TWO ESSAYS ON IPO FIRMS' EARNINGS TORPEDO RISK

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PhD

The Hong Kong Polytechnic University

2022

The Hong Kong Polytechnic University

School of Accounting and Finance

Two Essays on IPO Firms' Earnings Torpedo Risk

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A thesis submitted in partial fulfillment of the requirements for

the degree of Doctor of Philosophy

April 2022

CERTIFICATE OF ORIGINALITY

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ABSTRACT

This thesis consists of two essays. The commonality of the essays is the valuation effects of missing analyst earnings forecasts as firms age. Missing analyst earnings forecasts may lead to earnings torpedoes. Earnings torpedo, as Skinner and Sloan (2002) note, is the fact that "missing analysts' forecasts, even by small amounts, causes disproportionately large stock price declines." This excessively large price drop reflects that the overoptimistic investors are disappointed and revise downward to the prior optimism. If young firms – firms going public recently – generally have overoptimistic investors, in the first essay, I examine whether younger firms face higher earnings torpedo risk. The second essay examines what role the accumulation of missing analyst forecasts plays in the negative relation between M/B and firm age.

To sell their shares successfully or at a higher valuation, firms raise investor expectations when going public. The risk from having overoptimistic investors is obvious and well documented in literature on post-IPO long-run performance. Nonetheless, how the inferior long-run returns to IPO firms are realized is not well investigated. This thesis addresses the channel in which investors' overly optimistic expectations formed at IPO are revised down in the post-IPO market when the realized earnings disappoint investors. Specifically, in the first essay, I examine whether younger firms face higher earnings torpedo risk. My study show that younger firms experience a disproportionately larger price drop to negative earnings surprises. The magnitude of average abnormal returns around negative earnings surprises declines from around 8% to near zero in firm age, and similar trend is not

observed around positive earnings surprises. Analysts following younger firms revise analysts revise their earnings forecasts down more when the firms they follow miss analyst forecasts. Younger firms are more likely to release management forecasts to guide expectations down after missing analyst forecasts. Consequently, the likelihood of missing analyst forecasts declines as firms age. The findings support that younger firms face higher earnings torpedo risk and suggest that missing analyst forecasts may be one channel through which the overly optimistic expectations at IPO are revised.

In the second essay, I examine whether missing analyst forecasts serves as one channel through which the overly optimistic expectations at IPO are revised. Specifically, I extend on Pastor and Veronesi's learning model and investigate whether the accumulation of missing analyst forecasts in a firm plays a role in the negative relation between market valuation and firm age. Pastor and Veronesi (2003) model that expected terminal value of equity increases with uncertainty about future profitability due to the convexity of compounding; uncertainty decreases over a firm's lifetime as information about the firm's profitability piles up. Proxy for the declining uncertainty, firm age is negatively associated with market valuation. I argue that missing analyst forecasts both reduces uncertainty and leads to downward revisions to prior optimism formed at IPO, hence lowering firm valuation. The adverse effect should be larger due to the higher earnings torpedo risk in younger firms. This implies that, as a proxy for firm valuation, M/B and changes in M/B should be related to the frequency and timing of missing consensus analyst earnings forecast.

Constructing two measures for the accumulation of missing analyst earnings forecast, I investigate the role of it in the negative relation between firm age and M/B. The two measures address the effects of both the frequency and timing on firm valuation from missing analyst forecasts. My findings show that the accumulation of missing analyst forecasts is positively associated with firm age and negatively associated with market to book ratio. More importantly, the effect of firm age on market-to-book ratio declines or diminishes after controlling the accumulation of missing analyst forecasts; the effect of firm age on the annual change in M/B declines after considering whether firms miss analyst forecasts in that year. Moreover, the accumulation of missing analyst forecasts is incremental to explain the market-to-book ratio in the cross section. My findings suggest that missing analyst forecasts is one channel through which the decline in M/B over a firm's lifetime is realized.

In sum, my two essays enhance our understanding how the downfall of IPO firms is realized and on the role of missing analyst forecasts in reshaping firms' valuation as they age.

ACKNOWLEDGEMENTS

Foremost, I would like to thank my chief supervisor, Professor LIN, Ji-Chai for his guidance, encouragement, and support during my Ph.D. journey. He patiently trains my research skills, inspires me to think critically and deeply, teaches me how to work efficiently, and guides me right when I go wrong. To me, he will always be the role model.

I would like to thank my mentor, Prof. ZHU, Jigao, for his encouragement and support from Beijing through this journey. I would like to thank my parents, who have always supported and loved me whatever I am. I would like to thank two of my friends, Dr. LING, Xiaoxu and Ms. YANG, Yanling, for sharing my emotions for the years. I would also like to express my greatest gratitude to all the classmates in AF who have been with me, all the teachers who have helped me, the School of Accounting and Finance, and The Hong Kong Polytechnic University.

I remember a question asked when I started my Ph.D. journey: what do you want to achieve by doing research? My answer was: to know the world. I was innocent and did not understand what the simple sentence takes. Luckily, I start to learn the way and I hold on doing research with the original aspiration.

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CHAPTER 1 DO IPO FIRMS FACE EARNINGS TORPEDO RISK?

1.1 Introduction

Overoptimistic investor expectations in IPO market benefit newly listed firms in several ways, such as an increased probability of successful listing and a higher valuation (Ritter 1991; Dunbar 1998). IPO firms engage in strategies to boost investor expectation (Loughran and Ritter, 1995; Pastor, Taylor, and Veronesi, 2009), i.e., taking the firms public when investors are more likely to be optimistic in IPO market, earnings management, hiring investors relations firms (Teoh, Welch, and Wong, 1998; Teoh, Wang, and Rao 1998, Teoh and Welch, 2002; Chahine, Colak, Hasan, and Mazboudi, 2020). Their underwriters also provide service that can boost investors' expectations, such as analysts who benefits from underwriting service will issue optimistic forecasts (e.g., Rajan and Servaes, 1997; Dechow, Hutton and Sloan, 2001; Degeorge, Derrien, and Womack, 2007).

Obviously, the cost the firms should bear from overly optimistic expectations is post-IPO long-run underperformance. Although it is common knowledge that post-IPO long-run performance reflect downward revisions to the overly optimistic expectations formed at IPO, how the inferior long-run returns are realized is not well investigated in prior studies. The essay investigates this question and shows that missing analyst forecasts may be one channel through which post-IPO long-run returns are realized. Missing analyst forecasts, event by small amounts, in younger firms is associated with a disproportionately larger price drop, namely an earnings torpedo.

I show that younger firms face higher earnings torpedo risk. Specifically, I examine whether younger firms experience larger earnings torpedoes when they miss analyst forecasts. If so, do the earnings torpedoes in younger firms reflects investors' disappointments and downward revisions to prior optimism; and are younger firms more likely to guide expectations down and avoid future misses after missing analyst forecasts? If above arguments are valid, does the earnings torpedo risk declines as firms age?

Skinner and Sloan (2002) propose that investors only make downward revisions to prior optimism upon earnings disappointments and that these revisions around earnings disappointments lead to excess price drops and hence earnings torpedoes. They use earnings torpedoes as additional evidence for the expectational errors hypothesis to explain the MB effect (La Porta, 1996). More studies also document the existence of earnings torpedoes in overpriced stocks when they miss analyst forecasts (Solomon, 2012; Mashwurala and Mashwurala, 2014; Bordalo, Gennaioli, La Porta, and Shleifer, 2019).

Due to the characteristics of IPO book building process, young firms are likely to have optimistic investors. First, firms going public and their underwriters boost investors' expectations up (e.g. Pastor, Taylor, and Veronesi, 2009; Teoh, Welch, and Wong, 1998; Chahine, Colak, Hasan, and Mazboudi, 2020; Degeorge, Derrien, and Womack, 2007). Second, the correction process is slow mainly because the underwriters provide price support and stabilization in the post-IPO market (Ellis, Michaely, and O'Hara, 2002). As one type of firms with overoptimistic expectations, younger firms should face larger earnings torpedo risk If the overly optimistic expectations are revised around missing analyst forecasts, younger firms are less likely to miss analyst forecasts again after missing analyst forecasts, and thus earnings torpedo risk declines as firms age.

First, if younger firms face higher earnings torpedo risk, younger firms should experience larger earnings torpedoes when missing analyst forecasts. I extend the research design in Skinner and Sloan (2002) and regress quarterly abnormal returns on the interactions of firm age and earnings surprises. I document that younger firms experience larger earnings torpedoes when they miss analyst forecasts. This result is not sensitive to different information environment in firms and a battery of robustness tests.

Second, I investigate whether the earnings torpedoes in younger firms are attributable to investors' downward revisions. I begin with including the effects of two alternative explanations: the higher unexpected accruals in younger firms or the higher uncertainty in younger firms. DeFond and Park (2001) show that the return response to negative earnings surprises in firms with positive unexpected accruals is more negative, suggesting investors' awareness and revisions to the positive unexpected accruals. Young firms may have positive unexpected accruals because firms tend to window dress their earnings around IPO, and the earnings torpedoes may reflect investors' adjustment to the positive unexpected accruals in younger firms. Christopher (2014) shows that the return response to negative earnings surprises when uncertainty is high is more negative, suggesting investors' aversion to ambiguity and hence overreaction to bad news in such condition. Young firms have higher uncertainty about future profitability, and the earnings torpedoes may reflect ambiguity-aversion investors' overreaction to the bad news in younger firms. I control measures to capture the unexpected accruals and uncertainty in firms and their interactions with earnings surprises. I find that the effects of firm age on the return response towards negative earnings surprises do not diminish. The results suggest that the two alternative explanations are insufficient to explain the larger earnings torpedoes in younger firms.

Next, I provide evidence from analyst forecasts for the explanation of investors' downward revisions for larger earnings torpedoes in younger firms. Given that analysts are as averse to earnings disappointments as investors, they should revise their forecasts down more when younger firms they follow miss analyst forecasts, just as investors revise down to their optimism in younger firms. I test whether analysts revise their earnings forecasts about one-year-ahead EPS and long-term earnings growth down more in younger firms they follow miss analyst forecasts[1]. The results show that the changes in analyst forecasts about both one-year-ahead EPS and long-term earnings growth are more negative in younger firms when missing analyst forecasts. The evidence suggests that investors are disappointed and thus revise their optimistic expectations down in younger firms.

Investors' expectations can also be guided by managerial efforts. Before a realized earnings torpedo, managers of newly listed firms may not be aware of the adverse consequence of missing analyst forecasts. That is, younger firms become aware and concerned by the possibility of future misses (Graham, Harvey and Rajpogal, 2005). In addition, the least costly way to avoid negative earnings surprises for firms with high prospect is expectations guidance. Thus, younger firms may be more likely to guide expectations down after they miss analyst forecasts. I investigate whether younger firms are more likely to release management forecasts that shortly fall below the previous consensus forecast. My results show that the likelihood and the frequency of management forecasts that shortly fall below the previous consensus forecast are larger for younger firms after missing analyst forecasts. The results suggest that younger firms become aware and concerned about missing analyst forecasts in future and are more likely to guide expectations down after missing analyst forecasts.

[1] I focus on analyst earnings forecasts for both short-term earnings and long-term earnings, as studies have shown the existence of analysts' forecast errors for these earnings (Ragan and Servaes 1997; Dechow, Hutton, and Sloan 2000).

Investors revise downward to their prior optimistic expectations when firms miss analyst forecasts. Firms intentionally guide investors' expectations down after missing analyst forecasts. Thus, the overly optimistic expectations formed at IPO are revised around missing analyst forecasts. As a result, the likelihood of future misses to analyst forecast is lowered around missing analyst forecasts as firms age. Thus, I investigate whether the likelihood of a miss to analyst forecast in future are smaller in younger firms after missing analyst forecasts. The result is consistent with my prediction and suggest that earnings torpedo risk declines as firms age.

The paper contributes to the literature in the two aspects. First, it documents the existence of earnings torpedo risk in younger firms. Prior studies show the existence of earnings torpedo risk in overpriced stocks (Skinner and Sloan, 2002; Solomon, 2012; Mashwurala and Mashwurala, 2014; Bordalo, Gennaioli, La Porta, and Shleifer, 2019). This essay extends the literature by showing that younger firms, as one type of overpriced stocks, face higher earnings torpedo risk. Second, it shows that the overly optimistic expectations in younger firms are corrected by missing analyst forecasts and suggest that missing analyst forecasts may be one channel through which the valuation of newly listed firms sinks.

The rest of the paper is organized as follows: Section 1.2 provides a review of related literature and hypothesis development, Section 1.4 presents the empirical work, Section 1.5 concludes.

1.2 Hypotheses Development and Related Literature

Skinner and Sloan (2002) first term earnings torpedo. It is a fact that missing analyst forecasts – even by a small amount – causes excessively large stock price drop. An earnings torpedo in stocks whose *ex ante* price incorporates investors' overly optimistic expectations reflects investors' downward revisions to these expectations in response to earnings disappointments. If the stock price of some stocks contains optimistic expectations, investors revise downward to prior optimism when being informed, and these stocks exhibit an asymmetrically large negative return in response to negative earnings surprises. Regressing returns around earnings announcements on both positive and negative earnings surprises and allowing for variations in return responses by market-to-book ratios, Skinner and Sloan find that stocks with the highest market-to-book ratios show asymmetrically large negative return in response to negative earnings surprises in the following 1 to 5 years. They propose that the association between market-to-book ratio and asymmetrical response to negative earnings surprises serve as additional evidence for the expectational error hypothesis to explain MB effect. Similarly, Solomon (2012) demonstrates that companies that use investor relations firms, which 'bluff' their clients' news by creating more positive media coverage, have significant lower returns around earnings announcements of negative earnings surprises. Mashruwala and Mashruwala (2014) find that stocks with both high divergence of opinion and high short-sale constraint show asymmetrically large negative return in response to earnings disappointments. Bordalo, Gennaioli, La Porta, and Shleifer (2019) model that investors with diagnostic expectations form overly optimistic expectations after a period with rapid earnings growth. These investors will be disappointed by subsequent earnings performance, resulting in reversal of prior optimism and low returns. The extent of the reversal, thus the magnitude of the low returns, depends on both a mean-reversal to fundamental and the waning of prior optimism.

Firms aware of the benefits of investors' overly optimistic expectations including a larger rate of successful listing or a larger amount of proceeds from the offering They are likely to adopt several strategies to gain those benefits, and those firms who are more likely to boost investors' expectations up at IPO are followed by more negative post-IPO long-run abnormal returns. First, firms time the market by going public during periods when investors are overly optimistic, for example, hot issue markets or periods when investors overreact (underreact) to good (bad) news (Loughran and Ritter, 1995; Pastor, Taylor, and Veronesi, 2009). Second, firms usually window dress their earnings just before or at IPO (Teoh, Welch, and Wong, 1998; Teoh, Wang, and Rao 1998, Teoh and Welch, 2002). Third, they hire investor relations firms to bluff their future through positive media coverage (Chahine, Colak, Hasan, and Mazboudi, 2020). More importantly, analysts, who benefits significantly from underwriting service, issues overly optimistic earnings forecasts or recommendations for IPO firms (Rajan and Servaes, 1997; Dechow, Hutton, and Sloan, 2001; Degeorge, Derrien, and Womack, 2007).

In addition, the correction process to the overly optimistic expectations in stock price in the post-IPO market is slow because the underwriters provide price support for firms (Hanley, Kumar and Seguin, 1993). Ellis, Michaely and O'Hara (2000) demonstrate that the lead underwriter of a newly listed firm becomes the market maker and the most active dealer. He takes a significant long position and face high inventory risk. Meanwhile, he cares about his reputation and is cautious with the price impacts and order imbalance in the post-IPO market. Thus, the overly optimistic expectations in stock price of a newly listed firm may not be corrected instantly in the IPO aftermarket, and hence younger firms may have more optimistic investors on average.

To the extent that stocks whose price contains an optimistic expectational error experience larger earnings torpedoes in response to negative earnings surprises and that younger firms have more optimistic investors, I have the first hypothesis:

H_1: Younger firms experience larger earnings torpedoes when they miss analyst forecasts.

In scenarios of negative earnings surprises, analysts should behave consistently with investors because both of them have little tolerance for disappointments. Negative earnings surprises indicate a firm's unexpected financial deterioration and are a red flag to investors, alerting observant analysts to the need to revise their earnings forecasts and recommendations (Brown and Rozef, 1979). Analysts respond negatively and strongly to negative earnings surprises. The drop in the consensus of analyst forecast is even larger in response to a large negative earnings surprise (Barron, Byard and Yu, 2008). Analysts also revise their recommendation down after announcements of negative earnings surprises (Lu, Hou, Oppenheimer, and Zhang, 2018). If the larger earnings torpedoes reflect investors' downward revision to prior optimistic expectations in younger firms, analysts following these younger firms should make similarly significant downward revisions in their forecasts on average. Thus, I have the second hypothesis:

H_2: Analysts following younger firms revise their earnings forecasts downward more when the firms they follow miss analyst forecasts.

Firms, concerned about future misses to analyst forecasts, take actions to avoid missing analyst forecasts (Graham, Harvey and Rajpogal, 2005). Specifically, for firms with high growth prospect, expectations management through warning of bad news, such as management forecasts, is the least costly way (Matsumoto 2002). Young firms become aware of the cost of missing analyst forecasts and thus concerned. To avoid future misses, young firms will take actions after an experience of earnings torpedo. Thus, I present the third hypothesis:

H_3: Younger firms are more likely to release management forecasts to guide expectations down after missing analyst forecasts.

If above hypotheses are valid, the overly optimistic expectations are revised down by one and another miss to analyst forecasts as newly listed firms age. Namely, a newly listed firms will have lower investors' expectations after experiencing one miss analyst forecasts and thus a lower likelihood of an additional miss to analyst forecast. Thus, I have the fourth hypothesis:

H_4: The likelihood of missing analyst forecasts declines as firms age.

1.3 Data and Descriptive Statistics

The data for the baseline sample is from the Center for Research in Security Prices (CRSP), COMPUSTAT, and I/B/E/S. The sample period is from 1984 to 2019. I exclude all financial firms with SIC code between 6000 and 6999 and utilities with SIC code between 4900 and 4999. I require a firm-quarter included in the sample if it satisfies the following criteria: (1) available data to calculate firm ages and the quarterly market-to-book ratios; (2) available data to calculate non-missing earnings surprises for the current quarter and subsequent four quarters[2]; (3) available data to compute non-missing quarterly returns, the changes in analyst forecast for long-term earnings growth[3]. Consequently, the baseline sample contains 182,577 firm-quarters and 727,900 observations.

Table 1.1 illustrates the descriptive statistics. Skinner and Sloan (2002) use year-by-year cross sectional regressions with adjusted standard errors. I use panel regressions controlling for both quarter and firm fixed effects. To show that both the extending sample and the discretion in regression technique do not impact the results. I first replicate SS's specification 3 (Table 4) with the extending sample, using both Fama-Macbeth regression and panel regression. The results are present in Table 1.2.

[2] This requirement excludes many observations if the firms do not have all four announcements in the following fiscal year, and it is the main reason why the size of the sample between 1984 to 2019 is only twice as large as the size of Skinner and Sloan's sample between 1984 to 2000. I also run my tests relaxing this requirement. The relaxation results in a sample comparable to Skinner and Sloan's. Nonetheless, I keep the requirement in the main results because young firms that are shortly delisted are excluded with this requirement. Consequently, the main results are less sensitive to the delisting rate.

[3] I do not require a firm-quarter-subsequent quarter to have a non-missing change in analyst forecast for one-year ahead EPS since this variable is missing for all the fourth quarters.

Column (1) presents the result of Fama-Macbeth regression is comparable and consistent with Table 4 in Skinner and Sloan (2002): the negative relation between *GROWTH* and subsequent quarterly returns declines after controlling the interactions between earnings surprises and ***GROWTH***; and an asymmetrically large price drop exists in firms with higher ***GROWTH***. The result from the panel regressions is present in Column (2). Except that the negative relation between ***GROWTH*** and subsequent quarterly returns is not weakened after controlling the interactions between earnings surprises and ***GROWTH***. Thus, the discretion in regression technique does not have an impact on the empirical relation.

