Consequences of Opinions versus Facts in Financial Reporting

Efrat Shust
Faculty of Management
Tel Aviv University
efratshu@post.tau.ac.il

Dan Weiss
Faculty of Management
Tel Aviv University
weissd@post.tau.ac.il

This version: December 2012

PRELIMINALRY DRAFT, PLEASE DO NOT QUOTE

ABSTRACT
Contemporary accounting standards require firms to report opinion-based figures, substantiated by subjective projections, models and assessments. This study examines whether opinion-based figures undermine the reliability of financial statements. Results show that reporting opinion-based figures in a financial statement enhances the likelihood that the reporting firm will issue a restatement or disclose material weaknesses in internal controls. The study’s findings suggest that the impact of opinion-based figures on the occurrence of misstatements is comparable to the impact of managerial incentives to manipulate earnings. Moreover, we find that investors recognize financial statement with abundant opinion-based figures in the presence of high analyst coverage, but do not recognize it absent analyst coverage. The findings indicate that opinion-based figures significantly undermine the reliability of financial statements and suggest that expanding requirements to report such figures is expected to further harm the reliability of these statements.

Keywords: reliability; opinion-based figures; restatements; material weakness in internal controls.

JEL classification: M41; G14.
Consequences of Opinions versus Facts in Financial Reporting

I. INTRODUCTION

Financial statements in the early 20th century primarily reported observable facts, such as amounts paid and received (Littleton 1929). Contemporary financial reporting, in contrast, has been described as a "web of facts and conjectures" (Lev, Li and Sougiannis 2010), relying to a large extent on figures based in opinion.¹ These figures are derived from firms’ subjective projections, expectations, models, assumptions, estimates and assessments.

At present, numerous accounting standards require firms to report opinion-based figures in financial statements. For instance, Statement of Financial Accounting Standards (SFAS) No. 141R (Financial Accounting Standards Board [FASB] 2007) requires firms to report fair value of acquired in-process research and development (hereafter IPR&D). This typically entails assessment of technological feasibility, prediction of future cash flows, and approximation of discount rate, and thus reflects an opinion.² Non-fair-value accounting estimates also necessitate formation of opinions. For example, the requirement to report allowance for doubtful receivables (SFAS No. 5, FASB 1975) compels firms to assess customers' probability of default. A different type of opinion is formed by firms issuing convertible debt (SFAS No. 150, FASB 2003). In this case, the standard requires the firm to form an opinion with respect to the outcomes of future conversion. This opinion is formed for the purpose of substantiating a reporting choice, i.e., reporting the convertible debt as equity or as

¹ Merriam-Webster’s Dictionary defines an opinion as a view, judgment or appraisal formed about a particular matter.
² Note the difference between reporting fair value based on formation of opinions with respect to appropriate valuation models and assumptions, and reporting fair value based on a quoted market price. The former is an opinion-based figure, while the latter is a fact-based figure because market price is observable and objective.
liability on the balance sheet, rather than serving as a basis for an accounting estimate.

These examples demonstrate the complexity and subjectivity involved in reporting opinion-based figures and the difficulty in verifying and auditing them. While prior literature questions the value relevance of such non-factual reporting (Lev et al. 2010), this study explores how the reporting of opinion-based figures, as currently required by accounting rules, affects the reliability of financial statements. Specifically, this study provides empirical evidence showing that the expanding dependence of accounting standards on opinion-based figures undermines the reliability of financial reporting.

Our work contributes to a vast stream of research on factors that influence the reliability of financial statements. In particular, numerous studies have documented that managers' incentives, driven primarily by equity compensation, reduce the reliability of financial statements because they motivate managers to manipulate earnings. In contrast to those studies, which consider managers' incentives as a source of intentional misstatements, we focus on misstatements that are likely to be unintentional, engendered as a result of the complexity and subjectivity involved in the formation of opinions. We examine whether opinion-based figures result in misstatements, above and beyond incentives to deliberately manipulate earnings.

Analyzing a sample of approximately 43,000 firm-year observations from 2000 till 2009, we evaluate the occurrence of seven types of opinion-based figures in profit and loss statements and in balance sheets. We find that the presence of each type of opinion-based figure in a financial statement significantly increases the likelihood of a subsequent restatement, as well as the likelihood that the firm will disclose material

weaknesses in internal controls (hereafter MWICs), two external indicators of misstatements frequently used in the literature. In contrast, the presence of fact-based figures decreases both these likelihoods.

Specifically, the likelihood of a restatement in firms that do not report any of the seven types of opinion-based figures is 2.3 percent, while the likelihood of a restatement in firms that report abundant opinion-based figures (at least five out of the seven types) is 7.1 percent. In a similar vein, among firms that do not report any of the seven types of opinion-based figures, the likelihood of disclosing a MWIC is 3.1 percent, whereas among firms that report at least five types of opinion-based figures the likelihood that a MWIC will be revealed is 14.0 percent. Similar findings are obtained when we use alternative model specifications and perform several sensitivity tests. Overall, the results demonstrate that opinion-based figures have an important and detrimental influence on the reliability of financial statements, rendering them more susceptible to error.

Next, we disentangle the effects of requirements to form opinions from the confounding effects of managerial incentives to manipulate earnings on the occurrence of misstatements. Comparing between the relative effects of opinions and incentives, we find that the two factors are comparable in terms of the extent to which they increase the likelihood of a restatement and the likelihood of disclosing a MWIC. Moreover, the results also confirm that the significant relationship between opinion-based figures and misstatements exists when managers lack incentives to manipulate earnings. Again, we carry out robustness checks using alternative specifications of both opinion-based figures and incentive variables, and the results support our conclusion.

---

Finally, we examine whether investors recognize that opinion-based figures undermine the reliability of financial statements. We find that the market responds more weakly to earnings surprises (analyst forecast errors) reported in financial statements consisting of more opinion-based figures. These findings suggest that investors perceive opinion-based figures reported in financial statements as less credible compared with facts-based figures.\(^5\) Taking a closer look at market response, we use analyst coverage as a proxy for the mass of informed investors, and distinguish between firms with high coverage and firms with low coverage.\(^6\) We find that firms with high analyst coverage demonstrate weaker market response to earnings surprises reported in financial statements consisting of more opinion-based figures than to surprises reported in financial statements consisting of more factual figures. Conversely, firms with limited analyst coverage do not exhibit significantly different responses to these two types of figures. These findings suggest that informed investors understand the distinction between components of financial reporting and therefore respond differently to opinion-based figures versus to factual figures. Uninformed investors, on the other hand, fail to recognize this distinction.

The implications of incorporating opinion-based figures into financial statements are important to regulators and standard-setters contemplating further expansion of reliance on opinions in financial reporting. Specifically, the results provide an additional perspective regarding the question of the appropriate proportion of opinions versus facts in financial reporting. This question lies at the center of ongoing debates over adoption of international financial reporting standards (IFRS) and fair value accounting. Our findings show that opinion-based figures significantly

\(^{5}\) The findings are consistent with those of Teoh and Wong (1993), Anderson and Yohn (2002), and Francis and Ke (2006), which indicate a correlation between investors' response to an earnings surprise and the perceived credibility of the report indicating the surprise.

undermine the reliability of financial statements, and they suggest that this reliability is likely to be further harmed if requirements to report such opinions are expanded. The findings complement those of Lev et al. (2010), who reported that estimates have limited value relevance for predicting future earnings and cash flow. Taken together, our findings call into question the ongoing and increasing dependence on opinion-based figures in financial reporting.

In addition, this study contributes to the literature on determinants of restatements. Specifically, our findings indicate two comparable sources of restatements: opinion-based figures reported in compliance with accounting standards and incentives to manipulate earnings. These results corroborate prior empirical evidence showing that incentives to manipulate earnings are not the primary source of restatements (Hennes, Leone and Miller 2008; Plumlee and Yohn 2010).

The remainder of the essay proceeds as follows: Section 2 presents related literature and hypothesis development, Section 3 discusses research design and Section 4 details sample selection. Section 5 provides empirical results, and Section 6 concludes.

II. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

In the early twentieth century, financial statements primarily reported facts. Littleton (1929) stated that "accounting is concerned only with realities. When accounting is loosed from this anchor of fact it is afloat upon a sea of psychological estimates which are beyond the power of accounting, as such, to express." The perception of accounting as factual reporting has changed over time, and currently, as Lev et al. (2010) have observed, “accounting estimates and projections underlie many Generally Accepted Accounting Principles and consume most of standard-setters’
time and efforts." Moreover, Lev et al. (2010) predict that the role of estimates and projections in financial reports will further increase. Hence, opinion-based figures play a major and increasing role in current accounting, where numerous accounting standards require firms to report opinion-based figures. This study explores whether opinion-based figures lead to misstatements in financial reports.

Ample research has focused on intentional misstatements in financial reporting, specifically, misstatements motivated by managerial incentives (Cheng and Warfield 2005; Bergstresser and Philippon 2006; Burns and Kedia 2006; Efendi et al. 2007; Cohen et al. 2008; Cornett et al. 2008; Jiang et al. 2010; Dechow et al. 2011; Feng et al. 2011). Incentives lead to intentional manipulation of accounting figures, resulting in biased financial statements.\(^7\)

Only scant research explores sources of unintentional misstatements. Hennes et al. (2008) distinguished between intentional errors and unintentional errors in a sample of firms reporting restatements. According to their classification method, 73 percent of the initial restatement sample resulted from unintentional errors. Yet, Hennes et al. (2008) did not explore the sources of these errors. Later, Plumlee and Yohn (2010) found that the majority of restatements are attributable to internal errors made in the process of preparing financial statements, misapplication of accounting standards and transaction complexity. They emphasized, however, that their findings may have been limited by their reliance on firm disclosures of restatements, as strategic incentives may drive such disclosures. Furthermore, they did not empirically test attributes of financial reporting that lead to misstatements.\(^8\) While opinion-based

\(^7\) See also Dechow, Ge and Schrand (2010): "the majority of the studies presume that a restatement indicates earnings management and assess whether the restatements are associated with incentives for (determinants of) earnings management."

\(^8\) Plumlee and Yohn (2010) classify misapplication of standards into contributing factors (clarity, judgment and complications in applying detailed rules). Yet, this distinction relies on endogenous disclosures and therefore is subjective. Moreover, these three factors may by overlapping.
figures are likely to drive these unintentional misstatements, their role in driving misstatements in financial reporting has not been explored.

**Opinions versus Facts in Financial Reporting**

Contemporary financial reporting relies on a mixture of opinion-based figures and fact-based figures (Lev et al. 2010). Factual figures are observable and objective and can easily be verified. The amount of cash held by a firm, for example, is a fact. Another example of a fact in financial reporting is the fair value of securities based on observable quoted market prices, defined by SFAS No. 157 (FASB 2006) as level-one fair value assets. The process of reporting fair value of securities based on quoted market prices is simple and straightforward; it does not necessitate estimates or assessments. Consequently, the implementation of effective controls over such processes and the auditing of factual figures are also straightforward.

Opinion-based figures, in contrast, are unobservable, complex and subjective. Reporting them often necessitates complex procedures entailing the use of intricate models, as well as the formulation of expectations, assumptions, projections and assessments. The following prominent and frequent instances of opinion-based figures in financial reporting demonstrate these attributes:

(1) **Restructuring.** Firms are obligated to record liabilities for costs associated with restructuring (referred to as exit and disposal activities in SFAS No. 146 (FASB 2002). For this purpose, management needs to utilize numerous estimates related to expected restructuring expenses such as severance and other employee separation costs, realizable values of assets, lease cancellation and other exit costs.⁹

⁹ See, for example, Hewlett-Packard 10-K for 2007: “We have engaged . . . in restructuring actions,
**IPR&D.** A firm that acquires business is required by SFAS No. 141R (FASB 2007) to estimate the fair value of all acquired assets, including IPR&D. This fair value measurement involves a discounted cash flow model relying on numerous estimates and projections, including the amounts and timing of future cash flows, costs to complete development, and discount rate.\(^\text{10}\)

**Change in convertible debt balance.** Such change represents issuance, conversion, repurchase or payment of convertible debt. Reporting these events entails numerous assessments with regard to intricate accounting, legal and economic issues, such as the outcomes of future conversion. Such assessment is necessary to classify the conversion feature embedded in the convertible debt as equity or liability, in line with SFAS No. 150 (FASB 2003).\(^\text{11}\)

**Goodwill impairment.** Goodwill impairment studies, governed by SFAS No. 142 (FASB 2001a), rely on numerous assumptions and predictions regarding future market conditions and competition, expected sales and expenses, probabilities of different scenarios and discount rate.\(^\text{12}\)

---

\(^{10}\) See, for example, Pfizer's 10-K for 2006, stating that "For intangible assets, including IPR&D, we typically use the “income method”. . . . Some of the more significant estimates and assumptions inherent in the income method or other methods include: the amount and timing of projected future cash flows; the amount and timing of projected costs to develop the IPR&D into commercially viable products; the discount rate selected to measure the risks inherent in the future cash flows; and the assessment of the asset’s life cycle and the competitive trends impacting the asset . . .".

