Limited Attention to Detail in Financial Markets

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Abstract

We show that firm valuations fell after a key expense became more visible in financial statements. FAS 123-R required firms to deduct option compensation costs from earnings, instead of disclosing them only in footnotes. Firms that granted high option pay experienced a significant reduction in earnings, while fundamentals remained unchanged. These firms were more likely to miss analysts' earnings forecasts, received recommendation downgrades, and subsequently experienced negative stock returns. These findings are consistent with market participants exhibiting limited attention to option costs prior to FAS 123-R. Our identification exploits quasi-random variation in FAS 123-R's compliance date across firms.

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The amount of information relevant for economic analysis is growing dramatically. More than 2.5 billion gigabytes of data are created each day, equal to 1,000 times the human brain's memory. Since 2000 the average corporate annual report (10-K) has grown by 25% to 42,000 words, almost matching the length of Fitzgerald's *Great Gatsby*.[1] Market efficiency requires that asset prices incorporate information as it becomes publicly available, yet psychology research documents that individuals possess limited attention and limited cognitive resources (e.g., Slovic 1972; Kahneman 1973; Payne, Bettman, and Johnson 1993).[2] Efficient resource allocation by financial markets thus depends on market participants' ability to synthesize the immense amount of economic information that is being produced.

If limited attention is prevalent, investors may overlook data that is value relevant but requires substantial effort to compile. One implication is that asset prices may depend not only on the content of information, but also the ease with which it can be cognitively processed (we call this "information visibility"). This paper studies how market participants react to changes in information visibility, and whether their reactions affect asset prices. If limited attention impedes agents' decision-making, technologies such as text scraping and machine learning might increase market efficiency.

An ideal experiment to test for the effects of changes in information visibility would alter the presentation of financial information without changing its content. This paper exploits an accounting rule change that approximates this ideal setting. FAS 123-R (since recodified as ASC 718) was adopted in 2004 and required firms for the first time to expense the cost of stock option grants in their income statements. This caused a highly noticeable decrease in earnings among firms that relied on stock options to pay their employees. Crucially, prior to FAS 123-R financial statements contained all the information needed to

[1] See "The 109,894-Word Annual Report" published on June 1, 2015 by *The Wall Street Journal*; and "What Is the Memory Capacity of the Human Brain?" published on May 1, 2010 by *Scientific American*.
[2] There is also a literature in economics on rational inattention, showing that agents may rationally ignore parts of the environment when it is costly to acquire information (e.g., Sims 2003).

calculate option expenses, because previous rules required firms to report option grant details in statement footnotes. The regulation also did not impact fundamental values, as it only mandated firms to formally recognize the cost of employee compensation they had already been granting for years.

Hirshleifer and Teoh (2003) use option pay as an application to show theoretically how information visibility can affect asset prices when investors have limited attention. Their model assumes that markets price information more efficiently when it is presented in a salient, easily accessible format. Footnote disclosures require greater cognitive processing, so investors do not fully incorporate such information and overvalue firms when option grants are only reported in footnotes. The model also shows that mandating full expensing of options can lead to temporary undervaluation, as investors may misinterpret the resulting earnings drop as a deterioration in true profitability. The model predicts stronger effects for firms granting more option pay.

We empirically analyze how financial markets reacted to the increased visibility of option expenses and the resulting decline in earnings after FAS 123-R. Our tests focus on analysts, who commonly use earnings to calculate firm valuations (Mukhlynina and Nyborg 2019) and synthesize large amounts of financial information to make stock recommendations (Womack 1996). Before FAS 123-R, analysts may have lacked the time or cognitive resources to accurately incorporate option compensation costs from financial statement footnotes into their forecasts and valuations (or even to estimate these costs at all). If analysts continued to overestimate earnings immediately after FAS 123-R took effect, affected firms would miss their earnings forecasts with increased frequency. Notably, in the mid-2000s relatively few firms provided earnings guidance (Anilowski, Feng, and Skinner 2007), so analysts likely did not obtain information from firms on how to calculate option expenses and their earnings impact. We also examine whether analysts revised their stock recommendations downward after observing a reduction in earnings, and whether market participants bid down asset prices in response to the changes.

A challenge to this empirical analysis is that concurrent macroeconomic shocks or regulatory events may simultaneously affect firm earnings and market participants' reactions. To address this challenge, our identification strategy uses a staggered difference-in-differences (DiD) model that exploits quasi-random variation in FAS 123-R's compliance dates: Each firm had to comply in the first *fiscal* quarter starting after June 15, 2005. For example, June fiscal year-end firms first expensed options in the quarter starting in July 2005, while May fiscal year-end firms did not expense options until the quarter starting in June 2006. We compare each firm's outcomes in the four fiscal quarters before versus after FAS 123-R compliance, relative to firms that did not yet have to expense options at the same point in calendar time. Firms' fiscal years were set years prior to FAS 123-R's adoption, and we exclude a small number of firms that voluntarily expensed option costs or changed their fiscal year prior to FAS 123-R.[3]

We further exploit cross-sectional variation in FAS 123-R's impact on accounting expenses: Firms that granted employees large amounts of options *before* FAS 123-R faced a larger increase in expenses due to FAS 123-R than firms that relied on other forms of pay. We condition treatment status on options granted *prior to* FAS 123-R to reduce the possibility of bias arising from changes to compensation or executive incentives in response to FAS 123-R. High-option firms could not avoid accounting charges by selectively adjusting their pay policies, because accounting rules had long required expensing of non-option compensation. High- and low-option firms exhibited parallel trends in outcome variables prior to FAS 123-R. Therefore, an omitted variable can only bias results if it disproportionally affected high-option firms *and* its impact was staggered with firms' fiscal year-ends. This is very high bar for an omitted variable.

We first show that high-option firms' earnings per shares (EPS) were $0.044 lower than those of low-option firms after FAS 123-R compliance (equal to 12% of the interquartile range). Effects are similar

[3] Firms were unable to anticipate their precise FAS 123-R compliance schedule as it was announced just two months before the regulation took effect.

for operating and net income. We document these results both for GAAP earnings that firms report in their financial statements and for *pro forma* earnings that they emphasize in reports to analysts and investors. At the same time, high-option firms experienced no change in top-line revenues relative to low-option firms. Revenues were unaffected by option expensing, but would have decreased if FAS 123-R coincided with shocks to fundamentals.

Next, we show that high-option firms were 7.1 percentage points (pp) more likely to miss their consensus EPS forecast after FAS 123-R, a 23% increase over the unconditional frequency prior to FAS 123-R. Numerous tests indicate that forecast errors were one-sided due to analysts overestimating earnings, rather than driven by a rise in overall forecast dispersion. The increase in missed forecasts occurred mostly in the first fiscal quarter that firms expensed options, and largely dissipated by the third fiscal quarter after FAS 123-R compliance. This suggests that analysts learned to correctly incorporate option compensation costs into their earnings estimates within three quarters. Firms covered by the same analysts for longer periods of time were less likely to miss EPS forecasts. This supports the limited attention channel by suggesting that high familiarity with individual firms' financial statements reduces the cognitive resources needed to accurately estimate option expenses.

Analysts also downgraded the stock recommendations of high-option firms relative to low-option firms. In the first quarter after FAS 123-R took effect, 4pp fewer analysts issued buy recommendations on high-option firms' stocks and 1.2pp more analysts issued sell ratings (a large increase given that only 6% of analysts recommended sell prior to FAS 123-R). High-option firms' recommendations remained lower than those of low-option firms over the next three quarters, with no evidence of convergence.

We further examine how asset prices responded to the drop in earnings and analyst valuations. If investors correctly incorporated public information about firms' option expenses prior to FAS 123-R, then they would have inferred that analysts' projections were inaccurate and prices should have remained

unchanged. If instead investors exhibit limited attention, then asset prices should have declined following missed forecasts or recommendation downgrades. Our setting thus provides a direct test of market participants' ability to accurately process information, and can contribute to the ongoing debate about whether imperfect rationality among some agents affects prices. We find that high-option firms experienced a negative cumulative abnormal return (CAR) of -2.3% immediately following a missed forecast that was due to option expensing. This represents a $45m drop in the average market capitalization of these firms. CARs remained negative over the next six months, with no sign of reversal.

Our findings indicate that market participants overvalued firms prior to FAS 123-R by not fully incorporating value-relevant information reported in financial statement footnotes. Analysts corrected their earnings forecasts shortly after firms began to expense options, yet their recommendations as well as asset prices remained lower. The lack of a reversal is inconsistent with market participants temporarily misinterpreting the earnings decline as a deterioration in fundamentals. The results support the prediction of Hirshleifer and Teoh (2003) that option expensing can correct overvaluations arising from limited attention. A closely related interpretation is that analysts lacked a financial incentive (rather than the time) to estimate option costs prior to FAS 123-R. Once option expensing became mandated, analysts valued option grants for the first time and may have underestimated their impact on earnings.[4] Under this alternative explanation, limited attention affects market participants' ability to correctly incorporate information into complex calculations. It also implies that analysts overvalued firms before FAS 123-R because they avoided the calculation of option expenses.

[4] Corporate valuation practitioners have told us that prior to FAS 123-R, analysts may have chosen not to reduce earnings by the amount of option expenses in order to avoid standing out versus their peers. Similarly, analysts may have estimated option costs conservatively shortly after FAS 123-R took effect.

We conduct numerous tests to rule out potential concerns or alternative interpretations for the results. To account for possible omitted variables, our strictest specifications compare each outcome variable for the same firm before versus after FAS 123-R (firm fixed effects), while accounting for seasonality within the fiscal year (fiscal-quarter fixed effects) and contemporaneous economy-wide shocks (calendar-quarter fixed effects). Placebo tests also show that firms that voluntarily adopted option expensing prior to FAS 123-R experienced no change in earnings or rise in forecast errors after the official compliance date. We further document no effects for high-option firms over a range of placebo compliance events prior to FAS 123-R. Another potential concern is that lower accounting earnings may have reduced firms' ability to abide by debt covenants or pay dividends. However, we find no evidence that high-option firms were more likely to violate covenants or change dividend policies following FAS 123-R relative to low-option firms.

An extensive literature documents how limited attention affects asset prices and trading activity (see Daniel, Hirshleifer, and Teoh 2002 for a review). Prior works shows that stock price reactions to earnings announcements are weaker when investors are distracted (DellaVigna and Pollet 2009; Hirshleifer, Lim, and Teoh 2009), and that investors are more responsive to attention-grabbing stocks (Barber and Odean 2008; Da, Engelberg, and Gao 2011; Engelberg, Sasseville, and Williams 2012; Tetlock 2011) or stocks that have recently experienced price run-ups (Aboody, Lehavy, and Trueman 2010). Limited investor attention also generates return predictability across economically linked stocks (Peng and Xiong 2006; Cohen and Frazzini 2008; Cohen and Lou 2012), and real effects for firms by reducing their stocks' liquidity (Corwin and Coughenour 2008). Harford et al. (2019) show that analysts allocate more effort to portfolio firms that are relatively more important to their careers, indicating that they strategically manage their limited attention constraints. An empirical challenge this literature faces is identifying exogenous shocks to attention. For example, media coverage focuses attention on certain

stocks, but it may be correlated with changes to firm fundamentals. Our paper contributes by analyzing a change in information visibility that is likely uncorrelated with other changes to the firm.

Our findings also contribute to a long-standing literature analyzing the determinants of analysts' forecasts and recommendations. Prior work finds that analysts produce biased research on firms that have business relationships with the analysts' employers (e.g., Lin and McNichols 1998; Michaely and Womack 1999; Barber, Lehavy, and Trueman 2007). Conrad et al. (2006) show that analysts adjust recommendations following large price shocks that may convey new information about firms. Our paper complements this literature by showing that analysts respond more to reported earnings than information contained in footnotes. A large body of work shows that stock returns react to analysts' recommendations (e.g., Womack 1996; Barber et al. 2001), and we extend this finding to downgrades based on accounting changes rather than firm fundamentals. Finally, we contribute to the accounting literature on disclosure versus recognition (e.g., Amir 1993; Aboody 1996; Espahbodia et al. 2002; Michels 2017). Our paper builds on this work by identifying effects when firms are sequentially exposed to a new regulation over time.

1. Background on FAS 123-R

Prior to FAS 123-R, accounting standards in the United States required firms to expense only the intrinsic value of stock option compensation—the stock price on the option grant date minus the option strike price. Almost all firms chose to grant at-the-money options, and as a result did not report stock option expenses in their income statements. In 1993, the Financial Accounting Standards Board (FASB) issued a proposal requiring firms to expense the grant-date fair value of options. This proposal drew substantial criticism from accountants, shareholder groups, and firms that relied heavily on stock options to compensate employees. The Senate also passed a resolution urging FASB to abandon the proposal. In response, FASB adopted watered-down rules (FAS 123) that only required firms to disclose option expenses in their financial statement footnotes.

The perceived role of stock options in the corporate scandals of the early 2000s generated new momentum for changes to option expensing, and FASB issued a new proposal in mid-2004. Firms in Silicon Valley lobbied fiercely against it, and executives of these firms argued at a FASB hearing in June 2004 that the proposal would lead firms to stop issuing options.[5] Despite such protests, option expensing was adopted on December 15, 2004 as accounting rule FAS 123-R (now ASC 718).

The regulation required firms to expense the fair value of all new options granted to employees after the compliance date. It also required the expensing of previously granted, unvested options. The compliance date was staggered across calendar time, taking effect for each firm in the first fiscal year that started after June 15, 2005. Importantly, FAS 123-R did not change the amount of information available to analysts and other investors. Since 1995, FAS 123 required firms to disclose in their financial statements all the information that analysts needed to calculate option expenses. FAS 123-R therefore only required firms to recognize expenses in their income statements, but not to report new information.[6] Prior work finds that some firms responded to FAS 123-R by granting more restricted stock and fewer stock options (Hayes, Lemmon, and Qiu 2012), but this also increased expenses as previous accounting rules already required firms to claim charges for the fair value of restricted stock.

