reliance analysts place on private information when firms withhold proprietary information that would otherwise be a required disclosure. Specifically, I exploit the redaction of firm proprietary information in IPO filings to quantify its effect on analysts' weighting of private and public information.

Chen and Jiang (2005) note that evaluation of analysts' weighting of private and public information represents a more accurate assessment of analyst decision making because forecast properties can be affected by analysts' private information as well as the

[1] Examples include Diamond (1985), Lang and Lundholm (1996), Botosan and Harris (2000), Barth et al. (2001), Plumlee (2003), Byard and Shaw (2003), Mohanram and Sunder (2006), Lehavy et al. (2011), Byard et al. (2011), Barron et al. (2017). In this line of research, a firm's information environment has been assessed in terms of financial statements elements (e.g., the amount of intangible assets and taxes), disclosure quantity and quality (e.g., Association for Investment Management and Research Disclosure scores, segment disclosures, and annual report readability), and regulations (e.g., Regulation Fair Disclosure, Sarbanes-Oxley Act, International Financial Reporting Standards, and Global Analyst Research Settlement Act).

actual earnings realizations.[2] IPO setting is also ideal for learning analysts' weighting behavior for several reasons. From the issuers' perspective, publicly listed firms strive to achieve a balance between their need to raise capital from stock markets and the desire to protect their proprietary information. The trade-off becomes more salient at IPO because these firms do not have any mandatory disclosures prior to an IPO. From the analysts' perspective, IPO provides a fresh opportunity for analysts to make forecast decisions because they usually do not cover non-public companies. Moreover, an IPO, unlike seasoned equity offerings, eases the comparison of forecast timing across analysts by eliminating the concern of serial dependence of coverage (O'Brien and Tan, 2015).

Prior research suggests that analysts use both private and public information in formulating their earnings forecasts (e.g. Aharoni et al., 2017; Chen and Jiang, 2005). [3] When a firm redacts proprietary information, it limits the amount of public information that is available to an analyst. This redaction of proprietary information at the IPO can benefit analysts by increasing the value of their services or enabling them to signal ability. Potentially, analysts incur costs as well; covering redacted IPO firms could limit the time analysts spend on the remaining firms they follow. I assume that in covering a redacted IPO firm, analysts maximize their expected utility, which depends on the benefits and costs of following it. In other words, redaction incentivizes analysts to rely more on private information due to the dearth of public information. In this case, redaction leads to analysts' overweighting of private information. However, it is possible that this

[2] Chen and Jiang (2005) point out that "forecast properties are a function of both information precision and analysts' forecast behavior, and, as such, cannot provide unambiguous inference about the latter."

[3] Barron et al. (1998) define public information as consisting of information disclosed by firms to all analysts, as well as other common sources of information such as articles in the business press and macroeconomic information. In contrast, they view private information to "consist of information that individual analysts generate through their efforts at data gathering and analysis.

prediction may not hold empirically. For example, informed analysts may intentionally underweight their private information to win against an uninformed rival (Aharoni et al., 2017). This underweighting can be more salient when an analyst possesses exclusive private information; in fact, underweighting can decrease if informed analysts believe that their peers are likely to be equally informed.

My empirical analysis follows Chen and Jiang (2005) in their measurement of analysts' weighting of private (and public) information. In their framework, they first employ rational Bayesian expectation to derive optimal statistical weights an analyst should place on private and public information to minimize her forecast error, where the analyst's private information is obtained by taking the difference between her forecast and the prevailing consensus earnings forecast (public information). They then compare the weights an analyst actually places on information to the efficient benchmark weights and assess her mis-weighting of information by regressing her forecast error on the constructed private information measure. Their method gauges how efficiently analysts' reported forecasts combine public and private information. Using their logic, I examine the relation between an analyst's forecast error and her forecast deviation from the consensus to assess how an analyst weights her information.

To identify my sample, I employ textual analysis on firms' registration statements on the SEC's Electronic Data Gathering, Analysis, and Retrieval (EDGAR) website. Using a sample of 1,193 IPO firms from 1996 to 2016, I find approximately 60% of the sample IPO firms redact at least one material agreement in their registration statements. Among them, Customer/Supplier agreements (41%) and License/Royalty agreements (30%) are the most common types of contracts redacted. Further, analysis of my sample

reveals that redacted firms represent a diverse set of industries and the annual frequency of redactions ranges from 32% to 85% during the period covered by my sample. I focus on the first three years after the issuance to keep to a period close to the IPO. To assess the reliability of my redaction measure, I examine its relation with analysts' coverage and forecast properties. Compared to non-redacted firms, redacted firms exhibit higher analysts' forecast dispersion and lower precision of analysts' public and private information as measured by Barron et al. (1998).

I find analysts of redacted IPO firms overweight private information more than those of non-redacted IPO firms, controlling for several firm- and analyst- level characteristics. This effect is also economically meaningful; the overweighting of private information by analysts who follow redacted IPO firms is 53% more than that of analysts who do not follow redacted IPO firms. Moreover, this finding is robust to the use of propensity matched sample to address endogeneity issues and a continuous variable specification of redaction measured as the number of redacted exhibits scaled by the total number of filed exhibits with material agreements. Further analysis of different types of redacted information reveals that redacted information in R&D and License/Royalty contracts significantly affects analysts' overweighting of private information. Furthermore, I document an asymmetric weighting behavior of analysts; analysts overweight private information more only when the magnitude of an analyst's earnings forecast deviation from consensus earnings forecast is high. In contrast, there is no difference in analysts' overweighting behavior between redacted and non-redacted IPO firms when the magnitude of analysts' earnings forecast deviation from consensus is low.

I next examine whether the redaction-analyst weighting relation changes over years. Specifically, I examine the redaction-analyst weighting relation over a 3 year period, over year 4 and 5, and beyond 5 years. My findings show that analysts who follow redacted IPO firms significantly overweight of private information than analysts who do not follow redacted IPO firms; the difference manifests in the first five years and becomes statistically insignificant thereafter.

I also examine whether the effect of redacting proprietary information at the IPO on the analysts' overweighting of private information varies cross-sectionally. Analysts' attributes can affect their weighting of private and public information for redacted IPO firms. Specifically, I hypothesize that analysts' overweighting of private information for redacted IPO firms would be more salient for analysts who have limited resources, ability, and attention. First, large brokerage houses are considered to have closer ties to management, provide analysts with resources and training to produce higher-quality research, and have more analysts following the same industry that facilitate possible information spillover (Granovetter, 1985; Clement, 1999; Jacob et al., 1999). In other words, large brokerage houses can better assess private information and assign appropriate weights on the private and private information, respectively. In contrast, small brokerage houses cannot afford these resources. I expect that analysts who work for small brokerage houses overweight private information more for redacted IPOs than analysts who work for large brokerage houses. Second, prior literature has shown that earnings forecasting ability differs across analysts (Mikhail et al., 1997; Clement, 1999; Jacob et al., 1999; Clement and Tse, 2003). High ability analysts have incentives to stay in the profession longer (Stickel, 1992; Mikhail et al., 1999; Hong et al., 2000; Jackson,

2005) and are well aware of the high costs of mis-weighting in their careers (Holmstrom, 1999). Chen and Jiang (2005) find that high ability analysts overweight private information less than low ability analysts. Thus, I expect that low ability analysts overweight private information more for redacted IPO firms than high ability analysts. Finally, covering redacted IPO firms is costly and could limit the time/attention analysts spend on each firm they follow. If analysts follow many firms, the heavy workloads and bounded cognitive capacity won't allow them to allocate time/attention to appropriately weight public information and private information for each individual firm. Thus, I predict that busy analysts are more likely to overweight private information than non-busy analysts. Consistent with these predictions, I find that analysts who work in small brokerage houses, who have low ability, and when they are busy overweight private information more for redacted IPO firms.

Prior literature indicates that venture capitalists play both a certification and a monitoring role to resolve the asymmetric information inherent in the IPO process (Barry et al., 1990; Megginson and Weiss, 1991; Brav and Gompers, 1997). The implication is that information asymmetry is likely to be more severe when an IPO firm is not backed by venture capitalists and this information asymmetry can incentivize analysts to uncover managers' superior information (Healy and Palepu, 2001). Consistent with this conjecture, I find that analysts overweight private information more for redacted IPO firms that do not receive venture capital financing.

I also use the natural experiment of the Regulation Fair Disclosure (Reg FD) to examine whether a change in disclosure regulation affects the analyst redaction-analyst weighting relation. Reg FD, which was enacted on October 23, 2000, blocked the

selective disclosure channel and in doing so, prevented managers from selectively disclosing information to analysts without simultaneously disclosing such information to the public. The literature examining the effects of this regulation has found that Reg FD positively impacted firm information environment by curtailing the flow of private information from managers to analysts (Gintschel and Markov, 2004) or inducing greater public disclosure of firm-specific information (Bailey et al., 2003; Heflin et al., 2003; Herrmann et al., 2008; Nichols and Wieland, 2009; Hovakimian and Saenyasiri, 2010). While IPO firms can redact certain information, it is possible that Reg FD improved the flow of firm-specific information. The implication is that IPO firm redaction need not necessarily push the analysts of these firms toward the use of private information after the passage of Reg FD. Consistent with this prediction, I find that the impact of redaction on analysts' overweighting of private information is lower after the enactment of Reg FD.

Lastly, I examine the consequences of analysts' overweighting of private information. Boone et al. (2016) show that idiosyncratic return volatility is higher for redacted IPO firms. To corroborate their findings, I examine whether analysts' overweighting of private information contributes to greater uncertainty. I find that analysts' overweighting of private information is positively related to redacted IPO firms' idiosyncratic return volatility, which points to a negative consequence of analysts' overweighting of private information.

This study makes several contributions to the literature. First, my study contributes to the growing research on analyst forecast behavior. Prior literature on analysts' forecast inefficiency documents that analysts underreact to the information contained in earnings reports and that their realized forecasts exhibit bias (Abarbanell and

Bushee, 1997; Easterwood and Nutt, 1999; Bradshaw et al., 2001; Abarbanell and Lehavy, 2003). However, the properties of analysts' realized forecasts are a function of both information precision and analysts' forecast decisions. My paper differs from these studies in that I strictly isolate and focus on analyst forecast decisions in terms of their weighting of private and public information. Moreover, my study complements a growing stream of research (Chen and Jiang, 2005; Aharoni et al., 2017) that examines analyst decision making process by considering the role of firm information environment in the analyses.

Second, my study extends the literature that examines the effects of redacted proprietary information. Verrecchia and Webber (2006) investigate firms that redact material contract information from their annual/ 10-K reports for fiscal year 2001 and find that redaction increases the adverse selection component of the bid-ask spread, while reducing market depth and share turnover. In addition, Boone et al. (2016) focus on redacted information in registration statements of IPO firms for the period from 1996 to 2011 and document greater underpricing when firms redact proprietary information at the IPO stage. However, there is little empirical evidence on how other market participants respond to the redaction of proprietary information. To the best of my knowledge, my study is the first to empirically investigate the effect of redacted information at the IPO stage on financial forecasting decisions. My documented findings show that redacted proprietary information may result in the overweighting of private information more so than that of non-redacted firms.

My study should be of interest to regulators and to the ongoing debate on the consequences of the decision to reduce disclosure. The debate often revolves around the

impact of redaction on misvaluations. My results shed light on another unintended consequence of redaction. Specifically, I show that redaction increases divergence of analysts' beliefs, decreases the precision of their public and private information, and induces them to overweight private information in the capital market.

The remainder of this paper proceeds as follows. Section II reviews related literature and develops testable hypotheses. Section III discusses research design and sample selection. Section IV presents descriptive statistics and results. Section V concludes.

II. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

Background Information

Publicly listed firms strive to achieve a balance between their need to raise capital from stock markets and the desire to protect their proprietary information.[4] On the one hand, increased transparency reduces adverse selection problems, lowers the cost of capital, increases liquidity, and enhances corporate investment and growth (Myers and Majluf, 1984; Glosten and Milgrom, 1985; Merton, 1987; Diamond and Verrecchia, 1991; Botosan, 1997; Verrecchia, 2001; Lambert et al., 2007). On the other hand, revealing proprietary information to market competitors can reduce a public firm's competitive advantage. A recent survey by Graham et al. (2005) finds that 60% of the managers surveyed believe that giving away company secrets is an important barrier to disclose. Several empirical studies also find that proprietary information costs are key determinants of a firm's disclosure choices (Verrecchia, 1983; Darrough and Stoughton, 1990; Gigler, 1994; Bamber and Cheon, 1998; Guo et al., 2004; Botosan and Stanford, 2005; Ellis et al., 2012; Bernard, 2016; Huang et al., 2016; Li et al., 2017). These studies

[4] For a review of this literature, see Healy and Palepu (2001)

show that firms avoid disclosures about R&D, future earnings, profitable segments, identity of customers, and financial constraints to sustain their competitive advantages. The trade-off becomes more salient for IPO firms because they do not have any mandatory disclosures prior to an IPO.

An IPO prospectus filed with the SEC represents the first set of mandated communication most U.S. public firms have with the capital market participants. To alleviate IPO firms' concern of proprietary information costs, the SEC permits IPO firms to request confidential treatment orders to shield sensitive information, such as pricing terms, technical specifications, trade secrets, or milestone payments, from material agreements in their registration statements, and in annual reports on Form 10-K, quarterly reports on Form 10-Q, and reports on Form 8-K. In other words, a CTO permits an IPO firm to redact the aforementioned type of information from their regulatory findings. Once a CTO is granted, IPO firms are not subject to Freedom of Information Act requests for the duration of the confidential treatment orders, which spans from one to ten years. Although outsiders cannot discern the precise value-relevant information, they are able to observe a contract's existence and the counter party's identity. An example is shown in Appendix I. Therefore, a redaction largely allows IPO firms to reduce the extent of value-relevant information that is disclosed to the public.

Prior Research on Consequence of Redacted Information and the Role of Analysts

Two prior studies examine the consequences of redacting proprietary information. Verrecchia and Webber (2006) investigate firms that redact material contract information from their annual/ 10-K reports for fiscal year 2001. They find that redaction increases the adverse selection component of the bid-ask spread, deteriorates market depth, and

reduces share turnover. Separately, Boone et al. (2016) focus on information redaction in relation to IPO firms' registration statements for the year 1996 through 2011. They find IPO underpricing to be greater when firms redact proprietary information. Furthermore, they also find redaction affects the behavior of pre-IPO insiders. Namely, they find these insiders sell a lower portion of the firm's shares at IPO and, in general, sell their holdings slowly over time. Boone et al. (2016) also find idiosyncratic return volatility to be higher for redacted IPO firms than that of non-redacted IPO firms for a time period up to the fourth year after the IPO. This evidence suggests that redaction impedes the flow of information to the public. The information environment of redacted firms reflects proportionately more private information than that of non-redacted firms in the post-IPO period. However, to my knowledge, no prior study has examined how analysts react when firms redact proprietary information from their regulatory filings.

The role of analysts in this setting is important because prior research views analysts as information intermediaries. They play a pivotal role in analyzing, interpreting, and disseminating information and in facilitating interactions with underwriters, brokers, institutional investors, and management in capital markets.[5] Analysts can provide value to investors in two ways (Ivkovic and Jegadeesh, 2004; Asquith et al., 2005; Chen et al., 2010; Livnat and Zhang, 2012). They can enhance investors' understanding of firms by analyzing and clarifying existing public information. They can also collect or generate private information that is otherwise not readily available to investors by undertaking their own research. In producing their outputs such as earnings forecasts, it is argued that analyst will make use of both their private and public information "to yield more

[5] For a review of research related to financial analysts, see Schipper (1991), Brown (1993), Ramnath et al. (2008), and Beyer et al. (2010)

profitable investment recommendations" (Barth et al., 2001). While important, we have limited understanding of how analysts weight private and public information in formulating their earnings forecasts. Brown et al. (2015) survey provides insights into sell-side analysts' input and incentives. In this paper, I empirically investigate how analysts weight private and public information when firms redact proprietary information in their registration statements.

Hypotheses Development

A stream of research has examined analysts' forecast decisions, particularly in relation to the weighting of public and private information. A number of studies note that analysts, especially higher ability analysts, will weight private information more to distinguish themselves from other analysts (Laster et al., 1999; Bernhardt et al., 2006). Chen and Jiang (2005) also make a similar argument. They find that analysts, on average, overweight private information when forecasting earnings and such overweighting comes at the cost of their accuracy.

In my context, if a firm redacts proprietary information, it limits the amount of public information that is available to an analyst. In this instance, an analyst may simply make use of her private information. If redaction induces analysts' over-reliance on private information, then it will increase their overweighting of private information. My first hypothesis, stated in the alternative form, is as follows:

H1: Redacting proprietary information at the IPO increases analysts' overweighting of private information, *ceteris paribus*.