\(^{11}\) PwC (2011) points out that: "To properly account for these issuances, companies need to perform a detailed analysis to obtain a thorough understanding of the transaction . . . After completion of this analysis, companies must navigate complicated accounting guidance that in some circumstances requires significant judgment.”

\(^{12}\) See, for example, Coca-Cola 10-K for 2004: "We use a variety of methodologies in conducting these impairment assessments including cash flow analyses, estimates of sales proceeds and independent appraisals. Where applicable, we use an appropriate discount rate, based on the Company's cost of capital rate or location-specific economic factors. . . Fair values were derived using discounted cash flow analyses with a number of scenarios that were weighted based on the probability of different
Asset write-down. A write-down of either tangible or intangible assets under SFAS No. 144 (FASB 2001b) often involves a discounted cash flow model employing assumptions and predictions regarding future market conditions, asset performance and discount rate. Even when asset value is inferred from transactions in comparable assets, it is still necessary to use judgment in order to identify comparable assets and to make appropriate price adjustments.

Deferred taxes. This figure, reported under SFAS No. 109 (FASB 1992), is based on numerous estimates and judgments concerning recoverability, timing of income, and the applicability of complex tax regulations.\(^\text{13}\)

Allowance for doubtful receivables. Reporting this allowance, as required by SFAS No. 5 (FASB 1975), involves an estimate of the probability that customers will default on their debt. The estimate is based on historical experience and current data on the financial health of specific customers.\(^\text{14}\)

These seven instances provide a broad view of frequently used opinion-based figures. They encompass both income statement and balance sheet figures; include conventional accounting estimates, such as deferred taxes and allowance for doubtful receivables, as well as relatively new requirements for fair value measurements; and cover daily operations, special events (restructuring) and financing activity (change in convertible debt). Hence, they demonstrate the prevalence of opinion-based figures in outcomes."

\(^{13}\) See, for example, Advent Software 10-K for 2004: “GAAP require us to evaluate whether or not we will realize a benefit from net deferred tax assets on an ongoing basis. A valuation allowance is recorded to reduce the net deferred tax assets to an amount that will more likely than not be realized. Significant factors considered by management in assessing the need for a valuation allowance include the following: our historical operating results; the length of time over which the differences will be realized; tax planning opportunities; and expectations for future earnings.”

\(^{14}\) See, for example, Xerox’s annual reports for 2010: “We maintain a provision for estimated credit losses based upon our historical experience adjusted for current conditions... Measurement of such losses requires consideration of historical loss experience, including the need to adjust for current conditions, and judgments about the probable effects of relevant observable data, including present economic conditions such as delinquency rates and financial health of specific customers.”
financial reporting.

Notably, the use of opinion-based figures is not limited to accounting estimates, such as accruals or fair value estimates, which have been emphasized in prior literature (Lev et al. 2010). Rather, opinion-based figures encompass numerous different types of judgments required by accounting rules. For example, in the case of convertible debt, a firm forms an opinion regarding the outcomes of future conversion with the purpose of making a reporting choice—reporting the convertible debt as equity or as liability on the balance sheet—rather than providing a basis for an accounting estimate.

The procedures firms use to generate opinion-based figures are characterized by significant complexity and subjectivity. Furthermore, reporting opinion-based figures necessitates considerable knowledge and experience. As a result, it is difficult to verify and to audit these figures. It is also difficult to set effective controls on processes that generate them (Griffith, Hammersley and Kadous 2012).

Consequences of Requirements to Form Opinions Imposed by Accounting Standards

We explore whether opinion-based figures reported in financial statements impair the reliability of financial reporting, i.e., whether they are associated with a greater likelihood of misstatements. The following anecdotes illustrate the relationship between opinion-based figures and reporting misstatements.

The first example is Advent Software’s disclosure of its accounting for deferred taxes in its 10-K for 2004: "GAAP require us to evaluate whether or not we will realize a benefit from deferred tax assets . . . Significant factors include the length of time over which the differences will be realized; tax planning opportunities; and
expectations for future earnings.” Notably, reporting deferred taxes requires Advent Software to make numerous assumptions and to possess extensive knowledge of tax rules; hence, this figure is based on opinion. Setting effective controls over such reporting and auditing it is difficult (Gleason, Pincus and Rego 2011). Thus, the following outcome uncovered by Advent Software is not surprising: “The Company did not maintain effective controls over the accounting for income taxes. These control deficiencies resulted in a restatement of the Company’s financial statements.”

A second example of opinion-based figures is drawn from JetBlue Airways Corp.’s report on its customer loyalty program in the company’s 10-K for 2009. The firm reveals that a number of estimates underlie its accounting for this program, and substantiate the liability for the future cost of providing free travel awards. In 2011 the firm found a misstatement of approximately $12 million of points and awards. As a result of this misstatement, revenue, net income and retained earnings were understated (not over-stated). The discovery of this error led to a restatement. Interestingly, the direction of the error, which understates earnings rather than inflates them, indicates an unintentional misstatement.\(^\text{15}\)

These anecdotes suggest that opinion-based figures, imposed by accounting rules, are a source of misstatements. To empirically examine the occurrence of misstatements, this study uses two indicators: restatements and MWICs. This choice is in line with the findings of Dechow et al. (2010), who reported that external indicators of misstated figures in financial statements include the following: (1) Securities and Exchange Commission (SEC) Accounting and Auditing Enforcement Releases (AAERs), (2) restatements, and (3) revealing of MWICs, reported under the Sarbanes–Oxley Act (SOX). We do not use AAERs as an indicator because the SEC

\(^\text{15}\) While intentional bias can either increase or decrease earnings, literature holds that most times earnings are inflated (Fields, Lys and Vincent 2001).
typically initiates AAERs following intentional earnings manipulation, whereas our focus is on unintentional misstatements resulting from the use of opinion-based figures. The following hypothesis summarizes the arguments:

**Hypothesis 1:** Opinion-based figures in financial reporting lead to restatements and to disclosure of material weaknesses in internal controls (MWICs).

Opinion-Based Figures versus Managerial Incentives as Sources of Financial Misstatements

Next, we unravel the confounding effects of opinions required by accounting standards and of managerial incentives to manipulate earnings on misstatements. Extensive research shows that compensation schemes, specifically equity compensation, motivate managers to manipulate earnings (e.g., Bergstresser and Philippon 2006; Kedia and Burns 2006; Efendi et al. 2007; Cohen et al. 2008; Cornett et al. 2008). Additional incentives include raising stock prices (Teoh, Wong and Rao 1998; Rangan 1998; Richardson, Tuna and Wu 2002; Cohen and Zarowin 2010), meeting earnings targets (Cohen, Darrough, Huang and Zach 2011) and avoiding debt covenant violation (DeFond and Jiamalvo 1994; Richardson et al. 2002). Although self-interested managers may deliberately manipulate opinion-based figures, we assume that misstatements resulting from opinion-based figures can also be unintentional. This is because the complexity and subjectivity involved in forming opinions are likely to lead to errors.

Therefore, we examine whether opinion-based figures reported in financial statements result in misstatements, while controlling for managerial incentives to manipulate earnings. Furthermore, we compare the effects of these two sources on the
likelihood of a misstatement. Since it is not clear, a priori, which source has a greater effect on misstatements, the study tests the following null hypothesis:

**Hypothesis 2: The impact of opinion-based figures on the likelihood of restatements and MWICs is comparable to the impact of managerial incentives to manipulate earnings.**

Testing the second hypothesis is likely to assist standard-setters and regulators in understanding the relative importance of different factors that influence the reliability of financial statements. Weighting the relative effect of opinion-based figures on misstatements against the effect of managerial incentives on misstatements can indicate where it is preferable to invest efforts in improving the reliability of financial reporting. For example, regulators may want to simplify accounting standards and base them on factual data if reliance on opinions in preparing financial statements is a major source of misstatements.

**Market Response to Opinion-Based Figures**

Finally, we examine whether investors recognize the consequences of opinion-based figures. If reporting opinion-based figures leads to misstatements, financial statements with many opinion-based figures are less credible than financial statements including mostly fact-based figures. Prior studies suggest that market response to earnings surprise is positively associated with the perceived credibility of the earnings report (Teoh and Wong 1993; Anderson and Yohn 2002; Francis and Ke 2006). Therefore, more credible reporting is expected to be associated with a greater market response to earnings surprises. Correspondingly, if investors perceive opinion-based figures as less credible than fact-based figures, then opinion-based figures underlying
earnings reports are likely to weaken market response to earnings surprises. Therefore, we hypothesize the following:

**Hypothesis 3:** The market responds more weakly to earnings surprises reported in financial statements that contain more opinion-based figures, compared with equivalent earnings surprises reported in financial statements containing fewer opinion-based figures.

III. RESEARCH DESIGN

Opinion and Fact Variables

The seven types of opinion-based figures presented above represent cases in which accounting standards obligate firms to form opinions to substantiate their financial reports. That is, firms whose activity enters the scope of these standards (for example, firms that engage in restructuring or issuing convertible debt) cannot avoid forming opinions by choosing to report observable facts. Accordingly, we use the seven types of opinion-based figures as variables in our empirical analysis (and refer to them hereafter as “opinion variables”), operationalizing them as follows. The subscript \(i\) designates a specific firm, and the subscript \(t\) designates a fiscal year.

- **RESTD\(_{it}\)** – a dummy variable equal to one if firm \(i\) records restructuring charges (Compustat RCP) in current year \(t\), zero otherwise.
- **IPRDD\(_{it}\)** – a dummy variable equal to one if firm \(i\) records IPR&D (Compustat RDIP) in current year \(t\), zero otherwise.
- **CONVDD\(_{it}\)** – a dummy variable equal to one if the convertible debt balance (Compustat DCVT) of firm \(i\) changes in current year \(t\), zero otherwise.
- **GDWLIMD\(_{it}\)** – a dummy variable equal to one if goodwill impairment (Compustat GDWLIP) is recorded by firm \(i\) in current year \(t\), zero otherwise.
WDAD\textsubscript{i,t} – a dummy variable equal to one if asset write-down (Compustat WDA) is reported by firm \textit{i} in current year \textit{t}, zero otherwise.

DTD\textsubscript{i,t} – a dummy variable equal to one if a deferred tax balance (Compustat TXDC) is reported by firm \textit{i} in current year \textit{t}, zero otherwise.

RECDD\textsubscript{i,t} – a dummy variable equal to one if allowance for doubtful receivables (Compustat RECD) is reported by firm \textit{i} in current year \textit{t}, zero otherwise.

The model employs dummy variables to represent the opinion-based figures, rather than amounts associated with the corresponding items, because the objective is to capture the reliance on opinions in financial reporting. The actual amount recorded is merely one realization, out of many possible, of the opinion used.\textsuperscript{16}

In order to capture variation across firms in reliance on opinion-based figures, the empirical analysis does not take into account opinion types formed by all firms. For example, depreciation is excluded because practically all firms record depreciation. A dummy variable denoting a depreciation report would be equal to one for the entire sample. Therefore, it is not useful for testing the consequences of opinion-based figures.