FAS 123-R did not affect the tax treatment of option grants. According to U.S. tax rules, granting options does not constitute a taxable event for firms, neither before nor after FAS 123-R. Tax treatment after the grant date depends on whether options are classified as non-qualified or qualified, and it was also unaffected by FAS 123-R. Non-qualified options are far more common, and for these grants firms can

[5] See "Stock Options Debate Comes to Silicon Valley", The New York Times, June 25, 2004. One example of a common counter-argument to the proposal is a statement by Palm co-founder Donna Dubinsky at the hearing: *"The whole debate is based on a false premise ... [the cost of stock options is] a fictitious expense on the income statement, one that is not related to cash in any way."*

[6] Some firms may have changed the inputs used to value options after FAS 123-R took effect to underestimate the associated expense (Choudhary 2011). However, this reduces the impact of FAS 123-R on earnings and biases against finding any effects on analyst behavior. Moreover, firms already used some discretion prior to FAS 123-R to strategically chose inputs that reduce the cost of options disclosed in footnotes (Aboody, Barth, and Kasznik 2006).

claim a deduction equal to the difference between the stock and exercise price when an employee exercises their option. Qualified options have no tax effects when stock is held for at least one year after the exercise decision.

Firms were unable to anticipate their precise FAS 123-R compliance schedule. The reason is that the compliance date was delayed just two months before the regulation took effect. FAS 123-R originally required all firms to begin expensing options on June 15, 2005, independent of their fiscal years. However, on April 14, 2005 the SEC changed the effective date to financial statements issued in the first fiscal year starting after June 15, 2005. The reason for the delay was that accountants worried about the difficulty of changing accounting standards in the middle of a fiscal year (McConnell el al. 2005). Thus, the first statements to be affected by the rule change were for the first quarter of fiscal years starting in July 2005, while firms with fiscal years starting in January through May were able to avoid expensing options until 2006. This compliance schedule generated some controversy. Investment professionals worried that lack of earnings comparability caused by staggered compliance dates would lead to analyst errors and cause firms to miss earnings forecasts.[7] Choudhary, Rajgopal, and Venkatachalam (2009) and Balsam, Reitenga, and Yin (2008) provide additional information about the regulatory features of FAS 123-R.

2. Data and Identification Strategy

2.1 Sample

Our sampling procedure starts with all 5,570 U.S. firms that are in the intersection of the Compustat and IBES databases when FAS 123-R took effect. We exclude 417 firms that voluntarily

[7] For example, CFO Magazine wrote that *"The staggered start for options expensing is upsetting many investment professionals because there is no consensus as to whether, or when, analysts should begin including the expense figure in earnings projections, which are widely used by investors. This variable could play a major role in whether a company meets, beats, or misses consensus earnings estimates, which in turn affect its stocks performance."* See "Staggered Start for Option Expensing", CFO Magazine, June 1, 2005.

expensed the fair value of stock options prior to FAS 123-R, as these firms' accounting expenses should not have changed when the regulation took effect. We further omit 1,189 financial and utilities firms and 49 firms that changed their fiscal year in 2005 or 2006, perhaps to delay option expensing. The final sample contains 3,915 firms. We observe each firm over a period of eight fiscal quarters, from the four fiscal quarters before the FAS 123-R compliance date through the four fiscal quarters afterward. Hence, each firm's fiscal quarters are observed twice. We label the analysis window as [-4,+4] quarters, with options expensed starting in quarter +1.

2.2 Empirical Methodology and Identification

Our identification strategy uses a staggered DiD model. We classify treatment and control firms based on the amount of options they granted to employees prior to FAS 123-R. The regulation should have had a greater impact on the earnings of high-option firms. These firms previously avoided recording much of their employee compensation costs in income statements, and therefore faced a larger increase in expenses after FAS 123-R (regardless of whether they continued to grant stock options or switched to other forms of pay). High-option firms also had a larger amount of previously granted, unvested options which had to be expensed under FAS 123-R. In contrast, low-option firms relied largely on forms of employee compensation that had to be expensed even before FAS 123-R, and they had few outstanding unvested stock options. Comparing high- and low-option firms allows us to account for potential confounding effects of FAS 123-R that uniformly affected all firms. Conditioning on pre-FAS 123-R option grants reduces the possibility that estimates are biased by subsequent changes to pay policies or executive incentives. Our strategy also accounts for shocks that affected all high-option firms at the same point in calendar time, by exploiting FAS 123-R's staggered compliance schedule based on firms' fiscal year-end months. Similar staggered DiD models have been used by Jayaratne and Strahan (1996), among others.

Our model compares high- and low-option firms over the four fiscal quarters before versus after the regulation took effect for each firm. All variables are measured at the firm-fiscal quarter level. For each firm *f* and fiscal quarter *q*, the empirical model is:

$$\textit{Firm Outcome}_{f,q} = \pi_1 \textit{ Post FAS 123-R}_{f,q} \text{ x } \textit{High-Option Firm}_f + \pi_2 \textit{ Post FAS 123-R}_{f,q} \quad (1)$$

$$+ \pi_3 \textit{ High-Option Firm}_f + \delta X_{f,q-1} + \mu_f + \Theta_q + u_{f,q}$$

Firm Outcome$_{f,q}$ represents measures of earnings, missed earnings forecasts, and stock recommendations, depending on the hypothesis being tested (see Section 2.3 for detailed definitions). *Post FAS 123-R*$_{f,q}$ equals 1 for fiscal-quarter observations after FAS 123-R took effect, and 0 otherwise. This indicator varies across our sample in calendar time because each firm had to comply with FAS 123-R in its first fiscal year starting after June 15, 2005. Some regressions replace *Post FAS 123-R*$_{f,q}$ with indicator variables for each individual fiscal quarter following compliance. *High-Option Firm*$_f$ equals 1 in all fiscal quarters for firms with an above-median ratio of *Fair Value of Options Granted/Total Assets* in either fiscal year 2004 or 2005, and 0 for all other firms. *Fair Value of Options Granted* is the Black-Scholes value of stock options granted to all employees during the fiscal year. $X_{f,q-1}$ contains control variables that are commonly used in the literature on financial analysts. Standard errors are clustered at the firm level, yet results are unaffected when clustering by industry.

We saturate our model with a wide range of fixed effects that address different possible concerns with the analysis. The baseline model contains industry fixed effects to account for economic shocks that affect all firms within a given sector, and fixed effects for each firm's fiscal year-end month to account for potential differences across firms with different fiscal year-ends (e.g., December fiscal year-end firms might have lower earnings). These regressions are identified using variation in fiscal year-ends among firms in the same industry. Fiscal year-end fixed effects can be estimated separately from *Post FAS 123-R*$_{f,q}$, because we observe each firm for four quarters before the regulation takes effect.

We also estimate firm-fixed effects specifications, to which we add fixed effects for each fiscal quarter and for the three-month calendar period in which the fiscal quarter ends. Fiscal-quarter fixed effects account for any seasonality in business activity across a firm's fiscal year. In particular, they address the concern that earnings might generally be lowest in the first quarter of a fiscal year, which coincides with the quarter in which FAS 123-R took effect. We can estimate these fixed effects separately from *Post FAS 123-R*$_{f,q}$ because the sample contains each firm's fiscal quarter twice. Calendar-quarter fixed effects account for macroeconomic shocks that affect all firms at the same point in calendar time and may have coincided with FAS 123-R compliance. For example, many firms began to expense options in the first three months of 2006, yet we can compare them to firms that had not yet complied with the regulation. In summary, these specifications compare high-option firms' outcomes after FAS 123-R takes effect relative to the same fiscal quarter before compliance, and relative to firms that reported earnings without expensing options in the same calendar quarter.

Figure 1 depicts FAS 123-R's staggered compliance schedule and the predicted effects on earnings, missed forecasts, and analyst recommendations. The figure shows, for example, that firms with a June fiscal year-end had to begin expensing options in the fiscal quarter covering July through September 2005. For these firms, the sample contains all fiscal quarters that end between September 2004 and June 2006. In contrast, firms with a May fiscal year-end began to expense options in the fiscal quarter covering June through August 2006, and the sample contains their fiscal quarters ending between August 2005 and May 2007. The figure shows that in each month between June 2005 and May 2006 some firms began to expense options, while others had already (or not yet) complied.

A key identifying assumption for Eq. (1) is the parallel-trends condition. This requires that high and low-option firms' outcome variables would have followed the same trend if FAS 123-R had not been adopted. This condition cannot be tested directly, but below we show no divergence in key outcome

variables prior to FAS 123-R. We further verify that high and low-option firms' revenues grew at the same rate in the quarters before *and* after FAS 123-R compliance. This indicates that the accounting change did not affect firms' fundamental profitability, and earnings fell only because firms began to expense options.

Our approach is similar to the reduced form of the 2SLS model in Jochem, Ladika, and Sautner (2018) and Ladika and Sautner (2019). These papers use fiscal year-ends to instrument for the decision by some firms to accelerate option vesting periods in anticipation of FAS 123-R. (Our results are robust to dropping accelerating firms). In our setting, an instrument is not necessary because all firms had to expense options after FAS 123-R took effect.

2.3 Empirical Measures

We examine the impact of option expensing on three measures of accounting earnings that are commonly used in both discounted cash flow and relative valuation analyses. *EPS* is diluted earnings per share as reported by the firm. This measure equals quarterly net income divided by outstanding common shares and unexercised stock options. *EBIT/Share* measures operating income before interest payments and taxes, and *NI/Share* measures earnings after deducting all expenses except extraordinary items (i.e., net income). We scale EBIT and net income by shares outstanding at the end of the previous fiscal year to ensure that the variables are not affected by quarterly changes in option exercises. Each of these three measures should be directly impacted by option expenses. This is because firms typically record employee compensation under Selling, General, and Administration (SG&A) expenses, which are deducted from revenues prior to calculating operating and net income.

We measure each variable using earnings based on GAAP accounting rules that firms are required to report in their 10-Ks, as well as *pro forma* earnings that firms emphasize in their reports to analysts and investors. The latter earnings are reported in IBES, and firms have broad leeway to define these measures

as long as they are reported alongside GAAP earnings. One potential concern is that firms and analysts may have coordinated to ignore option expenses in *pro forma* earnings after FAS 123-R, in which case the regulation may have had little practical impact on the behavior of market participants.[8] Therefore, it is important to examine changes in both earning measures around FAS 123-R compliance.

We use the variable *Missed Forecast* to examine whether firms were more likely to miss analysts' forecasts after FAS 123-R. This variable equals 1 when a firm's reported quarterly earnings per share fall below the mean ("consensus") earnings estimate of all analysts following the firm, and 0 when earnings meet or beat the consensus estimate. We focus on analysts' EPS forecasts because this is the most commonly used valuation metric, yet we obtain similar results using other earnings measures.

We measure analyst stock recommendations using three variables. *Analyst Recommendation* is the mean ("consensus") recommendation across all analysts covering the firm. IBES categorizes individual recommendations on a scale of 1 ("strong buy") to 5 ("sell"), so higher values reflect worse stock recommendations. *Pct. Buy Recommendation* is the percentage of analysts issuing a "strong buy" or "buy" recommendation on a firm's stock, and *Pct. Sell Recommendation* is the percentage of analysts issuing a "sell" recommendation. For both the earnings forecast and stock recommendation variables, we use the consensus measure immediately preceding each firm's quarterly earnings announcement. Tests using these variables exclude firms covered by fewer than three analysts.

Control variables include *Log Assets* to account for the relationship between size and earnings and *Market-to-Book Ratio* to control for differences in growth opportunities. We also control for *Leverage*

[8] IBES excludes option expenses from realized *pro forma* earnings only if the majority of analysts also did so in their forecasts. This is unlikely to affect most firms in our sample. Barth, Gow, and Taylor (2012) show that only 19% of firms excluded option expenses from *pro forma* earnings after FAS 123-R, and 73% of these firms' analysts included option costs in their forecasts.

because firms with higher debt capacity might be more profitable, and for *Investment/Sales* because capital depreciation reduces earnings. Some tests control for the number of analysts covering the firm.

2.4 Summary Statistics

Table 1, Panel A, shows summary statistics for the four quarters before through four quarters after each firm's (staggered) FAS 123-R compliance date. The median firm reports GAAP earnings per share (*EPS*) of $0.07 and operating earnings (*EBIT/Share*) of $0.17 per share. In each quarter 38% of firms miss their EPS forecast. About half of analysts issue "strong buy" or "buy" recommendations, while very few (6%) recommend selling a stock. The median firm is covered by five analysts.

Closely following Lemmon and Roberts (2010), Table 1, Panel B, compares growth rates in outcome variables between high- and low-option firms in the pre-FAS 123-R period (2001–2006). The panel shows that trends in the outcome variables were statistically indistinguishable before FAS 123-R.

Our identification strategy depends on variation in the timing of FAS 123-R compliance. Table 1, Panel C, shows that most firms have a fiscal year that overlaps with the calendar year. However, the sample also contains 31% of firms with fiscal years that end in other months.

Internet Appendix Table 1 presents pairwise correlations. The table shows a very high correlation between GAAP and *pro forma* earnings. The correlations between the analyst variables and measures of earnings are low, as are the correlations between these variables and other firm characteristics.