However, it is possible that my prediction may not hold empirically. In a recent analytical study, Aharoni et al. (2017) find that informed analysts may intentionally

underweight their private information to win against an uninformed rival. This underweighting is most salient when the informed analysts possess exclusive private information and decreases as they believe their peers are likely to be equally informed. Thus, it is possible for analysts of redacted IPO firms to underweight their private information, conditional on how exclusive they think the private information is.

Cross-Sectional Analyses

I also examine whether the effect of redacting proprietary information at the IPO on the analysts' overweighting of private information varies cross-sectionally. More recent research has focused on attributes of the analysts affecting their earnings forecasts (Clement, 1999; Jacob et al., 1999; Frankel et al., 2006; Bradley et al., 2017). The first attribute I examine is analysts' resources. Large brokerage houses are considered to have closer ties to management, provide analysts with resources and training to produce higher-quality research, and have more analysts following the same industry that facilitate possible information spillover (Granovetter, 1985). Clement (1999) and Jacob et al. (1999) find empirical evidence that analysts who work in large brokerage house issue more accurate forecasts. In other words, I expect that large-brokerage-house analysts have better assessment of private information and assign appropriate weights on private and private information, respectively. In contrast, small-brokerage-house analysts have much limited resources. Thus, I expect that analysts who work for small brokerage houses overweight private information more for redacted IPOs than analysts who work for large brokerage houses.

The second attribute I examine is analysts' forecasting ability. Prior literature establishes that earnings forecasting ability differs across analysts (Mikhail et al., 1997;

Clement, 1999; Jacob et al., 1999; Clement and Tse, 2003). High ability analysts are likely to minimize mistakes in their career to avoid reputation damage and stay in the profession longer (Stickel, 1992; Mikhail et al., 1999; Hong et al., 2000; Jackson, 2005). Chen and Jiang (2005) find that analysts with high ability overweight private information less than analysts with low ability. Given low ability analysts do not have a good grasp of industry-specific knowledge or incentives to minimize mistakes in their career to avoid reputation damage, I predict that low ability analysts overweight private information more for redacted IPO firms than other analysts.

Finally, analysts' weighting of private and public information could be constrained by their limited time or attention. The amount of time/attention that an analyst can allocate to a particular firm inversely relates to the number of firms she follows within the same time period. When analysts follow many firms, the heavy workloads and bounded cognitive capacity would not permit them to appropriately weight public information and private information of each individual firm. Analysts have incentives to overweight private information to signal their ability (Chen and Jiang, 2005), which could result in better compensation and upward mobility in the labor market (Groysberg et al., 2011). Thus, I expect that busy analysts overweight private information more for redacted IPOs than non-busy analysts. My second hypothesis, stated in the alternative form, is as follows:

H2: Analysts' overweighting of private information for redacted IPO firms is more salient for analysts who have limited resources, ability, and attention, *ceteris paribus*.

I also examine whether venture capital financing affects analysts' overweighting of private information for redacted IPO firms. Information asymmetry has first order effects in IPO markets (Ljungqvist, 2007; Boulton et al., 2011). If an issuer discloses 100% of its information to the public, analysts do not need to search for private information to make forecasts because all information is free and publicly available. Alternatively, if an issuer withholds 100% of its information, analysts have extrinsic incentives to engage in private information search to make reasonable forecasts for building reputation and improving career opportunities. Either of the two scenarios, while plausible, are unlikely to occur in a US setting where greater information asymmetry increases the demand for financial analyst services. Prior literature indicates that venture capitalists play both a certification and a monitoring role which can help resolve the asymmetric information inherent in the IPO process (Barry et al., 1990; Megginson and Weiss, 1991; Brav and Gompers, 1997). The implication is that information asymmetry is likely to become more severe when an IPO is not backed by venture capitalists. Thus, I predict that analysts overweight private information more for redacted IPO firms that do not receive venture capital financing. This leads to the third hypothesis, stated in the alternative form, is as follows:

H3: Analysts' overweighting of private information for redacted IPO firms is more pronounced when issuers do not receive venture capital financing, *ceteris paribus.*

Time Series Analysis

Finally, I examine whether an exogenous reduction in private information will affect the analyst redaction-weighting decision. Specifically, I focus on the Regulation

Fair Disclosure (Reg FD). Reg FD, effective on October 23, 2000, significantly changed the information communication process between firms and financial analysts. To be specific, Gintschel and Markov (2004) show that Reg FD curtailed the flow of private information from managers to analysts and effectively leveled the playing field for financial analysts. Prior studies also have found that Reg FD positively impacted firm information environment as reflected in an overall increase in the quantity of public disclosures and disclosure of forward-looking information after Reg FD (Bailey et al., 2003; Heflilin et al., 2003; Herrmann et al., 2008; Nichols and Wieland, 2009; Hovakimian and Saenyasiri, 2010). To the extent Reg FD improved the overall flow of firm specific information, analysts of redacted IPO firms do not necessarily use as much as private information in the post- Reg FD period than they do prior to it. My fourth hypothesis, stated in the alternative form, is as follows:

H4: Analysts overweight private information less for redacted IPO firms after Reg FD, *ceteris paribus*.

III. RESEARCH DESIGN AND SAMPLE SELECTION

To examine the analysts' overweighting of private information when firms redact proprietary information at IPOs, I use the theoretical framework of Chen and Jiang (2005) to measure analysts' weighting of private (and public) information.[6] In their framework, they first use rational Bayesian expectation to derive optimal statistical weights an analyst should place on private and public information to minimize her forecasts error. The difference between an individual analyst's forecast and the prevailing consensus earnings forecast captures her use of private information. The extent of an analyst's overweighting of private information is then assessed by regressing the analyst's forecast error on the

[6] Appendix II details the theoretical framework.

constructed private information measure. Empirically, the following model is estimated for all analysts following a firm:

$$FE_{ijt} = \alpha_j + \hat{p} * DEV_{ijt} + \varepsilon_{ijt} \quad (1)$$

where the subscripts *i, j,* and *t* indicate that the variable is related to analyst *i*'s forecast for firm *j* made for quarter-year *t*; α_j is a firm-specific intercept; FE_{ijt} is the difference between the firm reported earnings and forecasted earning of analyst *i* for firm *j* in quarter-year *t*; and DEV_{ijt} is the difference between an analyst's earnings forecast and weighted average of all prevailing forecasts for the same firm-quarter.

Chen and Jiang (2005) use two weighting schemes: equal weighting assigns weight of $w_n = \frac{1}{N}$ and linear weighting assigns weight of $w_n = \frac{N-n+1}{\sum_{n=1}^{N}(\mathrm{N-n+1})}$ to the n[th] forecast to calculate the consensus.[7] Appendix III details an example of these weighting schemes. Compared to equal weighting scheme, linear weighting scheme is more informative because it better illustrates the process that analysts incorporate information revealed by corporate disclosure or other individuals' preceding forecasts. $\hat{p}$ indicates the average magnitude of under- or over-weighting private information. $\hat{p}$ should be zero, which means the forecast's deviation from the consensus has no predictive power for the forecast error, when an analyst efficiently weights her private and public information. Alternatively, $\hat{p} > 0$ represents the analyst places larger than efficient weight on private information to forecast corporate earnings (i.e., overweight private information) and vice versa. The greater $\hat{p}$ is, the more weight analysts place on their private information.

Empirical Models

[7] N is the total number of prevailing analysts' earnings forecasts. Moreover, because consensus earnings forecast is calculated using both linear weighted and equal weighted schemes, the deviation of an analyst's earnings forecast from the prevailing consensus earnings forecast (DEV) is in two forms: DEV_E and DEV_L.

Test of H1

H1 predicts that redacting proprietary information at the IPO increases analysts' overweighting of private information. In other words, analysts' overweighting of private information $\hat{p}$ is a function of redaction of proprietary information in IPO firms' registration statements, which is shown as below.

$$\hat{p} = \beta_0 + \beta_1 * REDACT_j + \vartheta \quad (2)$$

where *REDACT* is an indicator variable equal to 1 if a confidential treatment is granted in a firm's registration statement, and zero otherwise.

To test H1, I first estimate the following ordinary least squares (OLS) model by substituting Equation (2) into Equation (1). Equation (3) is shown as follows.

$$FE_{ijt} = \alpha_j + (\beta_0 + \beta_1 REDACT_j) * DEV_{ijt} + \varepsilon_{ijt}$$

$$= \alpha_j + \beta_0 * DEV_{ijt} + \beta_1 * (DEV_{ijt} * REDACT_j) + \varepsilon_{ijt} \quad (3)$$

I expand Equation (3) to control for time-varying firm and analyst characteristics. The full model Equation (4) is shown as follows.

$$FE_{ijt} = \alpha_j + \beta_0 * DEV_{ijt} + \beta_1 * (DEV_{ijt} * REDACT_j) + \sum \gamma * DEV_{ijt} * \chi_{jt} +$$

$$\sum \theta * DEV_{ijt} * \varphi_{it} + \tau_d + \delta_t + \lambda_a + \epsilon_{ijt} \quad (4)$$

where χ_{jt} summarizes a vector of time-varying firm-specific controls and φ_{it} indicates a vector of time-varying analyst-specific controls. I winsorize all continuous variables at the 1st and 99th percentiles, by quarter. τ_d represents industry (two-digit SIC code) fixed effects to difference away time-invariant heterogeneity across industries, and δ_t captures quarter-year fixed effects to absorb time-varying factors common to all firms, such as macroeconomic fluctuations. Analyst fixed effects λ_a are also included to account for time-invariant unobservable analyst characteristics and help investigate within-analyst

differences in their weighting behavior. I correct estimated standard errors by clustering the observations at the analyst level for this and all subsequent models.

The coefficient on the interaction term, *DEV * REDACT*, is of primary interest for test of H1. It represents the mean difference in the overweight of private information between analysts who follow redacted IPO firms and analysts who follow non-redacted IPO firms. Under H1, I expect analysts' overweight of private information more for redacted IPO firms to manifest in a positive β_1 coefficient.

Control Variables

The vector of firm-level control variables, χ_{jt}, include variables typically found in prior empirical research (Verrecchia and Webber, 2006; Mohanram and Sunder, 2006; McVay, 2006; Liang and Riedl, 2013; Boone et al., 2016; Barron et al., 2017). These firm-level controls include natural log of assets (*SIZE*) to proxy for firm size, the book-to-market ratio (*BOOK-TO-MARKET*) to proxy for growth opportunities, leverage ratio (*LEVERAGE*) to capture capital structure, and return on assets (*ROA*), as well as indicator variables for firms reporting special items (*SPECIAL ITEM*) and losses (*LOSS*) to proxy for performance. I include research and development expenses scaled by sales (*RND*) to proxy for the level of proprietary investments. I also include daily stock return volatility (*STDRET*), cash flow volatility (*STDCFO*), and income volatility (*STDINC*) over the year as controls for firm risk, receivable and inventory divided by assets (*REC_INV*) to control for asset composition, and the ratio of property, plant and equipment to total assets (*TANGIBLE*) to capture capital intensity.

I include two time-varying analyst-level control variables: analysts' experience (*EXPERIENCE*) as a proxy for the number of years an analyst has been issuing forecasts

and a proxy for an analyst's forecasting ability (*ABILITY*). I follow Chen and Jiang (2005) and measure ABILITY as the frequency with which an analyst's forecast moves the new consensus (after incorporating her forecasts) in the direction of reported earnings. The *ABILITY* measure is bounded between -1 and 1, with a higher value of *ABILITY* indicates higher analyst forecasting ability. Because consensus earnings forecast is calculated using both linear weighted and equal weighted schemes, the analyst ability (*ABILITY*) is in two forms: *ABILITY_E* and *ABILITY_L*.

Test of H2

To test H2, I estimate Equation (4) for the subsamples with different levels of analysts' characteristics. The first attribute is analysts' resources, which is proxied by the size of brokerage house (Clement, 1999; Jacob et al., 1999). To determine the size of the brokerage house, I add the number of distinct analysts issuing forecasts in quarter *i* and classify SMALL (LARGE) BROKER based on the number of distinct analysts who work for a brokerage house is below (above) the median of the sample. The second attribute is analysts' ability. I classify analysts with ABILITY_E or ABILITY_L below (above) the sample median as LOW (HIGH) ABILITY ANALYSTS. The third attribute is the analysts' busyness. BUSY (NOT BUSY) ANALYSTS are the number of distinct companies an analyst covers is above (below) the median of the sample for each quarter. Under H2, I predict β_1 to be positive and significant for SMALL BROKER, LOW ABILITY ANALYSTS, and BUSY ANALYSTS subgroups and insignificant for the other subgroups.

Test of H3

To test H3, I estimate Equation (4) for the subsamples based on IPO firms' venture capital financing status. Prior literature indicates that venture capitalists play both a certification and a monitoring role in the IPO process. Both roles indicate higher information asymmetry for redacted IPO firms that are not backed by venture capitalists. VC (NON-VC) BACKED represents an issuer does (does not) receive venture capital financing prior to its IPO. Under H3, I expect β_1 to be positive and significant for NON-VC BACKED redacted IPO firms.

Test of H4

To examine the time-series effect of analysts' overweighting of private information for redacted IPOs, I employ a difference-in-difference (DID) empirical framework around Reg FD shown as follows.

$$FE_{ijt} = \alpha_j + \beta_0 DEV_{ijt} + \beta_1 POST\_REGFD + \beta_2\big(DEV_{ijt} * REDACT_j * POST\_REGFD\big) + \sum \gamma * DEV_{ijt} * \chi_{jt} + \sum \theta * DEV_{ijt} * \varphi_{it} + \tau_d + \delta_t + \lambda_a + \epsilon_{ijt} \quad (5)$$

where *POST_REGFD* is equal to one for forecasts issued after the effective date (October 23, 2000) of Regulation FD and zero otherwise, and all other variables are as defined before. I ensure that analysts make at least one forecast for the same firms before and after the enactment of Reg FD. Since Reg FD has overall improved the flow of firm specific information and effectively leveled the playing field for financial analysts where redaction need not necessarily push the analysts of redacted IPO firms towards the use of private information, I predict β_2 to be negative.

Sample Selection

I identify firms that redact information from their material contracts at the IPO by employing textual analysis to search their registration statements for the term "confidential treatment", "confidential request", or "confidential treatment request" in Filings S-1 (S-1/A) available on the SEC's Electronic Data Gathering, Analysis, and Retrieval (EDGAR) website for the period from 1996 to 2016.[8] I start from 1996 because it is the first year when registration statements become publicly available on EDGAR website.[9]

I obtain all IPO firms in the U.S. between January 1, 1996 and December 31, 2016 that appear in the Thomson Reuters Security Data Corporation (SDC) New Issue database and list common stock on the NYSE, NASDAQ, or AMEX. The SDC contains information about IPO including filing date, issue date, proceeds amount, whether the firm was venture backed and the firm's auditor. I eliminate IPO firms if they are foreign firms cross-listed in the U.S., real estate investment trusts, right issues, unit issues, limited partnership interests, leveraged buyouts, closed-end funds, special purpose entities (i.e., SIC 6732, 6726, 6799, 6722, 6091, 6371, and 6733). The sample excludes firms in regulated utility and financial services industries (SIC codes 4900-4999 and 6000-6999). After eliminating firms that do not contain sufficient identifiers and available lead-manager information, this step leaves 2,730 distinct IPO firms for the period from 1996 to 2016 as shown in Table 1 Panel A.

[8] Compared to Boone et al. (2016), my sample generation process is more stringent. Specifically, I include S-1/ S-1/As only and exclude foreign firms (F-1/ F-1/As) and small firms (SB-2/SB-2/As) to be sold for cash. Second, I exclude "confidential" in the key words searching because it is a general word can be applied to many different contexts and not necessarily indicate CTO related information.

[9] Starting in May 2008, the SEC begins to release confidential treatment orders (CT ORDER filings) on EDGAR that specify the exhibits and dates for firms granted confidential treatment of information.

I obtain analysts' earnings forecasts of quarterly earnings for the next fiscal quarter (Forecast Period Indicator=6) from the Thomson Reuters Institutional Brokers Estimate System (I/B/E/S) detail files.[10] If one analyst makes more than one forecasts for a specific firm in a quarter, I keep all of them (rather than the most recent one before earnings announcement) in the sample and order them according to the analyst forecasting time stamp shown on I/B/E/S database. I adjust the stock split between an analyst's estimate date and the associated earnings announcement date without rounding to the nearest penny (Payne and Thomas, 2003). I then merge it with stock price information from the Center for Research in Security Prices (CRSP) and accounting information from COMPUSTAT quarterly file. I focus on the first three years after the issuance to keep to a period close to the IPO. Table 1 Panel B presents the final sample. It includes 1,193 distinct IPO firms, of which 710 are redacted IPO firms and 483 are non-redacted IPO firms. Therefore, approximately 60% (710/1,193) of IPO firms redact at least one material agreements in their registration statements.

