

ANALYSTS' VS. INVESTORS' WEIGHTINGS OF THE CASH COMPONENT OF EARNINGS SUBSEQUENT TO REGULATION FAIR DISCLOSURE

May H. Lo, Western New England College, USA, mlo@wnec.edu
Emily Xu, University of New Hampshire, USA, Emily.Xu@unh.edu

ABSTRACT

This study investigates whether or not Regulation Fair Disclosure (Reg FD) has decreased financial analysts' information advantages over investors in processing the information contained in the cash flow components of earnings. The results of this study suggest that investors' overall performance on utilizing the information contained in the cash flows component has improved subsequent to Reg FD, and that Reg FD appears to have dampened financial analysts' information advantages over investors. However, our results also suggest that the information environment may be more "noisy" in the post-FD period, evidenced by increased analysts' mis-weightings.

INTRODUCTION

This study examines whether or not the Regulation Fair Disclosure (hereafter, Reg FD) affects financial analysts' and investors' weightings of the cash components in forecasting annual earnings. Prior literature documents investors' under- or over-reactions to certain public available information. Prior studies also show that financial analysts, as information intermediaries, are less biased than investors in processing accounting information. For example, Sloan (1996) demonstrates that operating cash flows are more persistent than accruals¹. Investors, however, fixate on earnings and fail to reflect the greater persistence of the cash flow component in forming their earnings expectations. Subsequently, several studies document that investors under-weight the persistence of operating cash flow and over-weight the accrual component of earnings, and that investors' mis-weightings are not entirely driven by financial analysts' earnings forecasts. Using financial analysts' forecasts of earnings as empirical proxies for investors' expectations of earnings, Bradshaw et al. (2001) find that the apparent investor bias is driven solely by the working capital component of the earnings accruals. Elgers et al. (2003) examine whether financial analysts' forecasts of annual earnings reflect an over-weighting of working capital accruals that is consistent with the mis-weighting documented in Sloan (1996) and Bradshaw et al. (2001). They find that the over-weighting of working capital accruals in analysts' earnings forecasts is less than one-third of the over-weighting by investors that is implicit in stock prices. Moreover, less than 40 percent of the delayed securities returns associated with working capital accruals

¹ Operating cash flows are more persistent than accruals means that current-year operating cash flows have a stronger linear relation with subsequent-year earnings.

can be attributed to subsequent errors in analysts' annual earnings forecasts, for firms with less than median levels of analyst coverage. Their findings suggest that financial analysts are much less biased than investors in weighting working capital accruals, and that other securities market inefficiencies that are unrelated to financial analysts' earnings forecasts underlie at least part of the accruals anomaly.

As distinct from the accrual-related anomaly, Dechow et al. (2008) investigate the persistence and pricing of the *cash* component of annual earnings. They decompose the cash component into three sub-components: (1) cash that is retained by the firm, (2) cash flows to or from equity holders as a result of equity financing, and (3) cash flows to or from debt holders as a result of debt financing. They demonstrate that the higher persistence of the cash component (relative to accruals) is entirely attributable to cash flows related to equity financing. However, investors fail to anticipate the lower persistence for cash retained by the firm relative to cash flows to/from equity holders and debt holders. Based upon the decomposition scheme developed in Dechow et al. (2008), Lo and Xu (2008) examine whether or not financial analysts contribute to investors' mis-weighting of the cash flow component. They find that financial analysts' weightings of the cash flow components are more closely aligned with the historical relations than are the corresponding weightings by investors, both in direction and in magnitude. Their findings document that financial analysts are less biased than investors in weighting the cash component of annual earnings.

Reg FD was approved by the Securities and Exchange Commission (SEC) on August 10, 2000 and became effective on October 23 of the same year. The intent of Reg FD is to reinforce the integrity of capital market by imposing higher transparency requirements on the voluntary disclosure practices of public companies. This regulation prohibits the selective disclosure of material information to preferred financial professionals (e.g., analysts and institutional shareholders). Companies with material information to disclose must now do so in a press release or conference call that is simultaneously open to all investors and general public. As expected, financial analysts expressed strong resistance to Reg FD.² They argued that

² A comment letter to the Securities and Exchange Commission (SEC) from the Securities Industry Association (SIA 2000) states: "We believe that these communications help get information into the marketplace, whereas the proposal will discourage issuers from exchanging ideas or

this change in information communication would affect their ability to operate effectively and that information communicated by issuers to the general public would be of lower quality.

Subsequent to the implementation of Reg FD, numerous studies have investigated the impact of Reg FD on the information environment of firms, capital market and financial analysts. For example, Sunder (2003), Eleswarapu et al. (2004), and Chiyachantana et al. (2004) show that Reg FD has been effective in decreasing the level of information asymmetry among equity investors. DeFusco et al. (2010) document that the information efficiency of stock prices has improved not only in the immediate aftermath of Reg FD, but also in later periods from 2002 to 2005. Findlay and Mathew (2006) examine the impact of Reg FD on financial analysts' earnings forecast accuracy and find that analysts forecast accuracy declines overall after Reg FD. Moreover, analysts that are relatively less accurate (more accurate) prior to Reg FD improve (deteriorate) after the implementation of Reg FD. Collectively, these findings suggest that Reg FD has leveled the information playing field among different classes of capital market participants by prohibiting selective disclosure of material non-public information to privileged financial professionals. These studies examine the impact of Reg FD on investors/capital market and financial analysts separately. On the other hand, as described earlier, it has been documented that analysts are superior over the market in processing publicly disclosed financial information. The findings from these two bodies of research raise some logical questions: Does Reg FD improve (undermine) investors' (analysts') performance on information processing? Has "leveling the information playing field" decreased financial analysts' superiority to investors in processing financial information?