3. Effect of FAS 123-R on Corporate Earnings

3.1 Graphical Evidence: Effects of FAS 123-R and Parallel Trends

Figure 2 plots firms' earnings (*EBIT/Share* and *EPS*) over the four fiscal quarters prior to FAS 123-R compliance through the four fiscal quarters afterward, separately for the average high- and low-option firm. The plots are normalized to 1 in the fiscal quarter prior to FAS 123-R compliance. The figures show a sharp drop in high-option firms' earnings precisely when they began to recognize option expenses in their income statements. The bottom panel shows that *EPS* fell by 4% for high-option firms from the quarter before FAS 123-R compliance to the first quarter afterward, while low-option firms' EPS rose slightly. High-option firms' earnings remain lower in subsequent quarters.

Figure 2 also provides further support for the parallel-trends assumption. High- and low-option firms' earnings followed similar trends prior to FAS 123-R, indicating that corporate earnings fell due to the accounting change rather than because of unobserved heterogeneity between firms.

3.2 Difference-in-Differences Analysis

Table 2 formally tests the effect of FAS 123-R's option expensing requirement on earnings. Panel A presents results for the GAAP version of the three earnings measures. The interaction term *Post FAS 123-R x High-Option Firm* compares earnings before and after the staggered FAS 123-R compliance dates, for high- versus low-option firms.

The estimates show that high-option firms, which were most affected by FAS 123-R, reported significantly lower earnings than low-option firms once they began to expense options. Column (1) documents that high-option firms' *EPS* were 0.044 lower than those of low-option firms in the four fiscal quarters after FAS 123-R took effect. This difference is about 12% of the variable's interquartile range of 0.38 (see Table 1, Panel A). Next, Columns (2) and (3) shows that high-option firms also reported relatively

lower operating earnings and net income following compliance. Importantly, Column (4) indicates that the relative decrease in *EPS* is robust to our most restrictive set of fixed effects, which includes firm, fiscal-quarter, and calendar-quarter fixed effects.

Table 2, Panel B, repeats the analysis using *pro forma* earnings. If many firms omitted option expenses for these earnings, then FAS 123-R may not have had an impact on the figures that analysts forecast. However, the coefficients on *Post FAS 123-R x High-Option Firm* indicate that *pro forma* earnings were also lower at high-option firms after FAS 123-R, with magnitudes similar to those of GAAP earnings.

Coefficients on the control variables indicate that larger firms report higher earnings, as do more levered firms. The negative coefficients on *Market-to-Book Ratio* imply that high-growth firms are less profitable overall, perhaps because they are in a stage of their life cycle in which their business model is not yet mature (the effect turns insignificant with firm fixed effects). *Investment/Sales* is negatively correlated with earnings, indicating that firms that spend more on investment report lower earnings.

Table 3 uses the same DiD framework to examine revenues around the time when FAS 123-R took effect. The regulation's mandate to expense options had no direct impact on top-line revenues, which are calculated before deducting any accounting expenses. However, if FAS 123-R had a confounding effect on high-option firms' fundamentals or coincided with other shocks to profitability, then both sales and earnings would decrease. Thus, Table 3 provides a falsification test of the accounting rule's impact on fundamental values. The table shows that coefficients on *Post FAS 123-R x High-Option Firm* are generally small in magnitude and statistically insignificant, indicating that high- and low-option firms' revenues followed the same trend around FAS 123-R. This confirms that the drop in high-option firms' earnings reflected an accounting effect rather than a genuine reduction in profitability.

4. Effects of FAS 123-R on Missed Earnings Forecasts, Recommendations and Firm Value

4.1 Effects on Earnings Forecasts

Analysts with limited attention may have omitted or miscalculated the cost of options prior to FAS 123-R, when firms disclosed expenses only in footnotes. If analysts continued to overlook or underestimate option expenses shortly after FAS 123-R took effect, then their consensus forecasts would overestimate earnings and high-option firms would be more likely to miss their forecasts. Table 4 tests this hypothesis. In Columns (1) and (2), *Post FAS 123-R x High-Option Firm* compares the frequency of missed EPS forecasts before versus after each firm's FAS 123-R compliance date, for high- versus low-option firms. A positive coefficient would indicate that high-option firms' earnings were relatively more likely to fall short of analysts' expectations after option expensing began.

The interaction term coefficients in Columns (1) and (2) are both positive and highly significant. Column (1) indicates that after FAS 123-R took effect, high-option firms' likelihood of missing an EPS forecast rose by 7.1pp relative to that of low-option firms. This represents a 23% increase in these firms' frequency of missing a forecast relative to the four quarters before FAS 123-R. Results are robust to the inclusion of firm, fiscal-quarter, and calendar-quarter fixed effects in Column (2). Overall, the evidence is consistent with the interpretation that most analysts omitted or underestimated option expenses for firms most affected by FAS 123-R, and thus forecasted earnings that were too high on average.

Columns (3) and (4) analyze the dynamics of analysts' forecast errors. If analysts overestimated earnings due to limited attention, then they should have realized their mistakes over time. This implies that firms would be most likely to miss an earnings forecast in the first fiscal quarter after complying with FAS 123-R, and in subsequent quarters analysts would adjust earnings projections downward after observing the missed forecasts. We investigate whether such learning occurred by re-estimating the

specifications from Columns (1) and (2) after replacing *Post FAS 123-R* with indicator variables for each individual fiscal quarter following FAS 123-R compliance.

The estimates show that high-option firms' likelihood of missing a forecast was highest in the first fiscal quarter after compliance with FAS 123-R. Column (3), for example, shows that high-option firms were 14% more likely to miss an EPS forecast in the first fiscal quarter than low-option firms that began to comply with FAS 123-R in the same quarter. The results further indicate that many analysts fully accounted for option expenses within three quarters: High-option firms' likelihood of missing a forecast was just 8% higher in the second quarter, and the same as that of low-option firms in the third and fourth quarter.

4.2 Effects on Stock Recommendations

We next examine whether missed earnings forecasts after FAS 123-R led analysts to revise down their recommendations on high-option firms' stocks. Hirshleifer and Teoh (2003) predict that analysts may have overvalued firms prior to FAS 123-R by neglecting to fully incorporate option costs reported in footnotes. Once these costs were expensed, analysts may have realized that firms' profitability was lower than previously modelled, leading to a persistent reduction in stock recommendations. Hirshleifer and Teoh (2003) also show that mandating full expensing of options can also lead to temporary undervaluation, if investors misinterpreted the earnings drop as a deterioration in true profitability. This would also lead to recommendation downgrades shortly after FAS 123-R, but they would be followed by upward revisions after analysts realized their mistakes.

We test these hypotheses using two specifications. The first specification examines whether a missed forecast led to recommendation downgrades by analysts, both for all sample firms and for high-option firms. Table 5, Columns (1) to (7) examine the effect of missed forecasts during the eight fiscal

quarters [-4,+4] around each firm's FAS 123-R compliance date, while Columns (8) and (9) focus on the quarters [+1,+4] following FAS 123-R.

The regressions provide evidence that missed forecasts in the fiscal quarters around FAS 123-R compliance prompted analysts to downgrade firms' stocks. Column (1) indicates that *Analyst Recommendation* rose by 0.078 in the quarter after a firm missed an earnings forecast (higher values represent lower recommendations), which equals almost 8% of the variable's interquartile range (Table 1). This is a substantial reduction in recommendations as analysts typically resist downgrading firms (e.g., Jegadeesh and Kim 2006). A comparison of Columns (2) and (3), which use the same fixed effects, shows that the effect of a missed forecast is slightly larger for high-option firms than the average firm. Column (4) shows that missed forecasts led to an almost 4pp decrease in analysts issuing buy recommendations. In Column (6), 1.2pp more analysts recommended "sell" after a missed forecast; this estimate is notable as only 6% of analysts issued "sell" recommendations around FAS 123-R. Columns (8) and (9) show that the sensitivity of stock recommendations to missed forecasts is slightly lower in the four quarters after FAS 123-R.

The second specification uses our DiD framework to explicitly identify the effect of option expensing on recommendations. Table 6 compares high- and low-option firms' recommendations in each of the four fiscal quarters after FAS 123-R compliance. We find that high-option firms experienced recommendation downgrades after they began to expense options. Column (1), for example, shows that *Analyst Recommendation* rose by 0.06 for these firms in the first fiscal quarter after FAS 123-R, relative to low-option firms that complied in the same quarter. Similarly, Columns (3) through (6) show that high-option firms experienced a relative decrease in the percentage of analysts recommending "strong buy" or "buy", and an increase in the percentage of analysts issuing a "sell" rating.

Importantly, recommendations remained lower in the subsequent fiscal quarters and did not converge back to pre-FAS 123-R levels. This contrasts with the results in Table 4 showing that analysts corrected their earnings estimates within two quarters after observing missed forecasts. These findings support that analysts overvalued firms before FAS 123-R, when they did fully account for the cost of their stock option grants. The lack of a reversal in recommendations is inconsistent with a temporary undervaluation that would result from analysts misinterpreting the reduction in accounting earnings as a signal of lower true profitability.

4.3 Limited Attention and Analyst Experience

We next examine how missed earnings forecasts correlate with characteristics of individual analysts that may affect their ability to accurately assess the accounting impact of option compensation. This analysis allows us to more directly examine whether limited attention drives our results. The first characteristic is the number of years that an analyst has covered a firm. Information visibility should matter more for analysts with little experience covering the firm, as they are less familiar with the structure of the firm's financial statements. The second characteristic is an analyst's overall tenure in the investment industry. Analysts with shorter tenure should have a lower overall understanding of how accounting regulations affect financials, and they may have struggled to gauge the impact of FAS 123-R in particular because they were less likely to have previously estimated option expenses.

Table 7 partitions sample firms in each quarter by the average experience or tenure of all individual analysts that issued an EPS forecast or stock recommendation for the firm. We then re-estimate Columns (1) and (2) from Table 4, separately for firms covered by analysts with experience or tenure in the lowest or highest tercile. Column (1) shows that high-option firms were 11.2pp more likely to experience a missed forecast after FAS 123-R if their analysts had low familiarity with the firm. In contrast, Column (2) shows that high-option firms covered by analysts with high familiarity did not experience a

rise in forecast errors. Results are similar in Columns (3) and (4), which contain our strictest set of fixed effects. In Column (5), firms covered by analysts with low overall experience in the industry were also 12pp more likely to experience a forecast error. In contrast, in Column (6) high-option firms covered by analysts with high overall industry experience did not experience a rise in forecast errors.

Overall, the analysis suggests that high familiarity with individual firms' financial statements can mitigate limited attention, by reducing the cognitive resources needed to process information that is not recorded in the income statement.

4.4 Effects on Asset Prices

We round out the analysis by examining the broader reaction of financial markets to the change in information visibility due to FAS 123-R. A wide body of research finds that stock prices generally decrease when firms miss forecasts or analysts issue sell recommendations. These results are largely due to investors reacting to new information about underlying profitability that is contained in earnings. However, if asset prices declined when firms missed forecasts or experienced recommendation downgrades due to FAS 123-R, then this would indicate that investors, like analysts, misvalued the cost of option compensation. This would imply that limited attention is common among a broad set of financial market participants. On the other hand, if investors correctly incorporated all available information about firms' option expenses prior to FAS 123-R, then they would have realized that analysts' forecasts and recommendations were too optimistic at that time (or alternatively too pessimistic after FAS 123-R took effect). In this case, stock prices should not have responded to missed forecasts or recommendation downgrades after FAS 123-R took effect.

Figure 3 examines raw and cumulative abnormal returns (CARs) of high-option firms' stocks around missed forecasts following FAS 123-R. We plot returns only for firms that missed a forecast in the

first fiscal quarter after compliance, yet experienced an increase in sales relative to both the previous fiscal quarter and the same fiscal quarter from the previous year (i.e., fiscal quarters -1 and -4). These firms likely reported lower earnings only due to option expensing. Panel A shows that CARs were flat in the two weeks prior to earnings announcements, but fell sharply precisely when firms reported earnings that missed the consensus forecast of their analysts. Panel B plots CARs over a wider window of [-90,+120] days around the missed forecast. It shows that CARs fall to -10% in the two months after a missed forecast, and then remain constant with no evidence of a subsequent reversal.

Table 8, Panel A, reports CARs estimated using the 4-Factor model, both over the short and medium term following a missed EPS forecast. The first row reports returns for high-option firms that missed an EPS forecast in the first fiscal quarter after FAS 123-R, yet experienced an increase in sales. In a one-day window [-1,+1], these firms' CARs fell by 2.3% upon announcing earnings that fell short of analysts' forecasts, equal to a $45m decrease in the average market capitalization of these firms. Losses widen to -8.9% over the following six months. To facilitate a comparison with the general value impact of a missed forecast, we also report returns for all low-option firms that missed a forecast in the same quarter (while being largely unaffected by FAS 123-R). These firms' CARs were similarly negative in the short-term windows around an earnings announcement, but their stocks did not underperform over longer time periods.

Next, Table 8, Panel B, reports CARs following a recommendation downgrade by at least one analyst, for the same sets of firms as in Panel A. High-option firms' CARs fell by -2.9% in the 1-day window around a downgrade. Similarly to Panel A, losses widen to -11.1% over the next six months, with no evidence of an increase in stock prices in the three or six months following the downgrade. Again, these losses are significantly smaller for low-option firms. The value impact of a recommendation downgrade is

slightly larger than for a missed forecast, which is consistent with downgrades being a more informative indicator that firms were overvalued.

Taken together, the negative CARs are consistent with investors failing to incorporate all available information on firms' option compensation costs prior to FAS 123-R. The lack of a reversal in the CARs indicates that investors realized that they had previously overvalued high-option firms. It is inconsistent with the view that they temporarily over-reacted to the drop in earnings when options began to be expensed. Overall, the results are consistent with limited attention being common among market participants in our setting.