The analysis also incorporates two variables representing types of factual information in reports (hereafter fact variables). The first is assets recorded according to their quoted market price, defined by SFAS No. 157 (FASB 2006) as level-one fair value assets. These values are publicly available; therefore, reporting requires the firm merely to quote the public price and does not warrant any opinion (see also Ronen 2008). The second type of factual information is raw materials inventory. According to Accounting Research Bulletin (ARB) No. 43 (American Institute of Certified

\textsuperscript{16} The reasoning for using dummy variables can be demonstrated by the following illustration: Assume two firms, A and B. Each of them acquires business, hence is required to report IPR&D. Both exercise extensive judgment for this purpose, yet the results are different. For example, firm A records twice the IPR&D firm B records. Nevertheless, these results do not imply that the opinion formed by firm A involves a double extent of complexity and subjectivity than the opinion formed by firm B.
Public Accountants 1953), this amount is based on historical purchase cost and therefore involves simple reporting and audit procedures. To report the value of raw materials inventory, firms also need to test recoverability of inventory value by comparing historical cost to market value. Still, in the case of raw materials this test is usually very simple, since firms can obtain current market prices from suppliers’ price lists. These fact-based variables are operationalized as follows:

\[ \text{LEV1D}_{i,t} \] – a dummy variable equal to one if level-one fair value assets (Compustat AQPL1) are reported by firm \( i \) in current year \( t \), zero otherwise.

\[ \text{RMINVD}_{i,t} \] – a dummy variable equal to one if raw materials inventory (Compustat INVRM) is reported by firm \( i \) in current year \( t \), zero otherwise.

**Testing H1**

We employ logistic regression models to test whether opinion-based figures in financial reporting lead to restatements and to disclosure of MWICs. Specifically, the models regress either restatement occurrence or MWIC occurrence on the opinion variables and fact variables defined above. The specification of the model for the restatement analysis is as follows (the notation of the dependent variables and additional control variables is presented below):

\[
\text{RESTATE}_{i,t} = \alpha + \beta_1 \text{RESTD}_{i,t} + \beta_2 \text{IPRDD}_{i,t} + \beta_3 \text{CONVD}_{i,t} + \beta_4 \text{GDWLIMD}_{i,t} + \beta_5 \text{WDAD}_{i,t} + \beta_6 \text{DTD}_{i,t} + \beta_7 \text{RECDD}_{i,t} + \beta_8 \text{LEV1D}_{i,t} + \beta_9 \text{RMINVD}_{i,t} + \beta_{10} \text{APMDAQ}_{i,t} + \beta_{11} \text{SIZE}_{i,t} + \beta_{12} \text{LEV}_{i,t} + \beta_{13} \text{BV} - \text{MV}_{i,t} + \beta_{14} \text{AGE}_{i,t} + \beta_{15} \text{BIG}_{i,t} + \beta_{16} \text{ROA}_{i,t} + \beta_{17} \text{FCF}_{i,t} + \beta_{18} \text{GROWTH}_{i,t} + \beta_{19} \text{EXTFIN}_{i,t} + \varepsilon_{i,t} \quad (1)
\]

The corresponding model for MWICs is as follows:
\[ \text{MWIC}_{i,t} = \alpha + \beta_1 \text{RESTD}_{i,t} + \beta_2 \text{IPRDD}_{i,t} + \beta_3 \text{CONVD}_{i,t} + \beta_4 \text{GDWLIMD}_{i,t} + \beta_5 \text{WDAD}_{i,t} + \beta_6 \text{DTD}_{i,t} + \beta_7 \text{RECDD}_{i,t} + \beta_8 \text{LEV1D}_{i,t} + \beta_9 \text{RMINVD}_{i,t} + \beta_{10} \text{APMDAQ}_{i,t} + \beta_{11} \text{SIZE}_{i,t} + \beta_{12} \text{LEV}_{i,t} + \beta_{13} \text{BV - MV}_{i,t} + \beta_{14} \text{AGE}_{i,t} + \beta_{15} \text{BIG}_{i,t} + \beta_{16} \text{ROA}_{i,t} + \beta_{17} \text{FCF}_{i,t} + \beta_{18} \text{GROWTH}_{i,t} + \beta_{19} \text{EXTFIN}_{i,t} + \epsilon_{i,t} \] (2)

**Dependent Variables**

\text{RESTATE}_{i,t} – a dummy variable equal to one if firm \( i \) restates a financial report issued in year \( t \), zero otherwise.

\text{MWIC}_{i,t} – a dummy variable equal to one if firm \( i \) reports at least one material weakness in internal controls for current year \( t \), zero otherwise.

**Control Variables**

\text{APMDAQ}_{i,t} – a dummy variable equal to one if in year \( t \) the absolute performance-matched discretionary accruals recorded by firm \( i \) were in the top quartile for the year, zero otherwise.\(^{17}\)

\text{SIZE}_{i,t} – the natural logarithm of firm \( i \)’s market value of equity in millions of

\(^{17}\) For each firm-year, the absolute value of performance-matched discretionary accruals is computed following Kothari, Leone and Wasley (2005), where discretionary accruals are measured using the cross-sectional modified Jones model (Jones 1991) as described in Dechow, Sloan and Sweeney (1995). The modified Jones model estimates non-discretionary accruals for each two-digit SIC code and year grouping as follows:

\[ \text{TA}_{i,t} = \alpha_i + \beta_{i2} \frac{1}{\text{ASSETS}_{i,t-1}} + \beta_{i3} \frac{\Delta \text{REV}_{i,t} - \Delta \text{REC}_{i,t}}{\text{ASSETS}_{i,t-1}} + \beta_{i4} \frac{\text{PPE}_{i,t}}{\text{ASSETS}_{i,t-1}} + \epsilon_{i,t} \]

Where \( \text{TA} \) is total accruals in year \( t \), equal to earnings before extraordinary items and discontinued operations (Compustat IBC) minus operating cash flows from continuing operations taken from the statement of cash flows (Compustat OANCF - XIDOC), \( \Delta \text{REV} \) is the change in revenues (Compustat SALE), \( \Delta \text{REC} \) is the change in receivables (Compustat RECT), PPE is the gross value of property, plant and equipment (Compustat PPEGT) and \( \text{ASSETS} \) is total assets (Compustat AT). The coefficient estimates are used to estimate non-discretionary accruals for each firm-year:

\[ \text{NA}_{i,t} = \hat{\alpha}_i + \hat{\beta}_{i2} \frac{1}{\text{ASSETS}_{i,t-1}} + \hat{\beta}_{i3} \frac{\Delta \text{REV}_{i,t} - \Delta \text{REC}_{i,t}}{\text{ASSETS}_{i,t-1}} + \hat{\beta}_{i4} \frac{\text{PPE}_{i,t}}{\text{ASSETS}_{i,t-1}} \]

Discretionary accruals are the difference between total accruals and non-discretionary accruals. They are matched to performance using ROA-based grouping. The absolute performance-matched discretionary accruals for a sample firm are the firm-specific absolute discretionary accruals (measured using the modified Jones model) minus the median absolute discretionary accruals for its respective industry-performance-matched portfolio. The use of absolute discretionary accruals follows prior literature that employs unsigned metrics absent directional prediction (see Warfield, Wild and Wild 2000; Reynolds and Francis 2000).
dollars in year $t$, calculated as the product of the fiscal year-end closing share price (Compustat PRCC_F) and common shares outstanding (Compustat CSHO).

$\text{LEV}_{i,t}$ – financial leverage of firm $i$ in year $t$, equal to the sum of long-term debt (Compustat DLTT) and debt in current liabilities (Compustat DLC) divided by the sum of the long-term debt, debt in current liabilities and market value of equity (as computed above).

$\text{BV}_M\text{V}_{i,t}$ – the ratio between firm $i$’s book value of equity (Compustat CEQ) and market value of equity.

$\text{AGE}_{i,t}$ – the natural logarithm of the number of years firm $i$ has been publicly traded.$^{18}$

$\text{BIG}_{i,t}$ – a dummy variable equal to one if the firm auditing firm $i$ in year $t$ is one of the Big-4 audit firms, zero otherwise.

$\text{ROA}_{i,t}$ – firm $i$’s return on assets, measured as net income in year $t$ (Compustat NI) divided by total assets (Compustat AT) at the beginning of year $t$.

$\text{FCF}_{i,t}$ – firm $i$’s free cash flow, calculated as the difference between operating cash flow (Compustat OANCF) and average capital expenditure (Compustat CAPX) over years $t$ and $t-1$, deflated by total assets at the beginning of year $t$.

$\text{GROWTH}_{i,t}$ – the percentage change in firm $i$’s sales (Compustat SALE) from year $t-1$ to year $t$.

$\text{EXTFIN}_{i,t}$ – total net external financing obtained from shareholders and debt holders during year $t$. Total net financing obtained from shareholders is equal to sale of common and preferred stock (Compustat SSTK) minus purchase of common and preferred stock (Compustat PRSTKC) minus cash dividends (Compustat DV). Net financing obtained from debt holders is equal to long-term debt issuance (Compustat

$^{18}$ The number of years the firm has been traded is equal to the number of years it is listed on Compustat.
DLTIS) minus long-term debt reduction (Compustat DLTR) minus change in current
debt (Compustat DLCCH). Total net financing from shareholders and debt holders is
deflated by market value of equity at the beginning of year $t$.

H1 predicts positive and significant coefficients on all opinion variables,
denoting the contribution of opinion-based figures to the likelihood of a restatement
and to the likelihood of MWIC disclosure. Fact variables, conversely, are expected to
demonstrate negative and significant coefficients, reflecting smaller likelihood of a
misstatement for factual figures.

The model controls for discretionary accruals following literature that shows a
link between the occurrence of misstatements and various specifications of
discretionary accruals, serving as a proxy for earnings manipulation (e.g., Dechow et
al. 1995; Richardson et al. 2002; Dechow et al. 2011). Notably, discretionary
accruals capture ex-post earnings manipulation, yet do not represent incentives for
manipulation (H2 addresses such incentives directly). Other controls reflect firm
performance and desire for external finance, which prior studies have associated with
misstatements (Erickson, Hanlon and Maydew 2006; Larcker, Richardson and Tuna
2007; Romanus, Maher and Fleming 2008). Additional control variables include a
variety of firm characteristics, such as size, financial leverage and age.

To mitigate the impact of outliers on regression coefficients, BV_MV, ROA,
FCF, GROWTH and EXTFIN are winsorized at the extreme percentiles, i.e., values
less (greater) than the 1st (99th) percentile are set to be equal to the value of the 1st
(99th) percentile. Other controls are computed as natural logarithms (SIZE, AGE); as

---

19 The main analysis employs a dummy variable denoting extreme performance-matched discretionary
accruals. Robustness checks replicate the analysis using absolute performance-matched discretionary
accrual as a continuous variable, as well as two alternative dummy variables for accruals, based on
absolute discretionary accruals and on total accruals, following Richardson, Sloan, Soliman and Tuna
(2005).
ratios that can only take a value between zero and one (LEV); or as dummies (BIG), and therefore do not require winsorization. Lastly, the model controls for annual fixed effects.

To gain insights into the economic significance of opinion-based figures, we translate the results of models 1 and 2 into likelihoods of misstatements. For this purpose, we define $\text{OPINION\_COUNT}_{i,t}$ as the number of opinion-based figure types less the number of fact-based figure types reported by firm $i$ in year $t$. The values of $\text{OPINION\_COUNT}$ range between minus two (for firms reporting both factual instances and none of the seven opinion instances) and seven (for firms reporting all opinion instances but none of the factual ones).

**Testing H2**

We test H2 by comparing between the impacts of opinion-based figures and managerial incentives on the likelihood of misstatements (restatements or MWICs). Numerous studies associate managers’ compensation schemes, especially equity-based compensation, with intentional manipulation of accounting figures, which results in misstatements. Therefore, this study tests H2 using a compensation-based incentives. Following prior literature (Bergstresser and Philippon 2006; Cornett et al. 2008; Jiang, et al. 2010; Feng et al. 2011; Kim, Li and Zhang 2011), we employ incentive ratio, defined as the share of increase in the CEO’s total compensation that would come from a one-percent increase in the value of the equity of the firm.

We compute incentive ratio for each firm-year as in Bergstresser and Philippon (2006), as follows:

$$\text{INCENTIVE\_RATIO}_{i,t} = \frac{\text{ONEPCT}_{i,t}}{\text{ONEPCT}_{i,t} + \text{BONUS}_{i,t} + \text{SALARY}_{i,t}}$$
BONUS and SALARY are the CEO's bonus and salary in year \( t \), respectively, and ONEPCT is the change in the value of the CEO's equity holdings for one percent increase in the value of the firm’s equity. ONEPCT is calculated as \( 0.01 \times \text{PRICE} \times (\text{SHARES} + \text{OPTIONS}) \), where PRICE is share price at the end of the fiscal year, SHARES is the number of shares held by the CEO, and OPTIONS is the number of options held by the CEO. This measure is based on the implicit assumption that the delta of the options is one, i.e., a dollar increase in the price of a firm’s shares translates one-for-one to the value of an option. We later carry out a robustness check in which we repeat the calculation of INCENTIVE_RATIO with ONEPCT assuming a delta of 0.5 for options.