1.4 Firm Age and Earnings Torpedo Risk

In this section, I examine whether younger firms experience larger earnings torpedoes when they miss analyst forecasts. First, I use portfolio analysis and tabulate the frequency of earnings surprises, the average quarterly earnings surprises, and average quarterly returns for portfolios sorted by both the signs of earnings surprises and firm age. First, similarly as Skinner and Sloan (2002)I present the predictions for how returns behave in response to earnings performance in two scenarios: (1) the scenario where younger firms do not experience larger earnings torpedoes when missing analyst forecasts, and (2) the scenario where younger firms experience larger earnings torpedoes when missing analyst forecasts. In the former scenario, , the abnormal returns around earnings announcements of younger firms are more negative (less positive) regardless of meeting or missing analyst forecasts.In the latter scenario where younger firms face higher earnings torpedo risk, the abnormal returns when missing analyst forecasts of younger firms are more negative while the abnormal returns when meeting analyst forecasts of younger firms are indifferent relative to older firms. The hypothetic statistics is present in Table 1.3.

Second, extending on Skinner and Sloan's specification 3, I regress quarterly abnormal returns (***QRET***) on firm ages (***AGE***), earnings surprises (***GOODNEWS***, ***BADNEWS***), and their interactions (***GOODNEWS× AGE***, ***BADNEWS× AGE***). The objective of this chapter is to focus on the asymmetrical return responses towards missing analyst forecasts in young firms, rather than the variations in ERC. Based on this objective, I make two changes about the model's specification. First, instead of dividing firms into three groups – with positive, zero, and negative earnings surprises – and benchmarking to the group with zero earnings surprises I divide firms into two groups – that meet analyst forecasts and that miss analyst forecasts. Second, instead of using interactions to capture both the sign and magnitude of earnings surprises[4], I use two variables – ***BADNEWS*** and ***GOODNEWS*** – to capture the sign and magnitude of earnings surprises. The regression models used are as follow.:

$$\begin{aligned} QRET_{iq\tau} = {} & \beta_1 \cdot GOODNEWS_{iq\tau} + \beta_2 \cdot BADNEWS_{iq\tau} + \beta_3 \cdot AGE_{iq} + \beta_4 \\ & \cdot \left(GOODNEWS_{iq\tau} * AGE_{iq}\right) + \beta_5 \cdot \left(BADNEWS_{iq\tau} * AGE_{iq}\right) \\ & + Firm(Industry)\ FE + Quarter\ FE + \varepsilon_{iq\tau}, \tau = 1,2,3,4 \end{aligned} \tag{1.1.1}$$

$$\begin{aligned} QRET_{iq\tau} = {} & \beta_1 \cdot GOODNEWS_{iq\tau} + \beta_2 \cdot BADNEWS_{iq\tau} + \beta_3 \cdot AGE_{iq} + \beta_4 \\ & \cdot \left(GOODNEWS_{iq\tau} * AGE_{iq}\right) + \beta_5 \cdot \left(BADNEWS_{iq\tau} * AGE_{iq}\right) \\ & + \gamma_1 \cdot GROWTH_{iq} + \gamma_2 \cdot \left(GOODNEWS_{iq\tau} * GROWTH_{iq}\right) \\ & + \gamma_3 \cdot \left(BADNEWS_{iq\tau} * GROWTH_{iq}\right) + Firm\ FE \\ & + Quarter\ FE + \varepsilon_{iq\tau}, \tau = 1,2,3,4 \end{aligned} \tag{1.1.2}$$

where AGE_{iq} is the minus reciprocal of one plus years since the born date of the firm *i* at quarter *q*, $GOODNEWS_{iq\tau}$ is the non-negative earnings surprise for firm *i* at quarter *q*+*τ*, and $BADNEWS_{iq\tau}$ is the negative earnings surprise for firm *i* at quarter *q*+*τ*. The definitions of other variables are listed in Appendix 1.A. If younger firms experience larger earnings torpedoes when missing analyst forecasts, the coefficient on ***BADNEWS× AGE*** will be significantly negative, and the magnitude of it should be

[4] Skinner and Sloan first define deflated earnings surprises as FE. They then define two indicator variables based on the sign of earnings surprises: *GOOD* for positive earnings surprises and *BAD* for negative earnings surprises. The interaction between FE and GOOD captures the sign and magnitude of earnings surprises in the group reporting positive earnings surprises. The interaction between FE and BAD captures the sign and magnitude of earnings surprises in the group reporting negative earnings surprises.

larger than the magnitude of the coefficient on ***GOODNEWS* × *AGE*** if the latter one is also significantly negative. Otherwise, younger firms do not show larger earnings torpedoes when missing analyst forecasts.

1.4.1 Portfolio Analysis

Table 1.4 provides empirical evidence on the relation among quarterly abnormal returns, firm age, and the signs of earnings surprises. First, I sort observations based on the quintiles of firm ages at each quarter and the signs of earnings surprises. Each of the resulting ten cells reports the mean quarterly abnormal returns, the number of observations falling into that cell, and the proportion of each row's observations falling into that cell. The column at the far right and the row at the bottom of the table report the averages across the earnings surprise portfolios and the firm age portfolios respectively.

Focusing first on the right-most column, the youngest firms report negative quarterly abnormal returns while the oldest firms report positive quarterly abnormal returns on average. Then focus on the bottom row, firms meeting analyst earnings forecast generate a 0.03% average quarterly abnormal return while firms missing analyst earnings forecast generate a -0.05% average quarterly abnormal return[5].

Focusing on the cells that sorted based on both firm age and the sign of earnings surprises, they show to be consistent with the hypothetical statistics in Panel B of Table 1.3. The mean abnormal returns in portfolios of meeting analyst forecasts show no systematic trend as a function of firm age. Nonetheless, the portfolios of missing analyst forecasts show a monotonically increasing pattern of mean quarterly abnormal returns with firm ages. The mean abnormal quarterly return for the young firm is -7.30% while that for portfolio 4 is -2.88%. The asymmetrical increasing abnormal returns in firm

[5] In Skinner and Sloan (2002), the quarterly return differential between growth firms and value firms is 1.24%, which is 5.05% if compounding into an annual basis. The frequency of reporting negative earnings surprise 40.2%.

age in portfolios of missing analyst forecasts is consistent with the prediction that younger firms experience larger earnings torpedoes when missing analyst forecasts.

1.4.2 Regression Analysis

The results of regression analysis are present in Table 1.5. Panel A reports the estimated coefficients of models (1.1.1) and (1.1.2). In Column (1), model (1.1.1) is regressed. The coefficients on both ***GOODNEWS*** and ***BADNEWS*** are significant and positive, consistent with results in the literature on earnings response coefficient. The coefficients on both ***GOODNEWS***×***AGE*** and ***BADNEWS***×***AGE*** are significant and negative, with the latter ($\boldsymbol{\beta_5}$) is larger in magnitude[6]. In Column (2), model (1.1.2) is regressed, including ***GROWTH***, ***GOODNEWS***×***GROWTH***, and ***BADNEWS***×***GROWTH***. In Column (3), more controls are added. The coefficients on ***GOODNEWS***×***AGE*** and ***BADNEWS***×***AGE*** remain to be significant and negative, with the latter ($\boldsymbol{\beta_5}$) is larger in magnitude. This suggests that younger firms experience larger price drops towards negative earnings surprises.

I compare the estimated coefficients on ***AGE*** and its interactions with earnings surprises with those on ***GROWTH*** and its interactions with earnings surprises. The magnitude of the estimated coefficients on ***GOODNEWS***×***GROWTH*** declines by a small amount, and the magnitude on ***BADNEWS***×***GROWTH*** declines significantly[7]. The decline in the effect of ***BADNEWS***×***GROWTH*** on quarterly abnormal returns after controlling for ***BADNEWS***×***AGE*** implies that both firm age and the market-to-book ratio are related through some unobserved variable. The result is consistent with the unobserved variable being investors' optimism in young firms..

[6] I conduct a F-test to check whether β_4 and β_5 is different in magnitude: the F Score is 5.90 and the *p*-value is 0.016.

[7] I conduct a Chow test for the magnitude of the coefficient on the before and after the inclusion of firm ages and the interactions with earnings surprises. The unreported result of the Chow test shows that the decline in the magnitude of the coefficient on is significant.

I conduct a battery of cross-sectional tests based on the level of the overoptimistic expectations at IPO[8]. One premise of the existence of higher earnings torpedo risk in younger firms is investor overoptimism at IPO. This implies that IPO firms with higher expectations at the IPO should face larger earnings torpedo risk afterwards. In other words, the presence of higher earnings torpedo risk in younger firms relative to their old times concentrates on firms with higher investors' overoptimistic expectations at the IPO. Therefore, I re-run the model (1.1.2) in two subsamples categorized by the levels of investors' overoptimistic expectations at the IPO. A firm is categorized into having a higher investors' overoptimistic expectations at IPO if (a) it goes public during a hot IPO market; (b) it experiences higher underpricing; (c) it has done earnings management right before or upon the IPO; (d) it sets a lower offer price; and (e) it conducts an effective M&A within the first year after the IPO. To save space, I include the tables in Appendix B. In brief, the results show that the declining trend in the price response to negative earnings surprises with firm age is stronger for firms with a higher investor overoptimism at IPO.

1.4.3 Alternative Explanations for Larger Earnings Torpedoes in Younger Firms

Although the larger earnings torpedoes in younger firms when reporting negative earnings surprises are consistent with the prediction of the expectational errors hypothesis, the evidence is also consistent with the predictions of alternative explanations if younger firms share similar characteristics that can cause investors' responses towards negative earnings surprises to be larger. I address two alternative explanations: the earnings management hypothesis and the ambiguity aversion hypothesis.

[8] In the subsample analysis with regards to the variant initial optimism at the IPO in Section 8, I extract IPO data from WRDS – SDC – New Issues. I include IPO firms following the cleaning methodology in Fernando et al. (2004). The detailed cleaning process is attached in the Appendix.

The price responses towards negative earnings surprises maybe larger for firms with upward earnings management. In firms with upward earnings management, the actual earnings are overstated due to the existence of some positive unexpected accruals. Investors, aware of the reversal of these accruals, adjust these accruals from the nominal earnings. Thus, the price drops towards negative earnings surprises are larger while the price climbs towards positive earnings surprises are smaller in firms with positive unexpected accruals (DeFond and Park 2001).

Firms conduct earnings management before or at IPO (Teoh et al., 1998a; 1998b). Therefore, chances are that the larger earnings torpedoes in younger firms reflect that younger firms have higher unexpected accruals. To exclude the effect of higher unexpected accruals in younger firms, I control the presence of positive unexpected accruals and their interaction with earnings surprises in the model (1.1.2). The presence of positive unexpected accruals is defined as an indicator that equals one if the unexpected working-capital accruals are positive and zero otherwise. If the larger earnings torpedoes in younger firms is due to the higher unexpected accruals in younger firms, the effect of ***BADNEWS×AGE*** on returns should diminish after controlling for the effects of high unexpected accruals.

The results of regressions including the effect of unexpected accruals is present in Panel A of Table 1.6. The regressions are run in a smaller sample due to the limited data availability to calculate unexpected accruals from quarterly working capitals. In Column (1), I re-run model (1.1.2). The result is consistent with that in Table 1.4, suggesting that younger firms in the subsample face larger earnings torpedoes when missing analyst forecasts. In Column (2), the variables capturing the asymmetrical response associated with the existence of upward accrual management are included. In Column (3), all other controlled used are included. The estimated coefficients on

BADNEWS*×*INCR and ***BADNEWS*×*INCR*** are insignificant, and it is because the effect of the existence of positive unexpected accruals is absorbed after the inclusion of firm age and the interactions with earnings surprises[9]. The result shows that the asymmetrically larger price response to negative earnings surprises in younger firms remains significant, suggesting that the larger earnings torpedoes in younger firms is not fully explained by the possibility that younger firms tend to manage accruals upward.

The second alternative explanation is the ambiguity aversion hypothesis. Investors put heavier weight on new information if the uncertainty about the prior belief is high. The weight on bad news is even heavier in the case of higher or increasing uncertainty because investors are ambiguity averse. Christopher (2014) proposes it and documents that the price response to negative earnings surprises is larger when the VIX index increases.

The uncertainty about future profitability is relatively high for newly listed firms. Therefore, chances are that the larger earnings torpedoes in younger firms reflect that ambiguity-averse investors overreact to bad news in younger firms. To address the effect of uncertainty, I control return volatility and its interaction with earnings surprises in the model (1.1.2). If the larger earnings torpedoes in younger firms is due to the higher uncertainty in younger firms, the effect of ***BADNEWS*×*AGE*** on returns should diminish after controlling the effects of uncertainty.

Panel B of Table 1.6 reports the result. The regressions are run in a smaller sample due to the limited data availability to calculate return volatility using daily returns. In Column (1), I re-run model (1.1.2). The result is consistent with that in Table 1.4,

[9] I have run regression with only the inclusion of the existence of positive unexpected accruals and the interactions with earnings surprises, and the result shows that the price response towards negative earnings surprises are larger for firms with positive unexpected accruals.

suggesting that younger firms in the subsample face larger earnings torpedoes when missing analyst forecasts. In Column (2), the variables capturing the asymmetrical response associated with uncertainty are included. In Column (3), all other controlled used are included. The estimated coefficients show that investors' response towards both good news and bad news increases when uncertainty is high, consistent with Bayesian learning theory. The result from an unreported *F*-test shows that the magnitude on ***BADNEWS***×***RETVOL*** is significantly smaller than that of the coefficient of ***GOODNEWS***× ***RETVOL***, suggesting that investors aversion to undertainty may not demand IPO shares. Moreover, the larger price increase towards positive earnings surprises in younger firms diminishes after separating uncertainty, suggesting that the larger price response to positive earnings surprises in younger firms may reflect investors' heavier weight on new information when uncertainty is high, consistent with the finding in Lang (1991). The results suggest that the larger earnings torpedoes in younger firms is not explained by the higher uncertainty in younger firms.

Although younger firms have some characteristics that lead to an asymmetrically larger price response to negative earnings surprises, I do not find evidence showing that these characteristics fully explain the larger earnings torpedoes in younger firms. The results, taken together, suggest that the optimistic errors in young firms may be one explanation for the larger earnings torpedoes in younger firms.

1.5 Firm Age and Investors' Downward Revisions to Prior Expectations

In this section, I explore whether the optimistic errors in young firms attribute to the larger earnings torpedoes in younger firms. I test whether investors revise their expectations downward upon earnings disappointments using analyst forecasts to proxy for expectations[10]. If analysts are optimistic about younger firms' future earnings and

[10] Using analyst forecasts can eliminate the concern that market frictions drive the results.

release forecasts accordingly,, they are disappointed and revise their forecasts down more if younger firms miss analyst forecasts.

Prior studies document that analysts make overoptimistic expectation errors about IPO firms with regards to one-year-ahead EPS (EPS1) and long-term earnings growth (LTG). If current negative earnings surprises in younger firms signal to analysts to revise their earnings forecasts down, they should revise their forecasts for EPS1 and LTG down more in younger firms. Thus, I test whether the changes in analyst forecast for EPS1 and LTG are more negative for younger firms reporting negative earnings surprises using model (1.2.1):

$$\begin{aligned}\{\Delta EPS1_{iq\tau}, \Delta LTG_{iq\tau}\} &= \beta_1 \cdot GOODNEWS_{iq\tau} + \beta_2 \cdot BADNEWS_{iq\tau} + \beta_3 \cdot AGE_{iq} \\ &+ \beta_4 \cdot (GOODNEWS_{iq\tau} * AGE_{iq}) + \beta_5 \\ &\cdot (BADNEWS_{iq\tau} * AGE_{iq}) + \gamma_1 \cdot GROWTH_{iq} + \gamma_2 \\ &\cdot (GOODNEWS_{iq\tau} * GROWTH_{iq}) + \gamma_3 \\ &\cdot (BADNEWS_{iq\tau} * GROWTH_{iq}) + Firm\ FE + Quarter\ FE \\ &+ \varepsilon_{iq\tau}, \tau = 1,2,3,4\end{aligned} \tag{1.2.1}$$

If analysts revise their prior overoptimistic forecasts down more for younger firms in response to negative earnings surprises, the coefficient on ***BADNEWS***×***AGE*** will be significant and negative.

The regression results of model 1.2.1 are present in Table 1.7. Panel A reports the result if the dependent variable is the change in analyst forecast revision in one-year-ahead EPS (Δ***EPS1***). Since the change in analyst forecast revision is calculated around an earnings announcement, Δ***EPS1***are only observed for the first three fiscal quarters (fqtr = 1,2,3). In Column (1), only firm ages and the interactions with earnings surprises are included. In Column (2), the growth quintiles and their interactions with earnings surprises are included. In Column (3), more controls are included. Δ***EPS1*** is negatively related to firm age, consistent with the revision in expectation declines more in younger firms. The estimated coefficients on both ***BADNEWS***×***AGE*** and ***GOODNEWS***×***AGE*** are significant and negative. The coefficient on ***BADNEWS*×*AGE*** is larger in magnitude and significance than that on ***GOODNEWS×AGE***.. The results suggest that analysts following younger firms revise their one-year-ahead earnings forecasts down more when the firms they follow miss analyst forecasts.

Panel B of Table 1.7 reports the result if the dependent variable is the change in analyst forecast revision in long-term earnings growth (**∆*LTG***). In Column (1), only firm ages and the interactions with earnings surprises are included. In Column (2), the growth quintiles and their interactions with earnings surprises are included. In Column (3), more controls are included. **∆*LTG*** is positively related to firm age, consistent with the revision in expectation declines more in younger firms. The estimated coefficients on ***BADNEWS*×*AGE*** are significant and negative, and those on ***GOODNEWS*×*AGE*** are insignificant.The results suggest that analysts following younger firms revise their long-term earnings forecasts down more when the firms they follow miss analyst forecasts.. Moreover, **∆*LTG*** is negatively associated with ***GROWTH***, and the estimated coefficients on both ***BADNEWS*×*GROWTH*** and ***GOODNEWS*×*GROWTH*** are significant and positive. This suggests that analysts following growth firms revise their forecasts upward more when the firms meet analyst forecasts and revise their forecasts downward more when the firms miss analyst forecasts.

The findings show that analysts following younger firms revise their forecasts more when the firms miss analyst forecasts, suggesting that investors' downward revisions to prior optimistic expectations attribute to the larger earnings torpedoes in younger firms.

1.6 Firm Age and Managers' Expectation Management

In this section, I investigate whether younger firms are more likely to release management forecasts to guide expectations down after missing analyst forecasts. After experiencing one earnings torpedo, young firms become aware of the cost of missing analyst forecasts and take actions to avoid future misses. As firms with high growth prospect, the least costly way for young firms is to use management forecasts to guide expectations down. The same incentive may also result in increasing upward earnings management in young firms. Specifically, I investigate whether younger firms are more likely to release management earnings forecasts that shortly fall prior consensus earnings forecasts and conduct upward earnings management after missing analyst forecasts.