4.5 Placebo Tests: Voluntary Adopters of Option Expensing and Placebo Events

We perform two falsification tests to corroborate that our results are due to analysts' miscalculation of option expenses. Table 9, Panel A, contains only firms that voluntarily adopted FAS 123-R in calendar year 2004 or earlier. Because these firms already expensed the costs of option compensation in the four fiscal quarters prior to FAS 123-R, their earnings did not decrease due to the accounting regulation. If the limited attention hypothesis is correct, analyst forecast errors for these firms also should not rise around FAS 123-R compliance. However, if our results are driven by unobserved variables that correlate with firms' fiscal years, then voluntary adopters should also be affected by these confounders.

Columns (1) and (2) verify that high-option voluntary adopters experienced no change in earnings when FAS 123-R took effect. Additionally, Columns (3) and (4) show that these firms did not experience an increase in missed earnings forecasts. These findings imply that unobservables can only confound our estimates if they are correlated with firms' fiscal year ends *and* only impact non-voluntary adopters.

Table 9, Panel B, examines missed earnings forecasts following several placebo compliance events prior to FAS 123-R. We report results for five analysis windows occurring between one and five fiscal years

prior to the actual FAS 123-R compliance quarter. For each window, we examine a period of eight fiscal quarters around the placebo compliance quarter. The variable of interest in the reported placebo regressions is *High-Option Firm* x *Post Placebo*, where the placebo dummy equals 1 for the quarters 5 through 8 in each analysis window, and 0 for quarters 1 through 4. The estimates show across all placebo windows that high-option firms did not experience an increase in missed earnings forecasts. These findings further corroborate that compliance with FAS 123-R, rather than seasonal events or unobserved heterogeneity, caused the change in analyst behavior.

4.6 Alternative Interpretations and Confounding Channels

4.6.1 Alternative Interpretation: Two-Sided Forecast Errors after FAS 123-R

Our results indicate that analysts overestimated high-option firms' earnings after FAS 123-R by omitting or underestimating option costs. This increased the probability of missed earnings forecasts, consistent with limited attention toward option compensation costs prior to FAS 123-R. An alternative interpretation is that analysts were aware that option costs impacted earnings after FAS 123-R (and perhaps beforehand as well), but their initial estimates of option expenses contained errors because the analysts lacked experience calculating them. This may have led to an increase in the variance of EPS forecasts, as analysts overestimated earnings in some firms (leading to earnings surprises) and underestimated earnings in others (leading to missed forecasts).

We perform three tests in Internet Appendix Table 2 to address this alternative interpretation. First, Columns (1) and (2) show that high-option firms' forecast errors were positive on average after FAS 123-R, indicating that these firms systematically reported earnings that fell short of forecasts. Second, Columns (3) and (4) document no increase in earnings surprises at high-option firms after FAS 123-R, defined as earnings that exceed the consensus forecast by more than 0.001 (or 1/10 of $0.01). To the

contrary, the probability of an earnings surprise *decreased* for high-option firms after FAS 123-R relative to low-option firms. Third, Columns (5) and (6) show that missed forecasts continue to rise at high-option firms after FAS 123-R after controlling for firm-level dispersion of analyst forecasts.

4.6.2 Confounding Channel: Changes to Dividend Policy, Covenant Violations, and Pay Structure

We further address three potentially confounding channels that may explain the negative reactions by analysts and financial markets following FAS 123-R. First, high-option firms may have decreased dividends when they began to expense options, because dividend payouts are frequently tied to the level of earnings (Farre-Mensa, Michaely, and Schmalz 2014). Analysts in turn may have reduced their recommendations, prompting a decrease in stock prices.[9] Table 10, Panel A, shows that high-option firms were not more likely to suspend dividend payments or cut dividends in response to FAS 123-R, indicating that changes to dividend policy do not explain our results.

Second, the recognition of option costs in income statements might have caused some firms to violate debt covenants, which are often based on earnings (Chava and Roberts 2008). Table 10, Panel B, examines the frequency of covenant violations around FAS 123-R using data from Roberts and Sufi (2009). It shows that covenant violations did not rise following compliance for either high- or low-option firms.

Third, financial market participants may have reacted negatively to the broad shift in CEO compensation from stock options to bonuses and restricted stock after FAS 123-R (Hayes, Lemmon, and Qiu 2012). This shift may have reduced CEO pay convexity and could have had a negative impact on firm

[9] For example, Ofer and Siegel (1987) and Denis, Denis, and Sarin (1994) show that dividend changes cause analysts to change their earnings forecasts, and Michaely, Thaler, and Womack (1995) find that markets react negatively to dividend omissions.

value. However, Skantz (2012) shows that CEO pay changes following FAS 123-R *reduced* excessive compensation and pay for luck, which should have led to higher firm valuations.

5. Conclusion

This paper studies how market participants react to changes in information visibility, and whether their reactions ultimately affect asset prices. We examine these questions by studying the introduction of an important accounting regulation. Regulation FAS 123-R required firms to begin deducting option compensation costs in their income statements. This led to a sharp drop in earnings, but it did not reveal new information, as firms had previously disclosed option costs in their financial statement footnotes. Models of limited attention predict that such a change in information visibility could affect how market participants value firms (Hirshleifer and Teoh 2003). We test this prediction by examining how analysts' recommendations and asset prices changed when FAS 123-R took effect.

Our identification strategy uses a staggered DiD design with time-series and cross-sectional variation in FAS 123-R's requirement to expense option grants. The time-series dimension exploits that compliance dates were staggered quasi-randomly over time. Each firm had to begin expensing stock options in the *fiscal* year starting after June 15, 2005. The cross-sectional dimension compares firms based on the expected impact of FAS 123-R on their earnings. Earnings should drop most among firms that granted large amounts of options to employees before the regulation was adopted.

We first confirm that option expensing had a significant impact on earnings. High-option firms' earnings fell sharply once they started to expense options. The drop in earnings increased the frequency with which high-option firms missed analysts' forecasts. This indicates that consensus analyst forecasts were too high for firms that started to comply with the regulation. The missed forecasts had significant effects on analysts' beliefs about firm valuations, leading them to downgrade high-option firms' stocks.

However, analysts who were highly familiar with the firms covered or had more overall experience did not make forecast errors.

We complete our analysis by examining how asset prices responded to firms' missed forecasts and analysts' downward revisions. High-option firms' stock prices fell by 2.3% immediately upon announcing earnings that fell short of analysts' forecasts, equal to a $45m decrease in the average market capitalization of these firms. High-option firms' CARs also fell by 2.9% when analysts revised their stocks downward in the first fiscal quarter of option expensing.

Our findings are consistent with analysts underestimating option expenses prior to FAS 123-R, when accurate valuation required time-consuming, meticulous inspection of financial statement footnotes. After firms began to expense options, analysts realized that they had previously set earnings targets too high and overvalued firms, leading them to correct their recommendations.

Our results suggest that market participants display limited attention when evaluating firm expenditures that are not directly recorded in the income statement. These findings are consistent with Hirshleifer and Teoh (2003), who show that option expensing may have corrected a prior overvaluation of firms. Our paper contains implications for policymakers debating new requirements for company disclosures of key expenditures. The results also indicate that recent technological advancements in the scraping and analysis of data in annual reports can be valuable.

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Data Appendix. Variable Definitions

This table provides definitions of the variables used in the empirical analysis. All variables are measured at the firm-quarter level.

Variable	Definition	Source
1. FAS 123-R Compliance Variables		
Post FAS 123-R	Dummy variable that equals 1 for fiscal quarters after FAS 123-R takes effect, and 0 for quarters before.	Compustat
Post FAS 123-R Q1	Dummy variable that equals 1 for the first fiscal quarter after FAS 123-R takes effect, and 0 for other quarters. *Post FAS 123-R Q2*, *Post FAS 123-R Q3*, and *Post FAS 123-R Q4* are defined accordingly but equal 1 in the second, third, and fourth fiscal quarter after FAS 123-R takes effect, respectively.	Compustat
2. Earnings and Sales Variables		
EPS	Diluted earnings per share. For GAAP earnings, it is Compustat data item EPSFX. For *pro forma* earnings, it is IBES data item ACTUAL, which corresponds to the value of "EPS" for IBES data item MEASURE for Forecast Period 1. This variable is winsorized at the 1% level.	Compustat / IBES
EBIT/Share	Operating income (earnings before interest and taxes) divided by the number of shares outstanding. For GAAP earnings, operating income is Compustat data item EBIT. For *pro forma* earnings, it is IBES data item ACTUAL, which corresponds to the value of "EBI" for IBES data item MEASURE for Forecast Period 1. This variable is winsorized at the 1% level.	Compustat / IBES
NI/Share	Net income divided by the number of shares outstanding. For GAAP earnings, net income is Compustat data item IB. For *pro forma* earnings, it is IBES data item ACTUAL which corresponds to the value of "NET" for IBES data item MEASURE for Forecast Period 1. This variable is winsorized at the 1% level.	Compustat / IBES
Sales/Share	Sales divided by the number of shares outstanding. Sales is Compustat data item SALE. This variable is winsorized at the 1% level.	Compustat / IBES
Missed Forecast	Dummy variable that equals 1 for fiscal quarters in which the firm's actual earnings per share (EPS) are below analysts' consensus estimate, and 0 otherwise. The consensus estimate is the mean value of individual analysts' forecasts for the upcoming fiscal quarter (IBES data item MEANEST for Forecast Period 1). Earnings are the corresponding value of IBES data item ACTUAL (value of "EPS" for IBES data item MEASURE).	Compustat / IBES
Forecast Error	Analysts' consensus forecast minus a firm's actual earnings per share (EPS), scaled by the analysts' mean consensus forecast. The consensus estimate is the mean value of individual analysts' forecasts for the upcoming fiscal quarter (IBES data item MEANEST for Forecast Period 1). Earnings are the corresponding value of IBES data item ACTUAL (value of "EPS" for IBES data item MEASURE).	Compustat / IBES
Earnings Surprise	Dummy variable that equals 1 for fiscal quarters in which the firm's actual earnings per share (EPS) are above analysts' consensus estimate by more than 0.001 cents, and 0 otherwise. The consensus estimate is the mean value of individual analysts' forecasts for the upcoming fiscal quarter (IBES data item MEANEST for Forecast Period 1). Earnings are the corresponding value of IBES data item ACTUAL (value of "EPS" for IBES data item MEASURE).	Compustat / IBES
Forecast Dispersion	The standard deviation of analysts' earnings per share (EPS) forecasts, scaled by the absolute value of the firm's actual earnings per share.	Compustat / IBES
3. Analyst Variables		
Analyst Recommendation	Consensus (mean) analyst stock recommendation. The variable ranges between 1 (strong buy) and 5 (sell).	IBES
Pct. Buy Recommendations	Percentage of analysts issuing a "strong buy" or "buy" recommendation for the firm's stock.	IBES
Pct. Sell Recommendations	Percentage of analysts issuing a "sell" recommendation for the firm's stock.	IBES
Analyst Coverage	Number of analysts making an earnings forecast (Tables 4 and 7) or recommendation (Tables 5 and 6) for a stock. The number of forecasts is IBES data item NUMEST, and the number of recommendations is item NUMREC.	IBES
4. Option Variables		
High-Option Firm	Dummy variable that equals 1 in all fiscal quarters for firms with an above-median ratio of *Fair Value of Options Granted/Total Assets* in either fiscal year 2004 or fiscal year 2005,	Compustat

	and 0 for all other firms. *Fair Value of Options Granted* is the total Black-Scholes value of stock options granted to all employees during the fiscal year.	
5. Control Variables		
Assets	Total assets (Compustat data item AT) at the end of the fiscal quarter (in millions USD). This variable is winsorized at the 1% level.	Compustat
Market-to-Book Ratio	Market value of equity plus the book value of debt minus current assets, all divided by total capital. This variable is winsorized at the 1% level.	Compustat
Leverage	Book value of debt (items DLTT + DLC) minus cash holdings (item CH), divided by the book value of debt plus market value of equity (item PRCC_F * CSHO). This variable is winsorized at the 1% level.	Compustat
Investment/Sales	Capital expenditures (item CAPX) divided by sales (item SALE). This variable is winsorized at the 1% level.	Compustat
6. Alternative Dependent Variables		
Dividend Payer	Dummy variable that equals 1 for fiscal quarters in which the firm paid a dividend, and 0 for fiscal quarters in which the firm did not pay a dividend.	Compustat
Dividend/Share	Dividends divided by the number of shares outstanding. This variable is winsorized at the 1% level.	Compustat
Covenant Violation	Dummy variable that equals 1 for fiscal quarters in which the firm violated a debt covenant, and 0 for fiscal quarters in which the firm did not violate a debt covenant.	Roberts and Sufi (2009)

Figure 1. Hypothesis Testing using Staggered FAS 123-R Compliance

This figure shows how FAS 123-R compliance dates are staggered based on firms' fiscal year ends, and how this variation should affect firms' earnings and analysts' forecasts and recommendations.