Table 1 Panel C shows the industry composition (two-digit SIC code) of the redacted IPO firms. Similar to Boone et al. (2016), I find Business Services, Chemicals and Allied Products, Instruments & Related Products, Electronic & Other Electric Equipment top the list of redacted IPOs. The diverse industry composition of my sample IPO firms suggests that redacting proprietary information at the IPO is not entirely an industry effect. Nevertheless, I control for industry fixed effects in my regression models.

[10] O'Brien (1988) indicates that the I/B/E/S summary files is problematic because the consensus may contain stale forecasts. Brown (1993) suggests that forecast timeliness is crucial attribute for effective proxies for analyst earnings expectations when evaluating the accuracy and he encourages to use the I/B/E/S detail files in future research.

Table 1 Panel D contains the sample distribution by issue year. Consistent with prior literature (Loughran and Ritter, 2004; Boone et al., 2016), the high incidence of IPO occurs in 1996 and the lowest incidence happens in 2001 to 2003 following the technology stock crash and during the 2008-2009 financial crisis. The percentage of redacted IPO firms increases from 32% in year 1996 to around 70% in early 2010 and stays high thereafter. This finding indicates that redacting proprietary information at the IPO is common in all sample years.

Table 1 Panel E details the number of distinct analysts and their forecasts for each fiscal year for redacted and non-redacted IPO firms, respectively. There are 3,234 distinct analysts issue forecasts during the sample period, of which 2,476 distinct analysts issue at least one forecasts of redacted IPO firms. In terms of the number of observations, there are 35,282 earnings forecasts during the sample period, of which 21,733 forecasts are issued by analysts who follow redacted IPO firms and 13,549 forecasts are issued by analysts who not follow IPO firms.

I also manually collect the type of redacted information from 710 redacted IPO firms' S-1 filings and calculate the percentage of redaction as the portion of redacted exhibits (out of the total number of exhibits) in Exhibit 10.XX as a continuous measure of redaction. The results are reported in Table 1 Panel F. Following prior studies (Verrecchia and Webber, 2006; Boone et al., 2016), I classify redacted information into eight categories; (1) Customer/Supplier agreements include inventory purchase agreements, sale agreements, distribution agreements, reseller agreements, supply agreements, marketing agreements, vendor agreements, customer service agreements, manufacturing agreements, production agreements, procurement agreements, service

agreements et al., (2) License/Royalty agreements involve license, sublicense, and royalties agreements et al., (3) Research/Development agreements include research, consulting, and development agreements et al., (4) Credit/Leasing agreements involve credit or lease agreements et al., (5) Others agreements include joint ventures, alliances, partnership agreements, stockholder agreements, employee agreements, and letter agreements et al. Note that one firm can redact more than one material agreements in their registration statements, so the percentages adding up are more than 100%. Consistent with prior studies, I find that Customer/Supplier agreements are the most common type of contract redacted, followed by License/Royalty agreements.

[Insert Table 1]

IV. DESCRIPTIVE STATISTICS AND EMPIRICAL RESULTS

Descriptive Statistics

Before I conduct test of main hypotheses, I examine the effect of redacting proprietary information on analyst coverage, analysts' forecast accuracy and dispersion, as well as the precision of analysts' public and private information. Lang and Lundholm (1996) show that more informative public disclosures attract more analyst following, and enable analysts to make more accurate and less dispersed forecasts. The implication is that redaction, by limiting publicly available information, is likely to decrease the number of analysts following, decrease analysts' forecast accuracy, and increase their forecast dispersion. In contrast, Harris and Raviv (1993) and Kandel and Pearson (1995) develop models where higher quality disclosures promote a greater divergence in belief. Thus, it is possible that redaction decreases analysts' forecast dispersion. Moreover, Byard and Shaw (2003) and Barron et al. (2017) find that higher quality public disclosures increase

the precision of analysts' public and/or private information. Redaction in regulatory filings at the IPO reduces the extent of public information released. The implication is that redaction will decrease the precision of both analysts' public and private information.

Following prior studies, I define analyst coverage (COVERAGE) as the number of distinct analysts following a firm for each quarter. Analyst forecast accuracy (ACCURACY) is measured by the negative of the absolute value of difference between the firm reported earnings and consensus analysts' forecasted earning, scaled by stock price at the beginning of the period. Analyst forecast dispersion (DISPERSION) is the standard deviation of forecasts made by analysts following a firm for each quarter. To capture the average precision of analysts' public and private information, I use BKLS (1998) measures, which are defined as follows.

Precision of analysts' public information $$PUBLIC = \frac{SE-\frac{D}{N}}{\left[\left(1-\frac{1}{N}\right)D+SE\right]^2} \quad (6a)$$

Precision of analysts' private information $$PRIVATE = \frac{D}{\left[\left(1-\frac{1}{N}\right)D+SE\right]^2} \quad (6b)$$

where D represents the dispersion among the forecasts of a firm and is equal to $\frac{1}{N-1}\sum_{i=1}^{N}(F_i - \bar{F})^2$ SE is the squared error in the mean forecast of a firm and is equal to $(A - \bar{F})^2$. F_a is the forecast by analyst a, $\bar{F}$ is the mean forecast, A is the actual earnings realization, and N is the number of analysts issuing forecasts.[11]

Table 2 Panel A presents univariate comparisons of analyst coverage and analyst forecast properties conditional on redaction indicator. The samples include analysts' most recent forecasts only. The number of analysts following redacted IPO firms is insignificantly different from the number of analysts following non-redacted IPO firms.

[11] I scale both D and SE by the firm size (in billions) at the beginning of the quarter.

In addition, the analysts' forecast dispersion of redacted IPO firms is significantly higher than that of non-redacted IPO firms. Moreover, analysts of redacted IPO firms make less accurate forecasts than analysts who follow non-redacted IPO firms. I also present the univariate differences between precision of analysts' public and private information. The results show that the precision of analysts' public and private information set of redacted IPO firms is lower than that of the non-redacted IPO firms.

Table 2 Panel B presents the regression results using COVERAGE, DISPERSION, ACCURACY, PUBLIC, and PRIVATE as dependent variables. In all these regressions, I use the same set of firm-specific control variables as in Equation (4). Several of the control variables are statistically significant and the signs on the coefficients of these variables are generally consistent with prior research. The adjusted R^2s of these models range from -0.019 to 0.422. The coefficient on REDACT is of primary interest.

In column (1), the coefficient on REDACT is positive (0.176) but statistically insignificant, suggesting that the number of analysts following redacted IPO firms is indifferent from that of non-redacted IPO firms. In column (2), the coefficient on REDACT is positive (0.005) and statistically significant at the 0.05 level, indicating that redacted firms exhibit more divergence in analysts' forecasts. This result is consistent with analysts' forecast dispersion is larger when analysts have less precise information (Lang and Landholm, 1996).

In column (3), the dependent variable is analysts' forecast accuracy. The coefficient on REDACT is not statistically significant, indicating that redacting of proprietary information does not decrease the accuracy of analysts' earnings forecasts.

Further untabulated analysis using redaction percentage for redacted IPO firms shows that REDACT PCT is negatively and significantly associated with analysts' forecast accuracy at the 0.05 level, which suggests that redaction affects analysts' forecast accuracy depending on the extent of redaction; the more information IPO firms redact, the less accurate forecasts analysts make.

The last two columns use the precision of analysts' public and private information as dependent variables. I find that the coefficient on REDACT is negative (-1131.752) and statistically significant at the 0.10 level in column (4) and negative (-727.906) and statistically significant at the 0.05 level in column (5). PUBLIC and PRIVATE measures are not subject to meaningful interpretation because they are highly skewed (Botosan et al., 2004). However, the negative and significant signs suggest lower precision of analysts' private and public information for redacted IPO firms. Overall, these findings suggest that redaction increases the divergence in analysts' forecasts, and decreases analysts' forecast accuracy as well as the precision of analysts' private and public information.

[Insert Table 2]

Table 3 Panel A presents descriptive statistics of the variables used in the regression analyses for the full sample and subsamples partitioned by a redaction indicator. It also reports the t-statistics for the difference in the mean values of variables between the redacted IPO firms and non-redacted IPO firms. About 62% of analyst forecasts come from analysts who follow redacted IPO firms. The mean analyst forecasts across the 35,282 firm-quarter observations is on average below reported earnings by

about 1 cents.[12] Moreover, the magnitude of mean FE of redacted IPO firms is significantly larger than that of non-redacted IPO firms at the 0.01 level. The mean deviation from consensus using both equal weighing scheme and linear weighting scheme of redacted IPO firms is significantly larger than that of the non-redacted IPO firms at the 0.01 level.

Compared to non-redacted IPO firms, redacted IPO firms are smaller (SIZE), and have higher growth opportunities (lower BOOK-TO-MARKET) and low capital intensity (TANGIBLE), suggesting that redacted IPO firms experience high proprietary information costs. In terms of analysts' characteristics, experienced analysts (GENERAL EXPERIENCE) are more likely to follow redacted IPO firms. Moreover, the average ABILITY is positive, indicating analysts, on average, move new consensus in the direction of reported earnings.

Table 3 Panel B presents the Pearson and Spearman correlations for selected variables. Specifically, REDACT is negatively correlated with forecast error (FE) but positively related to the deviation from consensus (DEV_E and DEV_L) at the 0.05 level. Overall, the magnitudes of pair-wise correlations between REDACT and other key variables are generally low, suggesting that multicollinearity is not a serious issue.

[Insert Table 3]

Regression Results of H1

H1 predicts that analysts overweight private information more when IPO firms redacted proprietary information from their material agreements in the registration statements. Table 4 Panel A reports estimates of Equation (4) where analysts' forecast

[12] Richardson et al. (2004) assert that analyst forecast pessimism is most prevalent in recent years and at the shortest forecast horizon, and is easier to detect using consensus forecast based on individual analyst data instead of stale consensus forecasts.

error (FE) is the dependent variable. The first three columns use equal weighting scheme to derive deviation from consensus and the last three columns use linear weighting scheme. Columns (1) and (4) present the regression results without controlling for firm- and analyst- level characteristics. The coefficients on the DEV * REDACT are 0.600 in column (1) and 0.602 in column (4) at the 0.01 level, which suggest that analysts of redacted IPOs overweight private information more than that of non-redacted IPOs. The results hold after including firm-level characteristics in columns (2) and (5), and additional analyst-level characteristics in columns (3) and (6). For example, the coefficient on DEV * REDACT in column (6) is 0.527 at the 0.01 level. The effect of redacting proprietary information on analysts' weighting of private information at the IPO is also economically meaningful; the overweighting by analysts who follow redacted IPO firms is 52.7% more than that of analysts who do not follow redacted IPO firms. This finding is consistent with analysts relying more on private information to compensate for the decrease in proprietary public information available to them.

Turning to the control variables, I find that analysts, who follow IPO firms that have high research and development investment (RND), low financial viability (LEVERAGE), and low operating cash flow volatility (STDCFO), overweight private information more. In addition, I find high ability analysts (ABILITY) overweight private information less for redacted IPO firms. This relation is expected because high ability analysts have a good grasp of industry-specific knowledge and more incentives to minimize mistakes in their career to avoid reputation damage and stay in the profession longer.

Table 4 Panel B reports estimates of model specifications in columns (3) and (6) of Panel A where DEV * REDACT PCT is the variable of interest. This sample includes redacted IPO firms only. The coefficients on DEV * REDACT PCT are positive and significant at the 0.05 using both equal and linear weighting regimes for DEV and ABILITY. Other inferences are similar with those in Panel A.

To better understand which types of redacted information matter more for analysts, I break down the redaction percentage (REDACT PCT) into five different types of redaction (Customer/Supplier PCT, License/Royalty PCT, R&D PCT, Credit/Leasing PCT, Others PCT). The results are shown in Table 4 Panel C. The coefficients on DEV * R&D PCT are positive (5.739 and 4.451) and statistically significant at the 0.01 and 0.10 level in columns (1) and (2), respectively. Similarly, the coefficients on DEV * License/Royalty PCT are positive (1.828) and statistically significant at the 0.10 level in columns (1). This finding suggests that redacted information in R&D and License/Royalty contracts significantly affect analysts' overweighting of private information, which is consistent with the high proprietary information costs of these two types of contracts. Overall, Table 4 supports H1 that redacting proprietary information at the IPO increases analysts' overweighting of private information.

[Insert Table 4]

Next, I examine analysts' overweighting of private information conditional on magnitude of forecast earnings deviation from consensus (|DEV|) to distinguish between analysts that rely more on private information than other analysts. Specifically, I partition the sample based on the median absolute value of deviation of the consensus earnings forecasts. The cutoff points of |DEV| are 0.003 and 0.002 for equal and linear weighting

regimes, respectively. Table 5 Panel A presents the regression results. In column (1), the coefficient on the variable of interest, DEV_E * REDACT, is positive (0.478) and statistically significant at the 0.05 level. This result also holds for alternative weighting scheme (DEV_L) as shown in column (3). In contrast, columns (2) and (4) show that the coefficients on DEV * REDACT are not statistically significant at the 0.10 level, suggesting that there is no difference in the analysts' overweighting behavior between redacted and non-redacted IPO firms when the magnitude of deviation is low. Overall, these findings point to an asymmetric weighting behavior of analysts; analysts overweight private information more only when the magnitude of an analyst's earnings forecast deviation from consensus earnings forecast is high. The results and inferences are similar when DEV * REDACT PCT is the main variable of interest in Table 5 Panel B.

[Insert Table 5]

I next extend the sample to a longer time frame to examine whether the redaction-analyst weighting relation changes over years. Specifically, I use the model specifications in columns (3) and (6) of Table 4 for 3 year period, over year 4 and 5, and beyond 5 years post-IPO subsamples, respectively. The results are presented in Table 6. I find that analysts who follow redacted IPO firms significantly overweight of private information than analysts who do not follow redacted IPO firms. The difference manifests in the first five years at the 0.01 level. However, it becomes statistically insignificant thereafter.

[Insert Table 6]

Regression Results of H2

H2 predicts that analysts who have limited resources, ability, and attention overweight private information more for redacted IPO firms. Table 7 presents the regression results. Panel A focuses on the size of brokerage house. The cutoff point of brokerage house size is 19 analysts. The coefficients on DEV * REDACT are positive (0.647 and 0.673) and statistically significant at the 0.01 level for analysts who work for small brokers, respectively. In contrast, the coefficients on DEV * REDACT are positive and statistically significant at the 0.10 level for analysts who work for large brokers. This finding is consistent with large brokers can provide resources for analysts to better assess private information and help them assign appropriate weights on private and private information.

Panel B presents the results of analysts' ability. The cutoff points of analysts' ability are 0.222 and 0.210 using equal and linear weighting regimes, respectively. The coefficients on DEV * REDACT are positive (0.859 and 0.716) and statistically significant (at the 0.01 and 0.05 level) for analysts who have low ability while the coefficients on DEV * REDACT are insignificant for analysts who have high ability. This result is consistent with low ability analysts do not have a good grasp of industry-specific knowledge or incentives to minimize mistakes in their career to avoid reputation damage and overly rely on private information to make forecasts.

Panel C shows the result of analysts' busyness. The cutoff point is 3 distinct firms per quarter. The coefficients on DEV * REDACT are positive (0.543 and 0.669) and statistically significant at the 0.05 level for busy analysts but insignificant for non-busy analysts using both equal and linear weighting regimes. This is reasonable because covering redacted IPO firms is costly, and busy analysts who have limited time/attention

have incentives to overweight private information to signal their abilities for better career concerns. Overall, these findings support H2 that analysts who have limited resources, ability, and attention overweight private information more for redacted IPO firms.

[Insert Table 7]

Regression Results of H3

H3 predicts that analysts' overweighting of private information for redacted IPO firms is more pronounced when issuers do not receive venture capital financing. Table 8 presents the results. The coefficients on DEV * REDACT are positive (0.870 and 0.842) and significant at the 0.01 level for redacted IPO firms that do not receive venture capital financing. This finding supports that IPO firms not backed by venture capitalists are subject to more severe information asymmetry that can incentivize analysts to uncover managers' superior information by overweighting their private information.