1.6.1 Downward Earnings Guidance

First, I examine whether younger firms are more likely to release management earnings forecasts that shortly fall prior consensus earnings forecasts after missing analyst forecasts. Specifically, I test whether both likelihood and frequency of management forecasts that shortly fall the previous consensus earnings forecast are larger for younger firms in the subsequent 4 quarters after missing analyst forecasts, using model (1.3.2) as follows:

$$\begin{aligned}\{MF_{iq\tau}, \#MF_{iq\tau}\} &= \beta_1 \cdot GOODNEWS_{iq} + \beta_2 \cdot BADNEWS_{iq} + \beta_3 \cdot AGE_{iq} + \beta_4 \\ &\cdot (GOODNEWS_{iq} * AGE_{iq}) + \beta_5 \cdot (BADNEWS_{iq} * AGE_{iq}) \\ &+ \gamma_1 \cdot GROWTH_{iq} + \gamma_2 \cdot (GOODNEWS_{iq} * GROWTH_{iq}) \\ &+ \gamma_3 \cdot (BADNEWS_{iq} * GROWTH_{iq}) + Firm\ FE \\ &+ Quarter\ FE + \varepsilon_{iq\tau}, \tau = 1,2,3,4 \end{aligned} \quad (1.3.2)$$

Table 1.8 reports the results. Panel A reports the estimated coefficients of the OLS regressions when the dependent variable is an indicator that equals one if a firm's manager releases at least one management forecast for EPS that shortfalls the previous consensus and zero otherwise. The coefficient on ***GROWTH*** is significant and positive, consistent with that the managers in growth firms are more likely to release voluntary forecasts. The coefficient on ***AGE*** is significant and positive, suggesting that managers are more likely to release management forecast for EPS that shortfalls the previous consensus as firms age. The coefficients on ***BADNEWS*×*AGE*** are significant and positive, and the coefficient on ***GOODNEWS*×*AGE*** is insignificant. The results suggest that younger firms are more likely to release management forecasts that shortly falls the previous consensus earnings forecasts after missing analyst forecasts.

Panel B of Table 1.8 reports the estimated coefficients of the regressions when the dependent variable is the number of management forecasts for EPS that shortly falls the previous consensus in the following quarter. The coefficient on ***AGE*** is significant and positive, suggesting that managers release more management forecast for EPS that shortfalls the previous consensus as firms age. The coefficients on ***BADNEWS*×*AGE*** are significant and positive, and the coefficients on ***GOODNEWS*×*AGE*** become insignificant after more controls. The resultssuggest that younger firms are likely to release more management forecasts for EPS that shortly falls the previous consensus earnings forecast missing analyst forecasts.

1.6.2 Upward Accrual Management

Second, as a robust test, I examine whether younger firms are more likely to manage earnings upward after missing analyst forecasts. Specifically, I test whether the likelihood of future positive abnormal accruals is higher in younger firms after missing analyst forecasts, using the following specification[11].

$$\begin{aligned}\{FUTUREEM_{iq\tau}\} &= \beta_1 \cdot GOODNEWS_{iq} + \beta_2 \cdot BADNEWS_{iq} + \beta_3 \cdot AGE_{iq} + \beta_4 \\ &\cdot \left(GOODNEWS_{iq} * AGE_{iq}\right) + \beta_5 \cdot \left(BADNEWS_{iq} * AGE_{iq}\right) \\ &+ \gamma_1 \cdot GROWTH_{iq} + \gamma_2 \cdot \left(GOODNEWS_{iq} * GROWTH_{iq}\right) \\ &+ \gamma_3 \cdot \left(BADNEWS_{iq} * GROWTH_{iq}\right) + Firm\ FE \\ &+ Quarter\ FE + \varepsilon_{iq\tau}, \tau \epsilon [1,4]\end{aligned} \tag{1.3.1}$$

[11] Unlike other tests, this is an annual basis test. The discretionary accruals are calculated following DD (2002) and uses annual earnings. Annual earnings are included if they are announced with 12 months following the formation of the age and growth portfolios. The result is not sensitive if annual earnings for next fiscal year are used.

Table 1.8 reports the results. The estimated coefficients are from the OLS regressions when the dependent variable is an indicator that equals one if the residual change in working capitals from the DD model is positive and zero otherwise (***FUTUREEM***). The coefficient on ***GROWTH*** is significant and positive, consistent with prior studies that growth firms tend to manage earnings upward. The coefficients on ***BADNEWS***×***GROWTH*** aresignificant and positive, and the coefficients on ***GOODNEWS***×***GROWTH*** are significant and negative. The formers are larger than the latters in absolute value. The results suggest that growth firms are more likely to manage earnings up, and the tendency is stronger after missing analyst forecasts. Moreover, the coefficients on ***BADNEWS***×***AGE*** are significant and positive, and the coefficients on ***GOODNEWS***×***AGE*** is insignificant. The results suggest that younger firms are more likely to manage earnings up after missing analyst forecasts.

Taken together, the results imply that younger firms are more likely to guide expectations down after missing analyst forecasts.

1.7 Firm Age and Future Misses to Analyst Forecast

In this section, I investigate whether the likelihood of missing analyst forecasts declines as firms age. If the overly optimistic expectations are revised downward around the subsequent misses to analyst forecasts, by investors' downward revisions or managerial intentions to guide expectations down, the likelihood for a future miss to analyst forecast should be lowered in young firms. Thus, I test whether both likelihood and magnitude of future earnings disappointments are smaller for younger firms after missing analyst forecasts, using model (1.4.1) as follows.

$$\begin{aligned}\{MISS_{iq\tau}, FUTUREFE_{iq\tau}\} &= \beta_1 \cdot GOODNEWS_{iq} + \beta_2 \cdot BADNEWS_{iq} + \beta_3 \cdot AGE_{iq} + \beta_4 \\ &\cdot (GOODNEWS_{iq} * AGE_{iq}) + \beta_5 \cdot (BADNEWS_{iq} * AGE_{iq}) \\ &+ \gamma_1 \cdot GROWTH_{iq} + \gamma_2 \cdot (GOODNEWS_{iq} * GROWTH_{iq}) \\ &+ \gamma_3 \cdot (BADNEWS_{iq} * GROWTH_{iq}) + Firm\ FE \\ &+ Quarter\ FE + \varepsilon_{iq\tau}, \tau = 1,2,3,4\end{aligned} \qquad (1.4.1)$$

Table 1.10 report the results. Panel A reports the estimated coefficients for the OLS regressions when the dependent variable is an indicator that equals one if the earnings surprises for a subsequent quarter are negative and zero otherwise (***MISS***). The coefficient on ***GROWTH*** is significant and negative, consistent if growth firms successfully guide expectations down. The coefficient on ***BADNEWS***×***GROWTH*** is significant and negative, and the coefficient on ***GOODNEWS***× ***GROWTH*** is significant and negative. The latter is larger than the former in magnitude, suggesting that growth firms are less likely to miss analyst forecasts again after meeting analyst forecasts. The coefficient on ***AGE*** is significant and positive, indicating that a firm becomes more likely to miss analysts' earnings forecast as it ages unconditionally. The coefficient on ***BADNEWS***×***AGE*** is significant and negative, and the coefficient on ***GOODNEWS***×***AGE*** is insignificant. The results indicate that younger firms are less likely to miss analyst forecasts again after missing analyst forecasts.

Panel B of Table 1.10 reports the estimated coefficients for regressions when the independent variable is the earnings surprises for a subsequent quarter (***FUTUREFE***). The coefficient on ***GROWTH*** is significant and negative, consistent if growth firms have more optimistic forecasts. The coefficient on ***BADNEW***S×***AGE*** is significant and positive, and the coefficient on ***GOODNEWS***× ***GROWTH*** is significant and negative. The results indicate that younger firms report less negative earnings surprises in future after missing analyst forecasts. Taken together, the results imply that both likelihood and magnitude of future misses to analyst forecasts in younger firms are lowered after missing analyst forecasts.

1.8 Conclusion

In this chapter, I examine whether younger firms face higher earnings torpedo risk. First, I show that younger firms experience larger earnings torpedoes when missing analyst forecasts. Second, I show that analysts following young firms revise their forecasts down more after the firms they follow miss analyst forecasts. The changes in analyst earnings forecasts for one-year-ahead EPS and long-term earnings growth are more negative in younger firms in response to negative earnings surprises. The evidence suggests that investors' downward revisions to prior overoptimistic expectations attribute to the larger earnings torpedoes in younger firms Third, I show that younger firms are more likely to guide expectations down after missing analyst forecasts. Both likelihood and frequency of management forecasts that shortly fall previous consensus forecast are larger in younger firms after missing analyst forecasts, and the likelihood of upward earnings management is larger in these younger firms. Consequently, the overoptimistic expectations formed at IPO are revised downward around missing analyst forecasts, by investors' downward revisions or managerial tendency to guide expectations down, and the likelihood of future misses is lowered in younger firms after missing analyst forecasts.

The paper contributes to the literature in the two aspects. First, it documents the existence of earnings torpedo risk in younger firms. Prior studies show the existence of earnings torpedo risk in overpriced stocks (Skinner and Sloan, 2002; Solomon, 2012; Mashwurala and Mashwurala, 2014; Bordalo, Gennaioli, La Porta, and Shleifer, 2019). This essay extends the literature by showing that younger firms, as one type of overpriced stocks, face higher earnings torpedo risk. Second, it shows that the overly optimistic expectations in younger firms are corrected by missing analyst forecasts and suggest that missing analyst forecasts may be one channel through which the valuation of newly listed firms sink.

CHAPTER 2 FIRM AGE AND MARKET VALUATION: THE ROLE OF MISSING ANALYST FORECASTS

2.1 Introduction

Pastor and Veronesi (2003) model that expected terminal value increases with uncertainty about future profitability due to the convexity of compounding; uncertainty decreases over a public firm's lifetime as information about the firm's future profitability piles up. Proxy for the declining uncertainty about future profitability, firm age is negatively associated with market valuation. Their empirical results are consistent with model's predictions. First, using Fama Macbeth regression, their empirical evidence demonstrates a negative relation between firm age and the logarithm of the market-to-book ratio (M/B). Second, the effect of firm age on M/B is weaker in firms that pay dividends have lower uncertainty. Third, given that uncertainty about a firm's profitability increases idiosyncratic volatility, they document a negative relation between firm age and idiosyncratic return volatility. Fourth, firm age is positively related to the change in M/B, consistent with a stronger effect of learning in reducing uncertainty in a firm's earlier life.

Existing studies commonly see firm age as proxy for uncertainty and generate fruitful and consistent evidence. Nonetheless, how such uncertainty is reduced by information over a firm's lifetime is not well understood: is the high uncertainty reduced by information through earnings announcements, or specialists' trading, or other potential channels? Pastor and Veronesi show that investors' rational expectations about equity value are negatively related to uncertainty about future profitability. Namely, firm age captures a process where uncertainty and expected terminal value is reduced by information simultaneously over a firm's lifetime. In this regard, identifying a potential channel through which information reduces both uncertainty and investors' expectations may enhance the understanding for the negative relation between firm age and market valuation.

In this chapter, I focus on a potential channel – missing analyst forecasts – and its role in explaining the negative relation between firm age and market valuation. Missing analyst forecasts, especially in a firm's earlier life, can reduce uncertainty and investors' expectations at the same time. Extending on Pastor and Veronesi's model, a piece of earnings news, regardless of exceeding or falling the prior expected profitability, reduces uncertainty. The adverse effect of it on firm valuation should be larger if it appears in a firm's earlier life change. While positive earnings news may come with an increase in expected profitability, and the increase in expected profitability offsets the decline in uncertainty to some extent, missing analyst forecasts comes with a decline in expected profitability. Taken together, missing analyst forecasts is more likely to reduce uncertainty and expectations simultaneously; and the adverse effect of a miss to analyst forecasts on firm valuation is larger when uncertainty is higher (firm is younger).

In addition, if investors are overoptimistic about future profitability at IPO, missing analyst forecasts signals investors to revise downward to their prior overly optimistic expectations. Investors with overoptimistic expectations are likely to be disappointed when firms' earnings are less than expected, which leads investors to revise downwards their expectations and, consequently, lowers firm valuation. Since overoptimistic expectations are built up at IPO, and revised downward gradually, younger firms should be more likely to miss earnings expectations, and younger firms' missing earnings expectations should have larger adverse effects on their firm valuation.

This implies that, as a proxy for firm valuation, M/B and changes in M/B should be related to the frequency and timing of missing analyst forecasts over a firm's lifetime. Given that missing analyst forecasts mechanically accumulates in a firm as it ages, the effect of firm age on valuation may be explained by the accumulation of missing analyst forecasts. Thus, I construct two measures for the accumulation of missing analyst forecasts. The measures have two features. First, the measures are monotonically increasing in the number of misses to analyst forecasts. Second, the rate of increase of the measures is non-increasing in the number of misses to analyst forecasts. Hence, these two measures imply that more misses to analyst forecasts have larger adverse effects on firm valuation and that a miss to analyst forecast in a firm's earlier life has a larger adverse effect on firm valuation.

I show that the accumulation of missing analyst forecasts explains, at least partly and significantly, the negative relation between firm age and firm valuation (M/B). The accumulation of missing analyst forecasts is positively related to firm age mechanically, and negatively related to firm valuation. Hence, the effect of firm age on market valuation declines or diminishes after controlling for it. In addition, the explanatory power of the accumulation of missing analyst forecasts on market valuation is significant in the first five years after IPO. The effect of firm age on the annual change in M/B is stronger when firm miss analyst forecasts in a year.

To provide base for the accumulation of missing analyst forecasts to be the channel through which firm age is negatively related to firm valuation, I investigate whether the measures of the accumulation of missing analyst forecasts are efficient in a sense that they are related to firm age and M/B as predicted. The accumulation of missing analyst forecasts happens mechanically in a firm as it ages, resulting a positive relation between them. Next, missing analyst forecasts lowers firm valuation directly or through declining uncertainty. Thus, the accumulation of missing analyst forecasts is negatively related to firm valuation. I show that the two measures for the accumulation of missing analyst forecasts are positively related to firm age and negatively related to M/B after controlling for other firm characteristics.

I show that the accumulation of analyst forecasts is one channel to explain the negative relation between firm age and market valuation. I follow the empirical specification in Pastor and Veronesi (2003) and run the regression models twice. I run the original specification for the first time and run a specification where the accumulation of missing analyst forecasts is included. The results show that the accumulation of missing analyst forecasts is negatively related to M/B. I compare the two estimated coefficients on firm age: the estimated coefficient on firm age from the former specification is significant and negative; and the estimated coefficient on firm age from the latter one declines in magnitude and is insignificant from zero. *F*-tests to compare the two estimated coefficients on firm age show that the observed difference between them is significantly different from zero[12]. This suggests that the accumulation of missing analyst forecasts can explain the negative relation between firm age and market valuation.

I show that the accumulation of missing analyst forecasts is incremental to determine market valuation than other firm characteristics in the first five years after IPO. I run Pastor and Veronesi's empirical specifications in IPO time and document the *R* squares. Three specifications are run, and all of them exclude firm age since they are run in IPO time. The benchmark model is the original PV's empirical specification without firm age. The rest two are the benchmark model including measures of the accumulation of missing analyst forecasts. The results show that the *R* squares of the specifications including the accumulation of missing analyst forecasts are significantly

[12] The research design follows the methodology for channel tests in some economics studies, for example, Persico, Postlewaite and Silverman (2004), or Alesina and Zhuravskaya (2011).

larger than the benchmark specification in the first five years after IPO. The incremental *R* squares decline in IPO time.

I show that the timing of missing analyst forecasts may, at least partly, explain the positive relation between firm age and the change in annual M/B. A miss to analyst forecasts in a firm's earlier life should have a larger adverse effect on firm valuation. I interact firm age with the presence of missing analyst forecasts in a year. The results demonstrate that the positive coefficient on firm age is larger for firms missing analyst forecasts in a year and that the positive coefficient on firm age for firms without missing analyst forecasts in a year significantly declines. This suggests that the steeper decline in M/B in younger firms is due to their missing analyst forecasts.

I conduct a battery of tests to show whether the effect of the accumulation of missing analyst forecasts in firm valuation is conditional on the overly optimistic expectations at IPO. If firms go public with higher investors' optimism, the effect of missing analyst forecasts on firm valuation should be stronger since it includes the reversal to prior overly optimistic expectations. I conduct a subsample analysis. I run PV's empirical specifications including the accumulation of missing analyst forecasts in two subsamples – one with optimistic expectations at IPO and the other without – and compare the estimated coefficients on the accumulation of missing analyst forecasts. The results show that the estimated coefficients on the accumulation of analyst forecasts are larger in magnitude in the subsample with overly optimistic expectations at IPO. This is consistent with the prediction that the accumulation of missing analyst forecasts has a stronger effect on firm valuation if firms have optimistic investors at IPO.

The chapter enhances the understanding on the negative relation between firm age and market valuation by showing how the negative relation is realized. As one result of following the mandatory disclosure framework for public firms and analysts' following, missing analyst forecasts accumulates as firms age and lowers firms' valuation. To the extent that missing analyst forecasts is informative earning news, the results provide evidence for firm age as a proxy for declining uncertainty. Moreover, it suggests that the negative relation between firm age and market valuation may be stronger when firms' valuations contain optimistic errors at IPO. The effect of each miss analyst forecasts is stronger in younger firms with overly optimistic expectations at the initial offering since it is accompanied with a revision to prior optimism.

The rest of the chapter is organized as follows: Section 2.2 develops the testable hypotheses and provides a review on related literature, Section 2.3 describes the data and sample, Section 2.4 presents the research design and empirical evidence, and Section 2.5 concludes.

2.2 **Hypothesis Development and Related Literature**

The chapter focuses on the negative relation between firm age and market valuation. Pastor and Veronesi (2003) show that the declining market valuation over a firm's lifetime is due to investors' learning about future profitability. When a public firm is born, uncertainty about firm's future profitability is high, and it is reduced by subsequent and sequential information. The market valuation decreases as uncertainty is reduced, and the rate of decrease in market valuation is quicker when uncertainty is higher: high uncertainty accompanies with both an extremely high profitability and an extremely low profitability, and a persistently high profitability will have a larger effect on market valuation due to the convexity of compounding process. Their empirical work provides consistent evidence with their model's predictions. First, firm age is negatively associated with M/B. Second, the effect of firm age on M/B is stronger in firms that do not pay dividends. Third, firm age is positively related to the change in annual M/B. To the extent that Bayesian put heavier weight on a new signal and update their belief when uncertainty of prior is higher, Lang (1991) argues that firms' uncertainty declines as they age and shows that earnings response coefficients around quarterly earnings announcements are decreasing in magnitude in the 18 months after IPO. However, some studies also cast doubt on the necessity of uncertainty to explain the relation between firm age and market valuation.

First, new information does not necessarily reduce uncertainty. Although the presence of new information reduces uncertainty, new information with sufficient information content to deviate investors' expectations increase uncertainty (e.g., Rogers, Skinner, and Buskirk, 2009). Moreover, disappointed profitability induces stock price drop, and stock price drop increases uncertainty. To the extent that post-IPO firm profitability declines on average, the learning effect with declining uncertainty by information may be attenuated. Second, Cremers and Yan (2014) shows that firm age should be negatively related to credit spread if firm age captures uncertainty and uncertainty decreases bond value. Their empirical results show that firm age is positively related to credit spread, in contrast to their model prediction.

While uncertainty may be reduced after IPO, the negative relation may also be explained by the reversal to prior overly optimistic expectations formed after IPO. Jain and Kini (1994) document a decline in M/B, accompanied with a declining in realized profitability, in the 3 years following IPO. They interpret their evidence as consistent with Ritter's (1991) explanation for post-IPO long-run performance. Both the decline in M/B and post-IPO long-run returns suggest investors' downward revisions to prior optimism.

In the first chapter, I show that investors in young firms revise downward to their prior optimistic expectations when firms miss analyst forecasts. Since overoptimistic expectations are built up at IPO and revised downward subsequently, younger firms should be more likely to miss analyst forecasts, and younger firms' missing analyst forecasts should have a larger effect on firm valuation. If firm valuation contains a downward revision to an optimistic error given at IPO and age reflects the revision process, the accumulation of missing analyst forecasts may explain their negative relation.

Missing analyst forecasts, alongside with earnings announcements, cumulates over a firm's lifetime. Namely, the accumulation of missing analyst forecasts mechanically increases as firms age. Thus, I present my first testable hypothesis:

H_1: The accumulation of missing analyst forecasts is positively related to firm age.

If firm valuation contains a downward revision to an optimistic error given at IPO, and missing analyst forecasts accompanies with investors' downward revisions, missing analyst forecasts lower firm valuation. Thus, I have the second hypothesis:

H_2: The accumulation of missing analyst forecasts is positively related to M/B.