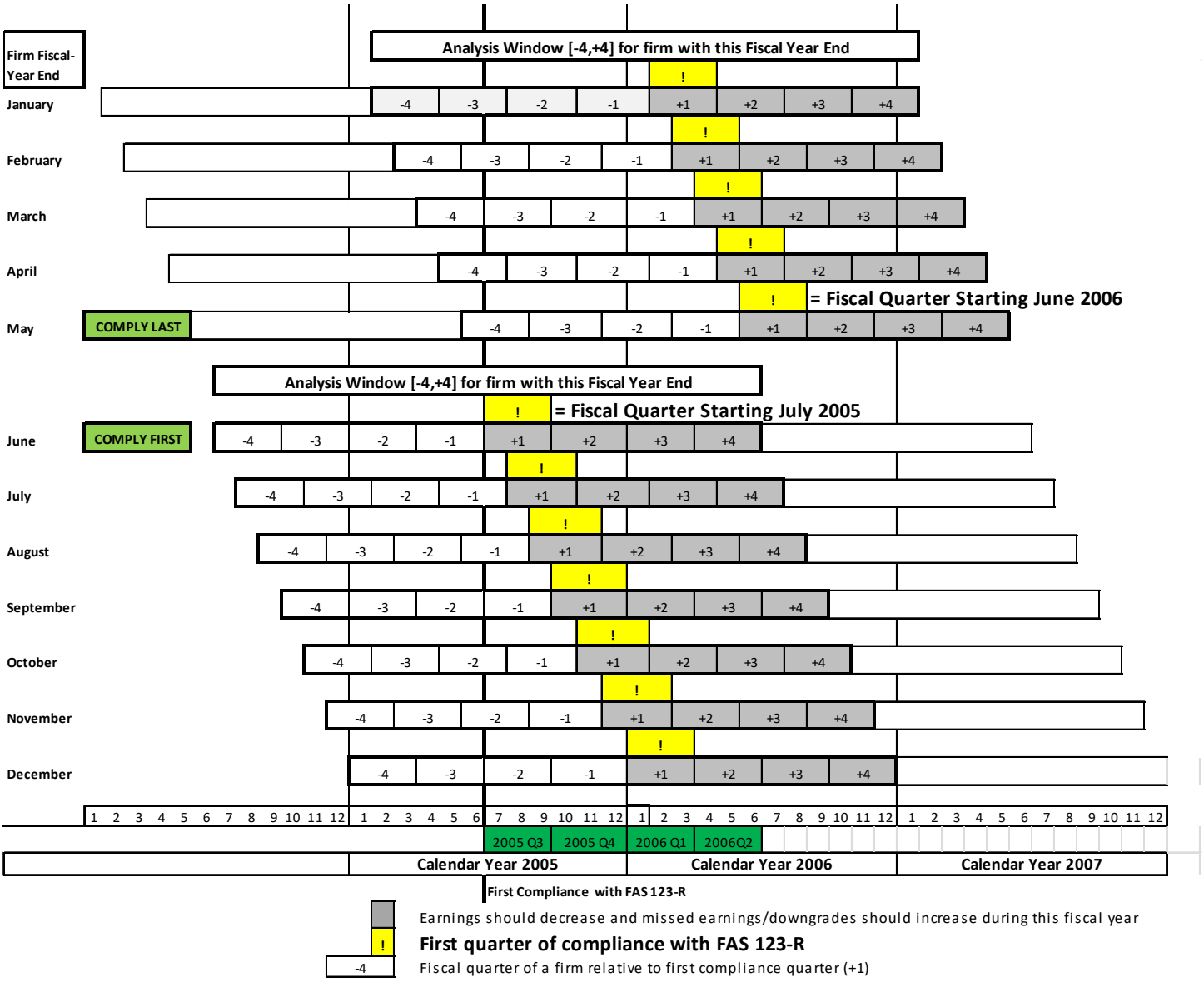
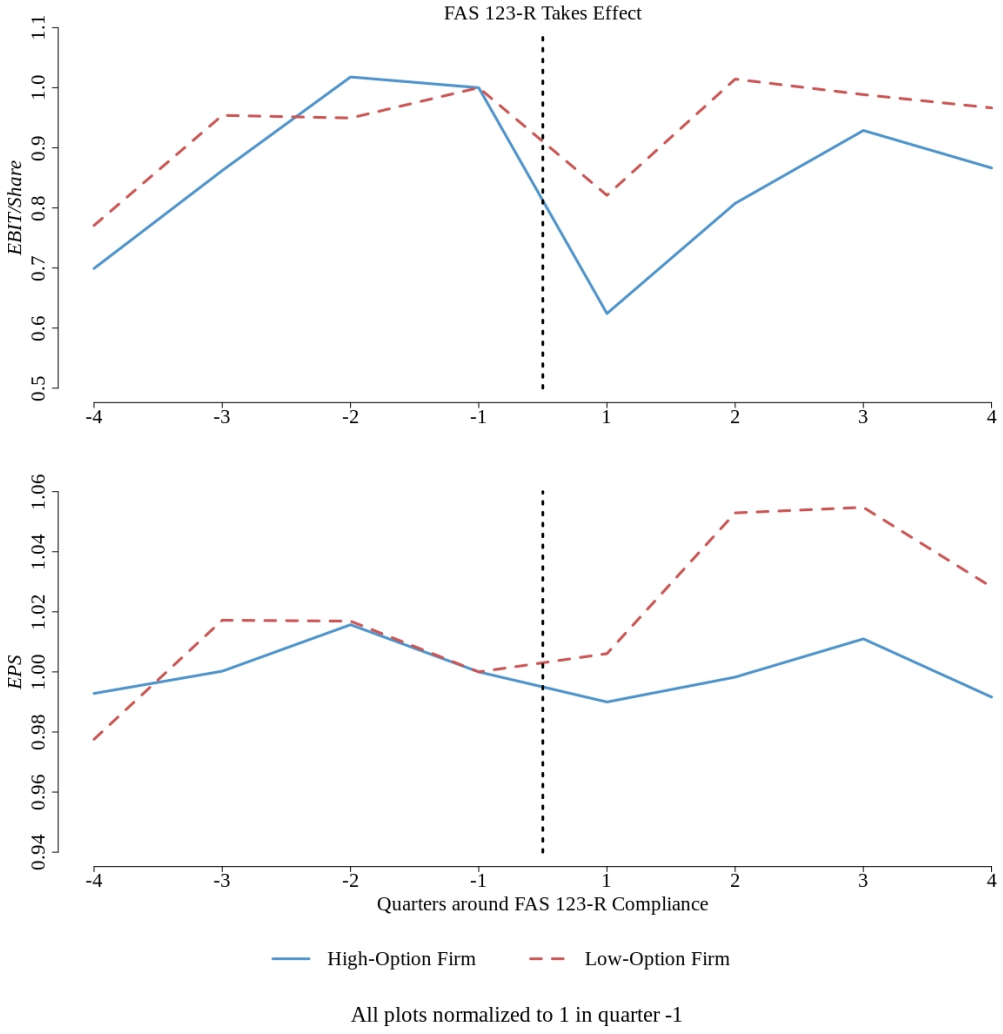


Figure 2. Earnings for High- and Low Option Firms

Firms' earnings are plotted over the four fiscal quarters prior to FAS 123-R compliance through the four fiscal quarters afterward, separately for high- and low-option firms. Plots show the average values of *EBIT/Share* and *EPS* (based on GAAP values) for each set of firms. The plots are normalized to 1 in the fiscal quarter prior to FAS 123-R compliance (quarter -1).

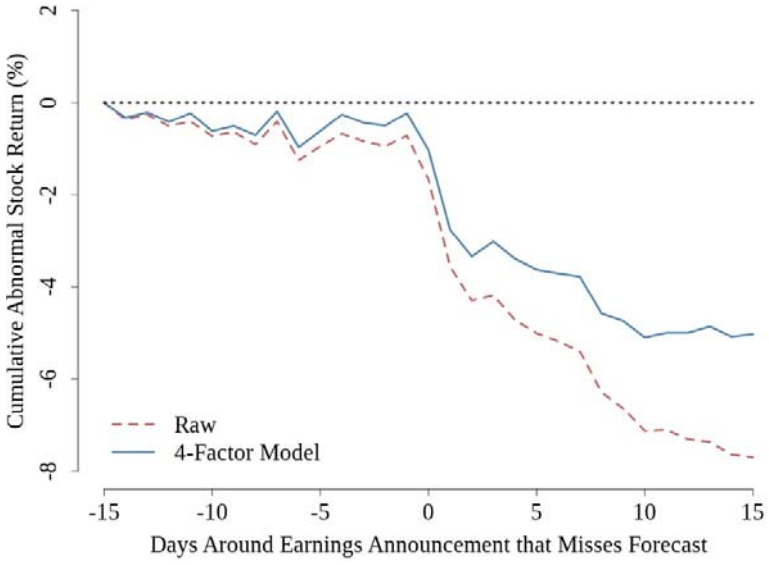


All plots normalized to 1 in quarter -1

Figure 3. Stock Returns around Missed Earnings Forecast for High-Option Firms

Panel A shows raw and adjusted returns in the [-15,+15] days around a missed EPS forecast that occurred just after FAS 123-R took effect. Panel B shows adjusted returns in the [-90,+120] days around missed EPS forecasts. In both panels, returns are adjusted using the 4-Factor model. We report returns for high-option firms that missed a forecast in fiscal quarter +1 *and* did not experience a sales decline relative to either the previous fiscal quarter or the same quarter of the previous fiscal year. These conditions isolate firms that had negative outcomes only due to FAS 123-R. Firm started to expense options in fiscal quarter +1.

Panel A. Short-Term Returns



Panel B. Medium-Term Returns

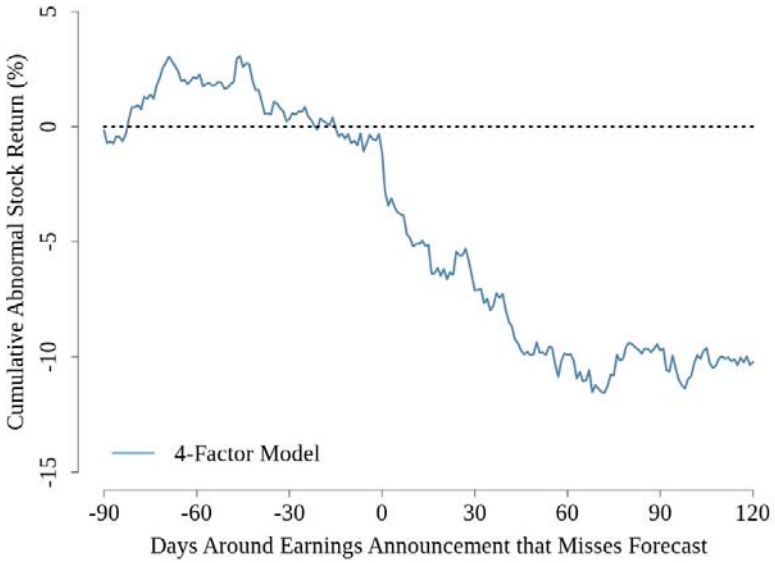


Table 1. Summary Statistics

Panel A shows summary statistics for the sample. Q1 and Q3 are the first and third quartiles of the distribution. The sample is 3,915 firms in the intersection of the Compustat and IBES databases. The sample excludes financials and utilities. The sample period covers the four fiscal quarters before through four fiscal quarters after FAS 123-R's (staggered) compliance dates. Panel B follows Lemmon and Roberts (2010) and compares key dependent variables across high- and low-option firms for the years 2001 to 2005. The panel also presents a difference-of-means tests. High-option firms are defined as firms with an above-median ratio of *Fair Value of Options Granted/Total Assets* in either fiscal year 2004 or fiscal year 2005. Low-option firms are all other firms. Panel C reports the distribution of firms' fiscal year ends in the sample. Variable definitions are in the Data Appendix.

Panel A. Firm Characteristics

	Mean	Median	Q1	Q3	Q3-Q1	Obs.
GAAP Earnings						
EPS	0.13	0.07	-0.06	0.32	0.38	29784
EBIT/Share	0.38	0.17	-0.04	0.62	0.66	27957
NI/Share	0.15	0.09	-0.06	0.36	0.42	28151
Sales/Share	5.18	2.43	0.65	6.72	6.06	28150
Pro Forma Earnings						
EPS	0.06	0.11	-0.05	0.33	0.38	26967
EBIT/Share	0.40	0.21	-0.02	0.66	0.68	22915
NI/Share	0.21	0.13	-0.03	0.40	0.44	25654
Sales/Share	5.36	2.70	0.78	7.04	6.26	25972
High-Option Firm	0.50					26068
Missed Forecast	0.38					18556
Analyst Recommendation	2.30	2.00	2.00	3.00	1.00	18544
Pct. Buy Recommendations (in %)	54.4	50.0	33.3	80.0	46.7	18544
Pct. Sell Recommendations (in %)	6.0	0.0	0.0	6.3	6.3	18544
Log Assets	5.50	5.46	4.08	6.86	2.78	28771
Market-to-Book Ratio	2.37	1.80	1.32	2.73	1.41	27651
Leverage	0.20	0.13	0.00	0.31	0.31	28005
Investment/Sales	0.10	0.02	0.01	0.06	0.05	26449
Analyst Coverage	6.7	5.0	2.0	9.0	7.0	18565
Dividend Payer	0.22					28268
Dividend/Share	0.00	0.00	0.00	0.00	0.00	27889
Covenant Violation	0.01					30626

Panel B. Trends in Outcome Measures, Fiscal Years 2001–2005

	High-Option Firms			Low-Option Firms			Test for Differences	
	Mean	Median	St. Dev.	Mean	Median	St. Dev.	Diff. in Mean	*t*-stat
Chg. GAAP EPS	0.01	0.01	0.43	0.01	0.01	0.29	0.00	(1.39)
Chg. Pro Forma EPS	0.01	0.01	0.46	0.01	0.01	0.47	0.00	(0.42)
Chg. GAAP Sales/Share	0.05	0.04	2.07	0.02	0.01	1.51	0.04	(1.57)
Chg. Missed Forecast	0.00	0.00	0.61	0.00	0.00	0.62	0.00	(-0.21)
Chg. Analyst Recommendation	0.00	0.00	0.37	0.00	0.00	0.50	0.00	(-0.37)
Chg. Pct. Buy Recommendations (in %)	-0.2	0.0	19.4	-0.5	0.0	26.2	0.27	(0.43)
Chg. Pct. Sell Recommendations (in %)	-0.17	0.00	10.09	-0.09	0.00	12.06	-0.09	(-1.31)

Table 1 (continued)

Panel C. Fiscal Year Ends		
Fiscal Year-End Months	**# Firms**	**Cumulative %**
January	150	3.8
February	36	4.8
March	198	9.8
April	57	11.3
May	58	12.8
June	253	19.3
July	54	20.6
August	51	21.9
September	242	28.1
October	74	30.0
November	32	30.9
December	2701	100.0
Total	3906	100

Table 2. Effect of FAS 123-R Option Expenses on Corporate Earnings

This table shows the effects of staggered FAS 123-R compliance on corporate earnings. Panel A shows the effect on GAAP values of earnings per share (EPS), EBIT per share, and net income per share. Panel B shows the effect on analysts' *pro forma* estimates of these three variables. The sample is 3,915 firms in the intersection of the Compustat and IBES databases. The sample excludes financials and utilities. Observations are at the firm-fiscal quarter level, for the four fiscal quarters before through four fiscal quarters after FAS 123-R's (staggered) compliance dates. We label the analysis window as [-4,+4] fiscal quarters, with option expenses recorded starting in quarter +1. *Post FAS 123-R* equals 1 for fiscal quarters after FAS 123-R takes effect, and 0 for fiscal quarters before. *High-Option Firm* equals 1 in all fiscal quarters for firms with an above-median ratio of *Fair Value of Options Granted/Total Assets* in either fiscal year 2004 or fiscal year 2005, and 0 for all other firms. Regressions are restricted to firms followed by at least three analysts. *t*-statistics are based on standard errors that are clustered at the firm level. ***, **, * indicate significance levels of 1%, 5%, and 10%, respectively. Variable definitions are in the Data Appendix.