[Insert Table 8]

Regression Results of H4

H4 predicts that the effect of redacting proprietary information on analysts' overweighting of private information to be attenuated after Reg FD. The difference-in-difference research design requires analysts issue at least one forecast for the same firm before and after Reg FD. To keep a reasonable sample size, I extend the sample to five years after IPO issuance. Table 9 presents estimates of Equation (5). The coefficient on variable of interest DEV * REDACT * POST_REGFD is negative (-1.095) and significant at the 0.01 level in column (1) where equal weighting regime is applied. Moreover, the F-statistic for the joint test of DEV * REDACT and DEV * REDACT * POST_REGFD is significant at the 0.04 level. This result indicates that analysts'

overweighting of private information for redacted IPOs is attenuated after Reg FD. Additional tests (untabulated) indicate that analysts' overweighting of private information is still prominent in the post-Reg FD period. In column (2), the coefficient is negative (-0.84) and statistically significant at the 0.10 level when linear weighting regime is applied. Potentially, this less significant result could be driven by private information being discovered and accumulated in the capital market; follower analysts can incorporate information from their predecessors. Overall, these findings support H4; they support that Reg FD has improved the flow of firm specific information; redaction need not necessarily push the analysts of these firms towards the use of private information in the post-Reg FD regime.

[Insert Table 9]

Additional Analysis

In this section, I am interested in understanding the consequences of analysts' overweighting of private information. Boone et al. (2016) find that redaction increases idiosyncratic return volatility of redacted IPO firms. The previous tests indicate that redaction render analysts to overweight private information. Thus, I expect that analysts' overweighting of private information can be one mechanism for this greater uncertainty. Empirically, I define analysts' overweighting (OVERWEIGHT) as an indicator variable that equals to 1 if the coefficient on DEV_E (DEV_L) is positive when regressing FE on DEV_E (DEV_L) across analysts for the same firm-quarter, and zero otherwise. I calculate firms' post-IPO idiosyncratic risk (IDIOSYN) as the means square error from a regression of monthly firm stock returns regressed on Fama-French (1993) three factors

and Carhart (1997) momentum factor over 18 months.[13] I then regress redacted firms' IDIOSYN on OVERWEIGHT using both equal and linear regimes. Table 10 presents the results. Column (1) includes controls of firm-level characteristics only. Equal weighting regime applies to OVERWEIGHT and/or analyst forecast ability ABILITY in columns (2) and (4). Column (4) shows that the coefficient on OVERWEIGHT is positive (0.012) and statistically significant at the 0.10 level. The results hold when using linear weighting regime in columns (3) and (5). Overall, Table 10 suggests that analysts' overweighting private information increases redacted IPO firms' idiosyncratic return volatility, which support Boone et al. (2016) and illustrate a negative consequence of analysts' overweighting of private information.

[Insert Table 10]

Robustness Test

There are at least two potential selection threats in my empirical research design that can impact my findings. First, analysts may not randomly choose the firms they follow (McNichols and O'Brien, 1997). However, recent studies on the analyst-firm pairing indicate that analysts' employer may make some coverage decision by "assigning analysts to certain sectors or portfolios" (O'Brien and Tan, 2015). My analyst coverage analysis indicates that the number of analysts following redacted IPO firms is indifferent from that of non-redacted IPO firms. Moreover, approximately 37% (untabulated) of analysts in the sample cover both redacted and non-redacted IPO firms. Thus, I include analyst fixed effect in all regression model estimations to account for time-invariant unobservable analyst characteristics. Second, the choice of redacting proprietary

[13] An alternative measure of IDIOSYN is the standard deviation of the residual from the market model. The results hold when using this alternative measure.

information at the IPO is also endogenous. Specifically, firms that redact proprietary information in their registration statements tend to be younger, spend more on research and development expenditures, and face greater competition threats (Boone et al., 2016). To alleviate this self-selection concern, I match redacted IPOs with non-redacted IPOs using propensity score matching (PSM) approach.

The determinants of a firm's decision to redact are from Boone et al. (2016). Specifically, I include firm-specific characteristics of size (*ASSET*), performance (*ADJ EBITDA*), research and development expenditure (*R&D*), firm age (*FIRM AGE*), and venture capital backing (*VC BACKED*) as determinants of the choice to redact. I also control for the nature of product market conditions faced by issuers, such as *PRODUCT MARKET FLUIDITY* (Hoberg et al., 2014), *MARKET SIZE*, *MARKET SHARE*, *ENTRY COSTS*, and *PRODUCT SUBSTITUITABILITY*. Finally, I include *INDUSTRY IPO WAVE* to control for the timing of IPO. The PSM model includes industry fixed effects to account for time-invariant heterogeneity across industries and corrects estimated standard errors by clustering observations at the firm level.

The descriptive statistics before matching are presented in Table 11 Panel A. The t-statistics in the last column show that redacted IPO firms are significantly different from non-redacted IPO firms at the 0.01 level except for the firm size. Table 11 Panel B presents the probit regression results using REDACT as the dependent variable. Consistent with Boone et al. (2016), I find redacted firms exhibit characteristics reflecting high proprietary information costs. Specifically, these firms are large in size (ASSETS) and less financially viable (ADJ EBITDA), receive venture capital (VC BACKED), invest more in research and development (R&D), and face greater potential competitive

threats (PRODUCT MARKET FLUIDITY). Using the estimates of probit model, I match firms. This matching procedure leaves 498 distinct IPO firms in the sample, of which 249 are redacted IPO firms. I replicate main tests in Table 4 Panel A by using PSM matched REDACT firms. The results shown in Panel C of Table 11 indicate that inferences using the full sample still hold for the matched sample. In other words, the basic tenor of the results does not change.

[Insert Table 11]

V. CONCLUSION

This study investigates the effect of redacting proprietary information in regulatory filings on analysts' weighting of private and public information. IPO firms do not have any mandatory disclosures prior to an IPO, and thus, face salient trade-off between the need to raise capital from the stock market and the desire to protect their proprietary information. To alleviate IPO firms' concerns about proprietary information costs, SEC permits IPO firms to request CTOs. Once the SEC grants these requests, IPO firms can shield proprietary information from material agreements in their registration statements within the duration of the confidential treatment orders. I find that approximately 60% of my sample IPO firms redact information in their registration statements over the last two decades. Moreover, redaction in regulatory IPO filings increases analysts' forecasts dispersion and decreases the accuracy and the precision of analysts' public and private information.

I follow Chen and Jiang (2005) in their measurement of analysts' weighting of private (and public) information. I find that analysts of redacted IPO firms overweight private information more for redacted IPO firms. The finding is both statistically and

economically significant. The overweighting by analysts who follow redacted IPOs is 52.7% more than that of analysts who do not follow redacted IPOs. In addition, analysts exhibit asymmetric weighting behavior in that they overweight private information more only when the magnitude of an analyst's earnings forecast deviation from consensus earnings forecast is high. The redaction-analyst weighting relation manifests in the first five years and becomes statistically insignificant thereafter. Moreover, I find the impact of redaction on analyst overweighting of private information is more salient for analysts with limited resources, ability, and attention, and IPO firms that do not receive venture capital financing. Finally, using a difference-in-difference design, I find redaction has a lower effect on the overweighting of private information after the passage of Reg FD. I provide evidence that analysts' overweighting private information increases redacted IPO firms' idiosyncratic return volatility. Overall, my study uses the unique setting of redaction in regulatory filings by IPO firms to shed light on the analysts' decision process; it distinguishes non-public disclosure of proprietary information from non-proprietary information to examine analysts' weighting of private and public information.

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Appendix I Example of Redacted Information in IPO prospectus

Panel A: S-1 Filing of Fate Therapeutics, Inc

S-1 1 d552384ds1.htm S-1

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As filed with the Securities and Exchange Commission on August 13, 2013

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT

Under
The Securities Act of 1933

FATE THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware	2836	65-1311552
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

Fate Therapeutics, Inc.
3535 General Atomics Court, Suite 200
San Diego, CA 92121
(858) 875-1800

EXHIBIT INDEX

Exhibit Number	Document Description
10.9†	Exclusive License Agreement by and between the Registrant and Children's Medical Center Corporation, dated May 13, 2009.
10.10†	Exclusive License Agreement by and between the Registrant and The Board of Trustees of the Leland Stanford Junior University, dated May 2, 2013.
10.11†	Restated License Agreement by and between The Ottawa Hospital Research Institute and Fate Therapeutics (Canada) Inc. (as successor to Verio Therapeutics, Inc.), effective April 6, 2010.
10.12†	First Amendment to Restated License Agreement by and between The Ottawa Hospital Research Institute and Fate Therapeutics (Canada) Inc. (as successor to Verio Therapeutics, Inc.), effective February 14, 2012.

† Application has been made to the Securities and Exchange Commission for confidential treatment of certain provisions. Omitted material for which confidential treatment is requested has been filed separately with the Securities and Exchange Commission.

Panel B: Fate Therapeutics, Inc S-1 Filing Exhibit 10.9

EX-10.9 16 d552384dex109.htm EX-10.9

EXHIBIT 10.9

CERTAIN CONFIDENTIAL PORTIONS OF THIS EXHIBIT WERE OMITTED AND REPLACED WITH "[***]". A COMPLETE VERSION OF THIS EXHIBIT HAS BEEN FILED SEPARATELY WITH THE SECRETARY OF THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO AN APPLICATION REQUESTING CONFIDENTIAL TREATMENT UNDER RULE 406 OF THE SECURITIES ACT OF 1933.

EXCLUSIVE LICENSE AGREEMENT

BETWEEN

CHILDREN'S MEDICAL CENTER CORPORATION

AND

FATE THERAPEUTICS, INC.

ARTICLE IV. ROYALTIES, MILESTONES, EQUITY, AND OTHER PAYMENTS

A. For the rights, privileges and exclusive license granted hereunder, Licensee shall pay to CMCC the following amounts in the manner hereinafter provided. Unless expressly stated otherwise in this Agreement, periodic payment obligations listed below shall endure through the Term of this Agreement, unless this Agreement shall be sooner terminated as hereinafter provided:

1. A license issue fee of $[***] ([***] dollars), of which one half of such license issue fee of $[***] ([***] dollars) shall be deemed earned and due immediately upon the execution of this Agreement and the remaining $[***] ([***] dollars) shall be paid by Licensee to CMCC within thirty (30) days of the first anniversary of the Effective Date. The Option Fee in the amount of $[***] ([***] dollars) paid by Licensee to CMCC under the Letter of Intent dated May 5, 2008 by and between the parties shall be credited against such initial $[***] ([***] dollars) license issue fee, with the remaining $[***] ([***] dollars) due immediately upon the execution of this Agreement.

2. Payments for accrued and continuing patent prosecution costs as stated in Article VI hereof.

3. Beginning on the third anniversary of the Effective Date, a License Maintenance Fee of $[***] shall be paid annually by Licensee to CMCC within thirty (30) days of the anniversary of the Effective Date of this Agreement, such License Maintenance Fee will be creditable against Milestones or Royalty payments due and payable in any given year.

4. License Maintenance Fees paid in excess of Royalties shall not be creditable against Royalties due in future years.

* Confidential Information, indicated by [***], has been omitted from this filing and filed separately with the Securities and Exchange Commission

Appendix II Theoretical Framework of Analysts' Weighting of Private and Private Information

Chen and Jiang (2005) develop a theoretical framework to derive analysts' weighting of private and public information. In their framework, they first use a rational Bayesian expectation to derive optimal statistical weights an analyst should place on private and public information to minimize her forecasts error. Equation (1A) exhibits the optimal weight (*h*) the analyst places on private signal.

$$E[z|y,c] = hy + (1-h)c \tag{1A}$$

where *z* is a firm's quarterly reported earnings; *c* is the analyst's public signal, with $c = z + \varepsilon_c$, $\varepsilon_c \sim N(0,\frac{1}{p_c})$ and independent of *z*; p_c is the precision of the public information; *y* is the analyst's private signal, with $y = z + \varepsilon_y$, $\varepsilon_y \sim N(0,\frac{1}{p_y})$ and independent of *z*. p_y is the precision of the private information; $h \equiv \frac{p_y}{p_c+p_y} \in [0, 1]$ is the optimal analysts' weighting of private signals;

In reality, however, the analyst may not apply the efficient weight in making his forecast. Equation (1B) exhibits the actual weight (*k*) the analyst places on private signal.

$$f = ky + (1-k) \tag{1B}$$

where *f* is an analyst's quarterly forecast for one specific firm;

Comparing the weight analysts place on information to the efficient benchmark weights, they derive the following model.

$$E[f - z|y,c] = E[FE|y,c] = \frac{k-h}{k}\ (f-c) = p\ DEV \tag{1C}$$

where *FE* is an analyst's earnings forecast error *(f – z)*; *DEV* is an analyst's earnings forecast deviation from consensus earnings forecast *(f – c)*, indicating the analyst's use of private information. Thus, the expectation value of forecast error is a function of an

analyst's use of private information and the weight analysts place on it. If an analyst efficiently weights private and public information (where $h = k$), her forecast's deviation from the consensus should have no predictive power for her forecast error. Alternatively, if $k > h$, the analyst places larger than efficient weight on private information to forecast corporate earnings (i.e., overweight private information) and vice versa. For two analysts *a* and *b*, if $\frac{k_a}{h_a} > \frac{k_b}{h_b}$, analyst *a* overweighs private information more than analyst *b*.

Appendix III Example of Equal Weighting and Linear Weighing Schemes

	Company Name	Analyst Code	Forecast Period End Date	Analyst Forecast Date	Analyst Forecast Time	Analyst Forecast Value	Earnings Report Date	Actual Earnings	Adjusted Forecast Value
1	AAR CP	000705	2/28/1998	12/12/1997	10:05:05	0.46	3/12/1998	0.33	0.30667
2	AAR CP	001445	2/28/1998	12/12/1997	12:19:38	0.49	3/12/1998	0.33	0.32667
3	AAR CP	030707	2/28/1998	12/12/1997	14:17:53	0.49	3/12/1998	0.33	0.32667
4	AAR CP	071661	2/28/1998	12/15/1997	0:00:00	0.47	3/12/1998	0.33	0.31333
5	AAR CP	001439	2/28/1998	12/15/1997	9:10:20	0.52	3/12/1998	0.33	0.34667
6	AAR CP	001445	2/28/1998	01/6/1998	12:15:26	0.51	3/12/1998	0.33	0.34
7	AAR CP	001439	2/28/1998	2/18/1998	14:01:06	0.5	3/12/1998	0.33	0.33333

Step 1 Calculate the Adjusted Forecast Value. This procedures is to adjust a split occurs between analyst's estimate date and the associated earnings report date where the estimates and actual values may be based on different number of shares outstanding. In specific,

- I adjust report and estimate dates to be CRSP trading days and retrieve CRSP cumulative adjustment factor (CAF) for I/B/E/S report and estimation dates. In this example, the adjustment factor equals to 1.5 on the estimate dates and 1.0 on the earnings report date (3/12/1998).
- If adjustment factors are not the same, I adjust the estimate to be on the same basis with the actual. In this case, I divide report date factor (1.0) by estimate date factor (1.5), then multiply by the analyst forecast value to get the adjusted forecast value.

Step 2 Calculate the rolling consensus based on the Adjusted Forecast Value using both equal weighting and linear weighting schemes.

(1) When the first analyst (000705) make his/her first forecast on December 12, 1997 10:05:05, there is no prevailing forecast. Therefore, CONSENSUS_E (1) is missing.