If the above two hypotheses are valid, my third hypothesis is:

H_3: The effect of firm age on M/B declines or diminishes after controlling accumulation of missing analyst forecasts

The adverse effect of revising to optimism on market valuation is larger when prior optimism is higher (Skinner and Sloan, 2002). While younger firms have higher uncertainty, they also have higher expectations. Since investors are overly optimistic about future earnings at IPO, and the correction process is slow, younger firms have more optimistic investors, and thus face higher earnings torpedo risk. Thus, the effect of missing analyst forecasts in a firm's earlier life should have a larger adverse effect on market valuation. I have the fourth hypothesis:

H_4: The effect of firm age on change in annual M/B is stronger if firms miss analyst forecasts in a year.

2.3 Data and Sample Description

In this section, I introduce the source of the data used, the construction of the proxies of cumulative downward revisions and the descriptive statistics of the sample.

I extract data from CRSP, COMPUSTAT, and I/B/E/S for the baseline results. For IPO data, I extract data from WRDS – SDC– New Issues and Jay Ritter's IPO Database. For the M&A data, I extract data from WRDS – M&A. I exclude financial firms (SIC code between 6000 and 6999) and utilities (SIC code between 4900 and 4999). To be included in the baseline sample, a firm-year observation should have non-missing data for all the variables in Table 1, Panel A. A firm's book equity, total assets, and market capitalization should be no less than \$1 million. I further drop firms with only one-year of data available. The baseline sample contains 94,438 firm-year observations.

I construct two measures (***NMISS***, ***WMISS***) to proxy for the accumulation of missing analyst forecasts. They capture the past downward revisions to prior optimistic expectations at IPO over time. I summarize all past misses to analyst forecasts ever since the birth of each public firm. The summation satisfies two features: first, it is non-decreasing to show that an additional contribution to increasing the total revision by at least 0; second, it is concave to show the larger effect of an earlier miss.

The first measure (***NMISS***) takes the following form:

$$\boldsymbol{NMISS}_{it} = -\frac{1}{1+\sum_{s=1}^{4t-1} MISS_{is}}, \qquad (2.1.1)$$

where $MISS_{is}$ is an indicator variable equal to one if firm *i* reports a negative earnings surprise in quarter *s*, and equal to zero otherwise. I set $s\epsilon[1,4t-1]$ because earnings in the last quarter in year t are reported in year t+1. The construction of *NMISS* is inspired by the methodology in Pastor and Veronesi (2003) for firm age and is used to capture the fact that a firm may have more misses in earnings expectations as the firm ages.

The second measure (***WMISS***) is time-weighted ***MISS***, taking the following form:

$$\mathbf{WMISS}_{it} = \sum_{s=1}^{4t-1} (W_{is} \cdot MISS_{is}), \qquad (2.1.2)$$

where $W_{is} = \frac{1}{1+INT(1+\frac{s}{4})}$, and $s\epsilon[1, 4t-1]$. That is, for any s with a quarterly earnings announcement in the first year, $W_{is} = 1/2$; $W_{is} = 1/3$ in the second year; and $W_{is} = 1/4$ in the third year, and so on.

To avoid the concern that our measures capture the resolution of uncertainty about future profitability as more information is released, I construct another measure *NMEET* for comparison.

$$\boldsymbol{NMEET}_{it} = -\frac{1}{1 + \sum_{s=1}^{4t-1} MEET_{is}}, \qquad (2.1.3)$$

where $\boldsymbol{MEET_{is}}$ is an indicator variable equal to one if firm *i* in quarter *s* reports earnings that meets or beats analysts' consensus earnings forecast, and equal to zero otherwise, with $s\epsilon[1, 4t-1]$. I also use the nominal number of total misses (**#*MISS***) and the logarithm of one plus the number of total misses (***Log(#MISS)***) for comparison.

Table 2.1 presents the descriptive statistics of the main sample. Unlike Pastor and Veronesi (2003) who use Fama-Macbeth regressions, I use panel regressions with firm and year fixed effects for most regressions if not especially noted. This is because the presumption of overoptimistic expectations at IPO implies a firm effect (Petersen 2009). To show that the baseline sample is not structurally different from Pastor and Veronesi's, I report the regression results for the valuation model using Fama-Macbeth regressions in Table 2.2. The results show no bias of the sample from theirs.

2.4 **Empirical Results**

In this section, I present the tests and results for the testable hypotheses. First, I test whether the accumulation of missing analyst forecasts is related with firm age and market valuation as predicted. Second, I investigate whether the effect of firm age on market valuation can be explained by the accumulation of missing analyst forecasts. Third, I test whether the effect of the accumulation of missing analyst forecasts is stronger in firms with higher investors' expectations at IPO.

2.4.1 **The Relations of the Accumulation of Missing Analyst Forecasts with Firm Age and Market Valuation**

The accumulation of missing analyst forecasts is related to both firm age and market valuation. The accumulation of missing analyst forecasts is positively related with firm age as missing analyst forecasts cumulate naturally over a firm's lifetime. Missing analyst forecasts accompanies with investors' downward revisions to prior overoptimism, lowering market valuation. Thus, the accumulation of missing analyst forecasts should be negatively related to market valuation.

I test these relations simultaneously, following the methodology in Pastor and Veronesi (2003). The specification of the model is as follows.

$$\begin{aligned}\{NMISS_{it}, WMISS_{it}\} &= \alpha_i + \beta_1 AGE_{it} + \beta_2 Log\left(\frac{M}{B}\right)_{it} + \beta_3 DD_{it} + \beta_4 LEV_{it} \\ &+ \beta_5 SIZE_{it} + \beta_6 VOLP_{it} + \beta_7 ROE_{it} + Firm\ FE \\ &+ Year\ FE + \epsilon_{it}\end{aligned} \qquad (2.2.1)$$

If consistent with the argument, I expect a positive estimated $\boldsymbol{\beta_1}$ and a negative estimated $\boldsymbol{\beta_2}$.

Table 2.3 report the results. Panel A of Table 2.3 presents the result in which the dependent variable is ***NMISS***. Column (1) reports the result from the univariate regression of ***NMISS*** on firm age. The estimated coefficient is positive and significant.

Column (2) reports the result from the univariate regression of ***NMISS*** on the market-to-book ratio. The estimated coefficient is negative and significant. In Column (3), the variables for some firm characteristics are included in the model in Column (1). The estimated coefficient on ***SIZE*** is positive and significant, the estimated coefficient on ***VOLP*** is positive and significant, and the estimated coefficient on ***ROE*** is negative and significant. After controlling for firm characteristics, the estimated coefficient on ***AGE*** remains positive and significant. In Column (4), the variables for some firm characteristics are included in the model in Column (2). The estimated coefficients on ***SIZE***, ***VOLP***, and ***ROE*** are consistent with the results in Column (3). The coefficient on ***DD*** is positive and significant, consistent with that a dividend payer and an older firm has lower uncertainty. The coefficient on ***LEV*** is positive and significant, probably due to its negative association with the market-to-book ratio. After controlling for firm characteristics, the estimated coefficient on ***LOGMB*** remains negative and significant. In Column (5), ***AGE***, ***LOGMB***, and firm characteristics are included. The estimated coefficients on ***SIZE***, ***VOLP***, and ***ROE*** are consistent with the results in Column (3) and (4). The estimated coefficient on ***DD*** is insignificant, consistent with the result in Column (3). The estimated coefficient on ***LEV*** is positive and significant, consistent with the result in Column (4). Most importantly, the estimated coefficient on ***AGE*** remains significantly positive, and that on ***LOGMB*** remains significantly negative.

Panel B reports the result in which the dependent variable is ***WMISS***. Column (1) reports the result from the univariate regression of ***WMISS*** on firm age. The estimated coefficient is positive and significant, consistent with the result in Column (1) of Panel A. Column (2) reports the result from the univariate regression of ***WMISS*** on the market-to-book ratio, consistent with the result in Column (1) of Panel A. The estimated coefficient is negative and significant. In Column (3), the variables for some firm characteristics are included in the model in Column (1). The estimated coefficients are similar and consistent with those in Column (3) of Panel A, especially the estimated coefficient on ***AGE*** remains positive and significant. In Column (4), the variables for some firm characteristics are included in the model in Column (2). The estimated coefficients are similar and consistent with those in Column (4) of Panel A, especially the estimated coefficient on ***LOGMB*** remains negative and significant. In Column (5), ***AGE***, ***LOGMB***, and firm characteristics are included. The results are similar and consistent with the results in Column (5) of Panel A, especially the estimated coefficient on ***AGE*** remains significantly positive and that on ***LOGMB*** remains significantly negative. The findings show that ***NMISS*** is positively associated with ***AGE*** and negatively associated with ***LOGMB*** at the same time.

The proxies suffer from measurement error concerns. One can argue the proxies capture time-variant uncertainty about future profitability within a firm since it incorporates the number of past earnings announcements. Although Pastor and Veronesi's valuation model does not identify the market-to-book ratio as a proxy for uncertainty, they find a mixed result on ***LOGMB*** as one determinant for a measure for uncertainty. In Table IV on page 1777, they show a positive relation between return volatility and the market-to-book ratio for most specifications. To show that our measure is different from an uncertainty measure, I rerun regression on model 2.2.1 using two alternative measures as the dependent variable. The first measure for within-firm uncertainty is the return volatility (***IVOL***), following the definition in Pastor and Veronesi (2003). The second measure for within-firm uncertainty is ***NMEET***.

The results are presented in Table 2.4[13]. In Column (1), the dependent variable is ***IVOL***. The coefficient on ***AGE*** is significantly negative, consistent with the prediction of the valuation model and the empirical result in Pastor and Veronesi (2003). The

[13] The result of Panel (5) in Panel A and that of Panel (5) in Panel B of Table 2.3 are listed in Column (3) and Column (4), respectively, for comparison.

estimated coefficient on ***LOGMB*** is insignificant. In Column (2), the dependent variable is ***NMEET***. The coefficient on ***AGE*** is significantly positive and that on ***LOGMB*** is insignificant, consistent with the results in Column (1). The findings suggest that the measures are different from the measures for uncertainty.

The timing of missing analyst forecasts is an important feature in its accumulation. the accumulation of missing analyst timing of . The adverse effect on market valuation is larger by a miss to analyst forecast in a firm's earlier life since younger firms have more optimistic investors. To show this, I rerun regression on model 2 using two alternative measures as the dependent variable. The first measure is the nominal total number of historical misses to analyst forecast (#***MISS***), and the second measure is the logarithm of one plus the nominal total number of historical misses (***Log***(#***MISS***)). #***MISS*** puts equal weight on each miss to analyst forecast regardless of the timing while ***Log***(#***MISS*)** puts a heavier weight on a miss if it happens on the earlier life of a firm. I expect #***MISS*** is unrelated to firm age.

Table 2.5 reports the result[14]. In Column (1), the dependent variable is #***MISS***. The coefficient on AGE is insignificant while that on ***LOGMB*** is significantly negative. In Column (2), the dependent variable is ***Log***(#***MISS*)**. The estimated coefficients on ***AGE*** and on ***LOGMB*** are consistent with those for ***NMISS*** and ***WMISS***. The findings show that the timing of missing analyst forecasts is important in its accumulation. Both frequency and timing are important to describe the accumulation of missing analyst forecasts.

2.4.2 **Determinants of the Market Valuation**

The overoptimistic expectation hypothesis argues that market valuation declines as firms age because missing analyst forecasts accumulate, and the accumulation of

[14] The result of Panel (5) in Panel A and that of Panel (5) in Panel B of Table 2.3 are listed in Column (3) and Column (4), respectively, for comparison.

missing analyst forecasts is accompanied with investors' downward revisions to correct the overoptimism at IPO and hence lower market valuation. If the accumulation of analyst forecasts are an unobserved variable to explain the negative relation between firm age and market valuation, the effect of firm age on market valuation should decline or diminish after controlling the accumulation of analyst forecasts.

First, I include the accumulation of analyst forecasts into the valuation model and test whether the negative coefficients on firm age ($\boldsymbol{\beta_1}$) are weakened afterward. Specifically, I run regressions using model (3) as follows.

$$Log\left(\frac{M}{B}\right)_{it} = \alpha_i + \beta_1 AGE_{it} + \beta_2 DD_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 VOLP_{it} + \beta_6 ROE_{it} + \beta_7\{NMISS_{it}, WMISS_{it}\} + Firm\ FE + Year\ FE + \epsilon_{it} \quad (2.3.1)$$

Table 2.6 reports the results for the regression of the model (2.3.1). Panel A presents the estimated coefficients when only firm age and the accumulation of analyst forecasts are included. In Column (1), only ***AGE*** is included, and a significantly negative coefficient ($\widehat{\boldsymbol{\beta_1}} = \mathbf{-1.399}$) is observed. In Column (2), ***NMISS*** is included. The estimated coefficient on ***NMISS*** is significant and negative, consistent with the hypothesis that the accumulation of analyst forecasts lowers market valuations. After the inclusion of ***NMISS***, the magnitude of the estimated coefficient on ***AGE*** ($\widehat{\boldsymbol{\beta_1}} = \mathbf{-0.484}$) declines by 0.780. I test whether the two estimated coefficients on ***AGE*** are different using a Chi-square test. The $\chi 2$ value is 231.81 and the matching *p*-value is 0.000. In Column (3), ***WMISS*** is included. The estimated coefficient on ***WMISS*** is significant and negative, consistent with the hypothesis and the result for ***NMISS***. After the inclusion of ***WMISS***, the estimated coefficient on ***AGE*** becomes insignificant from zero, and its magnitude declines by 1.083. The $\chi 2$ value is 85.84 and the matching *p*-value is 0.000 from a similar *Chi*-square test.

Panel B presents the estimated coefficients when the accumulation of analyst forecasts are included in PV's valuation model. In Column (1), the valuation model is regressed, and the estimated coefficient on $\boldsymbol{AGE}$ is significant and negative ($\widehat{\boldsymbol{\beta_1}} = \mathbf{-1.154}$). In Column (2), ***NMISS*** is included in the valuation model. In Column (3), ***WMISS*** is included in the valuation model. After the inclusion of the accumulation of analyst forecasts, the estimated coefficients on all variables for firm characteristics are consistent with those in the valuation model. More importantly, the estimated coefficients on ***NMISS*** and ***WMISS*** are significant and negative. The magnitude of the estimated coefficient on $\boldsymbol{AGE}$ including ***NMISS*** ($\widehat{\boldsymbol{\beta_1}} = \mathbf{-0.374}$) declines by 0.780 while the estimated coefficient on ***AGE*** becomes insignificant controlling $\boldsymbol{WMISS}$. The results from the *Chi*-square tests show that the declines in the estimated coefficient on $\boldsymbol{AGE}$ are significant. The findings are consistent with the overoptimistic expectation hypothesis that the accumulation of analyst forecasts contributes to the negative relation between firm age and market valuation.

To further show that the proxies do not completely capture uncertainty about future profitability, I include return volatility and the accumulation of meeting analyst forecasts in the valuation model and test the decline in the coefficient on firm age. Table 2.7 reports the results. In Column (2), ***IVOL*** is included, and the estimated coefficient on ***IVOL*** is insignificant from zero. The magnitude of the estimated coefficient on ***AGE*** ($\widehat{\boldsymbol{\beta_1}} = \mathbf{-1.140}$) declines by 0.014. The $\chi 2$ value is 19.83 and the matching *p*-value is 0.000 from a *Chi*-square test. In Column (3), ***NMEET*** is included, and the estimated coefficient on ***NMEET*** is insignificant from zero. The magnitude of the estimated coefficient on ***AGE*** ($\widehat{\boldsymbol{\beta_1}} = \mathbf{-1.193}$) climbs by 0.039. The $\chi 2$ value is 38.34 and the matching *p*-value is 0.000 from a *Chi*-square test. The findings show that the accumulation of analyst forecasts are different from return volatility and the accumulation of meeting analyst forecasts in explaining the relation between firm age and market valuation.

I show the importance of the timing of missing analyst forecasts. I include the simple arithmetic summation of past missing analyst forecasts (#***MISS***) in PV's valuation model and see whether it serves as the accumulation of analyst forecasts similarly. I include #***MISS*** into the valuation model and investigate whether the negative coefficient on ***AGE*** is affected as significantly. Table 2.8 reports the results. In Column (2), #***MISS*** is included, and the estimated coefficient on #***MISS*** is significant and negative. The magnitude of the estimated coefficient on ***AGE*** ($\widehat{\boldsymbol{\beta_1}} = \mathbf{-1.161}$) climbs by 0.007. The χ2 value is 22.59 and the matching *p*-value is 0000 from a Chi-square test. In Column (3), ***Log***(#***MISS***) is included, and the estimated coefficient on ***Log***(#***MISS***) is significant and negative. The magnitude of the estimated coefficient on ***AGE*** declines by 1.126. The χ2 value is 26.62 and the matching *p*-value is 0.000 from a Chi-square test. The findings suggest that it is essential to incorporate the timing of missing analyst forecasts in its accumulation.

My findings suggest that the accumulation of missing analyst forecasts is positively related to firm age and negatively related to market valuation. It contributes to the negative relation between firm age and market valuation.

2.4.3 The Features of the Accumulation of Missing Analyst Forecasts

There are two important features of the accumulation of missing analyst forecasts. First, its explanatory power on market valuation should be strong in the earlier life of a firm since the overoptimism may only persist during that period. Second, a miss to analyst forecast has a larger effect on market valuation if it happens in a firm's earlier life.

To show that the accumulation of missing analyst forecasts s is incremental in explaining market valuation in the earlier years for a public firm, I prrsent the incrementally explanatory power of the accumulation of missing analyst forecasts in IPO time. Specifically, I show the R^2 for regressions run in IPO time:

$$Log\left(\frac{M}{B}\right)_{IPO+t} = \alpha + \beta_2 DD_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 VOLP_{it} + \beta_6 ROE_{it} + \beta_7 \{NMISS_{it}, WMISS_{it}\} + \text{Calendar Year FE} + \epsilon_{it} \quad (2.4.1)$$

The solid lines in all three Figures trace out the cross-sectional R^2 of firm characteristics: ***DD***, ***LEV***, ***SIZE***, ***VOLP***, ***ROE***. In Figure 2.1, the two dashed red lines trace out the R^2 of variables including ***NMISS*** and ***WMISS***, respectively. For the first year after IPO, ***NMISS*** and ***WMISS*** explain about 37.5% and 30% of the cross-sectional variation in the market-to-book ratio, and this cross-sectional explanatory power declines significantly in the five years just after IPO as firms age. The declining gap between the dashed line and the solid line means that the accumulation of missing analyst forecasts is incremental in explaining market valuation in the earlier life of firms.

In Figure 2.2, the two additional dashed green lines trace out the R^2 of variables including ***NMEET*** and ***IVOL***, respectively. For the first year after IPO, ***NMEET*** and ***IVOL*** explain about 25% of the cross-sectional variation in the market-to-book ratio The cross-sectional explanatory power of ***IVOL*** declines significantly in the three years just after IPO as firms age. The cross-sectional explanatory power of ***NMEET*** declines relatively smoothly as firms age.

In Figure 2.3, another two additional dashed lines trade out the R^2 of variables including #***MISS*** and ***Log***(#***MISS***). The two dashed lines show similar and consistent patterns with the dashed lines presented by ***NMISS*** and ***WMISS***. The findings suggest that the accumulation of missing analyst forecasts is incremental to explain market value in the firms' earlier life

Second, a miss to analyst forecast has a larger effect on market valuation if it happens in a firm's earlier life. Thus, the effect of firm age on the change in annual M/B should be larger in firms when it reports negative earnings surprises. Specifically, I run the regressions to determine the annual change in the market-to-book ratio:

$$\Delta\left(\frac{M}{B}\right) = \alpha + \beta_1 AGE_{it} + \beta_2 DD + \beta_3 LEV + \beta_4 SIZE + \beta_5 VOLP + \beta_6 ROE + \beta_7 NoAnaFol + \beta_8 MISS + \beta_9 AGE \times MISS + Firm\ FE + Year\ FE + \epsilon_{it} \qquad (2.4.2)$$

Where the first six variables – ***AGE***, ***DD***, ***LEV***, ***SIZE***, ***VOLP***, and ***ROE*** – are the variables in Pastor and Veronesi's regressions of annual change in the market-to-book ratio. They document a positive coefficient on ***AGE***[15], suggesting that the declining rate in market valuation is quicker for younger firms. I include two additional variables: ***NoAnafol*** and ***MISS***. ***NoAnafol*** is an indicator that equals one if firm *i* is not followed by any analyst for year *t*[16]. ***MISS*** is an indicator that equals one if firm *i* reports at least one miss to analyst forecast in year *t*. I predict that β_9 is estimated to be positive and that estimated β_1 declines significantly after interacting ***MISS*** with ***AGE***.