	Panel A. GAAP Earnings				**Panel B. Pro Forma Earnings**			
Dependent variable	*EPS*	*EBIT/Share*	*NI/Share*	*EPS*	*EPS*	*EBIT/Share*	*NI/Share*	*EPS*
Estimation window	[-4;+4] fiscal quarters around FAS 123-R				[-4;+ 4] fiscal quarters around FAS 123-R			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post FAS 123-R x High-Option Firm	-0.044***	-0.032***	-0.040***	-0.040***	-0.054***	-0.045***	-0.028***	-0.047***
	(-5.10)	(-2.63)	(-3.85)	(-4.93)	(-3.65)	(-3.55)	(-3.25)	(-3.56)
Post FAS 123-R	0.028***	0.004	0.024***	-0.012	0.047***	0.027***	0.015**	-0.015
	(4.09)	(0.45)	(2.97)	(-0.89)	(4.94)	(2.67)	(2.31)	(-0.93)
High-Option Firm	0.059***	0.099***	0.059***		0.108***	0.098***	0.064***	
	(4.51)	(4.80)	(4.02)		(4.39)	(4.65)	(4.71)	
Log Assets (t-1)	0.094***	0.177***	0.101***	-0.022*	0.134***	0.179***	0.115***	-0.056**
	(26.01)	(29.42)	(24.80)	(-1.76)	(20.25)	(29.77)	(30.24)	(-2.42)
Leverage (t-1)	0.042***	0.045***	0.048***	0.023***	0.031***	0.046***	0.041***	0.036***
	(15.48)	(10.21)	(15.39)	(7.58)	(4.37)	(10.05)	(13.38)	(4.53)
Market-to-Book Ratio (t-1)	-0.189***	0.143***	-0.189***	0.005	-0.231***	0.103***	-0.171***	-0.089
	(-7.28)	(3.74)	(-6.74)	(0.14)	(-4.05)	(2.59)	(-6.54)	(-1.14)
Investment/Sales (t-1)	-0.285***	-0.367***	-0.333***	0.034	-0.814***	-0.395***	-0.327***	0.095*
	(-13.82)	(-10.83)	(-13.77)	(1.59)	(-10.36)	(-10.93)	(-13.16)	(1.87)
Industry Fixed Effects	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Fiscal-Year-End Fixed Effects	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Firm Fixed Effects	No	No	No	Yes	No	No	No	Yes
Fiscal-Quarter Fixed Effects	No	No	No	Yes	No	No	No	Yes
Calendar-Quarter Fixed Effects	No	No	No	Yes	No	No	No	Yes
Obs.	22767	22461	22589	22767	22235	19565	21675	22235
Adj. R-squared	0.278	0.397	0.270	0.011	0.264	0.422	0.361	0.013

Table 3. Effect of FAS 123-R Option Expenses on Corporate Sales

This table shows the effects of staggered FAS 123-R compliance on corporate sales. Panel A shows the effect on GAAP values of sales per share, and Panel B on analysts' *pro forma* estimates of this variable. The sample is 3,915 firms in the intersection of the Compustat and IBES databases. The sample excludes financials and utilities. Observations are at the firm-fiscal quarter level, for the four fiscal quarters before through four fiscal quarters after FAS 123-R's (staggered) compliance dates. We label the analysis window as [-4,+4] fiscal quarters, with option expenses recorded starting in quarter +1. *Post FAS 123-R* equals 1 for fiscal quarters after FAS 123-R takes effect, and 0 for fiscal quarters before. *High-Option Firm* equals 1 in all fiscal quarters for firms with an above-median ratio of *Fair Value of Options Granted/Total Assets* in either fiscal year 2004 or fiscal year 2005, and 0 for all other firms. Regressions are restricted to firms followed by at least three analysts. *t*-statistics are based on standard errors that are clustered at the firm level. ***, **, * indicate significance levels of 1%, 5%, and 10%, respectively. Variable definitions are in the Data Appendix.

	Panel A. GAAP Sales		**Panel B. Pro Forma Sales**	
Dependent variable	*Sales/Share*		*Sales/Share*	
Estimation window	[-4;+ 4] fiscal quarters around FAS 123-R			
	(1)	(2)	(3)	(4)
Post FAS 123-R x High-Option Firm	-0.022	0.007	-0.068	0.013
	(-0.23)	(0.08)	(-0.69)	(0.17)
Post FAS 123-R	-0.079	-0.888***	-0.044	-0.838***
	(-0.97)	(-9.87)	(-0.54)	(-9.28)
High-Option Firm	0.586***		0.638***	
	(2.61)		(2.74)	
Log Assets (t-1)	1.365***	0.967***	1.384***	0.806***
	(21.13)	(7.55)	(20.74)	(6.99)
Leverage (t-1)	-0.361***	0.121***	-0.419***	0.096***
	(-9.03)	(7.30)	(-9.83)	(4.98)
Market-to-Book Ratio (t-1)	1.700***	1.590***	1.585***	1.656***
	(4.06)	(5.35)	(3.57)	(5.29)
Investment/Sales (t-1)	-0.909***	-0.085	-0.894***	0.081
	(-3.24)	(-1.15)	(-3.06)	(0.67)
Industry Fixed Effects	Yes	No	Yes	No
Fiscal-Year-End Fixed Effects	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes
Fiscal-Quarter Fixed Effects	No	Yes	No	Yes
Calendar-Quarter Fixed Effects	No	Yes	No	Yes
Obs.	22590	22590	21969	21969
Adj. R-squared	0.434	0.047	0.437	0.040

Table 4. Missed Earnings Forecasts after FAS 123-R Takes Effect

This table shows the effects of staggered FAS 123-R compliance on missed earnings forecasts. The sample is 3,915 firms in the intersection of the Compustat and IBES databases. The sample excludes financials and utilities. Observations are at the firm-fiscal quarter level, for the four fiscal quarters before through four fiscal quarters after FAS 123-R's (staggered) compliance dates. We label the analysis window as [-4,+4] fiscal quarters, with option expenses recorded starting in quarter +1. *Missed Forecast* equals 1 for fiscal quarters in which the firm's actual earnings per share (EPS) are below analysts' consensus (mean) estimate, and 0 otherwise. *Post FAS 123-R* equals 1 for fiscal quarters after FAS 123-R takes effect, and 0 for fiscal quarters before. *Post FAS 123-R Q1* equals 1 for the first fiscal quarter after FAS 123-R takes effect, and 0 for other fiscal quarters. *Post FAS 123-R Q2*, *Post FAS 123-R Q3*, and *Post FAS 123-R Q4* are defined accordingly but equal 1 in the second, third, and fourth fiscal quarter after FAS 123-R takes effect, respectively. *High-Option Firm* equals 1 in all fiscal quarters for firms with an above-median ratio of *Fair Value of Options Granted/Total Assets* in either fiscal year 2004 or fiscal year 2005, and 0 for all other firms. Regressions are restricted to firms followed by at least three analysts that are in the sample both before and after FAS 123-R. *t*-statistics are based on standard errors that are clustered at the firm level. ***, **, * indicate significance levels of 1%, 5%, and 10%, respectively. Variable definitions are in the Data Appendix.

Dependent variable	*Missed Forecast*			
Estimation window	[-4;+ 4] quarters around FAS 123-R			
	(1)	(2)	(3)	(4)
Post FAS 123-R x High-Option Firm	0.071***	0.067***		
	(3.57)	(3.35)		
Post FAS 123-R Q1 x High-Option Firm			0.143***	0.139***
			(4.88)	(4.76)
Post FAS 123-R Q2 x High-Option Firm			0.080***	0.066**
			(2.79)	(2.29)
Post FAS 123-R Q3 x High-Option Firm			0.026	0.027
			(0.86)	(0.88)
Post FAS 123-R Q4 x High-Option Firm			0.031	0.031
			(1.00)	(1.01)
Post FAS 123-R	-0.003	-0.006		
	(-0.21)	(-0.22)		
Post FAS 123-R Q1			-0.016	-0.053*
			(-0.92)	(-1.86)
Post FAS 123-R Q2			-0.027	-0.084*
			(-1.61)	(-1.91)
Post FAS 123-R Q3			0.022	-0.064
			(1.23)	(-1.26)
Post FAS 123-R Q4			0.012	-0.137**
			(0.67)	(-2.22)
High-Option Firm	-0.026		-0.026	
	(-1.33)		(-1.32)	
Log Assets (t-1)	-0.040***	0.194***	-0.041***	0.193***
	(-6.19)	(5.56)	(-6.21)	(5.53)
Leverage (t-1)	-0.017***	0.026**	-0.017***	0.024**
	(-3.53)	(2.44)	(-3.55)	(2.23)
Market-to-Book Ratio (t-1)	0.125***	-0.126	0.126***	-0.117
	(3.50)	(-1.38)	(3.53)	(-1.29)
Investment/Sales (t-1)	0.076**	-0.134	0.075**	-0.141
	(2.07)	(-1.45)	(2.03)	(-1.52)
Analyst Coverage	0.001	0.004	0.001	0.004
	(0.98)	(1.34)	(1.01)	(1.43)
Industry Fixed Effects	Yes	No	Yes	No
Fiscal-Year-End Fixed Effects	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes
Fiscal-Quarter Fixed Effects	No	Yes	No	Yes
Calendar-Quarter Fixed Effects	No	Yes	No	Yes
Obs.	10561	10561	10561	10561
Adj. R-squared	0.027	0.008	0.028	0.010

Table 5. Effect of Missed Earnings on Analyst Recommendations around FAS 123-R Compliance

This table shows the general effect of missed earnings forecasts on analyst recommendations around FAS 123-R compliance. The sample is 3,915 firms in the intersection of the Compustat and IBES databases. The sample excludes financials and utilities. Observations are at the firm-fiscal quarter level. Columns (1) through (7) examine the four fiscal quarters before through four fiscal quarters after FAS 123-R's (staggered) compliance dates, while Columns (8) and (9) examine the four fiscal quarters after FAS 123-R's (staggered) compliance dates. We label the full analysis window as [-4,+4] fiscal quarters, with option expenses recorded starting in quarter +1. *Post FAS 123-R* equals 1 for fiscal quarters after FAS 123-R takes effect, and 0 for fiscal quarters before. *Analyst Recommendation* is the consensus (mean) analyst stock recommendation and ranges between 1 (strong buy) and 5 (sell). *Pct. Buy Recommendations* (*Pct. Sell Recommendations*) is the percentage of analysts issuing a "strong buy" or "buy" ("sell") recommendation for the firm's stock. *Missed Forecast* equals 1 for fiscal quarters in which the firm's actual earnings per share (EPS) are below analysts' consensus (mean) estimate, and 0 otherwise. Regressions are restricted to firms followed by at least three analysts. *t*-statistics are based on standard errors that are clustered at the firm level. ***, **, * indicate significance levels of 1%, 5%, and 10%, respectively. Variable definitions are in the Data Appendix.