The objective of this study is to address the above questions. Dechow et al. (2008) show the differential persistence among the three cash components of earnings as well as investors' weightings of these components. Lo and Xu (2008) document that financial analysts are more effective than investors in recognizing the differential persistence of cash components. They find that analysts' weightings of cash components are much closer to the historical weightings than those of investors, in both direction and magnitude. The sample periods of both Dechow et al. (2008) and Lo and Xu (2008), from 1950 to 2003 and from 1985 to 2004, respectively, include primarily the years prior to the passage of Reg FD. This study builds on their findings and attempts to answer a question: has the financial analysts' superiority to investors in processing information contained in the cash flow components of earnings decreased subsequent to the implementation of Reg FD? Specifically, we examine investors' and financial analysts' weightings of

information with analysts, as well as deter analysts from vigorously competing to glean useful information for their clients and the markets."

the cash components of earnings in both the pre-FD and the post-FD periods, using the historical weightings as benchmarks. We find that investors' weightings on cash flow components are closer to the historical weightings in the post-FD period. Moreover, in the post-FD period, the magnitude of investors' mis-weightings of cash flow components has decreased, and investors' weightings are more similar to those of analysts. Overall, the empirical results of this study suggest that Regulation Fair Disclosure appears to have dampened financial analysts' information advantages over investors.

The remainder of the paper is structured as follows. Section 2 develops the hypotheses about the impact of Reg FD on investors' and financial analysts' weightings of the cash components of annual earnings. Section 3 explains the research design and empirical models. Section 4 presents the empirical results. Section 5 concludes.

HYPOTHESES

This paper addresses the research question: "does the Reg FD affect financial analysts' information advantages in weighting the cash flow components of earnings?" To pursue this question, we first divide our sample into two periods – before Reg FD period and after Reg FD period. We then compare financial analysts' and investors' weightings of cash flow components within each sample period, using historical persistence estimate as a benchmark. Following the earnings decomposition approach in Dechow et al. (2008) and Lo and Xu (2008), we disaggregate annual earnings (E) into total accruals ($ACCR$), changes in cash ($Cash$), net cash distributions to equity holders ($DIST^{EQ}$), and net cash distributions to debt holders ($DIST^D$):³

$$E = ACCR + Cash + DIST^{EQ} + DIST^D$$

In examining investors' weightings of these cash flow components, Dechow et al. (2008) find that the higher persistence of the cash component of earnings is entirely due to net cash distributions to equity holders, and that investors overestimate the persistence of cash retained by the firms, although they correctly anticipate the relatively higher (lower) persistence of net cash distributed to equity (debt) holders. Their findings suggest that investors fail to fully recognize the differential persistence of the cash components. As information intermediaries, financial analysts presumably influence investors' expectations. Prior studies in comparing the usage of accounting information by analysts and investors document that, in some contexts, financial analysts utilize financial information more effectively than investors do, and that market mispricing appears to reflect bias in investors' earnings expectations that is more

³ See Dechow et al. (2008), pp541-542 for detailed explanations of this decomposition of income. All earnings components variables in their study are scaled by average total assets.

pronounced than any related bias in financial analysts' forecasts.

Several possible reasons could explain financial analysts' superiority in processing accounting information. One prominent explanation is that financial analysts have private access to non-public information. With the institution of Reg FD, however, companies are prohibited to selectively disclose material information to preferred financial professionals, which include analysts and institutional shareholders. Companies with material information to disclose must now do so in a press release or conference call that is simultaneously open to all investors. The passage of Reg FD may have mitigated, if not removed, analysts' superiority over investors in processing financial information. Prior empirical research that examines the impact of Reg FD has provided evidence that is consistent with this conjecture. .

Sunder (2003), Eleswarapu et al. (2004), Brown et al (2004) and Cornett et al (2007) document that Reg FD has leveled the information playing field among different classes of investors by providing equal access to information from disclosing firms. With the leveled playing field in the post Reg FD period, previously disadvantaged investors now have access to information at the same time as analysts do. Recently, DeFusco et al. (2010) show that there is an improvement in the information efficiency of stock prices after Reg FD, and the improvement persists in later periods beyond the immediate aftermath of Reg FD. One plausible explanation for this improvement is that Reg FD enables all types of investors gain equal access to previously unavailable information, and hence makes them better able to process information than they did prior to Reg FD. Moreover, Findlay and Mathew (2006) show that, after Reg FD, financial analysts' forecast accuracy declines overall. Bailey et al. (2003) document that analysts forecast dispersion increases subsequent to Reg FD. The evidence that analysts' forecasts are less accurate and more dispersed after Reg FD suggests that financial analysts' performance has declined, perhaps at least in part due to the loss of their privileged access to private information. The above evidence leads us to speculate that, in the post-FD period, investors can better assess the information contained in cash flow components, and financial analysts are less able to sustain their superiority over investors as they did before.

We address investors' and financial analysts' ability to process the information contained in cash components based upon two dimensions: the *rankings* as well as the *weightings* of the persistence of cash flow components. The rankings of cash components indicate whether or not investors and analysts directionally recognize the differential persistence of cash components. The weightings of cash components, on the other hand, indicate the magnitude of the persistence perceived by investors and analysts. We use the historical persistence of earnings components as the benchmark to make comparisons. According to the inferences derived

from prior literature discussed above, we form the following hypotheses (in alternative form):

- H1: The rankings of the persistence of cash flow components by investors are closer to their historical rankings in the post-FD period.
- H2: The weightings of the persistence of cash flow components by investors are closer to their historical weightings in the post-FD period.
- H3: The differences in the mis-weightings of cash flow components between investors and financial analysts are smaller in the post-FD period.

RESEARCH DESIGN

Sample Selection and Variable Definitions

Our analyses use December fiscal-year-end firm-years from the intersection of COMPUSTAT Annual database (including both active and inactive firms), CRSP Monthly Return database and I/B/E/S Summary database. In order to be included in the sample, each observation must include all the following variables (firm specific subscripts are omitted). The definitions of earnings and earnings components are the same as in Dechow et al. (2008) and Lo and Xu (2008).

E_{t+1} = Annual income before extraordinary items and discontinued operations available for common stockholders for year $t+1$.

$ACCR_t$ = Total annual accruals for year t .
 = Non-Cash Assets – Non-Debt Liabilities
 Where Non-Cash Assets = Total assets – Cash & equivalents
 Non-Debt Liabilities = Total liabilities – Debt

$CASH_t$ = Change in cash for year t . Cash is defined as cash and equivalents.