(2) When the second analyst (001445) make his/her first forecast on December 12, 1997 12:19:38, there is only one prevailing forecast, which is 0.30667. Thus, CONSENSUS_E (2) equals to 0.30667

- **Equal Weighting Regime** (assigns weight $w_n = \frac{1}{N}$ to each prevailing firm-quarter forecasts)

(3) When the third analyst (030707) make his/her first forecast on December 12, 1997 14:17:53, there are two prevailing forecasts, which are 0.30667 and 0.32667. Thus, CONSENSUS_E (3) equals to **1/2***0.30667 + **1/2***0.32667 = 0.31667

(4) When the fourth analyst (071661) make his/her first forecast on December 15, 1997 0:00:00, there are three prevailing forecasts, which are 0.30667, 0.32667 and 0.32667. Thus, CONSENSUS_E (4) equals to **1/3***0.30667 + **1/3***0.32667 + **1/3***0.32667 = 0.32000

(5) When the fifth analyst (001439) make his/her first forecast on December 15, 1997 9:10:20, there are four prevailing forecasts, which are 0.30667, 0.32667, 0.32667 and 0.31333. Thus, CONSENSUS_E (5) equals to **1/4***0.30667 + **1/4***0.32667 + **1/4***0.32667 + **1/4***0.31333 = 0.31833

(6) When the second analyst (001445) make his/her second forecast on January 6, 1998 12:15:26, there are five prevailing forecasts, which are 0.30667, 0.32667, 0.32667, 0.31333 and 0.34667. Thus, CONSENSUS_E (6) equals to **1/5***0.30667 + **1/5***0.32667 + **1/5***0.32667 + **1/5***0.31333 +**1/5***0.34667 = 0.324

(7) When the fifth analyst (001439) make his/her second forecast on February 18, 1998 14:01:06, there are six prevailing forecasts, which are 0.30667, 0.32667, 0.32667, 0.31333, 0.34667, and 0.34, Thus, CONSENSUS_E (7) equals to **1/6***0.30667 + **1/6***0.32667 + **1/6***0.32667 +**1/6***0.31333 +**1/6***0.34667 +**1/6***0.34 = 0.32667

- **Linear Weighting Regime** (assigns weight $w_n = \frac{N-n+1}{\sum_{n=1}^{N}(\mathrm{N-n+1})}$ to each prevailing firm-quarter forecasts)

(3) When the third analyst (030707) make his/her first forecast on December 12, 1997 14:17:53, there are two prevailing forecasts, which are 0.30667 and 0.32667. Thus, CONSENSUS_L (3) equals to **1/(1+2)***0.30667 + **2/(1+2)***0.32667 = 0.32

(4) When the fourth analyst (071661) make his/her first forecast on December 15, 1997 0:00:00, there are three prevailing forecasts, which are 0.30667, 0.32667 and 0.32667. Thus, CONSENSUS_L (4) equals to **1/(1+2+3)***0.30667 + **2/(1+2+3)***0.32667 + **3/(1+2+3)***0.32667 = 0.32333

(5) When the fifth analyst (001439) make his/her first forecast on December 15, 1997 9:10:20, there are four prevailing forecasts, which are 0.30667, 0.32667, 0.32667 and 0.31333. Thus, CONSENSUS_L (5) equals to **1/(1+2+3+4)***0.30667 + **2/(1+2+3+4)***0.32667 + **3/(1+2+3+4)***0.32667 + **4/(1+2+3+4)***0.31333 = 0.31933

(6) When the second analyst (001445) make his/her second forecast on January 6, 1998 12:15:26, there are five prevailing forecasts, which are 0.30667, 0.32667, 0.32667, 0.31333 and 0.34667. Thus, CONSENSUS_L (6) equals to **1/(1+2+3+4+5)***0.30667 + **2/(1+2+3+4+5)***0.32667 + **3/(1+2+3+4+5)***0.32667 + **4/(1+2+3+4+5)***0.31333 + **5/(1+2+3+4+5)***0.34667 = 0.32844

(7) When the fifth analyst (001439) make his/her second forecast on February 18, 1998 14:01:06, there are six prevailing forecasts, which are 0.30667, 0.32667, 0.32667, 0.31333, 0.34667, and 0.34, Thus, CONSENSUS_L (7) equals to **1/(1+2+3+4+5+6)***0.30667 + **2/(1+2+3+4+5+6)***0.32667 + **3/(1+2+3+4+5+6)***0.32667 + **4/(1+2+3+4+5+6)***0.31333 + **5/(1+2+3+4+5+6)***0.34667 + **6/(1+2+3+4+5+6)***0.34 = 0.3317

Appendix IV Variable Definitions and Sources

Dependent Variables	
FE	Forecast Error, defined as the difference between the forecasted and reported earnings. [Source: Thomson Reuters I/B/E/S Detail and Actual files].
DEV_E	Deviation of an earnings forecast from consensus, where consensus is an equally weighted average of all prevailing forecasts made for the same firm-quarter before the current forecast. [Source: Thomson Reuters I/B/E/S Detail files].
DEV_L	Deviation of an earnings forecast from consensus, where consensus is a linear weighted average of all prevailing forecasts made for the same firm-quarter before the current forecast. The linear weighting scheme assigns higher weights to more recent forecasts as they contain more updated information. [Source: Thomson Reuters I/B/E/S Detail files].
Test Variable	
REDACT	An indicator variable equal to 1 if the firm filed a request for confidential treatment in S-1 filings before IPO. Data are originally obtained from crawling the EDGAR S-1 fillings.
REDACT PCT	Redaction Percentage, defined as the number of redacted exhibits scaled by the total number of exhibits in Exhibit 10.XX of S-1 filings. Depending on the type of redacted information, REDACT PCT is further disaggregated into Customer/Supplier PCT, License/Royalty PCT, R&D PCT, Credit/Leasing PCT, and Others PCT.
OVERWEIGHT	An indicator variable equal to 1 if the coefficient on DEV_E (DEV_L) is positive when regressing FE on DEV_E (DEV_L) across analysts for the same firm- quarter, and zero otherwise.
Firm-Specific Control Variables	
BOOK-TO-MARKET	Book-to-Market, defined as book equity (CEQQ)/ (stock price (PRCCQ) * shares outstanding (CSHOQ)). [Source: Compustat Quarterly Files].
LEVERAGE	Leverage, defined as long-term debt (DLTTQ) / total assets (ATQ). [Source: Compustat Quarterly Files].
LOSS	Operating loss, defined as an indicator variable equal to one if the firm has negative operating income (IBQ) and zero otherwise. [Source: Compustat Quarterly Files].
REC_INV	Receivable and inventory ratio, defined as (accounts receivable (RECTQ) + inventory (INVTQ)) / total assets (ATQ). [Source: Compustat Quarterly Files].
ROA	Return on assets, defined as income before extraordinary items (IBQ) / total assets (ATQ). [Source: Compustat Quarterly Files].
RND	Research and Development Ratio, defined as the ratio of research and development expenditures (XRDQ) scaled by sales (SALEQ). [Source: Compustat fundamental quarterly files].
SIZE	Firm size, defined as the log of total assets (AT). [Source: Compustat Quarterly Files].
SPECIAL ITEM	An indicator variable equal to 1 if the firm has non-zero, non-missing special items (SPIQ) and zero otherwise. [Source: Compustat Quarterly Files].
STDCFO	Standard deviation of operating cash flow (OANCFY) scaled by assets (ATQ) over the fiscal year. [Source: Compustat fundamental quarterly files].
STDINC	Standard deviation of income before extraordinary items (IBQ) scaled by assets (ATQ) over the fiscal year. [Source: Compustat fundamental quarterly files].

STDRET	Standard deviation of stock returns return over the fiscal year. [Source: CRSP monthly files].
TANGIBLE	Tangible assets, defined as property, plant and equipment (PPENTQ)/total assets (ATQ). [Source: Compustat Quarterly Files].
Analysts-Level Control Variables	
ABILITY_E	Analysts' ability, which measures the frequency that an analyst's forecast moves the new consensus (after incorporating her forecasts) in the direction of reported earnings. The measure is bounded between -1 and 1, with higher values indicating higher analyst forecast ability. The consensus is an equal weighted average of all prevailing forecasts made for the same firm-quarter before the current forecast. [Source: Thomson Reuters I/B/E/S Detail and Actual files].
ABILITY_L	Analysts' ability, which measures the frequency that an analyst's forecast moves the new consensus (after incorporating her forecasts) in the direction of reported earnings. The measure is bounded between -1 and 1, with higher values indicating higher analyst forecast ability. The consensus is a linear weighted average of all prevailing forecasts made for the same firm-quarter before the current forecast. [Source: Thomson Reuters I/B/E/S Detail and Actual files].
GENERAL EXPERIENCE	Analysts' experience, defined as the natural logarithm of one plus the number of years an analyst has been issuing forecasts in the I/B/E/S detail files. [Source: Thomson Reuters I/B/E/S Detail files].
Partitioning Variables	
HIGH (LOW) |DEV|	|DEV| is high (low) when the absolute value of an analyst forecast deviated from consensus is above (below) the median of the sample. [Source: Thomson Reuters I/B/E/S Detail files].
SMALL (LARGE) BROKER	A small (large) broker means the number of distinct analysts who works for a brokerage house is below (above) the median of the sample. [Source: Thomson Reuters I/B/E/S Detail files].
LOW (HIGH) ABILITY ANALYSTS	An analyst has low (high) ability if her ABILITY measure is below (above) median of the sample. [Source: Thomson Reuters I/B/E/S Detail files].
BUSY (NOT BUSY) ANALYSTS	An analyst is busy (not busy) if the number of distinct company an analyst covers is above (below) the median of the sample for each quarter. [Source: Thomson Reuters I/B/E/S Detail files].
VC (NON-VC) BACKED	An IPO firm is venture capitalist (non-venture capitalist) backed when an issuer does (does not) receive venture capital financing prior to the IPO. [Source: SDC New Issue dataset].
POST_REGFD	An indicator variable equal to 1 if the analyst's forecasts are made after the effective date of Regulation FD on October 23, 2000 and zero otherwise.
Consequence Variables	
COVERAGE	Analyst coverage, defined as the number of distinct analysts following a firm for a quarter. [Source: Thomson Reuters I/B/E/S Detail files].
DISPERSION	Analysts' forecasts dispersion, calculated as standard deviation of analysts' last forecasts for the quarter. [Source: Thomson Reuters I/B/E/S Detail files].
ACCURACY	Analysts' forecasts accuracy, calculated as negative one times the absolute value of FE of an analyst's last forecast scaled by the stock price at the beginning of the quarter. [Source: Thomson Reuters I/B/E/S Detail files and Compustat Quarterly Files].

PUBLIC	Precision of analysts' public information defined by BKLS (1998). [Source: Thomson Reuters I/B/E/S Detail files]. $$= \frac{SE - \frac{D}{N}}{\left[\left(1 - \frac{1}{N}\right) D + SE\right]^2}$$
PRIVATE	Precision of analysts' private information defined by BKLS (1998). [Source: Thomson Reuters I/B/E/S Detail files]. $$= \frac{D}{\left[\left(1 - \frac{1}{N}\right) D + SE\right]^2}$$
IDIOSYN	Post-IPO idiosyncratic volatility, calculated as the mean square error from a regression of monthly firm stock returns regressed on Fama-French (1993) three factors and Carhart (1997) momentum factor. [Source: CRSP monthly files and Fama-French datafiles].
Other Variables	
ASSETS	The natural logarithm of the firm's total assets (AT). [Source: Compustat Annual Files].
ADJ EBITDA	Adjusted EBITDA, defined as the ratio of EBITDA over assets (AT) adjusted by the average EBITDA ratio of the same three-digit SIC code companies during the same fiscal year. [Source: Compustat Annual Files].
R&D	Research and Development Ratio, defined as the ratio of research and development expenditures (XRD) scaled by assets (AT). [Source: Compustat Annual Files].
FIRM AGE	The natural logarithm of the number of years the issuer has been an operating company prior to the IPO issue year as determined from the Field-Ritter database.
PRODUCT MARKET FLUIDITY	Product market fluidity, which measures the degree of competitive threat and product market change surrounding a firm following Hoberg, Phillips, and Prabahala (2014) [Source: Hoberg-Phillips Data Library].
MARKET SIZE	The natural logarithm of industry sales (SALE) based on three-digit SIC code industry. [Source: Compustat Annual Files].
ENTRY COSTS	The weighted average of gross value of costs of property, plant, and equipment (PPE) for firms in the three-digit SIC code industry weighted by each firm's market share in the three-digit SIC code Industry. [Source: Compustat Annual Files].
PRODUCT SUBSTITUTABILITY	Product substitutability, defined as sales (SALE) over operating costs (costs of goods sold, selling, general and administrative expenses and depreciation, depletion, and amortization) for each three-digit SIC code industry. [Source: Compustat Annual Files].
MARKET SHARE	The percentage of sales (SALE) of all three-digit SIC code issuers acquired by each issuer. [Source: Compustat Annual Files].
INDUSTRY IPO WAVE	An indicator variable equal to 1 if the total number of offerings in a Fama-French industry is equal to five or more in a year, following Chemmanur and He (2011). [Source: SDC New Issue dataset].

Table 1 Sample Selection

Panel A: SDC New Issue Sample Selection Criteria Selection

US Common Stock ©, Issue Date: 01/01/1996 to 12/31/2016	**Observations**
IPO: Select All IPOs	6,268
Foreign Issue Flag (eg Yankee): Exclude All Foreign Issue Flag	(840)
REIT Type : NOT EQ, HY, MO, UN	(222)
REIT Segment : NOT AP, CA, DV, FR, GO, HC, HO, IN, MH, MG, MG, OF, OC, PR, RM, SS, SC, TN, UN	(0)
Rights Issue: Exclude All Rights Issues	(10)
Unit Issues: Unit Issue: Exclude All Unit Issues: Unit Issues	(146)
Limited Partnership: Exclude All Limited Partnerships	(131)
LBO Firm: Exclude All LBO Firms	(6)
Closed-end Fund/Trust: Exclude All Closed-end Fund/Trusts	(664)
Issuer/Borrower Primary SIC : NOT 6732, 6726, 6799, 6722, 6091, 6371, 6733	(60)
Security Type : 801, 802, 800	(147)
Less: # firms not listed on NASDAQ, NYSE and AMEX	(360)
Less: # firms where managers or lead managers are "Not Applicable"	(18)
Less: # firms not have sufficient identifiers	(934)
SDC New Issue dataset Final Sample	**2,730**

Panel B: Sample Construction

	Total # of IPOs	**# of Redacted IPOs**	**# of Non-Redacted IPOs**
Redact sample that went public (SDC New Issue)	2,730	1,419	1,311
Less: Analyst Forecasts made before stock issue date	(178)	(57)	(121)
Less: Estimator not on I/B/E/S Recommendation and Estimator translation Files	(7)	(6)	(1)
Merged sample: # of firms with data on I//B/E/S datasets	2,545	1,356	1,189
Less: # of firms not on COMPUSTAT Quarterly File and CRSP	(1,352)	(646)	(706)
Final Sample	**1,193**	**710**	**483**

Panel C: Industry Composition of Redacted IPOs

2-digit SIC	Industry	Total # of IPOs	# of Redacted IPOs	# of Non-Redacted IPOs
01	Agricultural Production - Crops	1	0	1
13	Oil and Gas Extraction	2	2	0
14	Mining and Quarrying of Nonmetallic Minerals, Except Fuels	1	0	1
16	Heavy Construction, Except Building Construction, Contractor	1	1	0
20	Food and Kindred Products	4	1	3
21	Tobacco Products	1	0	1
22	Textile Mill Products	1	1	0
23	Apparel, Finished Products from Fabrics & Similar Materials	1	1	0
24	Lumber and Wood Products, Except Furniture	1	0	1
25	Furniture and Fixtures	4	1	3
26	Paper and Allied Products	1	0	1
27	Printing, Publishing and Allied Industries	2	2	0
28	Chemicals and Allied Products	194	171	23
29	Petroleum Refining and Related Industries	1	0	1
30	Rubber and Miscellaneous Plastic Products	4	3	1
31	Leather and Leather Products	1	0	1
32	Stone, Clay, Glass, and Concrete Products	6	4	2
33	Primary Metal Industries	7	4	3
34	Fabricated Metal Products	5	2	3
35	Industrial and Commercial Machinery and Computer Equipment	76	40	36
36	Electronic & Other Electrical Equipment & Components	122	71	51
37	Transportation Equipment	13	6	7
38	Measuring, Photographic, Medical, & Optical Goods, & Clocks	137	95	42
39	Miscellaneous Manufacturing Industries	6	3	3
47	Transportation Services	1	1	0
48	Communications	18	14	4
50	Wholesale Trade - Durable Goods	24	11	13
51	Wholesale Trade - Nondurable Goods	3	3	0
53	General Merchandise Stores	6	2	4
54	Food Stores	8	4	4
55	Automotive Dealers and Gasoline Service Stations	8	4	4
56	Apparel and Accessory Stores	18	6	12
57	Home Furniture, Furnishings and Equipment Stores	7	2	5
58	Eating and Drinking Places	29	12	17
59	Miscellaneous Retail	44	19	25
70	Hotels, Rooming Houses, Camps, and Other Lodging Places	8	3	5
73	Business Services	371	189	182
75	Automotive Repair, Services and Parking	2	1	1
76	Miscellaneous Repair Services	1	0	1
78	Motion Pictures	1	1	0
79	Amusement and Recreation Services	4	3	1
80	Health Services	27	12	15
82	Educational Services	1	0	1
83	Social Services	2	1	1
86	Membership Organizations	1	1	0
87	Engineering, Accounting, Research, and Management Services	17	13	4
	Total	**1,193**	**710**	**483**

Panel D: Sample Distribution by Issue Year

Issue Year	# of IPOs	# of Redacted IPOs	# of Non-Redacted IPOs	Percentage
1996	178	57	121	32.02%
1997	108	44	64	40.74%
1998	65	30	35	46.15%
1999	148	93	55	62.84%
2000	147	104	43	70.75%
2001	20	12	8	60.00%
2002	23	11	12	47.83%
2003	14	10	4	71.43%
2004	68	45	23	66.18%
2005	49	32	17	65.31%
2006	53	41	12	77.36%
2007	61	52	9	85.25%
2008	7	4	3	57.14%
2009	12	7	5	58.33%
2010	19	14	5	73.68%
2011	14	9	5	64.29%
2012	28	19	9	67.86%
2013	74	52	22	70.27%
2014	69	49	20	71.01%
2015	36	25	11	69.44%
Total	**1,193**	**710**	**483**	**59.51%**

Panel E: Number of Distinct Analysts and Forecasts Sample Composition

Fiscal Year	Total # of IPOs		# of Redacted IPOs		# of Non-Redacted IPOs	
	# of Distinct Analysts	# of Forecasts	# of Distinct Analysts	# of Forecasts	# of Distinct Analysts	# of Forecasts
1996	8	9	0	0	8	9
1997	354	840	123	219	269	621
1998	642	2,020	296	727	469	1,293
1999	636	1,852	326	806	414	1,046
2000	742	2,775	504	1,664	433	1,111
2001	818	4,492	627	2,615	447	1,877
2002	630	2,522	516	1,715	301	807
2003	342	853	220	498	150	355
2004	294	745	150	354	157	391
2005	441	1,207	296	750	187	457
2006	577	2,057	393	1,307	256	750
2007	648	2,147	507	1,514	221	633
2008	616	2,380	522	1,918	163	462
2009	476	1,780	417	1,499	113	281
2010	341	830	287	654	88	176
2011	215	621	145	434	78	187
2012	259	774	175	481	102	293
2013	292	1,045	188	578	144	467
2014	458	1,807	333	1,145	223	662
2015	568	2,715	451	1,723	251	992
2016	469	1,811	363	1,132	208	679
Total	**3,234**	**35,282**	**2,476**	**21,733**	**1,964**	**13,549**

Panel F: Distribution of Types of Redacted Material Agreements

Type of agreement	# of Redacted Exhibits	Percentage (%)
Customer/Supplier	1,188	41.02
License/Royalty	860	29.70
Research/Development	274	9.46
Credit/Leasing	80	2.76
Others	494	17.06
Total # of Redacted Exhibits	2,896	100

Panel F exhibits the frequency distribution for eight types of redacted agreements. I am able to classify 2,896 agreements stemming from 710 IPOs. One firm can redact more than one material agreements in their registration statements. *Customer/Supplier* agreements include inventory purchase agreements, sale agreements, distribution agreements, reseller agreements, supply agreements, marketing agreements, vendor agreements, customer service agreements, manufacturing agreements, production agreements, procurement agreements, service agreements et al. *License/Royalty* agreements involve license, sublicense, and royalties. *Research/Development* agreements include research, consulting, and development agreements. *Credit/Leasing* agreements involve credit or lease agreements. Others Agreements include joint ventures, alliances, partnership agreement, stockholder agreements, employment agreement, and letter agreements.