Dependent variable	*Analyst Recommendation*			*Buy*		*Sell*		*Analyst Recommendation*	
Sample	All	All	High-Option Firms	All	All	All	All	All	High-Option Firms
Estimation window	[-4;+ 4] quarters around FAS 123-R							[+1;+ 4] quarters around FAS 123-R	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Missed Forecast (t-1)	0.078***	0.042***	0.052***	-3.769***	-2.219***	1.174***	0.384**	0.060***	0.041*
	(6.90)	(6.23)	(4.16)	(-6.35)	(-6.19)	(4.74)	(2.26)	(4.05)	(1.77)
Log Assets (t-1)	0.024**	-0.068**	-0.077	-1.021**	4.091**	0.358	-1.305	0.021*	0.061**
	(2.32)	(-2.09)	(-1.47)	(-1.99)	(2.52)	(1.29)	(-1.45)	(1.83)	(2.33)
Leverage (t-1)	-0.051***	-0.056***	-0.051***	2.994***	3.314***	-0.689***	-0.713***	-0.050***	-0.039***
	(-6.68)	(-6.60)	(-4.68)	(7.77)	(7.38)	(-3.79)	(-3.51)	(-6.08)	(-3.64)
Market-to-Book Ratio (t-1)	0.048	0.046	0.170	-2.043	-0.831	1.822	1.844	0.015	0.025
	(0.88)	(0.51)	(1.30)	(-0.74)	(-0.19)	(1.33)	(0.61)	(0.25)	(0.24)
Investment/Sales (t-1)	-0.132***	-0.104*	-0.122	10.373***	5.865**	0.509	-0.447	-0.146***	-0.072
	(-2.75)	(-1.71)	(-1.29)	(4.07)	(2.12)	(0.46)	(-0.34)	(-2.59)	(-0.99)
Analyst Coverage	0.006***	-0.006**	-0.003	-0.292***	0.350**	0.034	0.059	0.006**	0.010**
	(3.00)	(-2.08)	(-0.56)	(-2.89)	(2.51)	(0.63)	(0.74)	(2.53)	(1.99)
Industry Fixed Effects	Yes	No	No	Yes	No	Yes	No	Yes	Yes
Fiscal-Year-End Fixed Effects	Yes	No	No	Yes	No	Yes	No	Yes	Yes
Firm Fixed Effects	No	Yes	Yes	No	Yes	No	Yes	No	No
Fiscal-Quarter Fixed Effects	No	Yes	Yes	No	Yes	No	Yes	No	No
Calendar-Quarter Fixed Effects	No	Yes	Yes	No	Yes	No	Yes	No	No
Obs.	13163	13163	4714	13163	13163	13163	13163	6722	2451
Adj. R-squared	0.092	0.028	0.050	0.101	0.031	0.050	0.006	0.085	0.082

Table 6. Effect of Missed Earnings due to FAS 123-R on Analyst Recommendations

This table shows the effect of missed earnings forecasts due to FAS 123-R on analyst recommendations. The sample is 3,915 firms in the intersection of the Compustat and IBES databases. The sample excludes financials and utilities. Observations are at the firm-fiscal quarter level, for the four fiscal quarters before through four fiscal quarters after FAS 123-R's (staggered) compliance dates. We label the analysis window as [-4,+4] fiscal quarters, with option expenses recorded starting in quarter +1. *Analyst Recommendation* is the consensus (mean) analyst stock recommendation and ranges between 1 (strong buy) and 5 (sell). *Pct. Buy Recommendations* (*Pct. Sell Recommendations*) is the percentage of analysts issuing a "strong buy" or "buy" ("sell") recommendation for the firm's stock. *Post FAS 123-R Q1* equals 1 for the first fiscal quarter after FAS 123-R takes effect, and 0 for other fiscal quarters. *Post FAS 123-R Q2*, *Post FAS 123-R Q3*, and *Post FAS 123-R Q4* are defined accordingly but equal 1 in the second, third, and fourth fiscal quarter after FAS 123-R takes effect, respectively. *High-Option Firm* equals 1 in all fiscal quarters for firms with an above-median ratio of *Fair Value of Options Granted/Total Assets* in either fiscal year 2004 or fiscal year 2005, and 0 for all other firms. Regressions are restricted to firms followed by at least three analysts that are in the sample both before and after FAS 123-R. *t*-statistics are based on standard errors that are clustered at the firm level. ***, **, * indicate significance levels of 1%, 5%, and 10%, respectively. Variable definitions are in the Data Appendix.

Dependent variable	*Analyst Recommendation*		*Pct. Buy Recommendations*		*Pct. Sell Recommendations*	
Estimation window	[-4;+ 4] fiscal quarters around FAS 123-R					
	(1)	(2)	(3)	(4)	(5)	(6)
Post FAS 123-R Q1 x High-Option Firm	0.059***	0.066***	-2.280**	-2.867***	1.016**	1.274***
	(2.95)	(3.40)	(-2.15)	(-2.83)	(2.16)	(2.72)
Post FAS 123-R Q2 x High-Option Firm	0.096***	0.105***	-4.323***	-5.283***	1.803***	2.001***
	(4.13)	(4.75)	(-3.49)	(-4.49)	(3.37)	(3.84)
Post FAS 123-R Q3 x High-Option Firm	0.054**	0.079***	-2.665*	-4.423***	0.992*	1.405**
	(2.11)	(3.24)	(-1.95)	(-3.40)	(1.70)	(2.49)
Post FAS 123-R Q4 x High-Option Firm	0.053*	0.070***	-3.110**	-4.305***	0.950	1.386**
	(1.95)	(2.70)	(-2.10)	(-3.04)	(1.51)	(2.28)
Post FAS 123-R Q1	0.014	0.006	-1.188**	-0.401	-0.259	0.084
	(1.30)	(0.38)	(-2.12)	(-0.49)	(-0.89)	(0.22)
Post FAS 123-R Q2	-0.031**	0.002	1.216*	0.028	-1.185***	-0.092
	(-2.46)	(0.07)	(1.83)	(0.02)	(-3.37)	(-0.12)
Post FAS 123-R Q3	-0.012	0.017	0.323	-0.317	-0.831**	0.146
	(-0.84)	(0.38)	(0.45)	(-0.14)	(-2.14)	(0.15)
Post FAS 123-R Q4	0.035**	0.017	-1.982**	-0.456	-0.276	-0.466
	(2.30)	(0.29)	(-2.42)	(-0.15)	(-0.68)	(-0.39)
High-Option Firm	-0.146***		7.842***		-2.329***	
	(-4.34)		(4.59)		(-3.24)	
Log Assets (t-1)	-0.007	-0.084**	0.827	4.835***	-0.013	-1.914*
	(-0.51)	(-2.29)	(1.34)	(2.71)	(-0.04)	(-1.90)
Leverage (t-1)	-0.053***	-0.061***	3.163***	3.567***	-0.667***	-0.790***
	(-6.21)	(-6.28)	(7.45)	(7.31)	(-3.29)	(-3.32)
Market-to-Book Ratio (t-1)	0.006	0.033	-0.743	-0.812	1.277	2.384
	(0.11)	(0.33)	(-0.25)	(-0.17)	(0.84)	(0.71)
Investment/Sales (t-1)	-0.159***	-0.112	12.267***	5.024	-0.286	-0.746
	(-3.01)	(-1.57)	(4.39)	(1.60)	(-0.22)	(-0.49)
Analyst Coverage	0.006***	-0.007**	-0.304***	0.397**	0.030	0.045
	(2.68)	(-2.25)	(-2.80)	(2.35)	(0.48)	(0.46)
Industry Fixed Effects	Yes	No	Yes	No	Yes	No
Fiscal-Year-End Fixed Effects	Yes	No	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes	No	Yes
Fiscal-Quarter Fixed Effects	No	Yes	No	Yes	No	Yes
Calendar-Quarter Fixed Effects	No	Yes	No	Yes	No	Yes
Obs.	11082	11082	11082	11082	11082	11082
Adj. R-squared	0.095	0.032	0.110	0.036	0.054	0.009

Table 7. Analyst Heterogeneity and Missed Earnings Forecasts

This table examines whether missed earnings forecasts following staggered FAS 123-R compliance are correlated with analyst characteristics that may affect the ability to accurately estimate option expenses. Analyst familiarity is measured as the number of years that an analyst has covered the firm. For each firm and fiscal quarter, familiarity is averaged across all individual analysts that covered the firm. Columns (1) to (4) split the sample based on whether average familiarity is in the lowest or highest tercile of the sample distribution. Columns (5) to (8) follow a similar procedure, measuring experience as an analysts' overall tenure in number of years. The sample is 3,915 firms in the intersection of the Compustat and IBES databases. The sample excludes financials and utilities. Observations are at the firm-fiscal quarter level, for the four fiscal quarters before through four fiscal quarters after FAS 123-R's (staggered) compliance dates. We label the analysis window as [-4,+4] fiscal quarters, with option expenses recorded starting in quarter +1. *Missed Forecast* equals 1 for fiscal quarters in which the firm's actual earnings per share (EPS) are below analysts' consensus (mean) estimate, and 0 otherwise. *Post FAS 123-R* equals 1 for fiscal quarters after FAS 123-R takes effect, and 0 for fiscal quarters before. *High-Option Firm* equals 1 in all fiscal quarters for firms with an above-median ratio of *Fair Value of Options Granted/Total Assets* in either fiscal year 2004 or fiscal year 2005, and 0 for all other firms. Regressions are restricted to firms followed by at least three analysts that are in the sample both before and after FAS 123-R. *t*-statistics are based on standard errors that are clustered at the firm level. ***, **, * indicate significance levels of 1%, 5%, and 10%, respectively. Variable definitions are in the Data Appendix.

Dependent variable	*Missed Forecast*				*Missed Forecast*			
Sample	Analyst Familiarity				Analyst Experience			
	Low	High	Low	High	Low	High	Low	High
Estimation window	[-4;+ 4] quarters around FAS 123-R				[-4;+ 4] quarters around FAS 123-R			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post FAS 123-R x High-Option Firm	0.111**	0.046	0.151***	0.021	0.119**	0.041	0.145***	0.041
	(2.49)	(0.95)	(3.15)	(0.40)	(2.52)	(0.91)	(2.72)	(0.86)
Post FAS 123-R	-0.020	-0.010	-0.125	0.010	0.007	0.010	0.010	-0.031
	(-0.56)	(-0.46)	(-1.61)	(0.22)	(0.21)	(0.39)	(0.12)	(-0.61)
High-Option Firm	-0.008	0.003			-0.028	-0.025		
	(-0.19)	(0.07)			(-0.72)	(-0.57)		
Log Assets (t-1)	-0.054***	-0.032***	0.211***	0.341***	-0.052***	-0.044***	0.249***	0.330***
	(-2.84)	(-2.86)	(3.16)	(3.86)	(-3.61)	(-3.73)	(2.97)	(3.37)
Leverage (t-1)	-0.019**	-0.028**	0.001	0.093**	-0.016*	-0.020*	0.030	0.079***
	(-2.28)	(-2.41)	(0.03)	(2.09)	(-1.89)	(-1.90)	(1.36)	(2.71)
Market-to-Book Ratio (t-1)	0.262***	0.146**	0.032	-0.720***	0.196***	0.132*	-0.119	-0.380
	(3.33)	(2.08)	(0.12)	(-2.88)	(2.59)	(1.80)	(-0.40)	(-1.63)
Investment/Sales (t-1)	0.022	-0.080	-0.200	-0.020	0.016	0.151*	-0.308*	-0.364
	(0.40)	(-0.64)	(-1.07)	(-0.07)	(0.26)	(1.77)	(-1.80)	(-1.60)
Analyst Coverage	0.004	0.004*	0.001	0.001	0.002	0.001	0.007	0.001
	(0.96)	(1.70)	(0.19)	(0.14)	(0.57)	(0.50)	(0.82)	(0.10)
Industry Fixed Effects	Yes	Yes	No	No	Yes	Yes	No	No
Fiscal-Year-End Fixed Effects	Yes	Yes	No	No	Yes	Yes	No	No
Firm Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes
Fiscal-Quarter Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes
Calendar-Quarter Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes
Obs.	2009	2588	2009	2588	2113	2485	2113	2485
Adj. R-squared	0.043	0.032	0.035	0.016	0.037	0.031	0.022	0.012

Table 8. Effects of Missed Forecasts and Downgrades on Stock Prices

This table shows in Panel A the effects of missed forecasts on stock prices, and in Panel B the effect of analyst downgrades on stock prices. We report returns using the Fama-French-4-factor model. Returns are calculated for short-term windows of [-3,+3] and [-1,+1] days around the missed forecast/downgrade, as well as medium-term windows of [-3,+90] and [-3,+180] days. In Panel A, we report results for: (i) 87 high-option firms that missed a forecast in fiscal quarter +1 *and* did not experience a sales decline; (ii) 362 low-option firms that missed a forecast in fiscal quarter +1. We condition among the first set of firms on not experiencing a sales decline relative to either the previous fiscal quarter or the same quarter of the previous fiscal year, to isolate those firms that had negative outcomes only due to FAS 123-R. In Panel B, we report results for: (i) 34 high-option firms that experienced a stock recommendation downgrade in fiscal quarter +1 *and* did not experience a sales decline; (ii) 230 low-option firms that experienced a stock recommendation downgrade in fiscal quarter +1. *t*-statistics, based on Crude Dependence Adjustment standard errors, are reported in parentheses. ***, **, * indicate significance levels of 1%, 5%, and 10%, respectively. Variable definitions are in the Data Appendix.

	CAR from 4-Factor model			
Estimation window	[-3,+3]	[-1,+1]	[-3,+90]	[-3,+180]
Panel A. CARs around Missed EPS Forecasts				
High-Option Firm	-2.77%***	-2.26%***	-9.36%***	-8.88%**
Missed Forecast in Fiscal Quarter +1	(-3.32)	(-4.14)	(-3.06)	(-2.08)
Low-Option Firm	-2.66%***	-2.41%***	-1.64%	0.51%
Missed Forecast in Fiscal Quarter +1	(-7.97)	(-11.05)	(-1.34)	(0.30)
Panel B. CARs around Analyst Downgrades				
High-Option Firm	-3.52%***	-2.93%***	-11.21%***	-11.13%*
Analyst Downgrade in Fiscal Quarter +1	(-3.01)	(-3.84)	(-2.62)	(-1.86)
Low-Option Firm	-1.02%**	-0.41%	-2.91%*	-3.93%*
Analyst Downgrade in Fiscal Quarter +1	(-2.46)	(-1.53)	(-1.92)	(-1.85)

Table 9. Effect of FAS 123-R Option Expenses: Placebo Tests for Voluntary Adopters

Panel A shows the effects of staggered FAS 123-R compliance on corporate earnings and missed earnings forecasts among firms that voluntarily expenses options prior to FAS 123-R. The sample is 417 firms in the intersection of the Compustat and IBES databases. Observations are at the firm-fiscal quarter level, for the four fiscal quarters before through four fiscal quarters after FAS 123-R's (staggered) compliance dates. We label the analysis window as [-4,+4] fiscal quarters, with option expenses recorded starting in quarter +1. *Post FAS 123-R* equals 1 for fiscal quarters after FAS 123-R takes effect, and 0 for fiscal quarters before. *High-Option Firm* equals 1 in all fiscal quarters for firms with an above-median ratio of *Fair Value of Options Granted/Total Assets* in either fiscal year 2004 or fiscal year 2005, and 0 for all other firms. Panel B examines missed earnings forecasts following placebo compliance events prior to the adoption of FAS 123-R. The sample is firms in the intersection of the Compustat and IBES databases, excluding voluntary adopters, financials, and utilities. The analysis windows are different periods of eight fiscal quarters before the actual compliance with FAS 123-R. *Post Placebo* equals 1 for quarters 5 through 8 in each analysis window, and 0 for quarters 1 through 4. *t*-statistics are based on standard errors that are clustered at the firm level. ***, **, * indicate significance levels of 1%, 5%, and 10%, respectively. Variable definitions are in the Data Appendix.