$DIST_t^{EQ}$ = Cash distributions to equity holders for year t .
 = E_t – Change in equity for year t
 = E_t – (Total Assets – Total Liabilities) for year t .

$DIST_t^D$ = Cash distributions to debt holders for year t .
 = Reduction in debts for year t
 = Reduction in long-term debt + Reduction in short-term debt, for year t .

SAR_{t+1} = Size-adjusted security return, measured as the realized market return in year $t+1$ (May 1 year $t+1$ through April 30, year $t+2$), less the corresponding median return in the same market capitalization decile at the start of year $t+1$.

FAF_{t+1} = I/B/E/S median (consensus) analyst forecast of annual earnings, reported in May of the following

year, multiplied by shares outstanding and scaled by average total assets.

$Size_t$ = Natural log of market value of equity at the end of year t.

M/B_t = Market value of equity divided by book value of equity at the end of year t.

P/E_t = Market value of equity divided by income before extraordinary items and discontinued operations.

Lev_t = Total liabilities divided by total assets at the end of year t.

Int_t = Average federal primary discount rates of year t.

In order to ensure that earnings are announced before the start of the cumulating period of size-adjusted securities returns, we only keep observations with earnings announcement dates earlier than May 1 of year t+1. Because the start of the cumulating period for size-adjusted securities returns, and hence the date at which the implicit securities market earnings expectations are measured, is May 1 of year t+1, we use the May consensus forecasts to ensure comparability between analysts' and market's implicit earnings expectations. All earnings and components variables are scaled by average total assets, consistent with Dechow et al. (2008) and Lo and Xu (2008). The last five variables above are included in the study as control variables. For simplicity purpose, we do not report results related to these control variables in the empirical analysis section.

I/B/E/S analyst data was sparse prior to year 1985. For this reason, our sample period starts in 1985 in order to minimize self selection bias. To mitigate the potential effects of outliers on our analyses, we winsorize the extreme cases for the asset-scaled earnings components variables at +1 and -1 in each year, as used in Dechow et al. (2008) and Lo and Xu (2008). In addition, we winsorize the extreme cases for the asset-scaled analysts' forecasts of earnings (FAF) at +4 and -4 in each year. We define the Pre-FD period as 1985-1999 and the Post-FD period as 2001-2008. To ensure cleaner comparisons between the Pre-FD and the Post-FD periods, we exclude the year 2000 from our sample because Reg FD took effect in 2000. Our final sample contains 39,081 firm-years over the period 1985-2008, with 20,032 firm-years in the Pre-FD period and 19,049 firm-years in the Post-FD period.

Empirical Models

The empirical models used in this study are the same as in Lo and Xu (2008). Their paper documents that financial analysts are superior to investors in processing information contained in the cash components of earnings, while this study examines whether or not Reg FD affects such superiority of financial analysts. For this purpose, we will compare the results of the empirical models between the Pre-FD and the Post-FD periods.

To obtain the historical persistence of earnings components as a benchmark, we relate realized earnings to the earnings components from the previous year and estimate the following model:

$$E_{t+1} = \alpha_0 + \alpha_1 ACCR_t + \alpha_2 \Delta CASH_t + \alpha_3 DIST_t^{EQ} + \alpha_4 DIST_t^D + \mu_{t+1} \quad (1)$$

The parameter estimates for the three cash components of earnings (i.e., $\hat{\alpha}_i$, $i = 2, 3$ and 4) indicate the historical persistence or weightings of these cash components. These historical weightings are the benchmarks against which the investors' and financial analysts' weightings are compared.

To examine investors' weightings of these prior-year earnings components that are implicit in securities prices, we follow the convention to regress unexpected returns on unexpected earnings. Because unexpected earnings are the excess of realized earnings, E_{t+1} , over expected earnings, we use prior-year earnings components as a base for investors' earnings expectations and derive the following regression:

$$SAR_{t+1} = \delta_0 + \delta_1 (E_{t+1} - \gamma_0 - \gamma_1 ACCR_t - \gamma_2 \Delta CASH_t - \gamma_3 DIST_t^{EQ} - \gamma_4 DIST_t^D) + \mu_{t+1} \quad (2)$$

The investor's weightings of earnings components are measured by $\hat{\gamma}_i$ ($i = 1, 2, 3$ and 4). The above method was developed in Mishkin's (1983) assessment of rationality in bond pricing and subsequently adapted by Sloan (1996). This econometric approach, i.e. simultaneous non-linear least squares regression, allows us to simultaneously estimate the investors' weightings of the accrual and cash components of earnings indicated in expression (2). Please see Elgers et al (2003) for detailed explanation of this method.

To examine the weightings of the prior-year earnings components by financial analysts, we regress financial analysts' earnings forecasts on the accrual and cash components of earnings from the previous year and estimate the following model:

$$FAF_{t+1} = \beta_0 + \beta_1 ACCR_t + \beta_2 \Delta CASH_t + \beta_3 DIST_t^{EQ} + \beta_4 DIST_t^D + \mu_{t+1} \quad (3)$$

This model is parallel to the historical relation in expression (1). The parameter estimates $\hat{\beta}_i$ ($i = 1, 2, 3$ and 4) indicate analysts' weightings of prior-year earnings components implied in their earnings forecasts. To test our hypotheses, we compare three sets of weightings of the cash components between the Pre-FD and the Post-FD periods, i.e., the historical persistence (the coefficient estimates of α_2 , α_3 , and α_4 in expression (1)), the investors' weightings (the coefficient estimates of γ_2 , γ_3 , and γ_4 in expression (2)),

and the analysts' weightings (the coefficient estimates of γ_2 , γ_3 , and γ_4 in expression (3)) both in direction and in magnitude.

Specifically, to test hypothesis 1, we examine the rankings of the cash flow components by investors from expression (2), and compare their rankings to the historical rankings observed from expression (1) in both the Pre-FD and the Post-FD periods. We expect the investors' rankings from expression (2) (i.e. γ_2 , γ_3 , and γ_4) are closer to historical rankings from expression (1) (i.e. γ_2 , γ_3 , and γ_4) in the Post-FD period.