Table 2 Analyst Coverage, Analyst Forecast Properties, and Precision of Analyst Information for Redacted and Non-redacted Samples
Panel A: Univariate comparisons by Redaction Indicator

	Full Sample	**REDACT=1**	**REDACT=0**	**Difference in Means**
	Mean (Standard Deviation)	Mean (Standard Deviation)	Mean (Standard Deviation)	t-statistics
COVERAGE	4.90 (4.14)	4.95 (4.12)	4.82 (4.18)	1.23
DISPERSION	0.03 (0.07)	0.04 (0.08)	0.02 (0.03)	10.05***
ACCURACY	-0.01 (0.03)	-0.01 (0.03)	-0.01 (0.04)	(1.93)*
PUBLIC	-3166.86 (156545.20)	-5144.29 (196967.10)	181.70 (17298.08)	(1.12)
PRIVATE	2711.11 (8282.48)	2083.19 (6430.29)	3794.07 (10667.67)	(6.62)***

Panel A provides descriptive statistics for the variables used in subsequent analysis. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. COVERAGE is the number of distinct analysts following a firm for each quarter. ACCURACY is the negative of the absolute value of forecast error scaled by stock price at the beginning of the quarter. DISPERSION is the standard deviation of forecasts made by analysts following a firm for each quarter. PUBLIC (PRIVATE) is the precision of analysts' public (private) information set, based on the BKLS (1998) method. Other variable definitions are provided in Appendix IV.

Panel B: Regression Results for Analyst Coverage, Analyst Forecast Properties, and Precision of Analyst Information

Dependent Variables =	**COVERAGE**		**DISPERSION**		**ACCURACY**		**PUBLIC**		**PRIVATE**	
	[1]		[2]		[3]		[4]		[5]	
	Parameter Estimates	t-statistics	Parameter Estimates	t-statistics	Parameter Estimates	t-statistics	Parameter Estimates	t-statistics	Parameter Estimates	t-statistics
REDACT	0.176	0.83	0.005**	2.18	0.001	0.90	-1,131.752*	-1.85	-727.906**	-1.98
SIZE	2.288***	14.72	0.010***	6.09	0.003***	6.13	664.509**	2.43	-118.487	-0.83
BOOK-TO-MARKET	-1.106***	-7.30	0.005**	2.07	-0.013***	-4.35	-288.794	-0.69	-45.482	-0.20
LEVERAGE	-3.983***	-6.51	-0.003	-0.33	-0.011***	-4.74	-164.551	-0.21	-1,019.594	-1.02
ROA	-3.086***	-5.70	0.005	0.67	0.014**	2.14	-1,592.801	-1.64	1,100.465*	1.81
LOSS	0.401**	2.16	0.005	1.47	-0.000	-0.17	-739.708	-1.59	-1,227.017***	-3.69
SPECIAL ITEM	-0.319**	-2.23	0.003	1.21	-0.006***	-6.01	100.422	0.27	-571.241**	-2.07
REC_INV	-1.493**	-2.50	0.021*	1.86	-0.010***	-2.81	212.026	0.17	-598.938	-0.49
TANGIBLE	-0.313	-0.40	0.006	0.66	-0.008*	-1.74	-2,226.720	-1.08	-2,375.342**	-2.10
RND	-0.005	-0.83	-0.000*	-1.87	0.000	1.46	2.274	0.40	6.521	1.60
STDRET	1.483**	2.03	0.054***	3.86	-0.027***	-4.18	283.211	0.26	-1,123.029	-0.67
STDCFO	-0.982	-1.04	0.057***	3.35	-0.002	-0.29	1,556.615	1.21	-2,015.551*	-1.78
STDINC	2.901**	2.50	0.007	0.62	-0.003	-0.49	995.173	1.25	-1,566.949	-1.55
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5,897		5,897		5,897		4,603		4,384	
Adjusted R^2	0.422		0.127		0.138		-0.019		0.063	

Panel B models analysts' coverage (COVERAGE), forecast dispersion (DISPERSION), Accuracy (ACCURACY), the precision of analysts' public information set (PUBLIC), and the precision of analysts' private information set (PRIVATE) as a function of Redaction indicator (REDACT) using ordinary least squares regressions. This Panel contains only the most recent forecasts for each analysts each quarter. Two-tailed test statistics and significance levels are shown for all variables. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Other variable definitions are provided in Appendix IV.

Table 3 Descriptive Statistics and Correlations among Selected Variables
Panel A: Descriptive Statistics by Redaction Indicator

	Full Sample (N=35,282)	**Redacted IPOs (N=21,733)**	**Non-Redacted IPOs (N=13,549)**	**Difference in Means**
	Mean (Standard Deviation)	Mean (Standard Deviation)	Mean (Standard Deviation)	t-statistics
REDACT	0.62 (0.49)			
FE	-0.01 (0.13)	-0.01 (0.14)	0.00 (0.11)	(3.16)***
DEV_E	-0.01 (0.07)	-0.01 (0.07)	-0.01 (0.05)	3.99***
DEV_L	-0.01 (0.06)	0.00 (0.07)	-0.01 (0.05)	2.85***
SIZE	5.93 (1.38)	5.83 (1.29)	6.09 (1.49)	(17.66)***
BOOK-TO-MARKET	0.40 (0.55)	0.40 (0.57)	0.41 (0.51)	(1.46)*
LEVERAGE	0.12 (0.20)	0.10 (0.19)	0.14 (0.22)	(18.11)***
ROA	-0.05 (0.26)	-0.05 (0.22)	-0.05 (0.32)	0.04
LOSS	0.53 (0.50)	0.59 (0.49)	0.44 (0.50)	27.30***
SPECIAL ITEM	0.39 (0.49)	0.38 (0.48)	0.42 (0.49)	(8.38)***
REC_INV	0.17 (0.15)	0.16 (0.14)	0.19 (0.16)	(17.49)***
TANGIBLE	0.16 (0.17)	0.15 (0.16)	0.18 (0.18)	(12.86)***
RND	1.15 (7.09)	1.70 (8.93)	0.27 (1.32)	18.60***
STDRET	0.21 (0.12)	0.22 (0.12)	0.20 (0.12)	13.35***
STDCFO	0.11 (0.13)	0.13 (0.14)	0.09 (0.10)	28.11***
STDINC	0.09 (0.16)	0.09 (0.15)	0.08 (0.17)	5.28***
GENERAL EXPERIENCE	1.68 (0.74)	1.70 (0.73)	1.65 (0.74)	5.72***
ABILITY_E	0.21 (0.39)	0.20 (0.39)	0.24 (0.39)	(10.02)***
ABILITY_L	0.20 (0.39)	0.18 (0.39)	0.23 (0.39)	(10.30)***

Panel A provides descriptive statistics for the variables used in subsequent analysis. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Panel B: Correlations among Selected Variables

	FE	**DEV_E**	**DEV_L**	**REDACT**
FE	1.00	0.18*	0.20*	-0.02*
DEV_E	0.22*	1.00	0.97*	0.02*
DEV_L	0.24*	0.98*	1.00	0.02*
REDACT	-0.02*	0.02*	0.02*	1.00

Panel B provides univariate correlations between selected variables used in subsequent analysis. Correlations below (above) the diagonal are Pearson (Spearman) correlations. * indicates a correlation is significant at p<.05 or better. Variable definitions are provided in Appendix IV.

Table 4 Regression Results for the test of H1: Analysts' Weighting of Private Information
Panel A: Redaction Indicator

	Dependent Variable = FE					
	DEV=DEV_E			**DEV=DEV_L**		
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)	[3] Parameter Estimates (t-statistics)	[4] Parameter Estimates (t-statistics)	[5] Parameter Estimates (t-statistics)	[6] Parameter Estimates (t-statistics)
DEV * REDACT	**0.600*** **	**0.662*** **	**0.471*** **	**0.602*** **	**0.689*** **	**0.527*** **
	(3.78)	**(3.75)**	**(2.70)**	**(3.54)**	**(3.57)**	**(2.60)**
DEV * SIZE		-0.068	-0.095		-0.051	-0.110
		(-1.04)	(-1.51)		(-0.70)	(-1.48)
DEV * BOOK-TO-MARKET		0.032	0.042		-0.044	-0.028
		(0.20)	(0.25)		(-0.23)	(-0.15)
DEV * LEVERAGE		1.195***	1.014***		1.053**	0.904**
		(2.61)	(2.65)		(2.24)	(2.32)
DEV * ROA		0.411	0.430*		0.468	0.463
		(1.56)	(1.75)		(1.52)	(1.59)
DEV * LOSS		0.620***	0.589***		0.327	0.305
		(2.73)	(2.66)		(1.34)	(1.26)
DEV * SPECIAL ITEM		0.268	0.171		0.263	0.159
		(1.56)	(1.12)		(1.44)	(0.96)
DEV * REC_INV		-0.532	0.144		-0.598	-0.046
		(-0.82)	(0.24)		(-0.87)	(-0.07)
DEV * TANGIBLE		0.751	0.922		0.514	0.633
		(1.28)	(1.58)		(0.82)	(0.99)
DEV * RND		0.015**	0.013**		0.012*	0.012*
		(2.37)	(2.07)		(1.91)	(1.93)
DEV * STDRET		-1.496*	-0.872		-0.547	-0.202
		(-1.86)	(-1.15)		(-0.61)	(-0.24)
DEV * STDCFO		-1.310***	-1.314***		-1.449***	-1.467***
		(-2.64)	(-2.99)		(-2.65)	(-2.96)
DEV * STDINC		0.365	0.480		0.414	0.442
		(0.63)	(0.81)		(0.61)	(0.62)
DEV * GENERAL EXPERIENCE			0.286**			0.274**
			(2.30)			(2.14)
DEV * ABILITY			-2.469***			-2.561***
			(-13.59)			(-11.58)
DEV * CONSTANT	1.326***	1.409***	1.616***	1.494***	1.566***	2.040***
	(10.74)	(2.74)	(3.04)	(11.174)	(2.82)	(3.60)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Analysts Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	35,282	35,282	35,282	35,282	35,282	35,282
Adjusted R^2	0.123	0.130	0.155	0.130	0.134	0.157

Panel A models the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and Redaction indicator (REDACT) using ordinary least squares regressions. Analyst forecast ability measure is based on ABILITY_E for models [1]-[3] and is based on ABILITY_L for models [4]-[6]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. The Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Panel B: Redaction Percentage

	Dependent Variable = FE	
	DEV=DEV_E	**DEV=DEV_L**
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)
DEV * REDACT PCT	**1.087****	**1.145****
	(2.19)	**(2.05)**
DEV * SIZE	-0.100	-0.105
	(-1.31)	(-1.25)
DEV * BOOK-TO-MARKET	-0.141	-0.249
	(-0.76)	(-1.14)
DEV * LEVERAGE	0.993**	0.987**
	(2.10)	(2.08)
DEV * ROA	1.111***	1.102**
	(2.74)	(2.24)
DEV * LOSS	0.552*	0.299
	(1.96)	(1.01)
DEV * SPECIAL ITEM	0.146	0.157
	(0.78)	(0.77)
DEV * REC_INV	0.285	-0.049
	(0.38)	(-0.06)
DEV * TANGIBLE	1.273*	0.901
	(1.72)	(1.13)
DEV * RND	0.012**	0.011*
	(1.98)	(1.92)
DEV * STDRET	-0.631	0.058
	(-0.69)	(0.06)
DEV * STDCFO	-1.152**	-1.179**
	(-2.22)	(-2.06)
DEV * STDINC	0.162	-0.099
	(0.22)	(-0.11)
DEV * GENERAL EXPERIENCE	0.339**	0.344**
	(2.40)	(2.38)
DEV * ABILITY	-2.568***	-2.569***
	(-13.01)	(-10.86)
DEV * CONSTANT	1.926***	2.254***
	(2.89)	(3.31)
Industry Fixed Effects	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes
Analysts Fixed Effects	Yes	Yes
N	21,733	21,733
Adjusted R^2	0.189	0.191

Panel B models the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and Redaction percentage (REDACT PCT) using ordinary least squares regressions. For brevity, only the full model is shown in this panel. Analyst forecast ability measure is based on ABILITY_E for models [1] and is based on ABILITY_L for models [2]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. The Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Panel C: Redaction Type Percentage

	Dependent Variable = FE	
	DEV=DEV_E	**DEV=DEV_L**
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)
DEV * Customer/Supplier PCT	0.192	0.696
	(0.25)	(0.82)
DEV * License/ Royalty PCT	1.828*	1.453
	(1.90)	(1.51)
DEV * R&D PCT	**5.739*** **	**4.451***
	(2.68)	**(1.77)**
DEV * Credit/Leasing PCT	5.985	3.137
	(1.49)	(0.65)
DEV * Others PCT	-1.242	-0.541
	(-0.80)	(-0.30)
DEV * SIZE	-0.077	-0.091
	(-0.99)	(-1.07)
DEV * BOOK-TO-MARKET	-0.109	-0.219
	(-0.60)	(-1.03)
DEV * LEVERAGE	0.937*	0.999**
	(1.94)	(2.04)
DEV * ROA	0.989**	0.999**
	(2.53)	(2.11)
DEV * LOSS	0.498*	0.257
	(1.79)	(0.88)
DEV * SPECIAL ITEM	0.176	0.168
	(0.92)	(0.81)
DEV * REC_INV	0.437	0.030
	(0.59)	(0.04)
DEV * TANGIBLE	1.613**	1.090
	(2.11)	(1.32)
DEV * RND	0.010	0.010*
	(1.64)	(1.67)
DEV * STDRET	-0.269	0.197
	(-0.28)	(0.19)
DEV * STDCFO	-0.720	-0.779
	(-1.28)	(-1.26)
DEV * STDINC	-0.370	-0.559
	(-0.57)	(-0.72)
DEV * GENERAL EXPERIENCE	0.332**	0.339**
	(2.34)	(2.32)
DEV * ABILITY	-2.607***	-2.602***
	(-13.60)	(-10.79)
DEV * CONSTANT	1.598**	2.073***
	(2.34)	(3.00)
Industry Fixed Effects	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes
Analysts Fixed Effects	Yes	Yes
N	21,733	21,733
Adjusted R^2	0.191	0.191