Table 2.9 reports the result. In Column (1), Pastor and Veronesi's specification is replicated. I also document a significant and positive estimated coefficient on ***AGE***, consistent with their result that younger firms are associated with more negative annual changes in the market-to-book ratio. In Column (2), ***NoAnaFol*** and ***MISS*** are included. The estimated coefficients on both measures are significant and negative, suggesting that firms with no analyst following or reporting some misses to analyst forecast are associated with a more negative annual change in the market-to-book ratio. The estimated coefficient on ***AGE*** is insignificantly different from that in Column (1),

[15] "In addition, our model predicts that the decline in M/B should be steeper for IPO firms. … The AGE coefficients in those regressions are significantly positive, which means that changes in M/B are more negative for younger firms, …" (Pastor and Veronesi, 2003, pp1775)

[16] The inclusion of ***NoAnafol*** eliminates the concern that the larger decline in market valuation is due to different information environment.

suggesting that the effect of firm age on the change in annual M/B is unchanged by controlling ***MISS***. In Column (3), I add the interacting effect between ***AGE*** and ***MISS***. The coefficient on the interacting variable is significant and positive, suggesting that younger firms experience a more negative annual change in the market-to-book ratio if they miss analyst forecasts. Moreover, the magnitude of the estimated coefficient on ***AGE*** declines significantly compared to that in Column (1), consistent with the prediction of the overoptimistic expectation hypothesis. Given some overoptimistic expectations at IPO, younger firms experience a larger decline in market valuation, especially when missing analyst forecasts.

2.4.4 The Role of Overoptimistic Expectations at IPO

The effect of the accumulation of analyst forecasts on market valuation should be stronger in firms with higher investors' expectations at IPO. I test this by comparing the estimated coefficients on the accumulation of analyst forecasts in the valuation model in two subsamples categorized as firms with higher/lower overoptimism expectations at IPO. Specifically, I replace ***VOLP*** with ***IVOL*** to include more newly listed firms into the sample[17]. A firm with higher overoptimism at IPO is identified as (a) one that is taken public during hot IPO markets, (b) one with a higher underpricing, (c) one with a higher likelihood for earnings (accrual) management at IPO, (d) one that sets a lower offer price, and (e) one that engages an M&A within the first anniversary after IPO.

Table 2.10 reports the result. Panel A reports the results in which a firm with higher overoptimism at IPO is one that is taken public during hot IPO market. The magnitudes of the estimated coefficients on ***NMISS*** and ***WMISS*** are larger in firms that are taken

17 The computation of VOLP needs at least ten years of future profitability data, excluding many short-lived firms out of the sample. I also replicate the subsample analysis using VOLP in the valuation model, with consistent and less significant results generated.

public during hot IPO market. Panel B reports the results in which a firm with higher overoptimism at IPO is one with a higher underpricing. The magnitudes of the estimated coefficients on ***NMISS*** and ***WMISS*** are larger in firms with a higher underpricing. Panel C reports the results in which a firm with higher overoptimism at IPO is one with a higher likelihood for earnings management at IPO. The magnitudes of the estimated coefficients on ***NMISS*** and ***WMISS*** are larger in firms with a higher likelihood for earnings management at IPO. Panel D reports the results in which a firm with higher overoptimism at IPO sets a lower offer price. The magnitudes of the estimated coefficients on NMISS and WMISS are larger in firms that set a lower offer price. Panel E reports the results in which a firm with higher overoptimism at IPO engages an M&A within the first anniversary after IPO. The magnitudes of the estimated coefficients on ***NMISS*** and ***WMISS*** are larger in firms that engage in an M&A within the first anniversary after IPO. Taken together, the results are consistent with the prediction that the effect of the accumulation of analyst forecasts on market valuation is stronger in firms with higher overoptimism at IPO.

2.5 **Conclusion**

This paper proposes the optimistic expectations hypothesis to explain the negative association between firm age and market valuation. It argues that firm valuation includes a component of overoptimistic expectations, and that as missing analyst forecasts is associated with investors' downward revisions tothe overoptimism over time. In this regard missing analyst forecasts cumulate over time, and the accumulation of analyst forecasts lowers expectations and hence firms' valuation as they age. I construct two proxies for the accumulation of analyst forecasts. I show that the accumulation of analyst forecasts are positively associated with firm age and negatively associated with the market-to-book ratio. More importantly, the effect of firm age on market valuation declines or diminishes. The incremental explanatory power of the accumulation of analyst forecasts on market valuation is significantly high within the first five years since IPO. In addition, the effect of firm age on change in annual market valuation is larger if the firms miss analyst forecasts. In addition, the effect of the accumulation of analyst forecasts on firm valuation is stronger in firms with higher overoptimistic expectations at IPO, consistent with the essentiality of the overoptimism at IPO.

The paper contributes to the literature on understanding firm age. Prior studies well-document that firm age captures time-variant uncertainty. This paper provides evidence showing that firm age captures the accumulation of analyst forecasts. The paper contributes to the overoptimistic expectation hypothesis in the IPO setting by providing a new measure to document subsequent revisions to the overoptimistic expectations at IPO. Third, it contributes to the literature on firm seasoning from the perspective of market valuation.

The paper has limitations. First, it does not discuss how the revisions are achieved by trading. Second, it does not consider events when investors are informed that they were overoptimistic other than earnings announcements with negative earnings surprises, such as dates when analysts make revisions in forecasts or recommendations.

APPENDIX 1.A VARIABLE DEFINITIONS

Variables Used for Events When Earnings Torpedoes Happen	
FE	Earnings surprises for quarterly earnings, defined as the actual earnings per share minus the consensus of analyst forecasts for the last month of the firm's fiscal quarter, and divided by the absolute value of the actual earnings per share. If the absolute value of the actual earnings per share is smaller than 0.25, it is replaced by 0.25, following the methodology in Mian and Sankaraguruswamy (2012).
GOODNEWS	Non-negative earnings surprises, defined as earnings surprises if the earnings surprises are no less than 0, and zero otherwise.
BADNEWS	Negative earnings surprises, defined as earnings surprises if the earnings surprises are smaller than 0, and zero otherwise.
Variables for the Optimistic Expectations in Firms	
GROWTH	The quintiles of the market-to-book ratios in the current quarter, defined as 0-4 with 0 indicative for the quintile with the lowest market-to-book ratios.
AGE	The minus reciprocal of one plus the number of years since a firm's born date. The born date is the earlier of either the first occurrence of a valid market capitalization in COMPUSTAT or the first occurrence of a valid share price in CRSP.
Variables for Alternative Explanations for Asymmetric Response towards Negative Earnings Surprises	
INCR	The existence of income-increasing accruals in reported quarterly earnings, defined as an indicator that equals one if the unexpected working-capital accruals are larger than 0, and zero otherwise, following the methodology in DeFond and Park (2001)
RETVOL	The standard deviation of daily returns
Variables for Earnings Torpedoes and the Revisions to Prior Expectations	
QRET	Quarterly abnormal returns, defined as the excess returns of a firm's quarterly buy-and-hold return over a portfolio return to a size-matched portfolio[18]. The interval for the return used in the main result is from 12 trading days before the end of a firm's current fiscal quarter to 1 trading day after the earnings announcement date for the current quarter.[19]
ΔLTG	Analysts' revisions in their forecasts for long-term earnings growth, defined as the absolute change in the mean LTG in the month after the earnings announcement from that in the month before the earnings announcement.
ΔEPS1	Analysts' revisions in their forecasts for one-year-ahead EPS, defined as the absolute change in the mean EPS1 in the month after the earnings announcement from that in the month before the earnings announcement.
Variables for Managers' Effort to Avoid Earnings Torpedo Risk	
MF	Whether a firm's manager release forecast of an EPS that shortly falls the latest consensus in a quarter, defined as an indicator that equals one if the guidance code in I/B/E/S is "01" and zero otherwise.

[18] The size portfolios are constructed using all stocks listed in NYSE, rebalanced at a quarterly basis.

[19] Three other intervals are used for robustness tests. The first alternative is from two trading days after the earnings announcement date for the previous quarter to one trading day after the earnings announcement date for the current quarter. The second alternative is from two trading days after the earnings announcement date for the previous quarter to thirteen trading days before the end of current fiscal quarter. The third alternative is the three-day interval around the earnings announcement date for the current quarter.

#MF	The logarithm of one plus the number of a firm's manager's forecasts of an EPS that shortly falls the latest consensus.
FUTUREEM	Whether the discretionary accruals are positive in annual earnings, defined as an indicator that equals one if the residual of the change in working capitals from DD(2002) model is larger than 0 and zero otherwise.
Control Variables	
SIZE	The logarithm of market capitalization.
LEVERAGE	The ratio of total long-term debts over total assets.
PROF	The ratio of net income over total assets.
CASH	The ratio of cash and cash equivalent over total assets
INST%	Institutional Ownership

APPENDIX 1.B SAMPLE CONSTRUCTION OF IPO FIRMS

The IPO sample is constructed as follows. The data is extracted from WRDS – Securities Data Company – New Issues. An IPO is retained if it is listed in NYSE, AMEX or NASDAQ and is excluded if it is categorized into the following categories: Beneficial Ints, Ltd Liab Int, Ltd Prtnr Int, MLP-Common Shs, Shs Benficl Int, Trust Units, Units , ADR or ADS. An IPO is dropped if it does not have valid price data on CRSP after 42 trading days since its IPODATE. In addition, the offer price of an IPO included into the sample is not less than $5.

Variables for the Initial Optimism	
Hot IPO Market	A dummy variable that equals 1 if the heat measure during the quarter is at least 1.33 and zero otherwise. The heat measure is equal to the ratio of the current quarter's number of IPOs to the moving average of the number of IPOs during the past years (40 quarters). It is calculated following the methodology of Yung et al. (2008).
Higher Underpricing	A dummy variable that equals 1 if a firm's initial return is above the median of all the IPOs' initial returns in the same industry in the same IPO year and zero otherwise.
EM	1 if the IPO's unexpected current accruals for the IPO year exceeds the third quartile, and 0 otherwise, following the definition in Teoh, Rao, and Wong (1998)
Lower Share Price	1 if a firm's offer price is smaller than industry average of all the IPOs in the IPO year, and 0 other wise
M&A	1 if the IPO conduct an M&A activity within 1 year after the IPO, and 0 otherwise.

TABLE 1B1 FIRM AGE, EARNINGS TORPEDO AND HOT IPO MARKET

This table reports whether the effect of earnings torpedo risk is different in firms with high or low levels of overoptimism at IPO. In Column (1), the firms have high levels of investors' overoptimism at IPO, measured as firms listed during hot IPO markets. In Column (2), the firms have low levels of investors' overoptimism at IPO, measured as firms listed during cold IPO markets. All firm control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1)	(2)
Hot IPO Market	**==1**	**==0**
GOODNEWS	0.242***	0.238***
	(10.75)	(10.88)
BADNEWS	0.104***	0.090***
	(10.61)	(9.56)
AGE	-0.058***	-0.033**
	(-3.26)	(-2.16)
GOODNEWS×AGE	**0.012**	**-0.127**
	(0.12)	**(-1.56)**
BADNEWS×AGE	**-0.210*** **	**-0.142*** **
	(-3.75)	**(-3.59)**
GROWTH	-0.008***	-0.009***
	(-7.63)	(-7.08)
GOODNEWS×GROWTH	0.007	0.002
	(0.89)	(0.32)
BADNEWS×GROWTH	0.013***	0.017***
	(3.68)	(4.76)
Empirical *p*-value	**0.000*** **	
R^2	0.137	0.132
adj. R^2	0.127	0.122
N	176888	180796

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1B2 FIRM AGE, EARNINGS TORPEDO AND UNDERPRICING

This table reports whether the effect of earnings torpedo risk is different in firms with high or low levels of overoptimism at IPO. In Column (1), the firms have high levels of investors' overoptimism at IPO, measured as firms with a higher underpricing. In Column (2), the firms have low levels of investors' overoptimism at IPO, measured as firms with a lower underpricing. All firm control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

Higher Underpricing	(1) **==1**	(2) **==0**
GOODNEWS	0.221***	0.247***
	(8.67)	(12.73)
BADNEWS	0.119***	0.091***
	(9.37)	(10.97)
AGE	-0.062***	-0.043***
	(-2.75)	(-3.50)
GOODNEWS×AGE	**-0.073**	**-0.055**
	(-0.66)	**(-0.73)**
BADNEWS×AGE	**-0.171*** **	**-0.168*** **
	(-2.74)	**(-4.50)**
GROWTH	-0.012***	-0.007***
	(-7.16)	(-7.69)
GOODNEWS×GROWTH	0.014	0.001
	(1.49)	(0.17)
BADNEWS×GROWTH	0.015***	0.014***
	(3.14)	(4.59)
Empirical *p*-value	**0.340**	
R^2	0.149	0.130
adj. R^2	0.139	0.119
N	98700	258984

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1B3 FIRM AGE, EARNINGS TORPEDO AND EARNINGS MANAGEMENT

This table reports whether the effect of earnings torpedo risk is different in firms with high or low levels of overoptimism at IPO. In Column (1), the firms have high levels of investors' overoptimism at IPO, measured as firms with a higher likelihood for earnings management. In Column (2), the firms have low levels of investors' overoptimism at IPO, measured as firms with a lower likelihood for earnings management. All firm control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1)	(2)
IPOEM	**==1**	**==0**
GOODNEWS	0.252***	0.245***
	(7.79)	(12.98)
BADNEWS	0.110***	0.093***
	(8.69)	(11.33)
AGE	-0.054**	-0.043***
	(-2.12)	(-3.31)
GOODNEWS×AGE	**-0.150**	**-0.032**
	(-1.09)	**(-0.44)**
BADNEWS×AGE	**-0.214*** **	**-0.144*** **
	(-3.55)	**(-3.73)**
GROWTH	-0.010***	-0.008***
	(-6.05)	(-7.59)
GOODNEWS×GROWTH	0.008	0.003
	(0.62)	(0.52)
BADNEWS×GROWTH	0.015***	0.017***
	(3.04)	(5.45)
Empirical *p*-value	**0.000*** **	
R^2	0.170	0.126
adj. R^2	0.158	0.116
N	64356	275508

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1B4 FIRM AGE, EARNINGS TORPEDO AND OFFER PRICE

This table reports whether the effect of earnings torpedo risk is different in firms with high or low levels of overoptimism at IPO. In Column (1), the firms have high levels of investors' overoptimism at IPO, measured as firms setting a lower offer price. In Column (2), the firms have low levels of investors' overoptimism at IPO, measured as firms setting a higher offer price. All firm control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

Lower Offer Price	(1) **==1**	(2) **==0**
GOODNEWS	0.277***	0.215***
	(9.78)	(10.76)
BADNEWS	0.116***	0.084***
	(9.65)	(9.13)
AGE	-0.072***	-0.029**
	(-3.11)	(-2.25)
GOODNEWS×AGE	**0.086**	**-0.158****
	(0.77)	**(-2.04)**
BADNEWS×AGE	**-0.245*****	**-0.133*****
	(-4.40)	**(-3.09)**
GROWTH	-0.009***	-0.009***
	(-6.30)	(-7.90)
GOODNEWS×GROWTH	-0.002	0.012*
	(-0.19)	(1.66)
BADNEWS×GROWTH	0.012***	0.018***
	(2.98)	(4.79)
Empirical *p*-value	**0.000*****	
R^2	0.143	0.131
adj. R^2	0.131	0.120
N	129696	198176

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1B5 FIRM AGE, EARNINGS TORPEDO AND MERGER & ACQUISITION

This table reports whether the effect of earnings torpedo risk is different in firms with high or low levels of overoptimism at IPO. In Column (1), the firms have high levels of investors' overoptimism at IPO, measured as firms merging or acquiring a firm within one anniversary after IPO. In Column (2), the firms have low levels of investors' overoptimism at IPO, measured as firms that do not merge or acquire a firm within one anniversary after IPO. All firm control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1)	(2)
M&A	**==1**	**==0**
GOODNEWS	0.242***	0.237***
	(9.90)	(12.05)
BADNEWS	0.085***	0.105***
	(8.19)	(11.85)
AGE	-0.041**	-0.058***
	(-2.24)	(-4.05)
GOODNEWS×AGE	**0.034**	**-0.173****
	(0.38)	**(-2.11)**
BADNEWS×AGE	**-0.287*****	**-0.088***
	(-6.33)	**(-1.95)**
GROWTH	-0.009***	-0.008***
	(-6.57)	(-7.94)
GOODNEWS×GROWTH	0.002	0.005
	(0.21)	(0.76)
BADNEWS×GROWTH	0.010**	0.019***
	(2.23)	(5.88)
Empirical *p*-value	**0.000*****	
R^2	0.134	0.136
adj. R^2	0.123	0.126
N	143904	213780

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

APPENDIX 2.A: VARIABLE DEFINITIONS

Determinants of Log(M/B) in Pastor and Veronesi (2003)	
AGE	The minus reciprocal of one plus the number of years since the IPO
DD	1 if the firm pays dividends as of the current fiscal year, and 0 otherwise.
LEV	The ratio of total long-term debt over total assets
SIZE	The logarithm of total assets
VOLP	The standard deviation of the residual of an AR(1) model for ROE
ROE	The ratio of the earnings over book equity
New determinants constructed related with earnings torpedo	
NoAnaFol	1 if a firm is not followed by any analyst, and 0 otherwise
MISS	1 if a firm's actual EPS misses analysts' quarterly earnings forecasts, and 0 otherwise
NMISS	$\mathbf{NMISS}_{it} = -\frac{1}{1+\sum_{s=1}^{4t-1} MISS_{is}}$, where $MISS_{is}$ is an indicator variable equal to one if firm *i* reports a negative earnings surprise in quarter *s*, and equal to zero otherwise. We set $s\epsilon[1, 4t-1]$ because earnings in the last quarter in year t are reported in year t+1.
WMISS	Time-weighted MISS, $\mathbf{WMISS}_{it} = \sum_{s=1}^{4t-1}(W_{is} \cdot MISS_{is})$, where $W_{is} = \frac{1}{1+INT(1+\frac{s}{4})}$, and $s\epsilon[1, 4t-1]$.
NMEET	$\mathbf{NMEET}_{it} = -\frac{1}{1+\sum_{s=1}^{4t-1} MEET_{is}}$, where $MEET_{is}$ is an indicator variable equal to one if firm *i* in quarter *s* reports earnings that meets or beats analysts' consensus earnings forecast, and equal to zero otherwise, with $s\epsilon[1, 4t-1]$.
Measures to Identify Initial Optimism	
Hot IPO Market	A dummy variable that equals 1 if the heat measure during the quarter is at least 1.33 and zero otherwise. The heat measure is equal to the ratio of the current quarter's number of IPOs to the moving average of the number of IPOs during the past years (40 quarters). It is calculated following the methodology of Yung et al. (2008).

Higher Underpricing	A dummy variable that equals 1 if a firm's initial return is above the median of all the IPOs' initial returns in the same industry in the same IPO year and zero otherwise.
EM	1 if the IPO's unexpected current accruals for the IPO year exceeds the third quartile, and 0 otherwise, following the definition in Teoh, Rao, and Wong (1998)
Lower Share Price	1 if a firm's offer price is smaller than industry average of all the IPOs in the IPO year, and 0 other wise
M&A	1 if the IPO conduct an M&A activity within 1 year after the IPO, and 0 otherwise.