To test hypothesis 2, we formally contrast investors' weightings to historical weightings separately for the three cash flow components in the Pre- and Post-FD periods. We expect the difference between the investors' and historical weightings on the cash components (i.e. $\gamma_2 - \gamma_2^H$, $\gamma_3 - \gamma_3^H$, and $\gamma_4 - \gamma_4^H$) are reduced in the Post-FD period.

To test hypothesis 3, we formally contrast investors' weightings to analysts' weightings for the three cash components in the Pre- and Post-FD periods. We expect the difference between investors' and analysts' weightings on the cash components (i.e. $\gamma_2 - \gamma_2^A$, $\gamma_3 - \gamma_3^A$, and $\gamma_4 - \gamma_4^A$) is reduced in the Post-FD period.

In addition, we have included five control variables in the above three empirical models, $Size_t$, M/B_t , Int_t , P/E_t and Lev_t , as defined in Section 3.1. Because this study compares results between two different periods of time, changes in firm-specific factors and overall market condition may drive the results. These control variables are included to eliminate this competing explanation. For example, Int_t (average federal discount rate for a given year) is included to control for the change in overall market condition. By controlling for firm-specific factors and overall market condition, we can attribute the results to the effect of Reg FD. In addition, Kraft et al. (2005) has shown that the Mishkin (1983) approach requires difficult distributional assumptions including multivariate normality of the regressors, the stability of the covariance relations over the years used in pooled estimation, the absence of omitted variables in the pricing equation, and the absence of cross-correlations in the regression residuals. Yu (2008) shows that these difficulties are substantially mitigated by the inclusion of firm size and market-to-book ratios as control variables. Thus the inclusion of $Size_t$ and M/B_t in our empirical models mitigates these concerns about the Mishkin framework.

EMPIRICAL RESULTS

Descriptive Statistics

Table 1 presents descriptive statistics as well as Pearson correlations for the entire sample period.⁴ The results show positive means for $ACCR_t$ and $CASH_t$, indicating that our sample firms have been growing during the sample years. Untabulated results for the Pre-FD and Post-FD periods, however, indicate that both $ACCR_t$ and E_t have decreased from the Pre- to the Post-FD period. These results suggest that the growth has slowed in the Post-FD period, which is consistent with the economic turbulence related to the burst of the tech bubble in the early 2000's and recent financial crisis. Negative means for $DIST_t^{EQ}$ and $DIST_t^D$ indicate that the amount of capital raised by those firms from their capital holders is more than the amounts distributed to capital holders. In addition, the cash raised from equity holders (debt holders) increases (decreases) from the Pre-FD to the Post-FD period, indicating that firms increase their reliance on equity financing subsequent to the year 2000. The standard deviations of individual components of earnings show that each component, i.e. $ACCR_t$, $CASH_t$, $DIST_t^{EQ}$ and $DIST_t^D$, represents an important source of the variation in earnings.

Pearson correlations reveal empirical regularities documented in prior research. Size-adjusted returns, SAR_{t+1} , and prior-year accruals, $ACCR_t$, are negatively correlated, consistent with the lagged security price adjustments to accruals reported in Sloan (1996), Bradshaw et al. (2001) and Elgers et al. (2003). The correlations between accruals, $ACCR_t$, and cash distributed to equity holders, $DIST_t^{EQ}$, as well as to debt holders, $DIST_t^D$, are negative, consistent with the role of accruals in mitigating timing problems in cash flow measures of earnings (Dechow 1994). $CASH_t$ and $DIST_t^{EQ}$ are also negatively correlated, since cash distributions to equity holders consume a firm's free cash.

Historical, Investors' and Analysts' Weightings of Prior-Year Cash Components: Pre- and Post-FD Periods

Table 2, Panel A presents historical weightings of the cash components in the Pre-FD and the Post-FD periods. Consistent with Dechow et al. (2008) and Lo and Xu (2008), cash distributed to equity holders, $DIST_t^{EQ}$ is the most persistent among the three cash components, 0.661 and 0.793 respectively, in both the Pre- and Post-FD periods. In the Pre-FD period, the historical weightings on $CASH_t$ (0.543) and $DIST_t^D$ (0.551) are statistically indistinguishable. Yet in the post-FD period, the historical weighting on $DIST_t^D$ (0.661) is higher than that on $CASH_t$ (0.614). In both the Pre- and Post-FD periods, coefficients of $DIST_t^D$ and $Cash_t$ are similar to that of $ACCR_t$, indicating that the higher persistence of cash flows vs. accruals is driven by cash distributed to equity holders. Overall, it shows that the

⁴ The results for the Pre-FD and Post-FD periods, not tabulated, are qualitatively the same.

historical ranking of the cash components is highest for $DIST_t^{EQ}$.

Table 2, Panel B presents investors' implicit weightings of the cash components in the Pre- and Post-FD periods. In the Pre-FD period, investors appear to recognize that $DIST_t^{EQ}$ is more persistent than $Cash_t$. However, investors fail to recognize that $DIST_t^{EQ}$ is the most persistent among the three cash components. Investors' weighting on $DIST_t^{EQ}$ (1.208) is statistically indifferent from their weighting on $DIST_t^D$ (1.156), with a p -value of 0.271. This evidence suggests that investors' rankings of the cash components are inconsistent with the historical rankings reported in Panel A, which ranks $DIST_t^{EQ}$ the highest. In the Post-FD period, investors appear to weight $Cash_t$ the highest (0.690), again inconsistent with the historical ranking. These results do not support our first hypothesis, which states that the rankings of the persistence of cash flow components by investors are closer to their historical rankings in the post-FD period. Instead the results show that the investors fail to reflect the highest ranking of $DIST_t^{EQ}$ in both the Pre- and Post-FD periods

Table 2 Panel C presents analysts' weightings of the cash components in the Pre- and Post-FD periods. In both periods, analysts correctly recognize the highest persistence of $DIST_t^{EQ}$ among the three cash components. The results suggest that analysts are more sophisticated than investors in evaluating the persistence of cash components, even in the Post-FD period. The passage of Reg FD does not seem to affect financial analysts' better performance than investors in ranking the persistence among the three cash components.