We assume that among observations whose associated INCENTIVE_RATIO values are the top quartile, CEOs have a strong incentive to manipulate accounting figures. Therefore, we define a dummy variable INCEND\(_{i,t}\) that takes a value of one for observations whose lagged value of INCENTIVE_RATIO\(_{i,t}\) is in the top quartile for the respective year, and zero otherwise. The construction of INCEND as a dummy variable rather than as a continuous variable allows us to avoid scaling issues when comparing between the effects of managerial incentives and opinion-based figures on the likelihood of misstatements.

In this analysis, opinion-based figures are aggregated into a single dummy variable, OPIND. This aggregated variable characterizes the overall nature of the firm's reporting in terms of relying on opinions versus facts. OPIND\(_{i,t}\) takes the value of one if firm \( i \)'s financial report for year \( t \) contains more than half of the seven types of opinion-based figures (i.e., at least four types); otherwise, it takes the value of zero. This aggregation enables a comparison to be made between the effects of opinions and managerial incentives on misstatements.
A logistic regression model estimates the effect of OPIND and INCEND on each indicator of misstatements. The model for restatements is as follows:

\[
RESTATE_{i,t} = \alpha + \beta_1 OPIND_{i,t} + \beta_2 INCEND_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 BV_{i,t} + \beta_6 AGE_{i,t} + \beta_7 BIG_{i,t} + \beta_8 ROA_{i,t} + \beta_9 FCF_{i,t} + \beta_{10} GROWTH_{i,t} + \beta_{11} EXTFIN_{i,t} + \epsilon_{i,t}
\] (3)

The corresponding model for MWICs is as follows:

\[
MWIC_{i,t} = \alpha + \beta_1 OPIND_{i,t} + \beta_2 INCEND_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 BV_{i,t} + \beta_6 AGE_{i,t} + \beta_7 BIG_{i,t} + \beta_8 ROA_{i,t} + \beta_9 FCF_{i,t} + \beta_{10} GROWTH_{i,t} + \beta_{11} EXTFIN_{i,t} + \epsilon_{i,t}
\] (4)

H2 predicts positive and significant coefficients on both OPIND and INCEND. Control variables are operationalized in the same manner as the ones used to test H1, except for APMDQ. Discretionary accruals typically reflect intentional earnings manipulation. Since our analysis employs a direct measure for incentives to manipulate earnings, we omit this control from the model. Nonetheless, we later carry out a robustness check in which we repeat the analysis with APMDQ to ensure that its removal does not affect results.

We carry out additional robustness checks and estimate regression models (3) and (4) using alternative variable specifications for both opinion-based figures and managerial incentives. For these checks, we define OPINDR as a dummy variable that is equal to one if at least one out of five types of opinion-based figures (RESTD, IPRDD, CONVD, GDWILIMD and WDAD) is reported, and zero otherwise.\(^{20}\) INCEND\(_{0.5}\) is computed similarly to INCEND, except from assuming delta=0.5 (instead of delta=1) for options in the calculation of INCENTIVE\(_{\text{RATIO}}\).

\(^{20}\) Deferred taxes (DTD) and doubtful receivables (RECDD) are not included here since each of them is reported by approximately 70 percent of sample firm-years. Therefore, taking these opinion types into account would make this variable equal to one for almost the entire sample, thus meaningless.
Testing H3

The third hypothesis predicts that the market will respond more weakly to earnings surprises reported in financial statements that rely more heavily on opinion-based figures. To test market response to opinion-based figures, we estimate a model that regresses the cumulative abnormal return on earnings surprise (analyst forecast error) and on the interaction between earnings surprise and opinion-based figures. The regression model is as follows:

\[ CAR_{i,t} = \alpha + \beta_1 FE_{i,t} + \beta_2 FE\_OPINION\_COUNT_{i,t} + \epsilon_{i,t} \]  

(5)

where \( CAR \) is cumulative abnormal return, computed as the three-trading-day cumulative value-weighted market-adjusted abnormal return surrounding the earnings announcement; \( FE \) is the earnings surprise, defined as the difference between actual annual earnings per share (EPS) and the mean EPS of analyst forecasts announced in the month immediately preceding the month of the earnings announcement, deflated by share price at the beginning of the year; \( FE\_OPINION\_COUNT \) is the product of \( FE \) and \( OPINION\_COUNT \) defined earlier, denoting the interaction between earnings surprise and the use of opinion-based figures in financial statement in which the earnings surprise was reported.\(^{21}\)

If the estimated coefficient on the interaction variable, \( \beta_2 \), is negative and significant, then we will conclude that investors value earnings surprises relying on opinion-based figures less than they value equivalent earnings surprises relying on fact-based figures.

We carry out an additional analysis to examine whether well informed investors understand the implications of opinion-based figures more than uninformed investors.

\(^{21}\) Since two opinion instances have decisive negative implications (GDWILMD and WDA), we replicate the analysis after excluding them from \( OPINION\_COUNT \) to ensure that these instances do not bias our results.
Following prior literature, we use a firm’s analyst coverage as a proxy for the firm’s mass of informed investors (Brennan et al. 1993; Brennan and Subrahmanyam 1995; Chordia et al. 2007). Thus, extensive analyst coverage is assumed to result in more informed investors. Accordingly, we construct a dummy variable COVER and split the sample into firms covered by an above-median number of analysts (COVER=1) and firms covered by a below-median number of analysts (COVER=0). To test whether the two groups of firms diverge from each other in terms of market response to earnings surprises, we add to the regression model an interaction variable between earnings surprise, opinion-based figures and analyst coverage. Accordingly, the regression model is:

$$CAR_{i,t} = \alpha + \beta_1 FE_{i,t} + \beta_2 FE\_OPINION\_COUNT_{i,t} + \beta_3 FE\_COVER_{i,t} + \beta_4 FE\_OPINION\_COUNT\_COVER_{i,t} + \epsilon_{i,t}$$ (6)

Where \( FE\_COVER \) is the product of \( FE \) and \( COVER \), and \( FE\_OPINION\_COUNT\_COVER \) is the product of \( FE \), \( OPINION\_COUNT \) and \( COVER \).

If the estimated coefficient \( \beta_4 \) is negative and significant, then more informed investors recognize high frequency of opinion-based figures better than less-informed investors. Consequently, the response of informed investors to earnings surprise accompanied by opinion-based figures is weaker than the response of the less-informed ones.

IV. SAMPLE SELECTION

We obtained our data sample from the Compustat annual industrial file for the period 2000–2009. The initial sample consisted of all nonfinancial firms with

---

22 The sample employed for H3 analysis is restricted to firms with available analyst coverage on I/B/E/S since we need earnings forecast to compute FE. Hence, firms without coverage are not included in this sample.
available data required to compute regression variables, a total of 61,004 firm-years. Observations with revenues lower than ten million dollars or with share prices below one dollar were deleted from the sample to eliminate economically marginal firms, reducing the sample size to 45,508 observations (Lev et al. 2010). We also required firms to have at least two consecutive years of available data, in order to allow for deflation of variables. This requirement led to the removal of 2,010 additional firm-years from the sample. Finally, the two-digit SIC code groupings used to compute discretionary accruals and performance-matched discretionary accruals must include at least eight observations each (Cohen et al. 2008; Cohen and Zarowin 2010). Thus, we excluded 297 observations that did not meet this requirement. Our final sample therefore comprised 43,201 firm-years.

Restatements data were extracted from the Audit Analytics database, where each restatement is attributed to the financial year restated, rather than to the year in which the restatement was announced. In cases of firms with multiple consecutive restatements, only the first fiscal year in which improper accounting occurred was considered as a restatement incidence.

Data on MWIC disclosures, reported in accordance with SOX (Section 404 reports), were also taken from the Audit Analytics database. We considered a firm as having an MWIC if it disclosed one or more material weaknesses in internal controls, i.e., it had ineffective controls. Since reporting under Section 404 went into effect starting fiscal year 2004, the sample for the MWIC analysis is a subset of the full sample, consisting of firm-years for which MWICs data is available.23 This limitation reduced the MWIC sub-sample to 16,934 firm-year observations.

Managers' compensation data, required for the comparison between the effects

---

23 Disclosing MWICs under Section 404 of SOX became mandatory for accelerated filers starting in fiscal year 2004. For non-accelerated filers, the requirement to report MWIC was postponed.
of opinion-based figures and managerial incentives, were extracted from Execucomp. Since Execucomp does not cover the entire Compustat universe, the merged sample was reduced to 11,777 firm-years for restatement analysis and 6,538 firm-years for MWIC analysis.

Finally, for the market response analysis we used returns obtained from the Center for Research in Security Prices (CRSP) and analyst forecasts obtained from the Institutional Brokers' Estimate System (I/B/E/S). The consensus earnings forecast was calculated as the mean of all forecasts announced in the month preceding that of the earnings announcement. Actual earnings were also taken from the I/B/E/S, since these data are more likely than the CRSP data to be consistent with the forecast in terms of the treatment of extraordinary items and special items. We truncate returns and earnings surprise observations greater than the 99th percentile and lower than the 1st percentile.

Table 1 reports descriptive statistics for the full sample and Table 2 presents the Pearson (Spearman) correlations above (below) the diagonal. Since opinion-based figures are represented by dummy variables, the mean of each opinion variable reported in Table 1 reflects the prevalence of that type of opinion-based figure in the sample. Most firms report deferred taxes and allowance for doubtful receivables (each variable is reported by approx. 70% of the firms in the sample), while the prevalence of other types of opinion-based figures ranges between 4% and 25%.

[V. EMPIRICAL RESULTS

Results from Testing H1

This section reports the results of cross-sectional regressions whose purpose is...
to test whether opinion-based figures lead to misstatements. Table 3 presents coefficient estimates for logistic regressions evaluating the effects of opinion variables on the occurrence of two indicators of misstatements, namely, restatements and MWICs. For each indicator of misstatements, we estimate two specifications: the first one incorporates opinion variables and controls, and the second one includes fact variables as well.

[Insert Table 3 about here]

In the regressions using restatements as the dependent variable, coefficient estimates of all opinion variables are positive and significant in both specifications, as predicted. In the first specification (model 1a), the coefficient on RESTD is 0.182 (p<0.001), the coefficient on IPRDD is 0.239 (p=0.018), the coefficient on CONVD is 0.260 (p<0.001), the coefficient on GDWLIMD is 0.136 (p=0.068), the coefficient on WDAD is 0.132 (p=0.014), the coefficient on DTD is 0.129 (p=0.005) and the coefficient on RECDD is 0.093 (p=0.042). In the second specification, in which fact variables are incorporated into the model, (model 1b) coefficients on all opinion variables remain positive and significant. The results show that opinion-based figures have a significant effect on the occurrence of restatements.

Furthermore, coefficients on fact variables LEV1D and RMINVD are negative and significant. These findings highlight the opposing effects of opinion-based and fact-based figures on restatements: opinions are associated with a greater likelihood of a restatement, whereas facts are associated with a lower likelihood of a restatement. These findings support H1.

The MWIC regressions provide similar results: For both regression specifications, coefficient estimates of all opinion variables are positive and

---

24 Untabulated robustness test substitute IPRDD with AQCD, a dummy variable representing Compustat's variable AQC (acquisitions), in order to avoid a bias towards firms with R&D activity. Results of this test are consistent with the main results.
significant. In the first specification (model 2a), the coefficient on RESTD is 0.325 (p<0.001), the coefficient on IPRDD is 0.232 (p=0.061), the coefficient on CONVD is 0.239 (p=0.003), the coefficient on GDWLIMD is 0.206 (p=0.032), the coefficient on WDAD is 0.245 (p=0.001), the coefficient on DTD is 0.382 (p<0.001) and the coefficient on RECDD is 0.193 (p=0.005). In addition, in the second specification, which includes fact variables, (model 2b) coefficients on all opinions remain positive and significant. In line with the results obtained for restatements, coefficient estimates on fact variables LEV1D and RMINVD are negative and significant. These findings indicate that reporting opinion-based figures in a financial statement increases the likelihood of disclosing an MWIC, whereas factual reporting decreases this likelihood. Overall, results of the cross-sectional regression analysis provide support for H1 by suggesting that opinion-based figures lead to both restatements and MWICs.