APPENDIX 2.B ALTERNATIVE CUMULATION

Proxies of Errors in Expectations	
FE	Earnings surprises for quarterly earnings, defined as the actual earnings per share minus the consensus of analyst forecasts for the last month of the firm's fiscal quarter, and divided by the absolute value of the actual earnings per share. If the absolute value of the actual earnings per share is smaller than 0.25, it is replaced by 0.25, following the methodology in Mian and Sankaraguruswamy (2012).
GOODNEWS	Non-negative earnings surprises, defined as earnings surprises if the earnings surprises are no less than 0, and zero otherwise.
BADNEWS	Negative earnings surprises, defined as earnings surprises if the earnings surprises are smaller than 0, and zero otherwise.
Proxies of Cumulative Errors in Expectations	
WBADNEWS	Time-weighted BADNEWS, $\text{WBADNEWS}_{it} = \sum_{s=1}^{4t-1}(W_{is} \cdot \lvert\text{BADNEWS}_{is}\rvert)$, where $W_{is} = \frac{1}{1+INT(1+\frac{s}{4})}$, and $s\epsilon[1, 4t - 1]$.
WGOODNEWS	Time-weighted GOODNEWS, $\text{WGOODNEWS}_{it} = \sum_{s=1}^{4t-1}(W_{is} \cdot \lvert\text{GOODNEWS}_{is}\rvert)$, where $W_{is} = \frac{1}{1+INT(1+\frac{s}{4})}$, and $s\epsilon[1, 4t - 1]$.

Table 2B1 The Associations of Cumulative Downward Revisions between Firm Age and Market-to-Book Ratio: Incorporation of the Magnitude of Expectation Errors

This table shows the associations of cumulative downward revisions with firm age and market-to-book ratio. In Column (1), the dependent variable is *WBADNEWS*. In Column (2), the dependent variable is *WGOODNEWS*. The control variables are similar in Pastor and Veronesi (2003). All accounting control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1) **WBADNEWS**	(2) **WGOODNEWS**	(3) **NMISS**	(4) **WMISS**
AGE	**-2.001*****	**1.330*****	**1.632*****	**5.990*****
	(-24.45)	**(19.75)**	**(32.27)**	**(30.31)**
LOGMB	**0.034*****	**-0.005*****	**-0.020*****	**-0.048*****
	(11.02)	**(-2.80)**	**(-10.12)**	**(-9.38)**
DD	0.047***	-0.009***	0.002	-0.013
	(9.34)	(-3.23)	(0.75)	(-1.33)
LEV	-0.045***	0.003	0.016**	0.035
	(-3.24)	(0.49)	(2.36)	(1.52)
SIZE	0.055***	-0.005**	0.010***	0.012*
	(13.80)	(-2.17)	(4.31)	(1.72)
VOLP	-0.032**	0.051***	0.098***	0.196***
	(-2.13)	(3.07)	(25.29)	(4.22)
ROE	0.034***	0.008***	-0.028***	-0.073***
	(7.80)	(2.80)	(-7.42)	(-8.81)
_cons	-0.878***	0.341***	-0.145***	1.631***
	(-28.27)	(16.19)	(-9.42)	(28.05)
R^2	0.901	0.918	0.732	0.939
adj. R^2	0.893	0.911	0.711	0.935
N	89092	89092	89092	89092

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2B2 The Decline in β(AGE) including Cumulative Downward Revisions to Explain Valuation: Incorporation of the Magnitude of Expectation Errors

This table shows the effect of cumulative downward revisions on the relation between firm age and market-to-book ratio In Column (1), I add *WBADNEWS* into the multivariate regression. In Column (2), I add *WGOODNEWS* into the multivariate regression. The control variables are similar in Pastor and Veronesi (2003). All accounting control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1)	(2)	(3)	(4)	(5)
			Log(M/B)		
AGE	**-1.121***** **(-8.98)**	**-0.227*** **(-1.77)**	**-0.883***** **(-6.66)**	**-0.315*** **(-1.73)**	**-0.028** **(-0.18)**
DD	0.135*** (8.72)	0.112*** (7.31)	0.133*** (8.69)	0.134*** (8.76)	0.131*** (8.48)
LEV	0.505*** (7.65)	0.518*** (7.98)	0.506*** (7.69)	0.508*** (7.72)	0.507*** (7.77)
SIZE	-0.141*** (-11.52)	-0.163*** (-13.80)	-0.142*** (-11.65)	-0.135*** (-10.79)	-0.138*** (-10.84)
VOLP	0.018 (0.50)	0.032 (0.80)	0.027 (0.71)	0.065* (1.97)	0.053 (1.24)
ROE	0.250*** (10.99)	0.232*** (10.72)	0.251*** (11.07)	0.234*** (10.49)	0.235*** (10.69)
WBADNEWS		**0.439***** **(15.35)**			
WGOODNEWS			**-0.178***** **(-2.82)**		
NMISS				**-0.487***** **(-10.19)**	
WMISS					**-0.181***** **(-11.25)**
_cons	1.284*** (16.09)	1.650*** (20.58)	1.343*** (17.13)	1.201*** (15.01)	1.568*** (17.49)
Observed Difference		**0.894*****	**0.238*****	**0.915*****	**1.207*****
Chi Square		**445.84**	**86.61**	**231.81**	**85.84**
Empirical *p*-values		**0.000**	**0.000**	**0.000**	**0.000**
R^2	0.586	0.592	0.586	0.590	0.589
adj. R^2	0.554	0.561	0.555	0.559	0.558
N	89092	89092	89092	89092	89092

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

FIGURE 2.1 Incremental explanatory power of Proxies of Cumulative Downward Revisions.

This figure shows the incremental explanatory power of cumulative downward revisions as public firms age. R^2 for the following regressions of the market-to-book ratio on determinants of market valuation:

$$Log\left(\frac{M}{B}\right)_{IPO+t} = \alpha + \beta_2 DD_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 VOLP_{it} + \beta_6 ROE_{it} + \text{Calendar Year FE} + \epsilon_{it}$$

$$Log\left(\frac{M}{B}\right)_{IPO+t} = \alpha + \beta_2 DD_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 VOLP_{it} + \beta_6 ROE_{it} + \beta_7 \{NMISS_{it}, WMISS_{it}\} + \text{Calendar Year FE} + \epsilon_{it}$$

The solid line traces out the cross-sectional R^2 of the first model, the dashed red line traces out the cross-sectional R^2 of the second model where *NMISS* is included, and the dotted red line traces out the cross-sectional R^2 of the second model where *WMISS* is included.

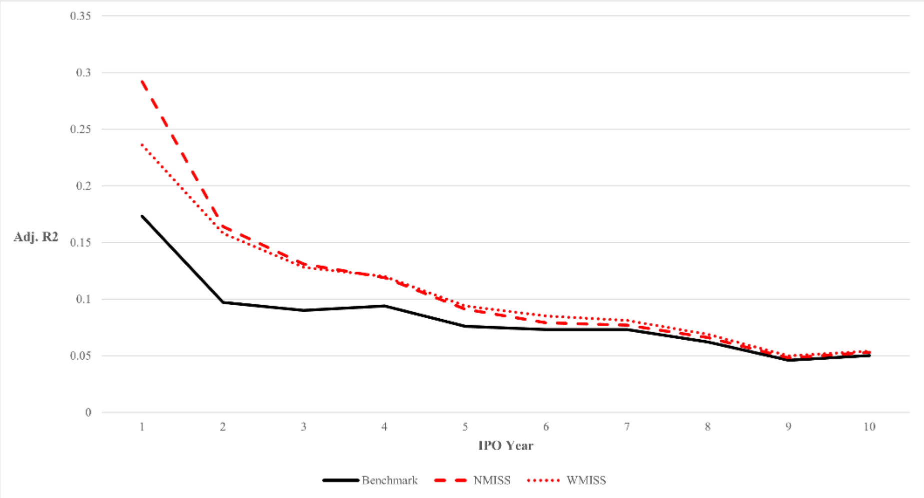

FIGURE 2.2 Incremental explanatory power of Proxies of Cumulative Downward Revisions: Comparison with Proxies for Uncertainty

This figure shows the incremental explanatory power of cumulative downward revisions as public firms age. R^2 for the following regressions of the market-to-book ratio on determinants of market valuation:

$$Log\left(\frac{M}{B}\right)_{IPO+t} = \alpha + \beta_2 DD_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 VOLP_{it} + \beta_6 ROE_{it} + \text{Calendar Year FE} + \epsilon_{it}$$

$$Log\left(\frac{M}{B}\right)_{IPO+t} = \alpha + \beta_2 DD_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 VOLP_{it} + \beta_6 ROE_{it} + \beta_7\{NMISS_{it}, WMISS_{it}, NMEET_{it}, IVOL_{it}\} + \text{Calendar Year FE} + \epsilon_{it}$$

The solid line traces out the cross-sectional R^2 of the first model, the dashed red line traces out the cross-sectional R^2 of the second model where *NMISS* is included, the dotted red line traces out the cross-sectional R^2 of the second model where *WMISS* is included, the dotted red line traces out the cross-sectional R^2 of the second model where *WMISS* is included, the dashed green line traces out the cross-sectional R2 of the second model where *NMEET* is included, and the dotted green line traces out the cross-sectional R2 of the second model where *IVOL* is included.

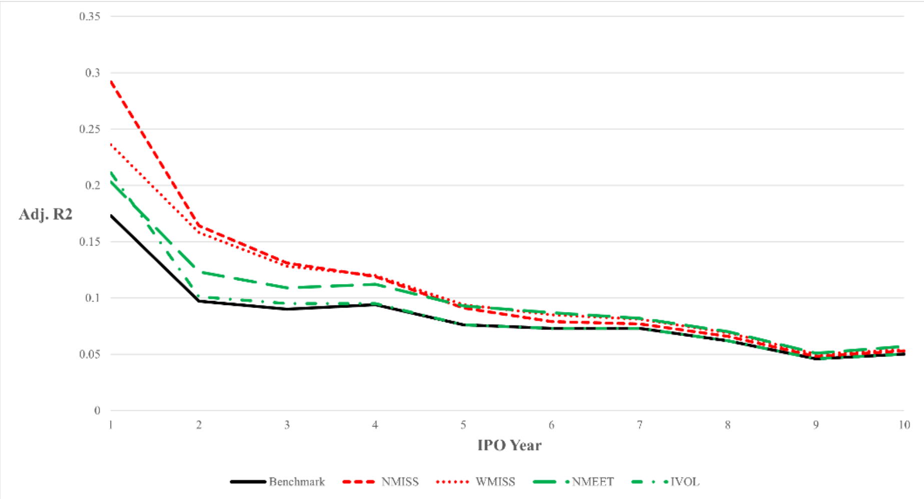

FIGURE 2.3 Incremental explanatory power of Proxies of Cumulative Downward Revisions: Alternative Construction.

This figure shows the incremental explanatory power of cumulative downward revisions as public firms age. R^2 for the following regressions of the market-to-book ratio on determinants of market valuation:

$$Log\left(\frac{M}{B}\right)_{IPO+t} = \alpha + \beta_2 DD_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 VOLP_{it} + \beta_6 ROE_{it} + \text{Calendar Year FE} + \epsilon_{it}$$

$$Log\left(\frac{M}{B}\right)_{IPO+t} = \alpha + \beta_2 DD_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 VOLP_{it} + \beta_6 ROE_{it} + \beta_7\{NMISS_{it}, WMISS_{it}, Log\#MISS_{it}, \#MISS_{it}\} + \text{Calendar Year FE} + \epsilon_{it}$$

The solid line traces out the cross-sectional R^2 of the first model, the dashed red line traces out the cross-sectional R^2 of the second model where *NMISS* is included, the dotted red line traces out the cross-sectional R^2 of the second model where *WMISS* is included, the dashed yellow line traces out the cross-sectional R^2 of the second model where *Log#MISS* is included, and the dashed purple line traces out the cross-sectional R^2 of the second model where *#MISS* is included.

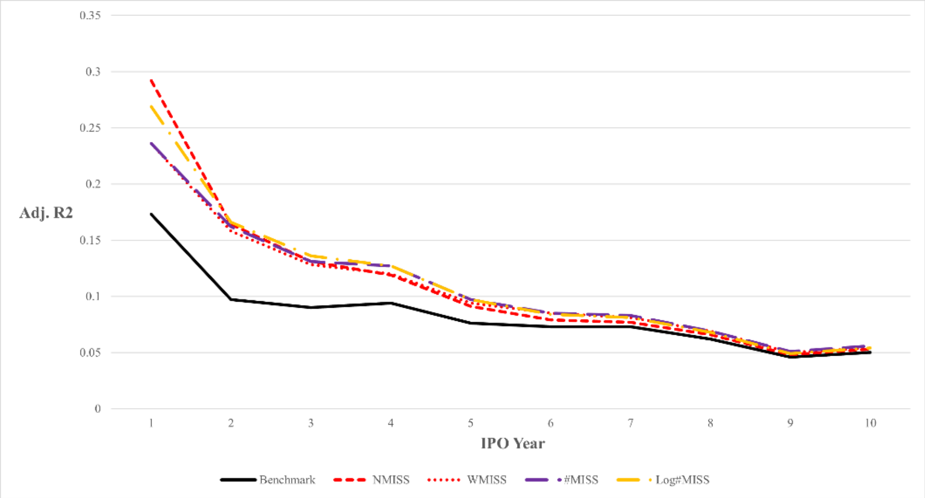

TABLE 1.1 Descriptive Statistics

This table reports the summary statistics of the sample. All non-return variables are winsorized at 1% and 99% levels.

	N	Mean	SD	Min	P1	P50	P99	Max
QRET	727900	0	0.16	-1.09	-.42	0	.47	6.95
ΔLTG	727900	-.26	3.31	-17.45	-14.55	0	12.35	15.5
ΔEPS1	543615	-.05	0.26	-1.83	-1.41	0	.48	.72
MISS	727900	.36	0.48	0	0	0	1	1
FUTUREFE	727900	-.03	0.30	-1.68	-1.36	.01	.67	1
AGE	727900	-.11	0.12	-.67	-.5	-.07	-.01	-.01
MBQ	727900	3.71	4.43	.31	.31	2.38	30.04	30.04
FE	727900	-.03	0.30	-1.68	-1.36	.01	.67	1
SIZE	727900	6.99	1.78	.98	3.52	6.86	11.57	13.89
INST%	727900	.42	0.20	0	0	.46	.69	.69
PROF	727900	.05	0.10	-.42	-.42	.06	.26	.26
LEVERAGE	727900	.48	0.20	.07	.07	.49	.95	.95
CASH	727900	.17	0.19	0	0	.09	.78	.78

TABLE 1.2 Sample Comparison with Skinner and Sloan (2002)

This table reports the earnings torpedoes in firms with the highest market-to-book ratios, similar to Skinner and Sloan(2002). Column (1) reports the result using Fama-Macbeth regression. Column (2) reports the result using panel regression controlling firm and quarter fixed effects. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1) **Fama Macbeth Regression**	(2) **Panel Regression**
	QRET	
GOODNEWS	0.166***	0.192***
	(10.61)	(17.50)
BADNEWS	0.087***	0.078***
	(12.21)	(16.85)
GROWTH	-0.001**	-0.007***
	(-2.04)	(-9.33)
GOODNEWS×GROWTH	**0.006**	**0.017*** **
	(0.46)	**(4.15)**
BADNEWS×GROWTH	**0.021*** **	**0.022*** **
	(7.44)	**(11.57)**
R^2	0.098	0.118
adj. R^2	0.086	0.109
N	727900	727900

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1.3 Illustration of hypothetical average abnormal returns for portfolios of young and old firms over the subsequent quarters upon the sign of earnings surprises.

This table shows the hypothetical average quarterly returns for portfolios of IPO and seasoned firms over the subsequent quarters upon the sign of earnings surprises. Numbers in parentheses are the percentage of observations falling into that cell.

Panel A: Symmetric Response to Negative Earnings Surprise (No Earnings Torpedoes in IPO firms)

Stock Type	Earnings Surprise		
	Negative	**Non-Negative**	**All**
OLD	-6.5% (20%)	6% (30%)	1% (50%)
YOUNG	-8.5% (20%)	4% (30%)	-1% (50%)
All	-7.5% (40%)	5% (60%)	0% (100%)

Panel B: Asymmetric Response to Negative Earnings Surprises (Earnings Torpedoes in IPO firms)

Stock Type	Earnings Surprise		
	Negative	**Non-Negative**	**All**
OLD	-5% (20%)	5% (30%)	1% (50%)
YOUNG	-10% (20%)	5% (30%)	-1% (50%)
All	-7.5% (40%)	5% (60%)	0% (100%)

The numbers in parentheses represent the hypothetical relative frequencies with which firms enter a cell.

TABLE 1.4 Mean Quarterly Abnormal Returns over the Subsequent Four Quarters for Portfolios of Stocks Formed on Firm Age and the Sign of the Subsequent Quarterly Earnings Surprises

This table shows the average quarterly returns for portfolios of IPO and seasoned firms over the subsequent quarters upon the sign of earnings surprises. Numbers in parentheses are the number of observations falling into that cell and the percentage of it over the number of observations falling into the rightmost cell, respectively.