The tests above focus on the change in directional comparisons (i.e., *rankings*) of the weightings of the cash components implicit in historical, investors' and analysts' relations, between the Pre- and Post-FD periods. To test our next two hypotheses, the following section focuses on the change in the *magnitude* of the weighting differences across these relations between the Pre- and Post-FD periods.

Comparisons of Weightings of Prior-Year Cash Components: Pre- and Post-FD Periods

Table 3, Panels A and B report three sets of formal contrasts of the weighting differences for the cash components reported in Table 2 for the Pre- and Post-FD periods. First, the historical relations of the cash components to subsequent-period realized earnings (in Table 2 Panel A) are compared to investors' weightings (in Table 2 Panel B), to assess the magnitude of investors' mis-weighting of the three cash components. Second, the historical relations (in Table 2 Panel A) are compared to financial analysts' weightings (in Table 2 Panel C), to evaluate the magnitude of analysts' mis-weighting of the cash components. Last, the investors' weightings (in Table 2 Panel B) are compared to financial analysts' weightings (in Table 2 Panel C) to address to what extent the analysts' bias contributes to the investors' bias in weighting these cash components. We

will use the change in these comparisons between the Pre- and Post-FD periods to test our second and third hypotheses. Table 3 Panel C presents these changes in contrasts of weightings from the Pre- to Post-FD periods.

Table 3 Panel A shows that, when comparing investors' and historical weightings, investors over-estimate all components of earnings in the Pre-FD period. The over-weightings are -0.561, -0.547 and -0.605, on $Cash_t$, $DIST_t^{EQ}$, and $DIST_t^D$, respectively. Table 3 Panel B shows that investors overweight only $Cash_t$ (-0.076) but underweight both $DIST_t^{EQ}$ (0.251) and $DIST_t^D$ (0.200) in the Post-FD period. Table 3 Panel C compares the mis-weightings of investors on the earnings components between the Pre- and Post-FD periods. Note that we compare the magnitude of mis-weightings, regardless of over- or under-weightings. For example, investors' mis-weighting on $Cash_t$ is 0.561 in the Pre-FD period and the magnitude of mis-weighting declines to 0.076 in the Post-FD period. The change (or decrease) in the mis-weighting is 0.485 and significant at 1%. The investors' mis-weightings on $DIST_t^{EQ}$, and $DIST_t^D$ decrease by 0.296 and 0.405, respectively, both significant at 1%. These results suggest that the magnitudes of investors' weightings on the cash components are closer to the historical weightings in the Post-FD period, consistent with our second hypothesis.

Table 3 also compares analysts' and investors' weightings in the Pre- and Post-FD periods. Table 3 Panel A shows that investors' weightings on all of the three cash components are higher than analysts' weightings in the Pre-FD period. Table 3 Panel B shows that, in the Post-FD period, analysts' weightings are higher than investors' for all three cash components, but their weightings are closer to each other. For example, the difference between investors' and analysts' weighting on $Cash_t$ is 0.597 in the Pre-FD period, and it decreases sharply to -0.007 in the Post-FD period. The difference of the weightings on $DIST_t^{EQ}$ ($DIST_t^D$) is 0.610 (0.638) in the Pre-FD period, and it declines by about one-half to -0.331 (-0.246). Table 3 Panel C tests the change in the magnitude of the weighting contrasts and shows that these decreases in the weighting differences between the Pre- and Post-FD periods are significant at 1%, for all three cash components. These results are consistent with our third hypothesis that investors' weightings on the cash components are closer to analysts' in the Post-FD period. It further indicates that Reg-FD reduces non-public information available to analysts, creating a more leveled playing field for market participants. More similarity between investors' and analysts' weightings is consistent with our hypothesis that the superiority of financial analysts is less prominent in the Post-FD period.

There are a few more noteworthy observations related to Table 3. First, Table 3 Panel A shows analysts seem to underweight all three cash components. In addition, analysts' mis-weightings on the cash components are much smaller than investors' mis-weightings and seem to be economically insignificant (0.036/0.543=6.6% for $Cash_t$,

0.063/0.661=9.5% for $DIST_t^{EQ}$, and 0.033/0.551=6% for $DIST_t^D$). This is consistent with the findings from prior literature that analysts are more sophisticated than investors in processing information. Second, as previously discussed, even though investors' mis-weightings on the cash components have decreased and investors' weightings are closer to historical in the Post-FD period, analysts' mis-weightings, in general, continue to be smaller than investors' based on Table 3 Panel B. For example, analysts' mis-weighting on $DIST_t^{EQ}$ ($DIST_t^D$) is -0.080 (-0.046), much less than investors' mis-weighting of 0.251 (0.200). The only exception is that analysts' mis-weighting on $Cash_t$ (-0.083) is slightly higher than investors' (-0.076) although statistically insignificant. This indicates that even though investors have improved in their ability to process information in the cash components subsequent to Reg FD, analysts remain to be more superior in processing such information. This further suggests that analysts' superiority in processing information is not derived only from private information, but also from their expertise, years of experience and etc. Lastly, Table 3 also shows that analysts' mis-weightings on the cash components have increased from the Pre- to Post-FD periods. For example, analysts' mis-weighting on $Cash_t$ is 0.036 in the Pre-FD period and increases to 0.083 in the Post-FD period. The same pattern holds for $DIST_t^{EQ}$ and $DIST_t^D$. This may indicate that even though the playing field is more leveled in the Post-FD period, the information environment may be more "noisy" and hence analysts' mis-weightings become more severe in the Post-FD period. To some extent, the evidence is consistent with the finding that financial analyst forecast dispersion increases after Reg FD (Bailey, et al. 2003), and the speculation that companies tend to issue less publicly available information with lower quality after the institution of Reg FD.⁵

Overall, the results in Table 3 support our second and third hypotheses that investors' mis-weightings of the cash components have decreased and investors' weightings are more similar to analysts' in the Post-FD period. These results reflect the impact of Reg FD by eliminating selective disclosure among different classes of investors in the market.