As for the control variables, coefficient estimates are generally consistent with estimates obtained in prior literature. The coefficient on APMDAQ is positive. The coefficient on LEV is also positive, whereas coefficients on SIZE, BV_MV, AGE, BIG, ROA and FCF are negative, although some of them are insignificant in some of the regressions. The coefficient on GROWTH is positive and significant for restatements and insignificantly negative for MWICs. Finally, EXTFIN is insignificant in all cases.

In order to illustrate the economic significance of the results reported in Table 3,

---

25 Similarly to the restatement analysis, untabulated robustness test substitute IPRDD with AQCD. Results of this test are consistent with main results.
26 See DeFond and Jiambalvo (1991), Richardson et al. (2002), Erickson et al. (2005), Ashbaugh-Skaife et al. (2009), Doyle et al. (2007), Larcker et al. (2007), Romanus et al. (2008).
27 Untabulated robustness tests using alternative accrual metrics (absolute discretionary accruals or total accruals) yield similar results. Likewise, replacing APMDAQ with a continuous variable of absolute performance-matched discretionary accrual confirm main findings.
28 Prior studies also show insignificant coefficients on control variables in some cases.
we translate them into likelihoods of misstatements. Table 4 presents the likelihood of a restatement and the likelihood of disclosing an MWIC for each value of OPINION_COUNT. This likelihood is equal to the mean likelihood of all possible combinations of opinion and fact variables summing up to the given value of OPINION_COUNT. Due to the small number of observations with OPINION_COUNT equal to minus two, we present misstatement likelihoods for the values of minus two and minus one collectively. For similar reason, we present likelihoods for all OPINION_COUNT values of five and higher (i.e., five, six or seven) collectively. As Table 4 demonstrates, for financial statements with a negative value of OPINION_COUNT (minus two or minus one), i.e., “extremely factual” financial statements containing fact-based figures and none of the opinion-based figures, the mean likelihood of a restatement is the lowest one, 2.3 percent. Likewise, among these financial statements, the mean likelihood of disclosing an MWIC is also lowest, 3.1 percent. As OPINION_COUNT increases, the figures reported in financial statements rely more heavily on opinion-based figures. The likelihood of a restatement and the likelihood of disclosure of an MWIC rise correspondingly, as predicted. Each opinion instance contributes, on average, an additional 0.8 percent to the likelihood of a restatement and an additional 1.8 percent to the likelihood of disclosing an MWIC. At the high end, OPINION_COUNT equals to five or higher, there is an exceptional mean restatement likelihood of 7.1 percent, which is more than three times the restatement likelihood associated with extremely factual statements (7.1%/2.3% ≈ 3). Similarly, financial statements with an

29 In all cases, the values of control variables are equal to their mean value in the sample, as presented in Table 1.
30 The restatement (MWIC) sample includes 29 (23) observations with OPINION_COUNT equal to minus two. Also, there are 50 (16) observations with OPINION_COUNT equal to five and one observation (nil) with OPINION_COUNT equal to six. Where values are presented collectively, the reported likelihoods are the weighted averages of the likelihoods of all values collected.
OPINION_COUNT of five or higher have a mean likelihood of 14.0 percent to
disclose an MWIC, more than four times the MWIC likelihood associated with
extremely factual statements \( (14.0\%/3.1\% \approx 4) \). This analysis illustrates the
significant contribution of opinion-based figures to the occurrence of misstatements.

[Insert Table 4 about here]

In sum, the findings suggest that opinion-based figures lead to misstatements,
thus supporting H1. Furthermore, this relationship not only is statistically significant
but also translates into important economic differences between opinion-based figures
and fact-based figures, where the likelihood of financial statements heavily relying on
opinion-based figures to be restated (to disclose an MWIC) is about three (four) times
that of statements relying mostly on facts.

Results from Testing H2

Table 5 reports results of cross-sectional regressions disentangling the impacts
of opinion-based figures and managerial incentives on misstatement occurrence. In
the restatements analysis, model 3a and model 3b, respectively, confirm that each of
these sources, separately, has a positive and significant effect on the likelihood of a
restatement. Estimation results of model 3c, which incorporates both opinion-based
figures and managerial incentives in the regression analysis, show a positive and
significant coefficient of 0.209 \( (p=0.048) \) on OPIND and a positive and significant
coefficient of 0.199 \( (p=0.040) \) on INCEND. The coefficient on the opinion variable is
higher than the one on the incentive variable, yet a Wald Chi-Square test shows that
this difference is insignificant, yielding a value of 0.006 \( (P\text{-value is 0.940}) \). The two
coefficients are comparable because both variables are dummy variables. These
findings confirm that opinion-based figures lead to restatements, controlling for
managers' incentives to manipulate earnings. Furthermore, results suggest that the impact of opinion-based figures on the occurrence of restatements is comparable to the impact of managerial incentives.

[Insert Table 5 about here]

Likewise, Table 5 reports results of cross-sectional regressions in which the occurrence of MWICs was the dependent variable. Model 4a and model 4b document the positive and significant impact of opinion-based figures and of managerial incentives, respectively, on the occurrence of MWICs. Model 4c tests the impact of both sources. Results show a coefficient of 0.470 (p=0.001) on OPIND and a coefficient of 0.322 (p=0.016) on INCEND. Once again, both coefficients are positive and significant and a Wald Chi-Square test shows that the difference between the coefficients is insignificant, producing a value of 0.617 (P-value is 0.432). Hence, the results indicate that the impact of opinion-based figures on MWIC disclosure is comparable to the impact of incentives. Overall, the results presented in Table 5 support H2, demonstrating that (i) opinion-based figures are an important stand-alone source of misstatements, and, (ii) the impact of opinion-based figures is similar to that of managerial incentives.

Table 6 depicts the economic significance of the two sources using four different scenarios, covering all combinations of OPIND and INCEND. In Scenario A, both OPIND and INCEND are equal to zero, denoting factual financial statements (no or small number of opinion-based figures) and lack of substantial managerial incentives. The likelihood of a restatement in this scenario is merely 3.7 percent. Scenario B assumes that OPIND equals zero and INCEND equals one, i.e., financial statements are factual while a strong incentive to manipulate earnings exists. The presence of a strong incentive increases restatement likelihood to 4.5 percent.
Scenario C is the exact opposite, where OPIND equals one and INCEND equals zero. In this case, the likelihood of a restatement increases to 4.5 percent, similarly to Scenario B. Lastly, Scenario D represents financial reporting relying on opinions and substantial managerial incentives, i.e., both OPIND and INCEND are equal to one. This scenario boosts the likelihood of a restatement to 5.4.\(^{31}\)

MWIC analysis reveals similar results: The likelihood of MWIC disclosure in Scenario A is relatively low, 4.8 percent. In Scenario B, the presence of a strong managerial incentive increases MWIC likelihood to 6.5 percent. Financial statements relying heavily on opinions increase the likelihood of MWIC disclosure in Scenario C to 7.5 percent. The highest likelihood is noted in Scenario D, amounting to 10.0 percent.

[Insert Table 6 about here]

Table 7 presents several robustness checks. The first one adds discretionary accruals (APMDAQ) as an additional control. This ex-post metric of earnings manipulation is not included in the main results since the analysis of H2 employs a direct measure for incentives to manipulate earnings. For robustness, we employ models 3d (restatements) and 4d (MWICs) to confirm that the inclusion of APMDAQ does not affect results. Estimating these models, the coefficient estimates on OPIND and INCEND are positive and significant and the difference between the coefficients remains insignificant, in both cases.\(^{32}\) The second robustness check adds to the model an interaction between opinions and incentives. The interaction variable OPININCD is computed as OPIND multiplied by INCEND. Results of models 3e (restatements)

\(^{31}\) For all scenarios, the values of the control variables are their mean values in the sample. Since H2 is tested using a subset of the full sample that has available Execucomp data, likelihoods of misstatements reported here are different from ones reported in Table 4.

\(^{32}\) The value of Wald Chi-Square test for restatements is 0.002 (p=0.962), and for MWICs it is 0.504 (p=0.477). Even if we conduct a more stringent test, of equality between OPIND and INCEND+APMDAQ, results indicate they are not significantly different. The value of Wald Chi-Square in this case is 1.841 (p=0.175) for restatements and 0.0198 (p=0.888) for MWICs.
and 4e (MWICs) show that the coefficient on OPINICD is insignificant for both restatements and MWICs, whereas the coefficients of OPIND and INCEND remain positive and significant. This evidence suggests that, to a large extent, the two sources are independent of each other. A possible explanation is that when managers have incentives to manipulate accounting figures, they find ways to do so, irrespective of reporting form. Other robustness checks employ different specifications of OPIND and INCEND. As Table 7 shows, the results of these models (3f and 3h for restatements, 4f and 4h for MWICs) are consistent with main results, yielding a coefficient on the opinion variable that is higher than the coefficient on the incentives variable in all cases.33

[Insert Table 7 about here]

In sum, the results support H2 and show that (i) opinion-based figures increase the likelihood of misstatements in the presence of managerial incentives, and, (ii) opinion-based figures and managerial incentives impact misstatements to a comparable extent. These findings suggest that regulators and standard-setters seeking to improve the reliability of financial reporting should consider requiring reporting of less opinion-based figures in financial statements.

Results from Testing H3

Table 8 reports the results of our market response analysis. In line with prior literature, the coefficient estimate on FE is positive and highly significant in both models, indicating a positive market response to earnings surprises. The estimated coefficient on the interaction variable FE_OPINION_COUNT in model 5 is -0.053

33 Untabulated robustness checks replicate the model using another alternative opinion variable defined similarly to OPINDR, but requiring two opinion instances present instead of one, and incentive variable computed contemporaneously rather than lagged. Results from estimating these regression models confirm the main results.
The negative coefficient indicates that market response to earnings surprises accompanied by more opinion-based figures is significantly weaker than response to earnings surprises accompanied by less opinion-based figures. These findings suggest that investors recognize that opinion-based figures impair the reliability of financial reporting, in line with H3.

Testing a potential disparity between informed and uninformed investors, we distinguish between firms with extensive analyst coverage and firms with limited analyst coverage. Results reported in Table 8 (model 6) show that the coefficient on FE_OPINION_COUNT is negative and insignificant, -0.026 (p=0.319). However, the coefficient on FE_OPINION_COUNT_COVER, denoting the interaction between earnings surprises, opinion-based figures and extensive analyst coverage, is negative and highly significant, -0.225 (p<0.001). These results imply that opinion-based figures influence market response to earnings surprises only for firms with extensive analyst coverage. For firms with limited coverage, in contrast, market response to earnings surprises does not differ significantly between earnings surprises reported in opinion-intensive financial statements and earnings surprises reported in less opinion-intensive statements. The findings imply that informed investors understand consequences of opinion-based figures, while uninformed investors fail to distinguish between financial statements that rely heavily on opinions and financial statements that do not.

VI. CONCLUDING REMARKS

The extent to which opinion-based figures are used in financial reporting is at

34 Robustness checks repeat the estimation using OPINION_COUNT excluding the decisive negative opinion types (GDWILMD and WDA). Results (untabulated) are similar.
the center of current accounting debates, including the shift from historical cost to fair value accounting and IFRS adoption. Therefore, it is important to understand the consequences of opinions in financial statements.

The findings of this study indicate that the use of opinion-based figures impairs the reliability of financial statements. Reporting based on opinions increases the likelihood of two external indications of misstatements – restatements and disclosure of MWICs. This effect exists even when managers lack incentives to manipulate accounting figures. Furthermore, the impact of opinion-based figures on misstatements is comparable to the impact of managerial incentives. Market response analysis suggests that better-informed investors (i.e., investors in firms with extensive analyst coverage) respond differently to opinion-intensive financial statements and to more factual statements, whereas less-informed investors do not make this distinction.

The results have implications for standard-setters and regulators, implying that further expansion of reliance on opinions in financial reporting (for example, by shifting to fair value accounting or adopting IFRS) is expected to generate more misstatements. The findings also extend those of Lev et al. (2010) by showing that the use of opinions in financial statements, as required by accounting standards, negatively influences the reliability of those statements. Finally, our findings expand the literature on determinants of restatements, indicating that there are two comparable sources of restatements: opinion-based figures reported in compliance with accounting standards, and incentives to manipulate earnings.
REFERENCES


The sample consists of all nonfinancial firms in the Compustat annual database from 2000 to 2009. Observations with revenues lower than 10 million dollars or with share prices below 1 dollar were deleted from this sample to eliminate economically marginal firms. Firms are also required to have at least two consecutive years of available data, in order to allow deflation. Finally, the two-digit SIC code groupings, used to compute discretionary accruals and performance-matched discretionary accruals, must include at least eight observations each; thus, observations not meeting this requirement are excluded.