	Panel A. Voluntary Adopters of FAS 123-R			
Dependent variable	*EPS*		*Missed Forecast*	
Estimation window	[-4;+4] fiscal quarters around FAS 123-R			
	(1)	(2)	(3)	(4)
Post FAS 123-R x High-Option Firm	0.012	0.015	0.100	0.108
	(0.21)	(0.28)	(0.93)	(1.17)
Controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	No	Yes	No
Fiscal-Year-End Fixed Effects	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes
Fiscal-Quarter Fixed Effects	No	Yes	No	Yes
Calendar-Quarter Fixed Effects	No	Yes	No	Yes
Obs.	1379	1379	1041	1041
Adj. R-squared	0.263	0.020	0.049	0.012

	Panel B. Placebo Compliance Events									
Dependent variable	*Missed Forecast*					*Missed Forecast*				
Estimation window (fiscal quarters around FAS 123-R)	[-24;-16]	[-20;-12]	[-16;-8]	[-12;-4]	[-8;-1]	[-24;-16]	[-20;-12]	[-16;-8]	[-12;-4]	[-8;-1]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Post Placebo x High-Option Firm	-0.019	0.033	-0.007	0.020	0.004	0.033	0.036	-0.001	-0.002	0.000
	(-0.27)	(1.21)	(-0.32)	(0.83)	(0.20)	(0.42)	(1.35)	(-0.04)	(-0.07)	(0.02)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Fiscal-Year-End Fixed Effects	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Firm Fixed Effects	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Fiscal-Quarter Fixed Effects	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Calendar-Quarter Fixed Effects	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Obs.	3986	7356	8484	8911	9969	3986	7356	8484	8911	9969
Adj. R-squared	0.020	0.017	0.016	0.017	0.024	0.011	0.014	0.006	0.007	0.006

Table 10. Alternative Channels: Dividend Policy and Covenant Violations

This table shows the effects of staggered FAS 123-R compliance on dividends and covenant violations. Panel A shows the effect on a dummy variable that equals one if a firm is a dividend payer and on dividends per share. Both variables are measured in *t+1* as dividends for quarter *t* are paid out in quarter *t+1*. Panel B shows the effect on covenant violations in *t* and *t+1*. The sample is 3,915 firms in the intersection of the Compustat and IBES databases. The sample excludes financials and utilities. Observations are at the firm-fiscal quarter level, for the four fiscal quarters before through four fiscal quarters after FAS 123-R's (staggered) compliance dates. We label the analysis window as [-4,+4] fiscal quarters, with option expenses recorded starting in quarter +1. *Post FAS 123-R* equals 1 for fiscal quarters after FAS 123-R takes effect, and 0 for fiscal quarters before. *High-Option Firm* equals 1 in all fiscal quarters for firms with an above-median ratio of *Fair Value of Options Granted/Total Assets* in either fiscal year 2004 or fiscal year 2005, and 0 for all other firms. Regressions are restricted to firms followed by at least three analysts. *t*-statistics are based on standard errors that are clustered at the firm level. ***, **, * indicate significance levels of 1%, 5%, and 10%, respectively. Variable definitions are in the Data Appendix.

	Panel A. Dividend Policy				**Panel B. Covenant Violations**			
Dependent variable	*Dividend Payer (t+1)*		*Dividend/Share (t+1)*		*Covenant Violation (t)*		*Covenant Violation (t+1)*	
Estimation window	[-4;+4] fiscal quarters around FAS 123-R				[-4;+4] fiscal quarters around FAS 123-R			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post FAS 123-R x High-Option Firm	-0.002	-0.005	-0.000	-0.000	-0.001	-0.001	0.000	0.002
	(-0.29)	(-0.99)	(-0.06)	(-0.80)	(-0.37)	(-0.20)	(0.04)	(0.49)
Post FAS 123-R	-0.005	0.000	-0.000	-0.000	0.000	-0.014***	0.001	-0.001
	(-0.86)	(0.01)	(-0.49)	(-0.83)	(0.17)	(-3.31)	(0.75)	(-0.26)
High-Option Firm	-0.049***		-0.001**		0.001		0.004	
	(-2.71)		(-2.05)		(0.33)		(0.98)	
Log Assets (t-1)	0.077***	0.006	0.001***	-0.000	-0.005***	0.010*	-0.005***	0.003
	(17.21)	(0.77)	(9.43)	(-0.78)	(-4.99)	(1.92)	(-4.82)	(0.38)
Leverage (t-1)	0.012***	-0.000	0.001***	-0.000	-0.003***	-0.001	-0.004***	-0.001
	(3.14)	(-0.17)	(5.42)	(-0.26)	(-4.66)	(-0.44)	(-5.46)	(-0.49)
Market-to-Book Ratio (t-1)	-0.152***	-0.040*	-0.001	-0.000	0.035***	0.001	0.038***	0.006
	(-5.15)	(-1.69)	(-1.44)	(-0.16)	(4.57)	(0.06)	(4.54)	(0.40)
Investment/Sales (t-1)	-0.105***	-0.009	-0.003***	-0.000	-0.012***	-0.000	-0.014***	0.001
	(-4.98)	(-0.70)	(-6.29)	(-0.80)	(-3.88)	(-0.04)	(-4.31)	(0.09)
Industry Fixed Effects	Yes	No	Yes	No	Yes	No	Yes	No
Fiscal-Year-End Fixed Effects	Yes	No	Yes	No	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Fiscal-Quarter Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Calendar-Quarter Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Obs.	18837	18837	18803	18803	18905	18905	18905	18905
Adj. R-squared	0.275	0.001	0.173	0.002	0.018	0.003	0.020	0.002

Internet Appendix

for

Limited Attention to Detail in Financial Markets

Internet Appendix Table 1. Correlations

This table shows correlations for the sample. The sample is 3,915 firms in the intersection of the Compustat and IBES databases. The sample excludes financials and utilities. The sample period covers the 4 quarters before through 4 quarters after FAS 123-R's (staggered) compliance dates. Variable definitions are in the Data Appendix.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
GAAP *EPS*	(1)	1.00																
GAAP *EBIT/Share*	(2)	0.81	1.00															
GAAP *NI/Share*	(3)	0.96	0.84	1.00														
GAAP *Sales/Share*	(4)	0.46	0.65	0.47	1.00													
Pro Forma *EPS*	(5)	0.66	0.61	0.64	0.35	1.00												
Pro Forma *EBIT/Share*	(6)	0.81	0.97	0.83	0.64	0.64	1.00											
Pro Forma *NI/Share*	(7)	0.87	0.92	0.90	0.54	0.70	0.93	1.00										
Pro Forma *Sales/Share*	(8)	0.45	0.64	0.47	0.99	0.35	0.64	0.54	1.00									
High Option Grants	(9)	-0.28	-0.36	-0.27	-0.34	-0.27	-0.37	-0.32	-0.34	1.00								
Missed Forecast	(10)	-0.24	-0.19	-0.23	-0.07	-0.20	-0.20	-0.25	-0.07	0.07	1.00							
Analyst Recommendation	(11)	0.00	0.04	0.00	0.10	0.03	0.04	0.02	0.10	-0.18	0.00	1.00						
Buy	(12)	-0.01	-0.06	-0.01	-0.12	-0.04	-0.05	-0.03	-0.13	0.19	0.01	-0.85	1.00					
Sell	(13)	-0.09	-0.05	-0.09	0.03	-0.08	-0.05	-0.08	0.03	-0.10	0.03	0.42	-0.39	1.00				
Log Assets	(14)	0.45	0.54	0.43	0.47	0.43	0.56	0.51	0.47	-0.70	-0.12	0.21	-0.21	0.09	1.00			
Market-to-Book Ratio	(15)	-0.06	-0.13	-0.05	-0.30	-0.11	-0.14	-0.08	-0.30	0.30	-0.04	-0.14	0.18	-0.08	-0.30	1.00		
Leverage	(16)	-0.01	0.17	-0.01	0.18	-0.01	0.16	0.02	0.18	-0.30	0.06	0.07	-0.08	0.06	0.28	-0.19	1.00	
Investment/Sales	(17)	-0.32	-0.31	-0.32	-0.26	-0.42	-0.31	-0.34	-0.26	0.24	0.05	-0.11	0.13	0.00	-0.28	0.24	0.02	1.00
Analyst Coverage	(18)	0.26	0.25	0.24	0.09	0.25	0.27	0.29	0.09	-0.39	-0.11	0.18	-0.14	0.06	0.64	0.08	0.02	-0.09

Internet Appendix Table 2. Forecast Error, Earnings Surprises, and Missed Earnings Forecasts after FAS 123-R

This table shows the effects of staggered FAS 123-R compliance on forecast errors, earnings surprises, and missed earnings forecasts. The sample is 3,915 firms in the intersection of the Compustat and IBES databases. The sample excludes financials and utilities. Observations are at the firm-fiscal quarter level, for the four fiscal quarters before through four fiscal quarters after FAS 123-R's (staggered) compliance dates. We label the analysis window as [-4,+4] fiscal quarters, with option expenses recorded starting in quarter +1. *Forecast Error* is the analysts' consensus (mean) forecast minus a firm's actual earnings per share (EPS), scaled by the analysts' mean consensus forecast. *Earnings Surprise* equals 1 for fiscal quarters in which the firm's actual earnings per share (EPS) are above analysts' consensus (mean) estimate by more than 0.001 cents, and 0 otherwise. *Missed Forecast* equals 1 for fiscal quarters in which the firm's actual earnings per share (EPS) are below analysts' consensus (mean) estimate, and 0 otherwise. *Post FAS 123-R* equals 1 for fiscal quarters after FAS 123-R takes effect, and 0 for fiscal quarters before. *High-Option Firm* equals 1 in all fiscal quarters for firms with an above-median ratio of *Fair Value of Options Granted/Total Assets* in either fiscal year 2004 or fiscal year 2005, and 0 for all other firms. Regressions are restricted to firms followed by at least three analysts that are in the sample both before and after FAS 123-R. *t*-statistics are based on standard errors that are clustered at the firm level. ***, **, * indicate significance levels of 1%, 5%, and 10%, respectively. Variable definitions are in the Data Appendix.

Dependent variable	*Forecast Error*		*Earnings Surprise*		*Missed Forecast*	
Estimation window	[-4;+ 4] quarters around FAS 123-R					
	(1)	(2)	(3)	(4)	(5)	(6)
Post FAS 123-R x High-Option Firm	0.078**	0.072*	-0.068***	-0.066***	0.067***	0.065***
	(2.01)	(1.84)	(-3.32)	(-3.20)	(3.35)	(3.20)
Post FAS 123-R	0.027	-0.097*	0.011	0.026	-0.003	-0.004
	(1.16)	(-1.90)	(0.90)	(0.94)	(-0.23)	(-0.14)
High-Option Firm	-0.021		0.030		-0.023	
	(-0.56)		(1.45)		(-1.18)	
Log Assets (t-1)	-0.042***	0.244***	0.042***	-0.209***	-0.034***	0.195***
	(-3.27)	(3.08)	(6.09)	(-5.81)	(-5.36)	(5.58)
Leverage (t-1)	-0.027***	-0.001	0.013**	-0.039***	-0.014***	0.027***
	(-3.42)	(-0.06)	(2.49)	(-3.67)	(-2.87)	(2.58)
Market-to-Book Ratio (t-1)	0.199***	-0.172	-0.122***	0.099	0.104***	-0.138
	(2.68)	(-0.77)	(-3.39)	(1.00)	(2.93)	(-1.52)
Investment/Sales (t-1)	0.017	-0.277	-0.081**	0.075	0.075**	-0.133
	(0.30)	(-1.57)	(-2.33)	(0.80)	(2.07)	(-1.42)
Analyst Coverage	0.002	0.001	-0.002*	-0.004	0.001	0.004
	(0.91)	(0.24)	(-1.73)	(-1.34)	(1.11)	(1.24)
Forecast Dispersion					0.165***	0.059***
					(9.64)	(3.09)
Industry Fixed Effects	Yes	No	Yes	No	Yes	No
Fiscal-Year-End Fixed Effects	Yes	No	Yes	No	Yes	No
Firm Fixed Effects	No	Yes	No	Yes	No	Yes
Fiscal-Quarter Fixed Effects	No	Yes	No	Yes	No	Yes
Calendar-Quarter Fixed Effects	No	Yes	No	Yes	No	Yes
Obs.	10486	10486	10561	10561	10486	10486
Adj. R-squared	0.013	0.005	0.021	0.008	0.040	0.009