Panel C models the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and each Redaction percentage (REDACT PCT) type using ordinary least squares regressions. For brevity, only the full model is shown in this panel. Analyst forecast ability measure is based on ABILITY_E for models [1] and is based on ABILITY_L for models [2]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. The Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Table 5 Analysts' Overweighting of Private Information Conditional on Magnitude of Forecast Earnings Deviation from Consensus
Panel A: Redaction Indicator

	Dependent Variable= FE			
	DEV= DEV_E		**DEV = DEV_L**	
	HIGH |DEV|	**LOW |DEV|**	**HIGH |DEV|**	**LOW |DEV|**
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)	[3] Parameter Estimates (t-statistics)	[4] Parameter Estimates (t-statistics)
DEV * REDACT	**0.478****	0.370	**0.582*****	0.020
	(2.51)	(1.28)	**(2.69)**	(0.05)
DEV * SIZE	-0.123*	-0.169	-0.140*	0.051
	(-1.80)	(-1.10)	(-1.80)	(0.28)
DEV * BOOK-TO-MARKET	0.060	0.234	-0.020	0.868
	(0.33)	(0.48)	(-0.10)	(1.29)
DEV * LEVERAGE	0.961**	1.553	0.852**	1.363
	(2.49)	(1.23)	(2.22)	(0.85)
DEV * ROA	0.475*	-0.332	0.597**	-3.790***
	(1.83)	(-0.47)	(2.00)	(-3.28)
DEV * LOSS	0.440*	2.327***	0.229	2.852***
	(1.82)	(7.13)	(0.88)	(6.60)
DEV * SPECIAL ITEM	0.181	0.630**	0.196	1.143***
	(1.13)	(2.12)	(1.16)	(2.86)
DEV * REC_INV	0.198	-0.852	0.054	0.635
	(0.31)	(-0.59)	(0.08)	(0.37)
DEV * TANGIBLE	0.800	0.901	0.595	1.231
	(1.28)	(0.74)	(0.90)	(0.84)
DEV* RND	0.013*	0.010	0.011*	-0.116*
	(1.94)	(0.29)	(1.75)	(-1.81)
DEV*STDRET	-0.784	-3.268**	-0.134	-1.560
	(-0.93)	(-2.48)	(-0.15)	(-0.90)
DEV * STDCFO	-1.298***	-2.050	-1.476***	-0.868
	(-2.71)	(-1.06)	(-2.75)	(-0.31)
DEV * STDINC	0.293	3.908***	0.414	0.530
	(0.46)	(3.24)	(0.54)	(0.31)
DEV * GENERAL EXPERIENCE	0.288**	0.190	0.239*	0.220
	(2.28)	(0.66)	(1.88)	(0.65)
DEV * ABILITY	-2.546***	1.995***	-2.498***	0.221
	(-13.07)	(4.99)	(-10.72)	(0.41)
DEV * CONSTANT	1.914***	0.298	2.273***	-1.277
	(3.27)	(0.23)	(3.72)	(-0.79)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes	Yes	Yes
Analysts Fixed Effects	Yes	Yes	Yes	Yes
N	17,706	17,576	17,641	17,641
Adjusted R^2	0.196	0.082	0.191	0.091

Panel A models the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and Redaction indicator (REDACT) using ordinary least squares regressions. HIGH |DEV| (LOW |DEV|) indicates an analyst has above (below) median absolute value of deviation of consensus. Analyst forecast ability measure is based on ABILITY_E in column [1] and [2] and is based on ABILITY_L in column [3] and [4]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Panel B: Redaction Percentage

	Dependent Variable= FE			
	DEV= DEV_E		**DEV = DEV_L**	
	HIGH |DEV|	**LOW |DEV|**	**HIGH |DEV|**	**LOW |DEV|**
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)	[3] Parameter Estimates (t-statistics)	[4] Parameter Estimates (t-statistics)
DEV * REDACT PCT	**1.327****	-1.762	**1.325****	-1.052
	(2.53)	(-1.08)	**(2.30)**	(-0.44)
DEV * SIZE	-0.120	0.063	-0.117	-0.242
	(-1.48)	(0.27)	(-1.34)	(-0.84)
DEV * BOOK-TO-MARKET	-0.130	-1.094**	-0.272	-0.472
	(-0.64)	(-2.16)	(-1.11)	(-0.55)
DEV * LEVERAGE	0.782	4.796**	0.764	5.219*
	(1.64)	(2.09)	(1.63)	(1.87)
DEV * ROA	1.187***	2.520*	1.152**	-0.384
	(2.82)	(1.72)	(2.29)	(-0.16)
DEV * LOSS	0.521*	2.739***	0.294	3.030***
	(1.68)	(5.43)	(0.93)	(4.83)
DEV * SPECIAL ITEM	0.170	0.494	0.207	1.050*
	(0.86)	(1.12)	(0.99)	(1.82)
DEV * REC_INV	0.466	-0.119	0.225	-0.490
	(0.57)	(-0.05)	(0.27)	(-0.18)
DEV * TANGIBLE	1.312*	1.102	1.019	-1.389
	(1.66)	(0.54)	(1.24)	(-0.54)
DEV* RND	0.014**	-0.018	0.012**	-0.156**
	(2.11)	(-0.44)	(2.02)	(-2.24)
DEV*STDRET	-0.580	-1.662	0.186	-0.886
	(-0.58)	(-0.87)	(0.18)	(-0.36)
DEV * STDCFO	-1.271**	1.385	-1.247**	1.900
	(-2.25)	(0.61)	(-2.03)	(0.53)
DEV * STDINC	0.072	2.500	-0.077	0.792
	(0.09)	(1.18)	(-0.08)	(0.30)
DEV * GENERAL EXPERIENCE	0.329**	0.231	0.311**	0.534
	(2.31)	(0.56)	(2.19)	(1.14)
DEV * ABILITY	-2.551***	2.112***	-2.459***	-0.451
	(-11.88)	(3.53)	(-9.80)	(-0.61)
DEV * CONSTANT	2.047***	-0.774	2.284***	0.817
	(2.81)	(-0.39)	(3.12)	(0.33)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes	Yes	Yes
Analysts Fixed Effects	Yes	Yes	Yes	Yes
N	11,427	10,306	11,530	10,203
Adjusted R^2	0.234	0.097	0.227	0.102

Panel B models the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and Redaction percentage (REDACT PCT) using ordinary least squares regressions. HIGH |DEV| (LOW |DEV|) indicates an analyst has above (below) median absolute value of deviation of consensus. Analyst forecast ability measure is based on ABILITY_E in column [1] and [2] and is based on ABILITY_L in column [3] and [4]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Table 6 Regression Results for the test of H1: Analysts' Weighting of Private Information Over Time

	Dependent Variable= FE					
	DEV= DEV_E			**DEV = DEV_L**		
	0-3 Year	**4-5 Year**	**>5 Year**	**0-3 Year**	**4-5 Year**	**> 5 Year**
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)	[3] Parameter Estimates (t-statistics)	[4] Parameter Estimates (t-statistics)	[5] Parameter Estimates (t-statistics)	[6] Parameter Estimates (t-statistics)
DEV * REDACT	**0.471*** **	**0.984*** **	-0.100	**0.527*** **	**0.992*** **	-0.035
	(2.70)	**(3.54)**	(-0.87)	**(2.60)**	**(3.44)**	(-0.28)
DEV * SIZE	-0.095	-0.187**	0.134**	-0.110	-0.147	0.167***
	(-1.51)	(-2.18)	(2.20)	(-1.48)	(-1.49)	(2.66)
DEV * BOOK-TO-MARKET	0.042	2.510***	-0.445***	-0.028	2.567***	-0.315*
	(0.25)	(4.73)	(-2.64)	(-0.15)	(4.60)	(-1.80)
DEV * LEVERAGE	1.014***	1.985***	-0.179	0.904**	2.078***	-0.428
	(2.65)	(2.68)	(-0.67)	(2.32)	(2.59)	(-1.53)
DEV * ROA	0.430*	6.798**	-1.502*	0.463	8.641***	-1.134
	(1.75)	(2.22)	(-1.75)	(1.59)	(2.59)	(-1.17)
DEV * LOSS	0.589***	0.083	0.296**	0.305	-0.025	0.334***
	(2.66)	(0.37)	(2.47)	(1.26)	(-0.10)	(2.66)
DEV * SPECIAL ITEM	0.171	-0.021	0.333***	0.159	-0.087	0.262**
	(1.12)	(-0.10)	(2.93)	(0.96)	(-0.40)	(2.21)
DEV * REC_INV	0.144	-3.613***	-0.571	-0.046	-4.264***	-0.818**
	(0.24)	(-4.41)	(-1.44)	(-0.07)	(-4.40)	(-2.10)
DEV * TANGIBLE	0.922	-1.363*	-0.740***	0.633	-1.437*	-0.610*
	(1.58)	(-1.69)	(-2.60)	(0.99)	(-1.80)	(-1.96)
DEV* RND	0.013**	0.027***	0.009	0.012*	0.023***	0.002
	(2.07)	(3.23)	(1.00)	(1.93)	(2.65)	(0.21)
DEV*STDRET	-0.872	-0.492	-0.904	-0.202	-0.625	0.368
	(-1.15)	(-0.46)	(-1.19)	(-0.24)	(-0.54)	(0.48)
DEV * STDCFO	-1.314***	2.580	-0.578	-1.467***	3.621**	-0.020
	(-2.99)	(1.37)	(-0.47)	(-2.96)	(2.10)	(-0.02)
DEV * STDINC	0.480	-1.617	3.850***	0.442	-1.222	2.692*
	(0.81)	(-0.97)	(2.73)	(0.62)	(-0.58)	(1.72)
DEV * GENERAL EXPERIENCE	0.286**	0.005	0.079	0.274**	-0.039	0.034
	(2.30)	(0.03)	(0.79)	(2.14)	(-0.26)	(0.32)
DEV * ABILITY	-2.469***	-3.035***	-2.762***	-2.561***	-3.271***	-3.098***
	(-13.59)	(-12.00)	(-16.54)	(-11.58)	(-12.88)	(-17.27)
DEV * CONSTANT	1.616***	2.325***	1.438***	2.040***	2.523***	1.354***
	(3.04)	(3.57)	(3.04)	(3.60)	(3.64)	(2.77)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Analysts Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	35,282	27,386	92,504	35,282	27,386	92,504
Adjusted R^2	0.155	0.225	0.112	0.157	0.229	0.122

This table models the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and Redaction indicator (REDACT) using ordinary least squares regressions. 0-3 Year, 4-5 Year, and >5 Year represent the number of years after IPO, respectively. Analyst forecast ability measure is based on ABILITY_E for models [1]-[3] and is based on ABILITY_L for models [4]-[6]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. The Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Table 7 Regression Results for the test of H2: The Impact of Analyst Characteristics on Overweighting of Private Information

Panel A: Brokerage House Size

	Dependent Variable = FE			
	DEV= DEV_E		**DEV= DEV_L**	
	SMALL BROKER	**LARGE BROKER**	**SMALL BROKER**	**LARGE BROKER**
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)	[3] Parameter Estimates (t-statistics)	[4] Parameter Estimates (t-statistics)
DEV * REDACT	**0.647*** **	0.402*	**0.673*** **	0.450*
	(2.92)	(1.72)	**(2.93)**	(1.66)
DEV * SIZE	-0.075	-0.044	-0.017	-0.084
	(-1.03)	(-0.48)	(-0.21)	(-0.81)
DEV * BOOK-TO-MARKET	0.361*	-0.101	0.244	-0.153
	(1.74)	(-0.50)	(1.04)	(-0.63)
DEV * LEVERAGE	1.427***	0.569	1.045**	0.600
	(2.61)	(1.07)	(1.99)	(1.11)
DEV * ROA	-0.252	0.814**	-0.243	0.734*
	(-0.69)	(2.50)	(-0.57)	(1.88)
DEV * LOSS	0.462*	0.616*	0.303	0.322
	(1.81)	(1.85)	(1.12)	(0.89)
DEV * SPECIAL ITEM	0.277	0.143	0.254	0.163
	(1.18)	(0.67)	(0.97)	(0.72)
DEV * REC_INV	-1.027	1.023	-1.337*	0.900
	(-1.27)	(1.20)	(-1.68)	(0.99)
DEV * TANGIBLE	0.373	1.369*	0.615	0.854
	(0.46)	(1.74)	(0.75)	(1.00)
DEV* RND	0.006	0.017*	0.005	0.016*
	(0.82)	(1.89)	(0.88)	(1.81)
DEV*STDRET	-0.980	-0.994	-0.259	-0.394
	(-0.91)	(-0.93)	(-0.23)	(-0.31)
DEV * STDCFO	-1.458**	-0.858	-1.950***	-0.735
	(-2.56)	(-1.47)	(-3.12)	(-1.10)
DEV * STDINC	-1.178*	1.341	-0.889	0.856
	(-1.85)	(1.55)	(-1.35)	(0.79)
DEV * GENERAL EXPERIENCE	0.038	0.425**	-0.003	0.424**
	(0.23)	(2.57)	(-0.02)	(2.51)
DEV * ABILITY	-2.591***	-2.383***	-2.767***	-2.408***
	(-12.36)	(-8.89)	(-9.61)	(-7.90)
DEV * CONSTANT	2.380***	0.826	2.412***	1.358
	(4.20)	(1.03)	(4.09)	(1.61)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes	Yes	Yes
Analysts Fixed Effects	Yes	Yes	Yes	Yes
N	17,525	17,757	17,525	17,757
Adjusted R^2	0.167	0.161	0.169	0.164

Panel A models the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and Redaction indicator (REDACT) using ordinary least squares regressions. A small (large) broker means the number of distinct analysts who works for a brokerage house is below (above) the median of the sample. Analyst forecast ability measure is based on ABILITY_E in column [1] and [2] and is based on ABILITY_L in column [3] and [4]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Panel B: Analysts' Ability

	Dependent Variable = FE			
	DEV= DEV_E		**DEV= DEV_L**	
	LOW ABILITY ANALYSTS	**HIGH ABILITY ANALYSTS**	**LOW ABILITY ANALYSTS**	**HIGH ABILITY ANALYSTS**
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)	[3] Parameter Estimates (t-statistics)	[4] Parameter Estimates (t-statistics)
DEV * REDACT	**0.859*** **	0.291	**0.716** **	0.320
	(3.14)	(1.14)	**(2.14)**	(1.24)
DEV * SIZE	-0.208**	0.004	-0.239**	0.043
	(-2.18)	(0.06)	(-2.28)	(0.48)
DEV * BOOK-TO-MARKET	0.050	-0.110	0.010	-0.279
	(0.18)	(-0.50)	(0.03)	(-1.12)
DEV * LEVERAGE	1.309**	0.678	1.895***	-0.352
	(2.50)	(1.19)	(3.52)	(-0.60)
DEV * ROA	-0.276	0.551*	-0.130	0.539
	(-0.68)	(1.65)	(-0.31)	(1.19)
DEV * LOSS	0.633**	0.543*	0.317	0.353
	(2.21)	(1.70)	(0.98)	(0.98)
DEV * SPECIAL ITEM	0.412**	0.078	0.575**	-0.182
	(1.99)	(0.33)	(2.51)	(-0.78)
DEV * REC_INV	0.045	0.630	0.083	0.484
	(0.05)	(0.77)	(0.08)	(0.63)
DEV * TANGIBLE	0.994	0.324	0.250	0.127
	(1.29)	(0.40)	(0.29)	(0.15)
DEV* RND	0.006	0.019*	0.005	0.019*
	(0.74)	(1.81)	(0.67)	(1.86)
DEV*STDRET	-0.833	-1.677	0.102	-1.857
	(-0.83)	(-1.35)	(0.09)	(-1.28)
DEV * STDCFO	-0.902	-1.948***	-0.549	-2.213***
	(-1.47)	(-2.90)	(-0.82)	(-2.85)
DEV * STDINC	-0.402	1.028	-1.312	1.936*
	(-0.44)	(1.29)	(-1.30)	(1.81)
DEV * GENERAL EXPERIENCE	0.102	0.294*	0.050	0.378**
	(0.71)	(1.65)	(0.34)	(2.08)
DEV * CONSTANT	2.379***	0.221	2.979***	0.396
	(3.11)	(0.27)	(3.77)	(0.46)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes	Yes	Yes
Analysts Fixed Effects	Yes	Yes	Yes	Yes
N	17,648	17,634	17,623	17,659
Adjusted R^2	0.215	0.116	0.219	0.135

Panel B models the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and Redaction indicator (REDACT) using ordinary least squares regressions. Low (High) Ability analysts represent an analyst has below (above) median ABILITY in the sample. Analyst forecast ability measure is based on ABILITY_E in column [1] and [2] and is based on ABILITY_L in column [3] and [4]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Panel C: Analysts' Busyness