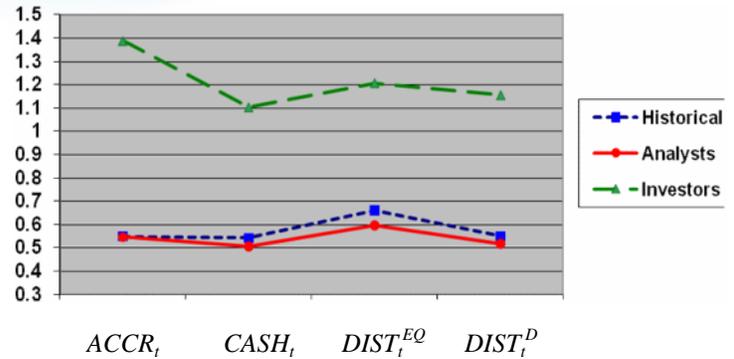
To present a visual summary of the above comparisons, Figure 1 depicts the weightings for $ACCR_t$, $CASH_t$, $DIST_t^{EQ}$ and $DIST_t^D$ based upon the historical, financial analysts' and investors' relations (in Table 2) for the Pre- and Post-FD periods. Note that analysts' weightings on all

FIGURE 1

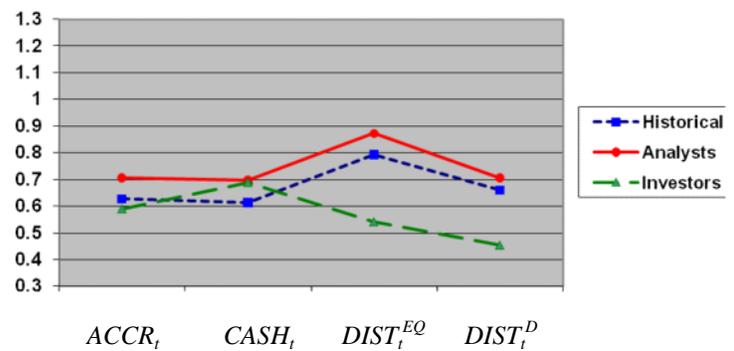
⁵ The Securities Industry Association (SIA) conducted a survey by interviewing 30 financial analysts in 2001 (SIA 2001). Of the analysts interviewed, 47 percent indicated that companies engaged in less communication and 72 percent indicated that information communicated by disclosing firms to the public was of lower quality in the Post-FD period.

Historical, Investors' and Financial Analysts' Weightings of Earnings Components

Panel A: Pre-FD Period (20,032 firm-years, 1985-1999)



Panel B: Post-FD Period (19,049 firm-years, 2001-2008)



components closely follow investors' weightings both in direction and in magnitude in both the Pre- and Post-FD periods. This shows that analysts are still more superior in processing information in cash components even after the elimination of selective disclosure by Reg FD. Second, investors' weightings are closer to both historical and analysts' weightings in the Post-FD period, supporting the second and third hypotheses. These suggest that the playing field is more leveled for market participants after the passage of Reg FD.

SUMMARY AND CONCLUSIONS

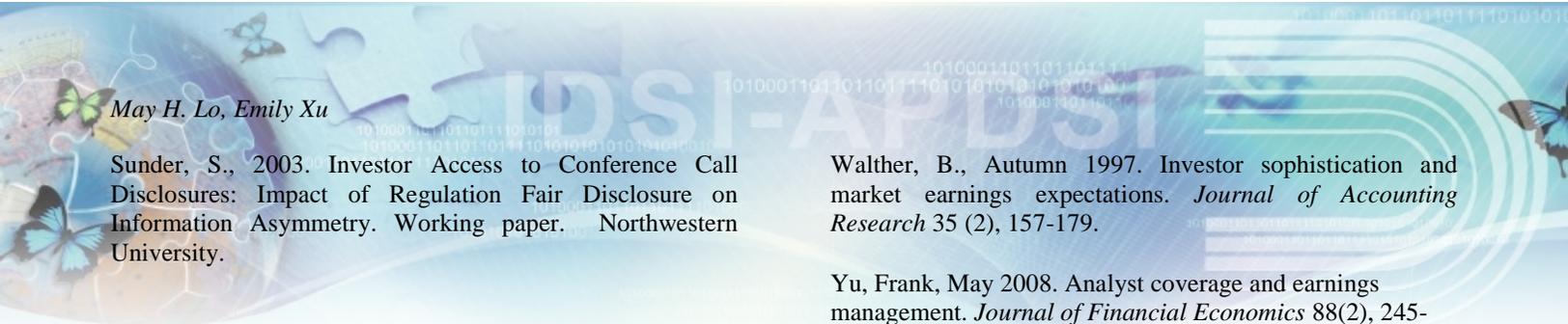
This study investigates whether or not Regulation Fair Disclosure has decreased financial analysts' information advantages over investors in processing the information contained in cash flow components of earnings. We examine the ranking as well as the weightings of the cash flow components by financial analysts and investors in both Pre- and Post-FD periods. We also examine the magnitudes of

mis-weightings by both analysts and investors in both Pre- and Post-FD periods.

The empirical results indicate that investors' weightings on cash flow components are closer to the historical weightings of these components in the Post-FD period. Moreover, the magnitude of investors' mis-weightings of cash flow components has decreased in the Post-FD period, and investors' weightings are more similar to those of analysts' in the Post-FD period. Investors' rankings of the persistence of cash flow components, however, do not show significant improvement in the Post-FD period. Specifically, investors fail to reflect the highest persistence of cash distribution made to equity holders. Collectively, the results of this study suggest that investors' overall performance on utilizing the information contained in the cash flows component has improved subsequent to Regulation Fair Disclosure, and that Regulation Fair Disclosure appears to have dampened financial analysts' information advantages over investors. However, our results also suggest that the information environment may be more "noisy" in the post-FD period, evidenced by increased analysts' mis-weightings.