The analysis of MWIC under SOX is based on a sub-sample of all firms in the Compustat annual database from 2004 to 2009 with available SOX reporting on AuditAnalytics.

Variable definitions:
RESTD is a dummy variable equal to one if restructuring expenses (Compustat RCP) are recorded in current year, zero otherwise.
IPRDDD is a dummy variable equal to one if in-process research and development expenses (Compustat RDIP) are recorded in current year, zero otherwise.
CONVD is a dummy variable equal to one if convertible debt balance (Compustat DCVT) changes in current year, zero otherwise.
GDWILMD is a dummy variable equal to one if goodwill impairment (Compustat GVWILLIP) is recorded in current year, zero otherwise.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Full Sample</th>
<th>SOX Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>N</td>
<td>43,201</td>
<td>43,201</td>
</tr>
<tr>
<td>RESTD</td>
<td>0.252</td>
<td>-</td>
</tr>
<tr>
<td>IPRDD</td>
<td>0.037</td>
<td>-</td>
</tr>
<tr>
<td>CONVD</td>
<td>0.123</td>
<td>-</td>
</tr>
<tr>
<td>GDWLIMD</td>
<td>0.082</td>
<td>-</td>
</tr>
<tr>
<td>WDAD</td>
<td>0.170</td>
<td>-</td>
</tr>
<tr>
<td>DTD</td>
<td>0.679</td>
<td>1.000</td>
</tr>
<tr>
<td>RECDD</td>
<td>0.703</td>
<td>1.000</td>
</tr>
<tr>
<td>LEVID</td>
<td>0.072</td>
<td>-</td>
</tr>
<tr>
<td>RMINVD</td>
<td>0.422</td>
<td>-</td>
</tr>
<tr>
<td>RESTATE</td>
<td>0.063</td>
<td>-</td>
</tr>
<tr>
<td>MWIC</td>
<td>0.091</td>
<td>-</td>
</tr>
<tr>
<td>SIZE</td>
<td>6.122</td>
<td>6.074</td>
</tr>
<tr>
<td>LEV</td>
<td>0.237</td>
<td>0.164</td>
</tr>
<tr>
<td>BV_MV</td>
<td>0.653</td>
<td>0.500</td>
</tr>
<tr>
<td>AGE</td>
<td>2.678</td>
<td>2.639</td>
</tr>
<tr>
<td>BIG</td>
<td>0.815</td>
<td>1.000</td>
</tr>
<tr>
<td>ROA</td>
<td>0.012</td>
<td>0.036</td>
</tr>
<tr>
<td>FCF</td>
<td>0.022</td>
<td>0.036</td>
</tr>
<tr>
<td>GROWTH</td>
<td>0.171</td>
<td>0.083</td>
</tr>
<tr>
<td>EXTFIN</td>
<td>0.014</td>
<td>-0.003</td>
</tr>
</tbody>
</table>

The sample consists of all nonfinancial firms in the Compustat annual database from 2000 to 2009. Observations with revenues lower than 10 million dollars or with share prices below 1 dollar were deleted from this sample to eliminate economically marginal firms. Firms are also required to have at least two consecutive years of available data, in order to allow deflation. Finally, the two-digit SIC code groupings, used to compute discretionary accruals and performance-matched discretionary accruals, must include at least eight observations each; thus, observations not meeting this requirement are excluded.

The analysis of MWIC under SOX is based on a sub-sample of all firms in the Compustat annual database from 2004 to 2009 with available SOX reporting on AuditAnalytics.

Variable definitions:
RESTD is a dummy variable equal to one if restructuring expenses (Compustat RCP) are recorded in current year, zero otherwise.
IPRDDD is a dummy variable equal to one if in-process research and development expenses (Compustat RDIP) are recorded in current year, zero otherwise.
CONVD is a dummy variable equal to one if convertible debt balance (Compustat DCVT) changes in current year, zero otherwise.
GDWILMD is a dummy variable equal to one if goodwill impairment (Compustat GVWILLIP) is recorded in current year, zero otherwise.
WDAD is a dummy variable equal to one if an asset write-down (Compustat WDA) is reported in current year, zero otherwise.
DTD is a dummy variable equal to one if deferred taxes balance (Compustat TXDC) is reported in current year, zero otherwise.
RECDD is a dummy variable equal to one if allowance for doubtful receivables (Compustat RECD) is reported in current year, zero otherwise.
LEV1D is a dummy variable equal to one if level-one fair value assets (Compustat AQPL1) are reported in current year, zero otherwise.
RMINVD is a dummy variable equal to one if raw materials inventory (Compustat INVRM) is reported in current year, zero otherwise.
RESTATE is a dummy variable equal to one if financial reporting for current year is restated, zero otherwise.
MWIC is a dummy variable equal to one if the firm reports at least one material weaknesses for current year, zero otherwise.
SIZE is the natural logarithm of market value of equity in millions of dollars, calculated as the product of fiscal year-end closing share price (Compustat PRCC_F) and common shares outstanding (Compustat CSHO).
LEV is financial leverage equal to the sum of long-term debt (Compustat DLT) and debt in current liabilities (Compustat DLC) divided by the sum of the long-term debt, debt in current liabilities and market value of equity.
BV_MV is the ratio between equity book value (Compustat CEQ) and market value.
AGE is the natural logarithm of the number of years the firm has been publicly traded.
BIG is a dummy variable equal to one if the auditor is one of the Big-4 audit firms, zero otherwise.
ROA is the return on assets, measured as net income (Compustat NI) divided by total assets (Compustat AT) at the beginning of the year.
FCF is free cash flow, calculated as the difference between operating cash flow (Compustat OANCF) and average capital expenditure (Compustat CAPX) over the last two years, deflated by total assets at the beginning of the year.
GROWTH is the percentage change in sales (Compustat SALE) from the prior year to the current year.
EXTFIN is total net external financing from shareholders and debt holders during the year. Total net financing from shareholders is equal to sale of common and preferred stock (Compustat SSTK) minus purchase of common and preferred stock (Compustat PRSTKC) minus cash dividends (Compustat DV). Net financing from debt holders is equal to long-term debt issuance (Compustat DLTIS) minus long-term debt reduction (Compustat DLTR) minus change in current debt (Compustat DLCCH). Total net financing from shareholders and debt holders is deflated by market value of equity at the beginning of the year.

To mitigate the impact of outliers on regression coefficients, BV_MV, ROA, GROWTH, FCF and FINANCING are winsorized at the extreme percentiles, i.e., values less (greater) than the 1st (99th) percentile are set equal to the value of the 1st (99th) percentile.
## TABLE 2
Correlation Matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>RESTD</th>
<th>IPRDD</th>
<th>CONVD</th>
<th>GDWLIMD</th>
<th>WDAD</th>
<th>DTD</th>
<th>RECDD</th>
<th>LEV1D</th>
<th>RMINVD</th>
<th>APMDAQ</th>
<th>SIZE</th>
<th>LEV</th>
<th>BV_MV</th>
<th>AGE</th>
<th>BIG</th>
<th>ROA</th>
<th>FCF</th>
<th>GROWTH</th>
<th>EXTFIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESTD</td>
<td>1.00</td>
<td>0.12</td>
<td>0.08</td>
<td>0.17</td>
<td>0.21</td>
<td>0.01</td>
<td>0.09</td>
<td>0.08</td>
<td>0.15</td>
<td>-0.00</td>
<td>0.15</td>
<td>0.02</td>
<td>-0.02</td>
<td>0.10</td>
<td>-0.13</td>
<td>-0.01</td>
<td>-0.15</td>
<td>-0.07</td>
<td></td>
</tr>
<tr>
<td>IPRDD</td>
<td>0.12</td>
<td>1.00</td>
<td>0.07</td>
<td>0.02</td>
<td>0.05</td>
<td>-0.00</td>
<td>0.03</td>
<td>0.02</td>
<td>0.09</td>
<td>0.04</td>
<td>0.12</td>
<td>-0.11</td>
<td>-0.06</td>
<td>-0.01</td>
<td>0.06</td>
<td>-0.08</td>
<td>0.01</td>
<td>0.04</td>
<td>0.02</td>
</tr>
<tr>
<td>CONVD</td>
<td>0.08</td>
<td>0.07</td>
<td>1.00</td>
<td>0.04</td>
<td>0.05</td>
<td>-0.03</td>
<td>-0.00</td>
<td>0.02</td>
<td>0.04</td>
<td>0.03</td>
<td>0.12</td>
<td>0.11</td>
<td>-0.04</td>
<td>-0.00</td>
<td>0.04</td>
<td>-0.10</td>
<td>-0.07</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>GDWLIMD</td>
<td>0.17</td>
<td>0.02</td>
<td>0.04</td>
<td>1.00</td>
<td>0.20</td>
<td>0.02</td>
<td>0.04</td>
<td>0.08</td>
<td>0.03</td>
<td>0.10</td>
<td>0.02</td>
<td>0.09</td>
<td>0.10</td>
<td>0.02</td>
<td>0.02</td>
<td>-0.20</td>
<td>-0.03</td>
<td>-0.08</td>
<td>0.04</td>
</tr>
<tr>
<td>WDAD</td>
<td>0.21</td>
<td>0.05</td>
<td>0.05</td>
<td>0.20</td>
<td>1.00</td>
<td>0.01</td>
<td>0.03</td>
<td>0.04</td>
<td>0.04</td>
<td>0.03</td>
<td>0.05</td>
<td>0.05</td>
<td>0.04</td>
<td>0.03</td>
<td>0.04</td>
<td>-0.13</td>
<td>-0.03</td>
<td>-0.07</td>
<td>-0.04</td>
</tr>
<tr>
<td>DTD</td>
<td>0.01</td>
<td>-0.00</td>
<td>-0.03</td>
<td>0.02</td>
<td>0.01</td>
<td>1.00</td>
<td>0.09</td>
<td>0.05</td>
<td>0.06</td>
<td>-0.07</td>
<td>0.08</td>
<td>-0.00</td>
<td>0.04</td>
<td>0.21</td>
<td>0.04</td>
<td>0.24</td>
<td>0.21</td>
<td>-0.11</td>
<td>-0.08</td>
</tr>
<tr>
<td>RECDD</td>
<td>0.09</td>
<td>0.03</td>
<td>-0.00</td>
<td>0.04</td>
<td>0.03</td>
<td>0.09</td>
<td>1.00</td>
<td>0.00</td>
<td>0.18</td>
<td>0.02</td>
<td>-0.07</td>
<td>-0.07</td>
<td>-0.00</td>
<td>0.01</td>
<td>-0.06</td>
<td>-0.01</td>
<td>0.06</td>
<td>-0.08</td>
<td>-0.05</td>
</tr>
<tr>
<td>LEV1D</td>
<td>0.08</td>
<td>0.02</td>
<td>0.02</td>
<td>0.08</td>
<td>0.04</td>
<td>0.05</td>
<td>0.00</td>
<td>1.00</td>
<td>0.01</td>
<td>-0.01</td>
<td>0.09</td>
<td>-0.01</td>
<td>0.03</td>
<td>0.09</td>
<td>0.03</td>
<td>-0.01</td>
<td>0.02</td>
<td>-0.07</td>
<td>-0.03</td>
</tr>
<tr>
<td>RMINVD</td>
<td>0.15</td>
<td>0.09</td>
<td>0.04</td>
<td>0.03</td>
<td>0.04</td>
<td>0.06</td>
<td>0.18</td>
<td>0.01</td>
<td>1.00</td>
<td>0.02</td>
<td>-0.03</td>
<td>-0.13</td>
<td>-0.01</td>
<td>0.11</td>
<td>-0.03</td>
<td>-0.00</td>
<td>0.01</td>
<td>-0.05</td>
<td>-0.03</td>
</tr>
<tr>
<td>APMDAQ</td>
<td>-0.00</td>
<td>0.04</td>
<td>0.03</td>
<td>0.10</td>
<td>0.03</td>
<td>-0.07</td>
<td>0.02</td>
<td>-0.01</td>
<td>0.02</td>
<td>1.00</td>
<td>-0.18</td>
<td>-0.10</td>
<td>-0.05</td>
<td>-0.10</td>
<td>-0.19</td>
<td>-0.14</td>
<td>0.14</td>
<td>0.07</td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.14</td>
<td>0.11</td>
<td>0.13</td>
<td>0.01</td>
<td>0.05</td>
<td>0.10</td>
<td>-0.07</td>
<td>0.09</td>
<td>-0.04</td>
<td>-0.18</td>
<td>1.00</td>
<td>-0.12</td>
<td>-0.36</td>
<td>0.19</td>
<td>0.36</td>
<td>0.24</td>
<td>0.22</td>
<td>0.03</td>
<td>0.01</td>
</tr>
<tr>
<td>LEV</td>
<td>0.03</td>
<td>-0.11</td>
<td>0.15</td>
<td>0.08</td>
<td>0.05</td>
<td>0.02</td>
<td>-0.07</td>
<td>-0.02</td>
<td>-0.10</td>
<td>-0.12</td>
<td>-0.01</td>
<td>1.00</td>
<td>0.37</td>
<td>0.07</td>
<td>0.04</td>
<td>-0.10</td>
<td>-0.12</td>
<td>-0.08</td>
<td>0.03</td>
</tr>
<tr>
<td>BV_MV</td>
<td>0.00</td>
<td>-0.06</td>
<td>-0.05</td>
<td>0.10</td>
<td>0.05</td>
<td>0.08</td>
<td>-0.00</td>
<td>0.04</td>
<td>-0.01</td>
<td>-0.09</td>
<td>-0.33</td>
<td>0.28</td>
<td>1.00</td>
<td>-0.02</td>
<td>-0.04</td>
<td>-0.10</td>
<td>-0.09</td>
<td>-0.12</td>
<td>-0.09</td>
</tr>
<tr>
<td>AGE</td>
<td>0.10</td>
<td>-0.02</td>
<td>0.00</td>
<td>0.02</td>
<td>0.03</td>
<td>0.21</td>
<td>0.01</td>
<td>0.09</td>
<td>0.11</td>
<td>-0.14</td>
<td>0.18</td>
<td>0.11</td>
<td>0.03</td>
<td>1.00</td>
<td>0.02</td>
<td>0.15</td>
<td>0.15</td>
<td>-0.21</td>
<td>-0.11</td>
</tr>
<tr>
<td>BIG</td>
<td>0.11</td>
<td>0.06</td>
<td>0.04</td>
<td>0.02</td>
<td>0.04</td>
<td>0.04</td>
<td>-0.06</td>
<td>0.03</td>
<td>-0.03</td>
<td>-0.10</td>
<td>0.37</td>
<td>0.05</td>
<td>-0.04</td>
<td>0.01</td>
<td>1.00</td>
<td>0.02</td>
<td>0.06</td>
<td>-0.03</td>
<td>-0.02</td>
</tr>
<tr>
<td>ROA</td>
<td>-0.18</td>
<td>-0.05</td>
<td>-0.10</td>
<td>-0.22</td>
<td>-0.17</td>
<td>0.22</td>
<td>-0.01</td>
<td>-0.03</td>
<td>0.00</td>
<td>-0.11</td>
<td>0.32</td>
<td>-0.24</td>
<td>-0.24</td>
<td>0.13</td>
<td>0.04</td>
<td>1.00</td>
<td>0.62</td>
<td>-0.07</td>
<td>-0.10</td>
</tr>
<tr>
<td>FCF</td>
<td>-0.02</td>
<td>0.03</td>
<td>-0.07</td>
<td>-0.06</td>
<td>-0.05</td>
<td>0.17</td>
<td>0.06</td>
<td>0.03</td>
<td>0.02</td>
<td>-0.13</td>
<td>0.26</td>
<td>-0.20</td>
<td>-0.18</td>
<td>0.12</td>
<td>0.06</td>
<td>0.58</td>
<td>1.00</td>
<td>-0.13</td>
<td>-0.25</td>
</tr>
<tr>
<td>GROWTH</td>
<td>-0.20</td>
<td>0.04</td>
<td>0.03</td>
<td>-0.13</td>
<td>-0.11</td>
<td>-0.05</td>
<td>-0.05</td>
<td>-0.12</td>
<td>-0.04</td>
<td>0.08</td>
<td>0.12</td>
<td>-0.11</td>
<td>-0.22</td>
<td>-0.18</td>
<td>-0.00</td>
<td>0.26</td>
<td>0.07</td>
<td>1.00</td>
<td>0.22</td>
</tr>
<tr>
<td>EXTFIN</td>
<td>-0.09</td>
<td>0.04</td>
<td>0.06</td>
<td>-0.05</td>
<td>-0.05</td>
<td>-0.11</td>
<td>-0.05</td>
<td>-0.05</td>
<td>-0.03</td>
<td>0.13</td>
<td>-0.05</td>
<td>-0.00</td>
<td>-0.10</td>
<td>-0.18</td>
<td>-0.04</td>
<td>-0.12</td>
<td>-0.35</td>
<td>0.29</td>
<td>1.00</td>
</tr>
</tbody>
</table>