	Dependent Variable = FE			
	DEV= DEV_E		DEV= DEV_L	
	BUSY ANALYSTS	**NOT BUSY ANALYSTS**	**BUSY ANALYSTS**	**NOT BUSY ANALYSTS**
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)	[3] Parameter Estimates (t-statistics)	[4] Parameter Estimates (t-statistics)
DEV * REDACT	**0.543****	0.197	**0.669****	0.022
	(2.31)	(0.81)	**(2.47)**	(0.09)
DEV * SIZE	-0.178**	0.178*	-0.201**	0.209*
	(-2.32)	(1.72)	(-2.32)	(1.79)
DEV * BOOK-TO-MARKET	-0.238	0.285	-0.330	0.234
	(-1.08)	(1.40)	(-1.25)	(1.06)
DEV * LEVERAGE	0.913*	0.557	0.771	0.479
	(1.85)	(0.91)	(1.55)	(0.76)
DEV * ROA	0.563*	-0.125	0.566	-0.160
	(1.84)	(-0.31)	(1.55)	(-0.35)
DEV * LOSS	0.408	0.939***	0.196	0.629***
	(1.33)	(4.43)	(0.60)	(2.64)
DEV * SPECIAL ITEM	0.137	0.149	0.196	0.047
	(0.69)	(0.59)	(0.90)	(0.18)
DEV * REC_INV	0.216	0.246	0.111	-0.169
	(0.23)	(0.33)	(0.11)	(-0.23)
DEV * TANGIBLE	1.144	0.628	0.767	0.455
	(1.39)	(0.81)	(0.85)	(0.57)
DEV* RND	0.009	0.061***	0.009	0.060***
	(1.51)	(3.22)	(1.50)	(3.00)
DEV*STDRET	0.004	-2.491*	0.341	-1.090
	(0.01)	(-1.89)	(0.36)	(-0.81)
DEV * STDCFO	-1.444**	-0.896	-1.682**	-0.841
	(-2.21)	(-1.52)	(-2.31)	(-1.28)
DEV * STDINC	0.859	-0.538	0.833	-0.785
	(1.14)	(-0.76)	(0.93)	(-0.94)
DEV * GENERAL EXPERIENCE	0.258	0.149	0.240	0.190
	(1.49)	(0.79)	(1.34)	(0.98)
DEV * ABILITY	-2.448***	-2.687***	-2.417***	-3.040***
	(-10.97)	(-9.92)	(-8.78)	(-9.66)
DEV * CONSTANT	2.142***	0.585	2.529***	0.790
	(3.02)	(0.77)	(3.39)	(0.98)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes	Yes	Yes
Analysts Fixed Effects	Yes	Yes	Yes	Yes
N	19,888	15,394	19,888	15,394
Adjusted R^2	0.175	0.160	0.176	0.162

Panel C models the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and Redaction indicator (REDACT) using ordinary least squares regressions. An analyst is busy (not busy) if the number of distinct firms an analyst covers is above (below) the median of the sample in a specific quarter. Analyst forecast ability measure is based on ABILITY_E in column [1] and [2] and is based on ABILITY_L in column [3] and [4]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Table 8 Regression Results for the test of H3: The Impact of Venture Capitalists on Overweighting of Private Information for Redacted IPOs

	Dependent Variable = FE			
	DEV= DEV_E		**DEV= DEV_L**	
	NON-VC BACKED Parameter Estimates (t-statistics)	**VC BACKED** Parameter Estimates (t-statistics)	**NON-VC BACKED** Parameter Estimates (t-statistics)	**VC BACKED** Parameter Estimates (t-statistics)
DEV * REDACT	**0.870*** **	-0.183	**0.842*** **	-0.138
	(3.39)	(-0.85)	**(2.66)**	(-0.60)
DEV * SIZE	0.061	-0.184**	-0.000	-0.186**
	(0.48)	(-2.32)	(-0.00)	(-2.12)
DEV * BOOK-TO-MARKET	0.275	-0.147	0.151	-0.170
	(0.57)	(-1.04)	(0.29)	(-1.03)
DEV * LEVERAGE	0.345	0.801	0.311	0.789
	(0.55)	(1.54)	(0.45)	(1.54)
DEV * ROA	1.221	0.659***	1.984	0.675***
	(0.62)	(3.02)	(0.92)	(2.59)
DEV * LOSS	0.263	0.612*	-0.060	0.419
	(0.91)	(1.71)	(-0.18)	(1.09)
DEV * SPECIAL ITEM	0.437*	0.271	0.413	0.270
	(1.88)	(1.42)	(1.58)	(1.33)
DEV * REC_INV	1.848**	-1.305	1.696**	-1.416
	(2.27)	(-1.17)	(1.97)	(-1.23)
DEV * TANGIBLE	0.988	1.259	0.675	0.886
	(1.51)	(1.33)	(0.90)	(0.88)
DEV* RND	-0.002	0.014*	0.004	0.011
	(-0.22)	(1.92)	(0.44)	(1.63)
DEV*STDRET	1.148	-1.445*	1.288	-0.811
	(0.75)	(-1.70)	(0.75)	(-0.85)
DEV * STDCFO	-0.216	-0.879	0.024	-1.155*
	(-0.21)	(-1.49)	(0.02)	(-1.75)
DEV * STDINC	-3.801*	0.753	-3.992	0.755
	(-1.70)	(1.29)	(-1.53)	(1.06)
DEV * GENERAL EXPERIENCE	0.305**	0.296*	0.295*	0.285*
	(1.96)	(1.91)	(1.68)	(1.77)
DEV * ABILITY	-3.086***	-2.172***	-3.096***	-2.240***
	(-7.91)	(-11.05)	(-6.04)	(-10.40)
DEV * CONSTANT	-0.186	2.887***	0.625	3.153***
	(-0.20)	(4.39)	(0.59)	(4.47)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes	Yes	Yes
Analysts Fixed Effects	Yes	Yes	Yes	Yes
N	12,953	22,329	12,953	22,329
Adjusted R^2	0.212	0.182	0.209	0.183

This table models the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and Redaction indicator (REDACT) using ordinary least squares regressions. VC Backed (Non-VC Backed) represents an issuer does (does not) receive venture capital financing prior to the IPO. Analyst forecast ability measure is based on ABILITY_E in column [1] and [2] and is based on ABILITY_L in column [3] and [4]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Table 9 Regression Results for the test of H4: The Impact of Reg FD on Analysts' Overweighting of Private Information for Redacted IPOs

	Dependent Variable = FE	
	DEV= DEV_E	**DEV= DEV_L**
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)
POST_REGFD	0.003	0.003
	(0.72)	(0.74)
DEV * REDACT	0.244	-0.030
	(0.61)	(-0.06)
DEV * REDACT * POST_REGFD	**-1.095*** **	**-0.840***
	(-2.76)	**(-1.77)**
DEV * SIZE	0.002	-0.054
	(0.02)	(-0.46)
DEV * BOOK-TO-MARKET	0.189	0.135
	(0.88)	(0.52)
DEV * LEVERAGE	-0.526	-0.430
	(-0.96)	(-0.68)
DEV * ROA	0.342	0.537
	(1.23)	(1.62)
DEV * LOSS	0.809**	0.751*
	(2.56)	(1.95)
DEV * SPECIAL ITEM	-0.688**	-0.616*
	(-2.31)	(-1.77)
DEV * REC_INV	-0.524	-0.896
	(-0.47)	(-0.67)
DEV * TANGIBLE	2.334***	1.938*
	(2.61)	(1.95)
DEV* RND	0.119	0.119
	(1.03)	(1.04)
DEV*STDRET	-0.698	-0.759
	(-0.48)	(-0.46)
DEV * STDCFO	-1.446***	-1.483***
	(-2.86)	(-2.62)
DEV * STDINC	0.347	0.828
	(0.43)	(0.84)
DEV * GENERAL EXPERIENCE	0.773	0.843
	(1.53)	(1.38)
DEV * ABILITY	-1.985***	-1.894***
	(-3.95)	(-3.53)
DEV * CONSTANT	0.395	0.937
	(0.27)	(0.55)
Industry Fixed Effects	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes
Analysts Fixed Effects	Yes	Yes
N	7,814	7,814
Adjusted R^2	0.131	0.126
F statistic on combined DEV * REDACT and DEV * REDACT * POST_REGFD	4.26	3.58
P-value	0.04	0.06

This table investigates the effect of Reg FD on the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and Redaction indicator (REDACT) using ordinary least squares regressions. Analyst forecast ability measures based on ABILITY_E in column [1] and is based on ABILITY_L in column [2]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Table 10 The Impact of Analysts' Overweighting of Private Information on post-IPO performances for Redacted Firms

Dependent Variable =	**IDIOSYN**				
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)	[3] Parameter Estimates (t-statistics)	[4] Parameter Estimates (t-statistics)	[5] Parameter Estimates (t-statistics)
OVERWEIGHT				**0.012***	**0.011****
				(1.80)	**(2.03)**
SIZE	-0.002	-0.002*	-0.002*	-0.002*	-0.002*
	(-1.63)	(-1.66)	(-1.65)	(-1.71)	(-1.72)
BOOK-TO-MARKET	-0.006**	-0.006**	-0.006**	-0.006**	-0.006**
	(-2.30)	(-2.29)	(-2.30)	(-2.30)	(-2.30)
LEVERAGE	-0.005	-0.005	-0.005	-0.005	-0.005
	(-0.86)	(-0.85)	(-0.85)	(-0.89)	(-0.88)
ROA	-0.010	-0.010	-0.010	-0.010	-0.010
	(-1.21)	(-1.20)	(-1.21)	(-1.20)	(-1.20)
LOSS	0.002	0.002	0.002	0.002	0.002
	(0.82)	(0.84)	(0.83)	(0.84)	(0.83)
SPECIAL ITEM	-0.004*	-0.004*	-0.004*	-0.003*	-0.003*
	(-1.87)	(-1.87)	(-1.87)	(-1.84)	(-1.84)
REC_INV	-0.012	-0.012	-0.012	-0.012	-0.012
	(-1.22)	(-1.20)	(-1.20)	(-1.23)	(-1.24)
TANGIBLE	0.006	0.006	0.006	0.007	0.006
	(0.58)	(0.58)	(0.57)	(0.66)	(0.63)
RND	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.66)	(-0.66)	(-0.65)	(-0.62)	(-0.62)
STDRET	0.337***	0.337***	0.337***	0.337***	0.337***
	(7.77)	(7.68)	(7.68)	(7.70)	(7.70)
STDCFO	0.022	0.021	0.022	0.021	0.021
	(1.42)	(1.42)	(1.41)	(1.39)	(1.39)
STDINC	0.000	0.000	0.000	0.000	0.000
	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
GENERAL EXPERIENCE		-0.000	-0.000	0.000	0.000
		(-0.04)	(-0.04)	(0.02)	(0.04)
ABILITY		-0.001	-0.000	-0.002	-0.001
		(-0.26)	(-0.05)	(-0.33)	(-0.10)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
N	1,917	1,917	1,917	1,917	1,917
Adjusted R^2	0.522	0.522	0.522	0.522	0.523

This table models the post-IPO idiosyncratic risk (IDIOSYN) as a function of analysts' overweighting of private information (OVERWEIGHT) using ordinary least squares regressions for Redacted IPO firms, respectively. IDIOSYN is calculated as the mean square error from a regression of monthly firm stock returns regressed on Fama-French (1993) three factors and Carhart (1997) momentum factor over 18 months. I include firm-specific controls only in column [1] and additional analyst-level controls in columns [2]-[5]. OVERWEIGHT is an indicator variable equal to 1 if the coefficient on DEV_E (DEV_L) is positive when regressing FE on DEV_E (DEV_L) across analysts for the same firm- quarter, and zero otherwise. Equal (linear) weighting regime applies to OVERWEIGHT and/or ABILITY in columns [2] and [4] ([3] and [5]). All standard errors are clustered by firm. Two-tailed test statistics and significance levels are shown for all variables. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Table 11 Propensity Score Matching
Panel A: Descriptive Statistics before PSM

	Full Sample (N=1,068)	**REDACT=1 (N=709)**	**REDACT=0 (N=359)**	**Difference in Means**
	Mean (Standard Deviation)	Mean (Standard Deviation)	Mean (Standard Deviation)	t-statistics
ASSETS	4.93	4.90	5.00	(1.33)*
	(1.21)	(1.11)	(1.38)	
ADJ EBITDA	-0.05	-0.07	-0.02	(3.07)***
	(0.25)	(0.25)	(0.24)	
R&D	0.13	0.15	0.09	7.08***
	(0.15)	(0.17)	(0.10)	
FIRM AGE	2.33	2.25	2.48	(4.61)***
	(0.78)	(0.72)	(0.87)	
VC BACKED	0.66	0.74	0.50	8.18***
	(0.48)	(0.44)	(0.50)	
PRODUCT MARKET FLUIDITY	9.14	9.67	8.10	7.41***
	(3.36)	(3.39)	(3.06)	
MARKET SIZE	11.45	11.57	11.21	3.69***
	(1.53)	(1.50)	(1.55)	
ENTRY COSTS	10,233	10,802	9,108	3.24***
	(8,109)	(7,977)	(8,260)	
PRODUCT SUBSTITUTABILITY	1.18	1.19	1.16	5.53***
	(0.11)	(0.11)	(0.08)	
MARKET SHARE	0.02	0.01	0.03	(2.72)***
	(0.08)	(0.07)	(0.11)	
INDUSTRY IPO WAVE	0.73	0.75	0.68	(2.55)***
	(0.45)	(0.43)	(0.47)	

Panel A provides descriptive statistics for the variables used in PSM matching. Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

Panel B: PSM Probit Model

	Dependent Variable= REDACT
	Parameter Estimates (t-statistics)
ASSETS	0.252
	(3.66)***
ADJ EBITDA	-0.559
	(-2.26)**
R&D	2.077
	(1.71)*
FIRM AGE	-0.195
	(-1.51)
VC BACKED	0.673
	(3.36)***
PRODUCT MARKET FLUIDITY	0.077
	(2.30)**
MARKET SIZE	-0.019
	(-0.17)
ENTRY COSTS	-0.000
	(-0.05)
PRODUCT SUBSTITUTABILITY	0.896
	(0.82)
MARKET SHARE	-2.821
	(-1.76)*
INDUSTRY IPO WAVE	-0.181
	(-0.87)
Industry Fixed Effects	Yes
N	1,050
Pseudo R^2	0.121

Panel B provides probit models predicting whether firms conducting an IPO from 1996 through 2016 redact information from material contracts. The estimates are reported in log-odds form with t-statistics based on industry-clustered robust standard errors reported below in parentheses. Variable definitions are provided in Appendix IV.

Panel C: Replication of Table 4 Panel A using PSM matched Sample

	Dependent Variable = FE	
	DEV=DEV_E	**DEV=DEV_L**
	[1] Parameter Estimates (t-statistics)	[2] Parameter Estimates (t-statistics)
DEV * REDACT	**0.882***** **(3.51)**	**0.789***** **(2.76)**
DEV * SIZE	0.024 (0.29)	0.037 (0.41)
DEV * BOOK-TO-MARKET	0.426 (1.59)	0.543* (1.91)
DEV * LEVERAGE	1.492** (2.47)	1.052 (1.64)
DEV * ROA	-0.255 (-0.60)	-0.450 (-0.82)
DEV * LOSS	1.615*** (5.05)	1.477*** (4.14)
DEV * SPECIAL ITEM	-0.329 (-1.53)	-0.323 (-1.29)
DEV * REC_INV	1.351 (1.39)	1.206 (1.17)
DEV * TANGIBLE	2.353*** (3.47)	1.951*** (2.70)
DEV * RND	-0.019 (-0.47)	-0.021 (-0.62)
DEV * STDRET	-2.205** (-2.23)	-1.848 (-1.47)
DEV * STDCFO	-0.980 (-1.15)	-0.848 (-0.96)
DEV * STDINC	-0.575 (-0.37)	-1.601 (-0.85)
DEV * GENERAL EXPERIENCE	0.009 (0.06)	0.117 (0.68)
DEV * ABILITY	-1.669*** (-5.76)	-2.104*** (-6.07)
DEV * CONSTANT	0.113 (0.15)	0.302 (0.36)
Industry Fixed Effects	Yes	Yes
Quarter-Year Fixed Effects	Yes	Yes
Analysts Fixed Effects	Yes	Yes
N	11,706	11,706
Adjusted R^2	0.177	0.173

Panel C models the standardized forecast error (FE) as a function of analysts' forecasts deviating from consensus (DEV) and Redaction matched indicator (REDACT) using ordinary least squares regressions. Analyst forecast ability measure is based on ABILITY_E in column [1] and is based on ABILITY_L in column [2]. All standard errors are clustered by analyst. Two-tailed test statistics and significance levels are shown for all variables. The Statistical significance is indicated as follows: *** p<.01, ** p<.05, *p<.10. Variable definitions are provided in Appendix IV.

VITA

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