REFERENCES

- Abarbanell, J. and Bushee, B., July 1998. Fundamental analysis, future earnings, and stock prices. Working paper.
- Bailey, W., Haitao, L., Mao, C. and Zhong, R., December 2003. Regulation fair disclosure and earnings information: market, analyst, and corporate responses. *Journal of Finance* 58 (6), 2487-2514.
- Bernard, V., Spring 1987. Cross-sectional dependence and problems in inference in market-based accounting research. *Journal of Accounting Research* 25 (1), 1-48.
- Bhattacharya, N., April 2001. Investors' trade size and trading responses around earnings announcements: an empirical investigation. *The Accounting Review* 76 (2), 221-244.
- Bradshaw, M., Richardson, S. and Sloan, R., June 2001. Do analysts and auditors use information in accruals? *Journal of Accounting Research* 39 (1), 45-74.
- Brown, S., S. H. Hillegeist, and K. Lo. 2004. Conference calls and information asymmetry. *Journal of Accounting and Economics* 37 (3): 343-66.
- Chiyachantana, C., Jiang, C., Taechapirrontong, N. and Wood, R., November 2004. The Impact of Regulation Fair Disclosure on Information Asymmetry and Trading: An Intraday Analysis. *Financial Review* 39 (4), 549-577.
- Cornett, M., Tehranian, H. and Yalcin, A., March 2007. Regulation fair disclosure and the market's reaction to analyst investment recommendation changes. *Journal of Banking and Finance* 31 (3), 567-588.
- Dechow, P., July 1994. Accounting earnings and cash flows as measures of firm performance: the role of accounting accruals. *Journal of Accounting and Economics* 18 (1), 3-42.
- Dechow, P., Richardson, S. and Sloan, R., June 2008. The persistence and pricing of the cash component of earnings. *Journal of Accounting Research* 46 (3), 537-566.
- DeFusco, R., Mishra, S. and Raghunandan, K., February 2010. Changes in the Information Efficiency of Stock Prices: Additional Evidence. *Financial Review* 45 (1), 153-165.
- Eleswarapu, V., Thompson, R. and Venkataraman, K. June 2004. The Impact of Regulation Fair Disclosure: Trading Costs and Information Asymmetry. *Journal of Financial and Quantitative Analysis* 39 (2), 209-225.
- Elgers, P., Lo, M. and Pfeiffer, R., October 2001. Delayed Security Price Adjustments to Financial Analysts' Forecasts of Annual Earnings. *The Accounting Review* 76 (4), 613-632.
- Elgers, P., Lo, M. and Pfeiffer, R., May-June 2003. Analysts' vs. Investors' Weightings of Accruals in Forecasting Annual Earnings. *Journal of Accounting and Public Policy* 22(3), 255-280.
- Findlay, S., and Mathew, P., February 2006. An Examination of the Differential Impact of Regulation FD on Analysts' Forecast Accuracy. *Financial Review* 41 (1), 9-31.
- Hong, H., Lim, T. and Stein, J., February 2000. Bad news travels slowly: size, analyst coverage, and the profitability of momentum strategies. *Journal of Finance* 55 (1), 265-295.
- Kraft, A., Leone, A., Wasley, C., 2005. An Analysis of the Theories and Explanations Offered for the Mispricing of Accruals and Accrual Components. Working paper. University of Rochester.
- Lo, M. H. and Xu, L., 2008. Do analysts mislead investors? A comparison of analysts' and investors' weightings of cash components in forecasting annual earnings. *Accounting Research Journal*, 21 (1): 33-54
- Mishkin, F., 1983. *A Rational Expectations Approach to Macroeconomics*. Chicago, IL: The University of Chicago Press.
- Mohanram, P. and Sunder, S., 2006. How Has Regulation FD Affected the Operations of Financial Analysts? *Contemporary Accounting Research* 23 (2), 491-525.
- Sloan, R., July 1996. Do stock prices fully reflect information in accruals and cash flows about future earnings? *The Accounting Review* 71 (3), 289-315.



May H. Lo, Emily Xu

Sunder, S., 2003. Investor Access to Conference Call Disclosures: Impact of Regulation Fair Disclosure on Information Asymmetry. Working paper. Northwestern University.

Walther, B., Autumn 1997. Investor sophistication and market earnings expectations. *Journal of Accounting Research* 35 (2), 157-179.

Yu, Frank, May 2008. Analyst coverage and earnings management. *Journal of Financial Economics* 88(2), 245-271

TABLE 1

Descriptive Statistics: All cases (41,312 Firm-years, 1985-2008)

	Mean	Standard Deviation	Pearson Correlations					
			$ACCR_t$	$Cash_t$	$DIST_t^{EQ}$	$DIST_t^D$	SAR_{t+1}	FAF_{t+1}
E_t	0.019	0.159	0.219	0.204	0.250	0.115	-0.040	0.646
$ACCR_t$	0.082	0.195	1	0.000	-0.348	-0.533	-0.065	0.087
$Cash_t$	0.040	0.190		1	-0.645	-0.013	-0.061	-0.019
$DIST_t^{EQ}$	-0.073	0.241			1	-0.079	0.057	0.344
$DIST_t^D$	-0.029	0.144				1	0.031	0.042
SAR_{t+1}	0.072	0.615					1	0.005
FAF_{t+1}	0.028	0.169						1

TABLE 2

Historical, Investors' and Financial Analysts' Weightings of the Accrual and Cash Flow Components of Earnings

Pre-FD Period: 20,032 firm-years, 1985-1999

Post-FD Period: 19,049 firm-years, 2001-2008

Panel A: Historical Relations of Realized Earnings to the Accrual and Cash Flow Components of Earnings

$$E_{t+1} = \alpha_0 + \alpha_1 ACCR_t + \alpha_2 \Delta CASH_t + \alpha_3 DIST_t^{EQ} + \alpha_4 DIST_t^D + \alpha_5 Size_t + \alpha_6 M/B_t + \alpha_7 Int_t + \alpha_8 P/E_t + \alpha_9 Lev_t + \mu_{t+1}$$

	Pre-FD Period		Post-FD Period	
	Coefficient	P-Value	Coefficient	P-Value
$ACCR_t$	0.550	(0.000)	0.628	(0.000)
$Cash_t$	0.543	(0.000)	0.614	(0.000)
$DIST_t^{EQ}$	0.661	(0.000)	0.793	(0.000)
$DIST_t^D$	0.551	(0.000)	0.661	(0.000)
Comparison of Weightings				
2 = 3	-0.118	(0.000)	-0.179	(0.000)
2 = 4	-0.008	(0.381)	-0.047	(0.000)
3 = 4	0.110	(0.000)	0.132	(0.000)