	Earnings Surprises Portfolio		
	Non-Negative	Negative	All
Age Portfolio			
0 (Young)	3.32%	-7.46%	-0.52%
	94240	52088	146328
	(64.4%)	(35.6%)	(100.0%)
1	3.38%	-6.26%	-0.15%
	96173	55563	151736
	(63.4%)	(36.6%)	(100.0%)
2	3.28%	-5.15%	0.18%
	96561	56127	152688
	(63.2%)	(36.8%)	(100.0%)
3	2.75%	-4.56%	0.07%
	88094	50954	139048
	(63.4%)	(36.6%)	(100.0%)
4 (Old)	1.89%	-3.39%	0.02%
	89200	48900	138100
	(64.6%)	(35.4%)	(100.0%)
All Age Portfolios	2.94%	-5.40%	-0.08%
	464268	263632	727900
	(63.8%)	(36.2%)	(100.0%)

TABLE 1.5 Firm Age and Earnings Torpedo

This table reports whether IPO firms experience an asymmetrical and large price drop when reporting negative earnings surprises relative to seasoned firms. The dependent variable is the quarterly abnormal returns. All firm control variables are winsorized at the 1% and 99% levels. All control accounting variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1)	(2)	(3)
		QRET	
GOODNEWS	0.205***	0.181***	0.168***
	(18.91)	(14.24)	(13.58)
BADNEWS	0.074***	0.056***	0.058***
	(16.31)	(12.51)	(12.61)
AGE	-0.048***	-0.064***	-0.019**
	(-5.03)	(-6.70)	(-2.03)
GOODNEWS×AGE	**-0.155*** **	**-0.125** **	**-0.179*** **
	(-3.09)	**(-2.57)**	**(-3.82)**
BADNEWS×AGE	**-0.320*** **	**-0.259*** **	**-0.235*** **
	(-12.31)	**(-10.16)**	**(-9.18)**
GROWTH		-0.007***	0.001
		(-10.35)	(0.90)
GOODNEWS×GROWTH		0.016***	0.017***
		(3.88)	(4.19)
BADNEWS×GROWTH		0.017***	0.016***
		(9.27)	(8.99)
SIZE			-0.027***
			(-20.88)
INST%			-0.018***
			(-3.70)
PROF			0.015*
			(1.66)
LEVERAGE			-0.006
			(-1.40)
CASH			-0.014***
			(-2.80)
R^2	0.117	0.120	0.127
adj. R^2	0.108	0.111	0.118
N	727900	727900	727900

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1.6 Firm Age and Earnings Torpedo: Alternative Explanations

This table reports whether other alternative explanations can fully explain that IPO firms experience an asymmetrical and large price drop when reporting negative earnings surprises relative to seasoned firms. In Panel A, I test whether the existence of income-increasing accruals accounts for the existence of an earnings torpedo in IPO firms reporting negative earnings surprises by controlling an indicator for the existence of positive unexpected working-capital accruals and its interactions with earnings surprises. The unexpected working-capital accruals are estimated using a seasonal random walking model, following the methodology in DeFond and Park (2001). In Panel B, I test whether the high uncertainty accounts for the existence of an earnings torpedo in IPO firms reporting negative earnings surprises by controlling return volatility and its interactions with earnings surprises. Return volatilities are calculated for each quarter, following the methodology in Pastor and Veronesi (2003). All control accounting variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

Panel A The Earnings Management Hypothesis

	(1)	(2) **QRET**	(3)
GOODNEWS	0.212^{***}	0.210^{***}	0.176^{***}
	(18.94)	(18.71)	(14.04)
BADNEWS	0.074^{***}	0.070^{***}	0.057^{***}
	(15.91)	(14.34)	(11.29)
AGE	-0.047^{***}	-0.051^{***}	-0.020^{**}
	(-4.83)	(-5.13)	(-2.01)
GOODNEWS×AGE	**-0.140^{***}**	**-0.141^{***}**	**-0.168^{***}**
	(-2.72)	**(-2.75)**	**(-3.51)**
BADNEWS×AGE	**-0.325^{***}**	**-0.323^{***}**	**-0.240^{***}**
	(-11.91)	**(-11.84)**	**(-8.98)**
INCR		-0.015^{***}	-0.012^{***}
		(-14.83)	(-12.82)
GOODNEWS×INCR		-0.002	-0.006
		(-0.21)	(-0.68)
BADNEWS×INCR		0.005	0.001
		(1.12)	(0.19)
GROWTH			0.001
			(1.46)
GOODNEWS×GROWTH			0.016^{***}
			(3.79)
BADNEWS×GROWTH			0.015^{***}
			(8.59)
SIZE			-0.027^{***}
			(-20.07)
INST%			-0.021^{***}
			(-3.97)
PROF			0.019^{**}
			(2.03)
LEVERAGE			-0.004
			(-0.84)
CASH			-0.011^{**}
			(-2.19)
R^2	0.119	0.121	0.131
adj. R^2	0.110	0.112	0.122
N	677502	677502	677502

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1.6 (cont'd) Firm Age and Earnings Torpedo: Alternative Explanations
Panel B The Ambiguity Aversion Hypothesis

	(1)	(2)	(3)
		QRET	
GOODNEWS	0.205***	0.138***	0.101***
	(18.91)	(7.22)	(5.34)
BADNEWS	0.074***	0.037***	0.025***
	(16.31)	(4.71)	(3.32)
AGE	-0.048***	-0.035***	-0.010
	(-5.03)	(-3.76)	(-1.10)
GOODNEWS×AGE	**-0.155*****	**-0.062**	**-0.080**
	(-3.09)	**(-1.03)**	**(-1.42)**
BADNEWS×AGE	**-0.320*****	**-0.234*****	**-0.161*****
	(-12.31)	**(-9.50)**	**(-6.72)**
RETVOL		0.796***	0.700***
		(6.40)	(5.93)
GOODNEWS×RETVOL		2.165***	2.130***
		(3.13)	(3.03)
BADNEWS×RETVOL		1.548***	1.462***
		(5.48)	(5.24)
GROWTH			0.000
			(0.12)
GOODNEWS×GROWTH			0.019***
			(4.84)
BADNEWS×GROWTH			0.014***
			(8.01)
SIZE			-0.026***
			(-19.63)
INST%			-0.016***
			(-3.18)
PROF			0.025***
			(2.74)
LEVERAGE			-0.005
			(-1.12)
CASH			-0.015***
			(-2.98)
R^2	0.117	0.122	0.131
adj. R^2	0.108	0.113	0.123
N	727863	727863	727863

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1.7 Firm Age, Earnings Torpedo and Analyst Forecast Revision

This table reports whether IPO firms experience a more negative analyst revision in earnings forecasts when reporting negative earnings surprises relative to seasoned firms. In Panel A, the dependent variable is the analyst revision in their forecasts for one-year-ahead EPS. In Panel B, the dependent variable is the analyst revision in their forecasts for long-term earnings growth. All control accounting variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

Panel A Analyst Forecast Revision in One-Year-Ahead EPS

	(1)	(2)	(3)
		ΔEPS1	
GOODNEWS	0.456***	0.474***	0.470***
	(22.22)	(21.20)	(21.22)
BADNEWS	0.408***	0.432***	0.433***
	(23.26)	(22.09)	(22.07)
AGE	-0.070***	-0.054***	-0.034***
	(-6.49)	(-5.12)	(-3.01)
GOODNEWS×AGE	**-0.256*** **	**-0.276*** **	**-0.291*** **
	(-3.30)	**(-3.53)**	**(-3.75)**
BADNEWS×AGE	**-0.489*** **	**-0.566*** **	**-0.557*** **
	(-6.07)	**(-7.17)**	**(-7.10)**
GROWTH		0.007***	0.010***
		(8.17)	(10.29)
GOODNEWS×GROWTH		-0.011*	-0.011*
		(-1.86)	(-1.79)
BADNEWS×GROWTH		-0.022***	-0.022***
		(-3.68)	(-3.74)
SIZE			-0.007***
			(-3.66)
INST%			-0.018**
			(-2.34)
PROF			-0.020
			(-1.63)
LEVERAGE			-0.020***
			(-2.67)
CASH			0.003
			(0.39)
R^2	0.397	0.399	0.399
adj. R^2	0.389	0.391	0.391
N	543611	543611	543611

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1.7 (cont'd) Firm Age, Earnings Torpedo and Analyst Forecast Revision
Panel B Analyst Forecast Revision in Long-Term Earnings Growth

	(1)	(2)	(3)
		ΔLTG	
GOODNEWS	0.780***	0.565***	0.460***
	(6.25)	(4.06)	(3.29)
BADNEWS	0.316***	0.219***	0.235***
	(4.64)	(2.77)	(2.98)
AGE	0.805***	0.601***	0.926***
	(6.06)	(4.45)	(6.93)
GOODNEWS×AGE	**-0.231**	**-0.002**	**-0.454**
	(-0.30)	**(-0.00)**	**(-0.57)**
BADNEWS×AGE	**-1.987*** **	**-1.534*** **	**-1.345*** **
	(-5.20)	**(-4.17)**	**(-3.69)**
GROWTH		-0.090***	-0.028**
		(-9.22)	(-2.35)
GOODNEWS×GROWTH		0.126**	0.133**
		(2.17)	(2.29)
BADNEWS×GROWTH		0.107***	0.100***
		(3.72)	(3.53)
SIZE			-0.223***
			(-12.58)
INST%			-0.080
			(-0.89)
PROF			0.224*
			(1.72)
LEVERAGE			0.058
			(0.75)
CASH			-0.200***
			(-2.79)
R^2	0.036	0.037	0.038
adj. R^2	0.026	0.027	0.028
N	727900	727900	727900

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1.8 Firm Age, Earnings Torpedo and Management Forecast

This table reports whether IPO firms are more likely for earnings guidance after reporting negative earnings surprises relative to seasoned firms. In Panel A, the dependent variable is an indicator that equals one when there is at least one management forecast for EPS that shortly falls the previous consensus in a quarter and zero otherwise. In Panel B, the dependent variable is the number of management forecasts for EPS that shortly falls the previous consensus in a quarter. All control accounting variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

Panel A: The Subsequent Occurrence of Any Short-Fall Management Forecast

	(1)	(2)	(3)
		MF	
GOODNEWS	-0.046***	-0.042***	-0.026***
	(-5.97)	(-5.36)	(-3.65)
BADNEWS	0.031***	0.027***	0.024***
	(6.62)	(5.56)	(5.26)
AGE	0.068***	0.079***	0.030*
	(3.99)	(4.48)	(1.74)
GOODNEWS×AGE	**-0.070***	**-0.068***	**-0.009**
	(-1.88)	**(-1.78)**	**(-0.23)**
BADNEWS×AGE	**0.092*****	**0.091*****	**0.063*****
	(4.84)	**(4.82)**	**(3.53)**
GROWTH		0.005***	-0.003**
		(3.92)	(-2.09)
GOODNEWS×GROWTH		-0.001	-0.001
		(-0.46)	(-0.48)
BADNEWS×GROWTH		0.001	0.000
		(0.41)	(0.18)
SIZE			0.020***
			(6.30)
INST%			0.089***
			(5.94)
PROF			0.018
			(1.58)
LEVERAGE			-0.009
			(-0.68)
CASH			0.041***
			(2.80)
R^2	0.238	0.239	0.241
adj. R^2	0.231	0.231	0.233
N	727900	727900	727900

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel B: The Number of Subsequent Short-Fall Management Forecasts

	(1)	(2)	(3)
		#MF	
GOODNEWS	-0.044***	-0.039***	-0.026***
	(-6.56)	(-5.81)	(-4.15)
BADNEWS	0.027***	0.023***	0.020***
	(6.81)	(5.53)	(5.19)
AGE	0.058***	0.068***	0.026*
	(4.02)	(4.61)	(1.79)
GOODNEWS×AGE	**-0.085*****	**-0.085*****	**-0.032**
	(-2.67)	**(-2.63)**	**(-1.04)**
BADNEWS×AGE	**0.080*****	**0.081*****	**0.056*****
	(5.08)	**(5.15)**	**(3.80)**
GROWTH		0.005***	-0.002
		(4.42)	(-1.55)
GOODNEWS×GROWTH		-0.002	-0.002
		(-0.90)	(-0.91)
BADNEWS×GROWTH		0.001	0.001
		(0.94)	(0.71)
SIZE			0.017***
			(6.45)
INST%			0.076***
			(6.04)
PROF			0.011
			(1.13)
LEVERAGE			-0.011
			(-1.08)
CASH			0.033***
			(2.63)
R^2	0.235	0.235	0.237
adj. R^2	0.227	0.227	0.230
N	727900	727900	727900

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1.9 Firm Age, Earnings Torpedo and the Following Earnings Management

This table reports whether IPO firms are more likely for earnings management after reporting negative earnings surprises relative to seasoned firms. The dependent variable is an indicator that equals one when the unexpected working-capital accruals are positive and zero otherwise, and the unexpected working capital accruals are estimated following DD (2002). All control accounting variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1)	(2)	(3)
		FUTUREEM	
GOODNEWS	-0.008	0.055**	0.077***
	(-0.33)	(2.10)	(2.95)
BADNEWS	0.204***	0.125***	0.120***
	(15.61)	(9.04)	(8.70)
AGE	-0.245***	-0.067	-0.065
	(-5.37)	(-1.53)	(-1.44)
GOODNEWS×AGE	**0.012**	**0.069**	**0.144**
	(0.10)	**(0.54)**	**(1.13)**
BADNEWS×AGE	**0.238*** **	**0.258*** **	**0.219*** **
	(3.39)	**(3.71)**	**(3.19)**
GROWTH		0.086***	0.079***
		(27.94)	(21.42)
GOODNEWS×GROWTH		-0.021**	-0.018**
		(-2.34)	(-2.00)
BADNEWS×GROWTH		0.026***	0.025***
		(4.05)	(3.84)
SIZE			0.019***
			(2.99)
INST%			0.164***
			(4.81)
PROF			-0.093***
			(-2.98)
LEVERAGE			0.015
			(0.47)
CASH			-0.060**
			(-2.12)
R^2	0.133	0.156	0.158
adj. R^2	0.100	0.123	0.125
N	164331	164331	164331

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1.10 Firm Age, Earnings Torpedo and Future Misses to Analyst Forecast

This table reports whether IPO firms are less likely to experience an earnings torpedo after reporting negative earnings surprises relative to seasoned firms. In Panel A, the dependent variable is an indicator that equals one when the actual earnings are smaller than the consensus in a quarter and zero otherwise. In Panel B, the dependent variable is the deflated earnings surprises in a quarter. All control accounting variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

Panel A: The Subsequent Meets/Misses to Analyst Earnings Forecast

	(1)	(2)	(3)
		MISS	
GOODNEWS	-0.149***	-0.112***	-0.094***
	(-11.55)	(-8.07)	(-6.88)
BADNEWS	-0.093***	-0.076***	-0.080***
	(-10.90)	(-8.98)	(-9.29)
AGE	0.209***	0.201***	0.139***
	(8.72)	(8.29)	(5.61)
GOODNEWS×AGE	**-0.007**	**-0.090**	**-0.016**
	(-0.10)	**(-1.40)**	**(-0.25)**
BADNEWS×AGE	**-0.271*****	**-0.298*****	**-0.331*****
	(-6.56)	**(-7.05)**	**(-7.84)**
GROWTH		-0.004**	-0.012***
		(-2.57)	(-5.69)
GOODNEWS×GROWTH		-0.029***	-0.029***
		(-5.82)	(-5.76)
BADNEWS×GROWTH		-0.014***	-0.015***
		(-4.27)	(-4.36)
SIZE			0.022***
			(6.26)
INST%			0.059***
			(3.69)
PROF			0.076***
			(3.83)
LEVERAGE			-0.022
			(-1.40)
CASH			-0.035**
			(-2.14)
R^2	0.143	0.143	0.145
adj. R^2	0.135	0.135	0.136
N	727900	727900	727900

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 1.10 (cont'd) Firm Age, Earnings Torpedo and Future Misses to Analyst Forecast

Panel B: The Subsequent Earnings Surprises for Quarterly Earnings

	(1)	(2)	(3)
		FUTUREFE	
GOODNEWS	0.113***	0.109***	0.086***
	(8.79)	(7.07)	(5.71)
BADNEWS	0.072***	0.061***	0.066***
	(8.45)	(6.65)	(7.15)
AGE	-0.087***	-0.090***	-0.023*
	(-6.82)	(-7.11)	(-1.72)
GOODNEWS×AGE	**0.022**	**0.026**	**-0.069**
	(0.36)	**(0.42)**	**(-1.11)**
BADNEWS×AGE	**0.300*** **	**0.325*** **	**0.364*** **
	(7.54)	**(8.00)**	**(9.01)**
GROWTH		-0.001	0.009***
		(-1.41)	(7.95)
GOODNEWS×GROWTH		0.002	0.002
		(0.41)	(0.45)
BADNEWS×GROWTH		0.011***	0.011***
		(3.33)	(3.42)
SIZE			-0.031***
			(-14.47)
INST%			-0.036***
			(-3.74)
PROF			-0.100***
			(-7.52)
LEVERAGE			-0.003
			(-0.30)
CASH			0.022**
			(2.49)
R^2	0.146	0.146	0.150
adj. R^2	0.138	0.138	0.142
N	727900	727900	727900

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 2.1 Descriptive Statistics

This table reports the summary statistics of the sample. All non-return variables are winsorized at 1% and 99% levels.

	N	Mean	SD	Min	P1	Median	P99	Max
LOGMB	89092	.66	0.82	-4.05	-1.3	.62	2.92	3.08
NMISS	89092	-.16	0.21	-1	-1	-.08	-.02	-.01
WMISS	89092	1.32	1.10	0	0	1.05	4.58	6.95
NMEET	89092	-.16	0.23	-1	-1	-.07	-.01	-.01
AGE	89092	-.08	0.07	-.5	-.33	-.06	-.01	-.01
DD	89092	.42	0.49	0	0	0	1	1
LEV	89092	.17	0.17	0	0	.14	.66	.74
SIZE	89092	6.18	2.03	2.09	2.21	6.02	11.28	11.68
VOLP	89092	.67	1.69	.02	.03	.2	11.7	12.99
SIZE	89092	6.18	2.03	2.09	2.21	6.02	11.28	11.68
IVOL	89092	.12	0.08	0	.03	.1	.41	3.8

TABLE 2.2 Replication of Pastor and Veronesi (2003), Table II

This table reports the relation between firm age and market valuation, similar to Pastor and Veronesi (2003). Column (1) reports the result using Fama-Macbeth regression. Column (2) reports the result using panel regression controlling firm and quarter fixed effects. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1) **Fama- Macbeth**	(2) **Panel Regression**
AGE	-0.737***	-1.121***
	(-4.86)	(-8.98)
DD	0.063***	0.135***
	(4.82)	(8.72)
LEV	-0.324***	0.505***
	(-4.75)	(7.65)
SIZE	0.013**	-0.141***
	(2.15)	(-11.52)
VOLP	0.050***	0.018
	(17.27)	(0.50)
ROE	0.249***	0.250***
	(4.47)	(10.99)
_cons	0.476***	1.284***
	(12.49)	(16.09)
R^2	0.067	0.586
adj. R^2		0.554
N	89092	89092

TABLE 2.3 The Relations of the Accumulation of Missing Analyst Forecasts between Firm Age and Market-to-Book Ratio

This table shows the relations of the accumulation of missing analyst forecasts with firm age and market-to-book ratio. In Panel A, the dependent variable is *NMISS*. In Panel B, the dependent variable is *WMISS*. The control variables are similar in Pastor and Veronesi (2003). All accounting control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

Panel A NMISS

	(1)	(2)	(3) **NMISS**	(4)	(5)
AGE	**1.690***** **(34.99)**		**1.654***** **(32.98)**		**1.632***** **(32.27)**
LOGMB		**-0.035***** **(-10.89)**		**-0.031***** **(-11.49)**	**-0.020***** **(-10.12)**
DD			-0.001 (-0.27)	0.015*** (4.62)	0.002 (0.75)
LEV			0.006 (0.90)	0.026*** (2.72)	0.016** (2.36)
SIZE			0.013*** (5.57)	0.024*** (6.66)	0.010*** (4.31)
VOLP			0.098*** (21.18)	0.118*** (29.34)	0.098*** (25.29)
ROE			-0.033*** (-7.94)	-0.040*** (-7.33)	-0.028*** (-7.42)
_cons	-0.025*** (-6.20)	-0.139*** (-64.31)	-0.171*** (-10.98)	-0.378*** (-17.92)	-0.145*** (-9.42)
R^2	0.725	0.620	0.729	0.629	0.732
adj. R^2	0.704	0.592	0.708	0.601	0.711
N	89092	89092	89092	89092	89092

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel B WMISS

	(1)	(2)	(3)	(4)	(5)
			WMISS		
AGE	**6.106***** **(29.24)**		**6.044***** **(29.95)**		**5.990***** **(30.31)**
LOGMB		**-0.101***** **(-9.13)**		**-0.087***** **(-9.54)**	**-0.048***** **(-9.38)**
DD			-0.020* (-1.97)	0.036** (2.40)	-0.013 (-1.33)
LEV			0.011 (0.46)	0.071* (1.99)	0.035 (1.52)
SIZE			0.019** (2.71)	0.064*** (4.93)	0.012* (1.72)
VOLP			0.195*** (4.35)	0.267*** (5.49)	0.196*** (4.22)
ROE			-0.085*** (-9.40)	-0.119*** (-7.77)	-0.073*** (-8.81)
_cons	1.816*** (106.11)	1.384*** (190.57)	1.570*** (27.85)	0.775*** (8.99)	1.631*** (28.05)
R^2	0.938	0.888	0.939	0.890	0.939
adj. R^2	0.933	0.880	0.934	0.882	0.935
N	89092	89092	89092	89092	89092

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 2.4 The Relations of the Accumulation of Missing Analyst Forecasts Firm Age and Market-to-Book Ratio: Comparison with Proxies of Uncertainty

This table shows the relations of the accumulation of meeting analyst forecasts and return volatility with firm age and market-to-book ratio. In Column (1), the dependent variable is return volatility, following the methodology in Pastor and Veronesi (2003). In Column (2), the dependent variable is *NMEET*. The control variables are similar in Pastor and Veronesi (2003). All accounting control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1) **IVOL**	(2) **NMEET**	(3) **NMISS**	(4) **WMISS**
AGE	**-0.057***** **(-3.90)**	**1.040***** **(27.23)**	**1.632***** **(32.27)**	**5.990***** **(30.31)**
LOGMB	**0.003*** **(1.75)**	**0.001** **(0.98)**	**-0.020***** **(-10.12)**	**-0.048***** **(-9.38)**
DD	-0.016*** (-10.17)	-0.000 (-0.09)	0.002 (0.75)	-0.013 (-1.33)
LEV	0.022*** (3.69)	-0.046*** (-4.75)	0.016** (2.36)	0.035 (1.52)
SIZE	-0.012*** (-9.00)	0.018*** (8.12)	0.010*** (4.31)	0.012* (1.72)
VOLP	-0.002 (-0.54)	0.008** (2.19)	0.098*** (25.29)	0.196*** (4.22)
ROE	-0.032*** (-10.05)	0.012*** (4.60)	-0.028*** (-7.42)	-0.073*** (-8.81)
_cons	0.186*** (19.63)	-0.187*** (-12.16)	-0.145*** (-9.42)	1.631*** (28.05)
R^2	0.452	0.781	0.732	0.939
adj. R^2	0.411	0.764	0.711	0.935
N	89092	89092	89092	89092