The table presents the Pearson (Spearman) correlations above (below) the diagonal.
Definition of APDMAQ is in Table 3. Definitions of the other variables are in Table 1.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Predicted</th>
<th>Restatements</th>
<th></th>
<th></th>
<th>MWICs</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sign</td>
<td>Estimate</td>
<td>P-value</td>
<td>Estimate</td>
<td>P-value</td>
<td>Estimate</td>
<td>P-value</td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td>-2.227</td>
<td>&lt;.0001</td>
<td>-2.195</td>
<td>&lt;.0001</td>
<td>0.602</td>
<td>0.003</td>
</tr>
<tr>
<td>RESTD</td>
<td>+</td>
<td>0.182</td>
<td>0.000</td>
<td>0.207</td>
<td>&lt;.0001</td>
<td>0.325</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>IPRDD</td>
<td>+</td>
<td>0.239</td>
<td>0.018</td>
<td>0.271</td>
<td>0.008</td>
<td>0.232</td>
<td>0.061</td>
</tr>
<tr>
<td>CONVD</td>
<td>+</td>
<td>0.260</td>
<td>&lt;.0001</td>
<td>0.273</td>
<td>&lt;.0001</td>
<td>0.239</td>
<td>0.003</td>
</tr>
<tr>
<td>GDWLIMD</td>
<td>+</td>
<td>0.136</td>
<td>0.068</td>
<td>0.140</td>
<td>0.061</td>
<td>0.206</td>
<td>0.032</td>
</tr>
<tr>
<td>WDAD</td>
<td>+</td>
<td>0.132</td>
<td>0.014</td>
<td>0.136</td>
<td>0.011</td>
<td>0.245</td>
<td>0.001</td>
</tr>
<tr>
<td>TTD</td>
<td>+</td>
<td>0.129</td>
<td>0.005</td>
<td>0.137</td>
<td>0.003</td>
<td>0.382</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>RECDD</td>
<td>+</td>
<td>0.093</td>
<td>0.042</td>
<td>0.118</td>
<td>0.011</td>
<td>0.193</td>
<td>0.005</td>
</tr>
<tr>
<td>LEVID</td>
<td>-</td>
<td>-0.271</td>
<td>0.043</td>
<td></td>
<td>-0.376</td>
<td>0.008</td>
<td></td>
</tr>
<tr>
<td>RMINVD</td>
<td>-</td>
<td>-0.170</td>
<td>&lt;.0001</td>
<td></td>
<td>-0.102</td>
<td>0.087</td>
<td></td>
</tr>
<tr>
<td>APMDAQ</td>
<td></td>
<td>0.227</td>
<td>&lt;.0001</td>
<td>0.226</td>
<td>&lt;.0001</td>
<td>0.216</td>
<td>0.001</td>
</tr>
<tr>
<td>SIZE</td>
<td></td>
<td>-0.075</td>
<td>&lt;.0001</td>
<td>-0.079</td>
<td>&lt;.0001</td>
<td>-0.287</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>LEV</td>
<td></td>
<td>0.635</td>
<td>&lt;.0001</td>
<td>0.585</td>
<td>&lt;.0001</td>
<td>0.225</td>
<td>0.080</td>
</tr>
<tr>
<td>BV_MV</td>
<td></td>
<td>-0.132</td>
<td>0.000</td>
<td>-0.132</td>
<td>0.000</td>
<td>-0.007</td>
<td>0.918</td>
</tr>
<tr>
<td>AGE</td>
<td></td>
<td>-0.055</td>
<td>0.067</td>
<td>-0.038</td>
<td>0.206</td>
<td>-0.192</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>BIG</td>
<td></td>
<td>-0.380</td>
<td>&lt;.0001</td>
<td>-0.375</td>
<td>&lt;.0001</td>
<td>-0.423</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>ROA</td>
<td></td>
<td>-0.138</td>
<td>0.327</td>
<td>-0.127</td>
<td>0.366</td>
<td>-0.600</td>
<td>0.016</td>
</tr>
<tr>
<td>FCF</td>
<td></td>
<td>-0.254</td>
<td>0.146</td>
<td>-0.274</td>
<td>0.115</td>
<td>-0.762</td>
<td>0.004</td>
</tr>
<tr>
<td>GROWTH</td>
<td></td>
<td>0.196</td>
<td>&lt;.0001</td>
<td>0.194</td>
<td>&lt;.0001</td>
<td>-0.052</td>
<td>0.474</td>
</tr>
<tr>
<td>EXTFIN</td>
<td></td>
<td>0.006</td>
<td>0.924</td>
<td>0.009</td>
<td>0.893</td>
<td>-0.097</td>
<td>0.429</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td></td>
<td>0.04</td>
<td>0.04</td>
<td></td>
<td>0.13</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td></td>
<td>42,301</td>
<td>42,301</td>
<td></td>
<td>16,934</td>
<td>16,934</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 3**
The Impact of Opinion-Based Figures on the Likelihood of a Restatement and the Likelihood of Disclosing MWIC
The table presents coefficient estimates of cross-sectional regressions of restatements and MWICs on opinion variables, fact variables and controls, using annual fixed effects. The full logistic regression model for restatement analysis is as follows:

\[
RESTATE_{i,t} = \alpha + \beta_1 RESTD_{i,t} + \beta_2 IPRDD_{i,t} + \beta_3 CONVD_{i,t} + \beta_4 GDWLIMD_{i,t} + \beta_5 WDAD_{i,t} + \beta_6 DTD_{i,t} + \beta_7 RECDD_{i,t} + \beta_8 LEV1D_{i,t} + \beta_9 RMINVD_{i,t} + \beta_{10} APMDAQ_{i,t} + \beta_{11} SIZE_{i,t} + \beta_{12} LEV_{i,t} + \beta_{13} BV_{i,t} + \beta_{14} AGE_{i,t} + \beta_{15} BIG_{i,t} + \beta_{16} ROA_{i,t} + \beta_{17} FCF_{i,t} + \beta_{18} GROWTH_{i,t} + \beta_{19} EXTFIN_{i,t} + \epsilon_{i,t}
\]

The logistic regression model for MWICs analysis as follows:

\[
MWIC_{i,t} = \alpha + \beta_1 RESTD_{i,t} + \beta_2 IPRDD_{i,t} + \beta_3 CONVD_{i,t} + \beta_4 GDWLIMD_{i,t} + \beta_5 WDAD_{i,t} + \beta_6 DTD_{i,t} + \beta_7 RECDD_{i,t} + \beta_8 LEV1D_{i,t} + \beta_9 RMINVD_{i,t} + \beta_{10} APMDAQ_{i,t} + \beta_{11} SIZE_{i,t} + \beta_{12} LEV_{i,t} + \beta_{13} BV_{i,t} + \beta_{14} AGE_{i,t} + \beta_{15} BIG_{i,t} + \beta_{16} ROA_{i,t} + \beta_{17} FCF_{i,t} + \beta_{18} GROWTH_{i,t} + \beta_{19} EXTFIN_{i,t} + \epsilon_{i,t}
\]

Variable definitions:
APMDAQ is a dummy variable equal to one if the value of absolute performance-matched discretionary accruals is in the top quartile in the cross-section for current year, zero otherwise.
Definitions of the other variables are in Table 1.
TABLE 4
Mean Likelihood of a Restatement and Mean Likelihood of Disclosing an MWIC as a Function of OPINION_COUNT