Panel B: Investors' Weightings of the Accrual and Cash Flow Components of Prior-Year Earnings

$$SAR_{t+1} = \delta_0 + \delta_1 (E_{t+1} - \gamma_0 - \gamma_1 ACCR_t - \gamma_2 \Delta CASH_t - \gamma_3 DIST_t^{EQ} - \gamma_4 DIST_t^D) + \delta_2 Size_t + \delta_3 M/B_t + \delta_4 Int_t + \delta_5 P/E_t + \delta_6 Lev_t + \mu_{t+1}$$

	Pre-FD Period		Post-FD Period	
	Coefficient	P-Value	Coefficient	P-Value
$ACCR_t$	1.389	(0.000)	0.591	(0.000)
$Cash_t$	1.104	(0.000)	0.690	(0.000)
$DIST_t^{EQ}$	1.208	(0.000)	0.542	(0.000)
$DIST_t^D$	1.156	(0.000)	0.461	(0.000)
Comparison of Weightings				
2 = 3	-0.104	(0.001)	0.148	(0.000)
2 = 4	-0.052	(0.328)	0.229	(0.000)
3 = 4	0.052	(0.271)	-0.041	(0.113)

Panel C: Financial Analysts' Weightings of the Accrual and Cash Flow Components of Prior-Year Earnings

$$FAF_{t+1} = \beta_0 + \beta_1 ACCR_t + \beta_2 \Delta CASH_t + \beta_3 DIST_t^{EQ} + \beta_4 DIST_t^D + \beta_5 Size_t + \beta_6 M/B_t + \beta_7 Int_t + \alpha_8 P/E_t + \alpha_9 Lev_t + \mu_{t+1}$$

	Pre-FD Period		Post-FD Period	
	Coefficient	P-Value	Coefficient	P-Value
$ACCR_t$	0.547	(0.000)	0.707	(0.000)
$Cash_t$	0.507	(0.000)	0.697	(0.000)
$DIST_t^{EQ}$	0.598	(0.000)	0.873	(0.000)
$DIST_t^D$	0.518	(0.000)	0.707	(0.000)
Comparison of Weightings				
2 = 3	-0.091	(0.000)	-0.176	(0.000)
2 = 4	-0.011	(0.200)	-0.010	(0.231)
3 = 4	0.080	(0.000)	0.166	(0.000)

TABLE 3

Comparisons of Historical, Investors' and Financial Analysts' Weightings of the Cash Components of Earnings: Pre- and Post-FD Periods

Panel A: Pre-FD Period (20,032 Firm-years, 1985-1999)

	Weightings Reported in Table 2				Contrasts of Weightings ^(a)		
	Historical	Investors	Analysts		Historical vs. Investors	Historical vs. Analysts	Analysts vs. Investors
$ACCR_t$	0.550	1.389	0.547	Difference	-0.839	0.003	0.842
				Likelihood ratio	303.13	0.04	311.64
				(p-value)	(0.000)	(0.837)	(0.000)
$Cash$	0.543	1.104	0.507	Difference	-0.561	0.036	0.597
				Likelihood ratio	132.77	20.01	153.88
				(p-value)	(0.000)	(0.000)	(0.000)
$DIST_t^{EQ}$	0.661	1.208	0.598	Difference	-0.547	0.063	0.610
				Likelihood ratio	145.67	69.68	184.91
				(p-value)	(0.000)	(0.000)	(0.000)
$DIST_t^D$	0.551	1.156	0.518	Difference	-0.605	0.033	0.638
				Likelihood ratio	122.28	13.10	138.96
				(p-value)	(0.000)	(0.000)	(0.000)

Panel B: Post-FD Period (19,049 Firm-years, 2001-2008)

	Weightings Reported in Table 2				Contrasts of Weightings ^(a)		
	Historical	Investors	Analysts		Historical vs. Investors	Historical vs. Analysts	Analysts vs. Investors
$ACCR_t$	0.628	0.591	0.707	Difference	0.037	-0.079	-0.116
				Likelihood ratio	0.76	137.52	8.04
				(p-value)	(0.384)	(0.000)	(0.005)
$Cash$	0.614	0.690	0.697	Difference	-0.076	-0.083	-0.007
				Likelihood ratio	3.35	149.15	0.03
				(p-value)	(0.067)	(0.000)	(0.852)
$DIST_t^{EQ}$	0.793	0.542	0.873	Difference	0.251	-0.080	-0.331
				Likelihood ratio	48.85	186.49	87.13
				(p-value)	(0.000)	(0.000)	(0.000)
$DIST_t^D$	0.661	0.461	0.707	Difference	0.200	-0.046	-0.246
				Likelihood ratio	13.89	27.34	21.61
				(p-value)	(0.000)	(0.000)	(0.000)

Panel C: Changes in Contrasts of Weightings from the Pre- to Post-FD Periods

		Contrasts of Weightings								
		Historical vs. Investors			Historical vs. Analysts			Analysts vs. Investors		
		Pre- FD	Post -FD	Changes	Pre- FD	Post -FD	Changes	Pre- FD	Post -FD	Changes
$ACCR_t$	Difference	-0.839	0.037	0.802	0.003	-0.079	-0.076	0.842	-0.116	0.726
	Likelihood Ratio			160.15			55.86			133.35
	(p-value)			(0.000)			(0.000)			(0.000)
$Cash$	Difference	-0.561	-0.076	0.485	0.036	-0.083	-0.047	0.597	-0.007	0.590
	Likelihood Ratio			57.69			20.26			87.07
	(p-value)			(0.000)			(0.000)			(0.000)
$DIST_t^{EQ}$	Difference	-0.547	0.251	0.296	0.063	-0.080	-0.017	0.610	-0.331	0.279
	Likelihood Ratio			26.31			3.72			23.69
	(p-value)			(0.000)			(0.054)			(0.000)
$DIST_t^D$	Difference	-0.605	0.200	0.405	0.033	-0.046	-0.013	0.638	-0.246	0.392
	Likelihood Ratio			27.89			1.17			26.66
	(p-value)			(0.000)			(0.280)			(0.000)