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 2.5 The Relations of the Accumulation of Missing Analyst Forecasts between Firm Age and Market-to-Book Ratio: Alternative Constructions

This table shows the relations of the accumulation of missing analyst forecasts with firm age and market-to-book ratio. In Column (1), the dependent variable is *#MISS*. In Column (2), the dependent variable is *Log#MISS*. The control variables are similar in Pastor and Veronesi (2003). All accounting control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1) **#MISS**	(2) **Log#MISS**	(3) **NMISS**	(4) **WMISS**
AGE	**1.158**	**5.058*****	**1.632*****	**5.990*****
	(0.89)	**(29.30)**	**(32.27)**	**(30.31)**
LOGMB	**-0.609*****	**-0.077*****	**-0.020*****	**-0.048*****
	(-7.50)	**(-12.14)**	**(-10.12)**	**(-9.38)**
DD	**-0.629*****	**-0.002**	**0.002**	**-0.013**
	(-3.85)	(-0.25)	(0.75)	(-1.33)
LEV	1.828***	0.110***	0.016**	0.035
	(4.50)	(4.64)	(2.36)	(1.52)
SIZE	0.034	0.039***	0.010***	0.012*
	(0.32)	(4.68)	(4.31)	(1.72)
VOLP	3.152***	0.367***	0.098***	0.196***
	(8.34)	(23.16)	(25.29)	(4.22)
ROE	-0.926***	-0.109***	-0.028***	-0.073***
	(-9.24)	(-10.24)	(-7.42)	(-8.81)
_cons	12.439***	2.300***	-0.145***	1.631***
	(15.66)	(38.05)	(-9.42)	(28.05)
R^2	0.907	0.901	0.732	0.939
adj. R^2	0.900	0.893	0.711	0.935
N	89092	89092	89092	89092

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 2.6 The Decline in β(AGE) on M/B Controlling the Accumulation of Missing Analyst Forecasts

This table shows whether the effect of firm age on market valuation declines or diminishes after controlling the accumulation of missing analyst forecasts. In Panel A, the univariate regression for the relation between firm age and the market-to-book ratio is regressed in Column (1). In Column (2), I add *NMISS* into the regression in Column (1). In Column (3), I add *WMISS* into the regression in Column (1). In Panel B, the multivariate regression for the relation between firm age and the market-to-book ratio is regressed in Column (1). In Column (2), I add *NMISS* into the regression in Column (1). In Column (3), I add *WMISS* into the regression in Column (1). The control variables are similar in Pastor and Veronesi (2003). All accounting control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

Panel A Univariate

	(1)	(2)	(3)
		Log(M/B)	
AGE	**-1.363*****	**-0.418*****	**-0.098**
	(-14.09)	**(-3.69)**	**(-0.76)**
NMISS		**-0.559*****	
		(-18.59)	
WMISS			**-0.207*****
			(-13.70)
_cons	0.553***	0.539***	0.929***
	(69.99)	(69.58)	(33.09)
Observed Difference		**0.915*****	**1.207*****
Chi Square		**231.81**	**85.84**
Empirical *p*-values		**0.000**	**0.000**
R^2	0.570	0.575	0.574
adj. R^2	0.537	0.543	0.542
N	89092	89092	89092

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel B Multivariate

	(1)	(2)	(3)
		Log(M/B)	
AGE	**-1.121*****	**-0.315***	**-0.028**
	(-8.98)	**(-1.73)**	**(-0.18)**
DD	0.135***	0.134***	0.131***
	(8.72)	(8.76)	(8.48)
LEV	0.505***	0.508***	0.507***
	(7.65)	(7.72)	(7.77)
SIZE	-0.141***	-0.135***	-0.138***
	(-11.52)	(-10.79)	(-10.84)
VOLP	0.018	0.065*	0.053
	(0.50)	(1.97)	(1.24)
ROE	0.250***	0.234***	0.235***
	(10.99)	(10.49)	(10.69)
NMISS		**-0.487*****	
		(-10.19)	
WMISS			**-0.181*****
			(-11.25)
_cons	1.284***	1.201***	1.568***
	(16.09)	(15.01)	(17.49)
Observed Difference		**0.806*****	**1.093*****
Chi Square		**243.68**	**92.92**
Empirical *p*-values		**0.000**	**0.000**
R^2	0.586	0.590	0.589
adj. R^2	0.554	0.559	0.558
N	89092	89092	89092

TABLE 2.7 The Decline in β(AGE) on M/B Controlling the Accumulation of Missing Analyst Forecasts: Comparison with Proxies of Uncertainty

This table shows whether the effect of the accumulation of missing analyst forecasts is different from that of the accumulation of meeting analyst forecasts or that of return volatility. In Column (1), I add *IVOL* into the multivariate regression. In Column (2), I add *NMEET* into the multivariate regression. The control variables are similar in Pastor and Veronesi (2003). All accounting control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1)	(2)	(3)	(4)	(5)
			Log(M/B)		
AGE	**-1.121***** **(-8.98)**	**-1.105***** **(-8.80)**	**-1.156***** **(-8.86)**	**-0.315*** **(-1.73)**	**-0.028** **(-0.18)**
DD	0.135*** (8.72)	0.139*** (9.13)	0.135*** (8.71)	0.134*** (8.76)	0.131*** (8.48)
LEV	0.505*** (7.65)	0.499*** (7.36)	0.507*** (7.71)	0.508*** (7.72)	0.507*** (7.77)
SIZE	-0.141*** (-11.52)	-0.138*** (-10.87)	-0.142*** (-11.67)	-0.135*** (-10.79)	-0.138*** (-10.84)
VOLP	0.018 (0.50)	0.018 (0.50)	0.017 (0.49)	0.065* (1.97)	0.053 (1.24)
ROE	0.250*** (10.99)	0.258*** (11.27)	0.250*** (10.99)	0.234*** (10.49)	0.235*** (10.69)
IVOL		**0.264*** **(1.81)**			
NMEET			**0.033** **(1.01)**		
NMISS				**-0.487***** **(-10.19)**	
WMISS					**-0.181***** **(-11.25)**
_cons	1.284*** (16.09)	1.233*** (14.29)	1.290*** (16.28)	1.201*** (15.01)	1.568*** (17.49)
Observed Difference		**0.006*** **	**-0.035*** **	**0.806*** **	**1.093*** **
Chi Square		**21.94**	**32.63**	**243.68**	**92.92**
Empirical *p*-values		**0.000**	**0.000**	**0.000**	**0.000**
R^2	0.586	0.586	0.586	0.590	0.589
adj. R^2	0.554	0.555	0.554	0.559	0.558
N	89092	89092	89092	89092	89092

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 2.8 The Decline in β(AGE) on M/B Controlling the Accumulation of Missing Analyst Forecasts: Alternative Constructions

This table shows whether the timing of missing analyst forecasts is important in the accumulation of missing analyst forecasts. In Column (1), I add *#MISS* into the multivariate regression. In Column (2), I add *Log#MISS* into the multivariate regression. The control variables are similar in Pastor and Veronesi (2003). All accounting control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1)	(2)	(3)	(4)	(5)
			Log(M/B)		
AGE	**-1.121*****	**-1.100*****	**0.054**	**-0.315***	**-0.028**
	(-8.98)	**(-8.73)**	**(0.29)**	**(-1.73)**	**(-0.18)**
DD	0.135***	0.127***	0.132***	0.134***	0.131***
	(8.72)	(8.15)	(8.63)	(8.76)	(8.48)
LEV	0.505***	0.523***	0.522***	0.508***	0.507***
	(7.65)	(7.99)	(8.01)	(7.72)	(7.77)
SIZE	-0.141***	-0.140***	-0.130***	-0.135***	-0.138***
	(-11.52)	(-11.23)	(-10.14)	(-10.79)	(-10.84)
VOLP	0.018	0.053	0.101***	0.065*	0.053
	(0.50)	(1.48)	(2.98)	(1.97)	(1.24)
ROE	0.250***	0.238***	0.221***	0.234***	0.235***
	(10.99)	(10.64)	(10.07)	(10.49)	(10.69)
#MISS		**-0.011*****			
		(-7.82)			
Log#MISS			**-0.228*****		
			(-12.49)		
NMISS				**-0.487*****	
				(-10.19)	
WMISS					**-0.181*****
					(-11.25)
_cons	1.284***	1.416***	1.786***	1.201***	1.568***
	(16.09)	(16.25)	(17.91)	(15.01)	(17.49)
Observed Difference		**0.021*****	**1.067*****	**0.806*****	**1.093*****
Chi Square		**9.24**	**40.09**	**243.68**	**92.92**
Empirical *p*-value		**0.000**	**0.000**	**0.000**	**0.000**
R^2	0.586	0.589	0.593	0.590	0.589
adj. R^2	0.554	0.558	0.562	0.559	0.558
N	89092	89092	89092	89092	89092

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 2.9 The Decline in β(AGE) on ∆M/B Controlling the Accumulation of Missing Analyst Forecasts to Explain Change in Market Valuation

This table shows whether the effect firm age of market valuation declines after controlling the presence of missing analyst forecasts in a fiscal year. The independent variable is the annual change in the market-to-book ratio. The control variables are similar in Pastor and Veronesi (2003). All accounting control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

	(1)	(2) **∆(M/B)**	(3)
AGE	**0.484***** **(4.56)**	**0.493***** **(4.63)**	**0.297**** **(2.69)**
DD	0.026*** (2.76)	0.032*** (3.33)	0.032*** (3.33)
LEV	0.087** (2.65)	0.118*** (3.73)	0.118*** (3.73)
SIZE	-0.006* (-1.92)	-0.010*** (-3.13)	-0.010*** (-3.13)
VOLP	-0.004** (-2.22)	-0.004** (-2.39)	-0.004** (-2.38)
ROE	-0.056*** (-3.27)	-0.088*** (-5.02)	-0.089*** (-5.05)
NoAnaFol		-0.091*** (-8.47)	-0.091*** (-8.45)
MISS		-0.116*** (-13.18)	-0.094*** (-8.81)
AGE×MISS			**0.252***** **(2.78)**
_cons	0.035 (1.13)	0.153*** (5.49)	0.135*** (4.70)
Observed Difference		**0.009**	**-0.187*** **
Chi Square		**0.61**	**15.45**
Empirical *p*-values		**0.4329**	**0.000**
R^2	0.031	0.049	0.050
adj. R^2	0.029	0.045	0.046
N	87185	87185	87185

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

TABLE 2.10 The Accumulation of Missing Analyst Forecasts, Valuation and the Overoptimism at IPO

This table shows the effects of the accumulation of missing analyst forecasts on the relation between firm age and market-to-book ratio when the overoptimism at IPO is different. In Column (1) and Column (3), firms with higher levels of investors' overoptimism at IPO are included. In Column (2) and Column (4), firms with lower levels of investors' overoptimism at IPO are included. In Panel A, firms that are listed during hot IPO markets have higher levels of investors' overoptimism at IPO while firms that are listed during cold IPO markets have lower levels of investors' overoptimism at IPO. In Panel B, firms with a higher underpricing have higher levels of investors' overoptimism at IPO while firms with a lower underpricing have lower levels of investors' overoptimism at IPO. In Panel C, firms with a higher likelihood for earnings management at IPO have higher levels of investors' overoptimism at IPO while firms with a lower likelihood for earnings management at IPO have lower levels of investors' overoptimism at IPO. In Panel D, firms setting a higher offer price at IPO have higher levels of investors' overoptimism at IPO while firms setting a higher offer price at IPO have lower levels of investors' overoptimism at IPO. In Panel E, firms engaging in an M&A within the first anniversary after IPO have higher levels of investors' overoptimism at IPO while firms that do not engage in an M&A within the first anniversary after IPO have lower levels of investors' overoptimism at IPO. The control variables are similar in Pastor and Veronesi (2003). All accounting control variables are winsorized at the 1% and 99% levels. In all models, I include firm-fixed effects and quarter-fixed effects. Standard errors are clustered by both firm and quarter levels. Numbers in parentheses are t-statistics. Significance at the 10% (*), 5% (**), or 1% level (***) is indicated.

Panel A: Hot IPO Market

	(1)	(2)	(3)	(4)
		Log(M/B)		
Hotter IPO Market	**==0**	**==1**	**==0**	**==1**
NMISS	**-0.618*****	**-0.723*****		
	(-9.85)	**(-10.30)**		
WMISS			**-0.170*****	**-0.198*****
			(-6.60)	**(-7.20)**
AGE	0.331	0.416	-0.172	-0.198
	(1.48)	(1.45)	(-0.76)	(-0.77)
DD	0.094***	0.223***	0.080**	0.217***
	(2.91)	(6.73)	(2.45)	(6.30)
LEV	0.616***	0.598***	0.607***	0.600***
	(7.48)	(6.65)	(7.31)	(6.69)
SIZE	-0.146***	-0.128***	-0.160***	-0.137***
	(-7.62)	(-6.40)	(-8.13)	(-6.79)
IVOL	0.140	0.459**	0.153	0.488**
	(0.88)	(2.38)	(0.96)	(2.51)
ROE	0.123***	0.109***	0.133***	0.120***
	(4.59)	(3.54)	(4.86)	(3.78)
_cons	1.443***	1.168***	1.864***	1.599***
	(12.22)	(9.67)	(12.87)	(10.99)
Observed Difference	**-0.106*****		**-0.028****	
Empirical *p*-value	**0.000**		**0.020**	
R^2	0.628	0.617	0.625	0.613
adj. R^2	0.582	0.569	0.579	0.564
N	22672	20744	22672	20744

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel B: Underpricing

	(1)	(2)	(3)	(4)
		Log(M/B)		
Higher Underpricing	**==0**	**==1**	**==0**	**==1**
NMISS	**-0.643*****	**-0.723*****		
	(-11.76)	**(-8.03)**		
WMISS			**-0.179*****	**-0.204*****
			(-8.27)	**(-5.81)**
AGE	0.310	0.339	-0.122	-0.465
	(1.54)	(1.08)	(-0.66)	(-1.65)
DD	0.177***	0.105**	0.169***	0.082*
	(6.44)	(2.42)	(6.08)	(1.78)
LEV	0.572***	0.703***	0.558***	0.743***
	(7.57)	(6.15)	(7.35)	(6.40)
SIZE	-0.133***	-0.148***	-0.143***	-0.166***
	(-8.07)	(-5.46)	(-8.44)	(-6.10)
IVOL	0.285*	0.249	0.299*	0.284
	(1.74)	(1.18)	(1.83)	(1.32)
ROE	0.103***	0.164***	0.112***	0.176***
	(4.71)	(3.73)	(5.01)	(4.03)
_cons	1.232***	1.526***	1.654***	1.988***
	(11.90)	(9.44)	(13.24)	(10.29)
Observed Difference	**-0.080*****		**-0.025*****	
Empirical *p*-value	**0.000**		**0.000**	
R^2	0.617	0.630	0.614	0.625
adj. R^2	0.569	0.583	0.566	0.578
N	32606	10812	32606	10812

Panel C: Earnings Management

	(1)	(2)	(3)	(4)
		Log(M/B)		
EM	**==0**	**==1**	**==0**	**==1**
NMISS	**-0.651*****	**-0.772*****		
	(-10.39)	**(-9.61)**		
WMISS			**-0.168*****	**-0.221*****
			(-7.60)	**(-6.43)**
AGE	0.320	0.578*	-0.302	0.164
	(1.41)	(1.97)	(-1.54)	(0.57)
DD	0.162***	0.147***	0.153***	0.131**
	(5.91)	(3.12)	(5.49)	(2.72)
LEV	0.674***	0.339***	0.663***	0.372***
	(9.50)	(2.75)	(9.18)	(3.05)
SIZE	-0.141***	-0.117***	-0.152***	-0.137***
	(-8.17)	(-4.61)	(-8.67)	(-5.25)
IVOL	0.227	0.543***	0.247	0.558***
	(1.30)	(3.39)	(1.40)	(3.48)
ROE	0.102***	0.154***	0.112***	0.171***
	(4.15)	(3.92)	(4.44)	(4.39)
_cons	1.389***	1.081***	1.770***	1.651***
	(12.84)	(7.43)	(13.81)	(8.98)
Observed Difference	**-0.121*****		**-0.053*****	
Empirical *p*-value	**0.000**		**0.000**	
R^2	0.617	0.614	0.613	0.611
adj. R^2	0.571	0.563	0.566	0.559
N	31398	10306	31398	10306

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel D: Low Offer Price

	(1)	(2)	(3)	(4)
		Log(M/B)		
Lower Offer Price	**==0**	**==1**	**==0**	**==1**
NMISS	**-0.635*****	**-0.701*****		
	(-10.38)	**(-9.19)**		
WMISS			**-0.164*****	**-0.216*****
			(-6.37)	**(-7.07)**
AGE	0.095	0.630**	-0.471**	0.151
	(0.42)	(2.14)	(-2.26)	(0.54)
DD	0.119***	0.208***	0.103***	0.209***
	(4.17)	(5.72)	(3.46)	(5.81)
LEV	0.673***	0.520***	0.681***	0.496***
	(7.61)	(5.90)	(7.66)	(5.60)
SIZE	-0.153***	-0.125***	-0.169***	-0.132***
	(-7.96)	(-6.70)	(-8.46)	(-7.00)
IVOL	0.025	0.484***	0.045	0.505***
	(0.14)	(3.02)	(0.25)	(3.14)
ROE	0.166***	0.072***	0.176***	0.081***
	(4.69)	(2.82)	(4.84)	(3.22)
_cons	1.478***	1.170***	1.898***	1.628***
	(11.47)	(11.16)	(11.93)	(12.25)
Observed Difference	**-0.065*****		**-0.052*****	
Empirical *p*-value	**0.010**		**0.000**	
R^2	0.644	0.594	0.641	0.591
adj. R^2	0.600	0.544	0.596	0.541
N	23111	19981	23111	19981

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel E: Merger & Acquisitions

	(1)	(2)	(3)	(4)
	Log(M/B)			
MA	**==0**	**==1**	**==0**	**==1**
NMISS	**-0.610***** **(-10.56)**	**-0.756***** **(-9.13)**		
WMISS			**-0.167***** **(-6.97)**	**-0.209***** **(-6.99)**
AGE	0.093 (0.41)	0.607** (2.45)	-0.358* (-1.75)	-0.084 (-0.29)
DD	0.148*** (4.79)	0.163*** (4.66)	0.135*** (4.30)	0.155*** (4.24)
LEV	0.545*** (6.40)	0.694*** (7.65)	0.546*** (6.39)	0.681*** (7.38)
SIZE	-0.104*** (-5.95)	-0.189*** (-8.84)	-0.116*** (-6.53)	-0.201*** (-9.16)
IVOL	0.301** (2.19)	0.221 (0.87)	0.312** (2.29)	0.267 (1.01)
ROE	0.075*** (3.08)	0.177*** (5.35)	0.085*** (3.41)	0.187*** (5.69)
_cons	1.126*** (10.74)	1.613*** (11.39)	1.526*** (12.31)	2.078*** (12.11)
Observed Difference	**-0.146*****		**-0.042*****	
Empirical *p*-value	**0.000**		**0.000**	
R^2	0.621	0.627	0.619	0.622
adj. R^2	0.576	0.578	0.573	0.572
N	26106	17312	26106	17312

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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