<table>
<thead>
<tr>
<th>OPINION_COUNT</th>
<th>N</th>
<th>% of Sample</th>
<th>Restatement Likelihood</th>
<th>N</th>
<th>% of Sample</th>
<th>MWIC Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0</td>
<td>903</td>
<td>2.1%</td>
<td>2.3%</td>
<td>352</td>
<td>2.1%</td>
<td>3.1%</td>
</tr>
<tr>
<td>0</td>
<td>6,399</td>
<td>14.8%</td>
<td>2.8%</td>
<td>2,148</td>
<td>12.7%</td>
<td>4.1%</td>
</tr>
<tr>
<td>1</td>
<td>14,743</td>
<td>34.1%</td>
<td>3.4%</td>
<td>5,195</td>
<td>30.7%</td>
<td>5.2%</td>
</tr>
<tr>
<td>2</td>
<td>13,074</td>
<td>30.3%</td>
<td>4.1%</td>
<td>5,399</td>
<td>31.9%</td>
<td>6.7%</td>
</tr>
<tr>
<td>3</td>
<td>5,725</td>
<td>13.3%</td>
<td>4.9%</td>
<td>2,681</td>
<td>15.8%</td>
<td>8.6%</td>
</tr>
<tr>
<td>4</td>
<td>1,860</td>
<td>4.3%</td>
<td>5.8%</td>
<td>929</td>
<td>5.5%</td>
<td>10.9%</td>
</tr>
<tr>
<td>&gt;4</td>
<td>497</td>
<td>1.2%</td>
<td>7.1%</td>
<td>230</td>
<td>1.4%</td>
<td>14.0%</td>
</tr>
</tbody>
</table>

The table presents the mean likelihood of a restatement and the mean likelihood of disclosing a MWIC for each value of OPINION_COUNT. OPINION_COUNT is the number of opinions reported by the firm out of the seven opinion types utilized by model 3 in Table 3 (RESTD, IPRDD, CONVD, GDWLIMD, WDAD, DTD and RECDD) minus the number of facts reported out of the two types used by this model (LEV1D and RMINVD). Misstatement likelihoods for the OPINION_COUNT of minus two and of minus one are reported collectively. Likewise, Likelihoods for all OPINION_COUNT values of five and higher are reported collectively. The likelihood reported for each value of OPINION_COUNT is equal to the mean of the likelihoods of all possible combinations of opinion and fact variables summing up to the given value of OPINION_COUNT. Where values are presented collectively, the reported likelihoods are the weighted averages of the likelihoods of all values collected. All likelihoods of restatements and MWICs are calculated using coefficient estimates reported in Table 3. In all cases, the values of control variables are equal to their mean value in the sample, as presented in Table 1, and year assumed (for annual fixed effects) is 2007.
Table 5: Comparison between the Impacts of Opinion-Based Figures and Managerial Incentives on Restatement and MWIC Likelihoods

<table>
<thead>
<tr>
<th>Variables</th>
<th>Restatements</th>
<th>MWICs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 3a</td>
<td>Model 3b</td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.561</td>
<td>-1.623</td>
</tr>
<tr>
<td></td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>OPIND</td>
<td>0.211</td>
<td>0.209</td>
</tr>
<tr>
<td></td>
<td>0.046</td>
<td>0.048</td>
</tr>
<tr>
<td>INCEND</td>
<td>0.200</td>
<td>0.200</td>
</tr>
<tr>
<td></td>
<td>0.039</td>
<td>0.048</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.138</td>
<td>-0.146</td>
</tr>
<tr>
<td></td>
<td>&lt;.0001</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>LEV</td>
<td>0.559</td>
<td>0.623</td>
</tr>
<tr>
<td></td>
<td>0.004</td>
<td>0.001</td>
</tr>
<tr>
<td>BV_MV</td>
<td>0.074</td>
<td>0.074</td>
</tr>
<tr>
<td></td>
<td>0.386</td>
<td>0.387</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.073</td>
<td>-0.055</td>
</tr>
<tr>
<td></td>
<td>0.239</td>
<td>0.389</td>
</tr>
<tr>
<td>BIG</td>
<td>-0.007</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>0.959</td>
<td>0.969</td>
</tr>
<tr>
<td>ROA</td>
<td>-0.401</td>
<td>-0.557</td>
</tr>
<tr>
<td></td>
<td>0.278</td>
<td>0.119</td>
</tr>
<tr>
<td>FCF</td>
<td>-0.578</td>
<td>-0.478</td>
</tr>
<tr>
<td></td>
<td>0.244</td>
<td>0.331</td>
</tr>
<tr>
<td>GROWTH</td>
<td>0.077</td>
<td>0.036</td>
</tr>
<tr>
<td></td>
<td>0.515</td>
<td>0.758</td>
</tr>
<tr>
<td>EXTFIN</td>
<td>-0.220</td>
<td>-0.210</td>
</tr>
<tr>
<td></td>
<td>0.235</td>
<td>0.263</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>Observations</td>
<td>11,777</td>
<td>11,777</td>
</tr>
</tbody>
</table>

The table presents coefficient estimates of regression models measuring the effect of opinion-based figures (OPIND) and managerial incentives (INCEND) on the likelihood of a restatement and the likelihood to disclose an MWIC.

The full logistic regression model for restatements is as follows:

\[ RESTATE_{i,t} = \alpha + \beta_1 OPIND_{i,t} + \beta_2 INCEND_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 BV_MV_{i,t} + \beta_6 AGE_{i,t} + \beta_7 BIG_{i,t} + \beta_8 ROA_{i,t} + \beta_9 FCF_{i,t} + \beta_{10} GROWTH_{i,t} + \beta_{11} EXTFIN_{i,t} + \epsilon_{i,t} \]
The logistic regression model for MWICs analysis is as follows:

\[ MWIC_{i,t} = \alpha + \beta_1 \cdot OPIND_{i,t} + \beta_2 \cdot INCEND_{i,t} + \beta_3 \cdot SIZE_{i,t} + \beta_4 \cdot LEV_{i,t} + \beta_5 \cdot BV - MV_{i,t} + \beta_6 \cdot AGE_{i,t} + \\
\beta_7 \cdot BIG_{i,t} + \beta_8 \cdot ROA_{i,t} + \beta_9 \cdot FCF_{i,t} + \beta_{10} \cdot GROWTH_{i,t} + \beta_{11} \cdot EXTFIN_{i,t} + \epsilon_{i,t} \]

All compensation data is obtained from Execucomp. Due to data limitations, the sample used here is a sub-sample of the full sample, consists of all firm-years for which required Execucomp data is available.

Variable definition:
OPIND is a dummy variable equal to one if at least four out of the seven instances of opinion-based figures (RESTD, IPRDD, CONVD, GDWLIMD, WDAD, DTD and RECDD) are reported, zero otherwise.
INCEND is a dummy variable equal to one if the value of lagged INCENTIVE_RATIO is in the top quartile in the cross-section for that year, zero otherwise. INCENTIVE_RATIO reflects the sensitivity of the CEO's compensation to a change in the share prices, computed as in Bergstresser and Philippon (2006):

\[ INCENTIVE\_RATIO_{i,t} = \frac{ONEPCT_{i,t}}{ONEPCT_{i,t} + \text{SALARY}_{i,t} + \text{BONUS}_{i,t}} \]

Where BONUS and SALARY are the CEO's bonus and salary, respectively, and ONEPCT is the change in the value of the CEO's equity holdings for one percent increase in the value of the equity. ONEPCT is calculated as 0.01\times PRICE\times (SHARES+OPTIONS), where PRICE is share price at the end of the fiscal year, SHARES is the number of shares held by the CEO and OPTIONS is the number of options held by the CEO. Definitions of the other variables are in Table 1.
### TABLE 6
Translation of Regression Results to Restatement and MWIC Likelihoods for Different Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Restatements</th>
<th>MWICs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scenario A</td>
<td>Scenario B</td>
</tr>
<tr>
<td>OPIND</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>INCEND</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Probability</td>
<td>3.7%</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

The table presents the likelihood of a restatement and the likelihood of disclosing an MWIC for four different scenarios spanning all possible combinations of OPIND and INCEND:

A. OPIND and INCEND variables are both equal to zero.
B. OPIND variable is equal to zero whereas INCEND variable is equal to one.
C. OPIND variable is equal to one whereas INCEND variable is equal to zero.
D. OPIND and INCEND variables are both equal to one.

Likelihoods are calculated based on coefficients reported in Table 5. In all cases, the values of control variables are equal to their mean value in the sample, as presented in Table 1.
### TABLE 7
Robustness Tests: Comparison between the Impacts of Opinion-Based Figures and Managerial Incentives on Likelihoods of Restatement and MWIC Disclosure

<table>
<thead>
<tr>
<th>Variables</th>
<th>Restatements</th>
<th>MWICs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 3d</td>
<td>Model 3e</td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.723</td>
<td>-1.593</td>
</tr>
<tr>
<td>OPIND</td>
<td>0.189</td>
<td>0.075</td>
</tr>
<tr>
<td>OPINDR</td>
<td>0.371</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>INCEND</td>
<td>0.196</td>
<td>0.043</td>
</tr>
<tr>
<td>INCEND_0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPININCD</td>
<td>-0.060</td>
<td>0.794</td>
</tr>
<tr>
<td>APMDAQ</td>
<td>0.239</td>
<td>0.019</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.147</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>LEV</td>
<td>0.648</td>
<td>0.001</td>
</tr>
<tr>
<td>BV_MV</td>
<td>0.075</td>
<td>0.378</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.040</td>
<td>0.534</td>
</tr>
<tr>
<td>BIG</td>
<td>-0.001</td>
<td>0.995</td>
</tr>
<tr>
<td>ROA</td>
<td>-0.210</td>
<td>0.571</td>
</tr>
<tr>
<td>FCF</td>
<td>-0.630</td>
<td>0.194</td>
</tr>
<tr>
<td>GROWTH</td>
<td>0.048</td>
<td>0.684</td>
</tr>
<tr>
<td>EXTFIN</td>
<td>-0.226</td>
<td>0.221</td>
</tr>
</tbody>
</table>

This table reports robustness tests for the results presented in Table 5 as follows:
- Models 3d and 4d add APMDAQ as a control variable to the restatements and MWICs models detailed in Table 5.
- Models 3e and 4e add interaction variable OPININCD.

The Pseudo R² values for the models are as follows:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pseudo R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.05</td>
</tr>
<tr>
<td>Observations</td>
<td>11,777</td>
</tr>
</tbody>
</table>
Models 3e and 4e substitute OPIND with OPINDR1. Models 3h and 4h substitute INCEND with INCEND_0.5.

Variable definition:
OPININCD is a dummy interaction variable, equal to OPIN*INCEN.
OPINDR is a dummy variable equal to one if at least one of five opinion variables (RESTD, IPRDD, CONVD, GFWLIMD and WDAD) is reported, zero otherwise.
INCEND_0.5 is computed similarly to INCEND, except assuming delta=0.5 (instead of delta=1) for options in the calculation of INCENTIVE_RATIO.
Definitions of the other variables are in Tables 1, 3 and 5.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 5</th>
<th>P-value</th>
<th>Model 6</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.002</td>
<td>&lt;.0001</td>
<td>0.002</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>FE</td>
<td>0.556</td>
<td>&lt;.0001</td>
<td>0.464</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td><strong>FE_OPINION_COUNT</strong></td>
<td><strong>-0.053</strong></td>
<td><strong>0.026</strong></td>
<td><strong>-0.026</strong></td>
<td><strong>0.319</strong></td>
</tr>
<tr>
<td>FE_COVER</td>
<td>0.750</td>
<td>&lt;.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FE_OPINION_COUNT_COVER</strong></td>
<td><strong>-0.225</strong></td>
<td><strong>&lt;0.001</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adjusted R²: 0.011 0.012
Observations: 22,862 22,862

The table presents the effect of opinions on market response to earnings surprises. The full regression model is as follows:

\[
\text{CAR}_{t,i} = \alpha + \beta_1\text{FE}_{i,t} + \beta_2\text{FE \_ OPINION \_ COUNT}_{i,t} + \beta_3\text{FE \_ COVER}_{i,t} + \\
\beta_4\text{FE \_ OPINION \_ COUNT \_ COVER}_{i,t} + \epsilon_{i,t}
\]

Variable definition:
CAR is the cumulative market-adjusted return (raw return minus value-weighted CRSP return) measured over three trading days surrounding the earnings announcement, from the day before to the day after.
FE is the difference between reported earnings and the mean forecast announced in the month immediately preceding that of the earnings announcement, deflated by the price at the beginning of the year.
FE_OPINION_COUNT is the product of FE and OPINION_COUNT.
FE_COVER is the product of FE and a dummy variable COVER, equal to one if number of analysts' forecasts for the firm is above median, zero otherwise.
FE_OPINION_COUNT_COVER is the product of FE_OPINION_COUNT and COVER.