The Impact of Concurrent Conference Calls

on the Information Content of Earnings Announcements

Mark Kohlbeck *
Assistant Professor, University of Wisconsin – Madison

Matthew Magilke
Doctoral Student, University of Wisconsin – Madison

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* Corresponding author
University of Wisconsin – Madison
975 University Avenue
Madison, WI 53706
Email: mkohlbeck@bus.wisc.edu

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Abstract

We investigate the association of concurrent conference calls with the previously documented over-time increase in information content of earnings announcements. Conference calls are typically held on the same day as an earnings announcement and provide a source of competing information. We expect the increase in the information content of earnings announcements is actually a byproduct of either growth in number or increase in information content of concurrent conference calls. We find that the combination of additional information provided by conference calls and the increased conference call activity during the sample period is the source of the previously documented increase in information content of earnings. After controlling for conference calls, we find that the information content of earnings has, at best, remained constant during the period from 1995 to 2000 and for smaller quintile firms has actually decreased.

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> After the NASDAQ closing bell on January 10, 2001, Yahoo released earnings information that met expectations (Yahoo! Inc. [2001]). The company also held a conference call conveying additional information to analysts and investors participating in the conference call. Changes in price in the after hours markets occurred only following the conference call. Yahoo's share price decreased approximately 14 percent on NASDAQ the following day.

1. Introduction

The supply of financial and non-financial information outside of traditional financial statements continues to increase as other communication channels evolve. If obtaining information from these other channels becomes more cost effective, the value of financial statement information may be reduced. It is therefore important to understand how the evolution of the information age has impacted the demand for financial statement information (as opposed to the change in accounting information use) so that accounting can evolve and continue to provide valuable and meaningful information. In the above example, the market did not react to Yahoo's earnings release, even though the earnings release contained extensive information on the operating results and prospective information. The subsequent market reaction to the conference call indicated that Yahoo's conference call provided information about future expectations that was not readily discernable from the actual earnings release. The possibility therefore exists that ignoring conference calls may attribute excessive information content to earnings. We investigate whether conference calls held concurrent with actual earnings announcements (within the three-day window centered on the earnings announcement) influence the measurement of the information content of earnings announcements.

Current research suggests the information content of earnings has either remained level or increased over the past twenty to thirty years. Further, the increase is concentrated within certain subsets of firms based on size or industry membership. Missing from these studies is evidence of why the information content of earnings releases changed as it apparently did over the previous years. We suggest these results are an artifact of non-earnings announcement information being provided to the market at about the same time. One such source is conference calls where approximately 85 percent of conference calls are held concurrent with an earnings announcement (Frankel, Johnson and Skinner [1999]).

Conference calls supplement information contained in earnings announcements and related press releases. For example, Tasker [1998b] identified new products and "guidance" on interpreting financial statement line items as topics of the analyst's major questions in her detailed analysis of the content of twelve conference calls in the high-technology industry. Traditionally, only financial analysts and institutional investors were involved in the conference call. Although information was quickly impounded in the market price, recent developments, such as the Securities and Exchange Commission's Regulation FD [SEC, 2000], have expanded access to the conference call information, further enhancing the role of the conference call as a medium in providing information to the market.[1] Francis, Schipper, and Vincent [2002a] also consider this void and find an expansion of information (such as detailed income statements) contained in the earnings announcement press releases of large firms. We extend Francis, Schipper,

[1] Regulation FD provides for full disclosure of information and limits a firm from providing material information only to a select group of analysts or investors. Since Regulation FD became effective in late 2000, only our last quarter of data is affected. We exclude this quarter to consider its impact on our results in the performance of robustness tests.

and Vincent [2002a] by considering whether conference calls proxied for the over-time changes in the information content of earnings releases, independent of expanded disclosures and analyze a larger cross-section of firms. Specifically, we investigate 1) over-time changes in the information content of conference calls and 2) increased conference call activity, as possible explanations and whether the role of conference calls complements or substitutes for expanded earnings release disclosures. Our investigation of conference calls also complements existing research on competing sources of information including conference calls and analyst reports.

We design a series of tests to investigate the information content of conference calls and the influence of concurrent conference calls on the over-time increase in information content of earnings announcements. First, we analyze the information content of conference calls to confirm that conference calls provide useful information. Second, we analyze the role of conference calls concurrent with earnings announcements. We design our tests to determine whether the previously documented over-time increase in information content of earnings announcements is attributed to incremental information content of conference calls or conference call activity. Finally, we examine whether the influence of conference calls is independent of expanded earnings releases.

We examine the information content of 103,190 earnings announcements for over 9,000 firms over the 1995 to 2000 time period when conference call data are available. We use two measures of information content in our tests. The first measures the price reaction to an event and assumes new information impacts the consensus price. The second measures trading volume in response to the event and assumes new information motivates investors to trade. Consistent with prior research, we find 1) an over-time

increase in information content of earnings announcements overall, 2) this increase is concentrated in large firms, and 3) concurrent conference calls provide incremental information above and beyond the information content of earnings announcements. However, we also find that after controlling for concurrent conference calls, the over-time increase in information content of earnings announcements of large firms disappears. Our evidence indicates increased concurrent conference call activity and not increasing information content of the concurrent conference calls is responsible. After controlling for expanded disclosures in the earnings announcements in a sub sample of our largest firms, we find the role of conference calls complements the influence of expanded income statement disclosures on explaining the over-time increase in information content of earnings announcements.

Our results suggest the over-time increase in the information content of earnings announcements for large firms, at least over the period from 1995 to 2000, is not due to more informative earnings but rather an increase in managers using concurrent conference calls and expanded earnings announcements. As of the fourth quarter of 2000 we find that over 70 percent of the largest firms used conference calls during earnings announcements (an increase from 21 percent in early 1995) while less than 20 percent of the smallest firms used them. Our results of constant or declining information content are also consistent with prior research documenting a historic decline in the value relevance of accounting earnings information (see Brown, Lo, and Lys [2000], Lev and Zarowin [1999], Francis and Schipper [1999], and Collins, Maydew, and Wiess [1997]). The increasing use of conference calls provides an important delivery medium for firm financial information that complements (and possibly substitutes) earnings information.

Discussion of possible changes to the reporting model will need to consider the impact of conference calls. Future event studies that examine earnings announcements will also need to control for conference call activity as a competing source of information in order to accurately measure the information content of earnings announcements.

The balance of our paper is organized as follows. Our hypotheses are presented in section 2. We follow with our research design in section 3. Section 4 presents our sample. Our results are reported in section 5 our concluding remarks follow.

2. Hypotheses

Recent research examining over-time changes in information content of earnings announcements documents increasing information content of earnings information measured as both unexpected price reactions and abnormal trading volume.[2] Buchheit and Kohlbeck [2002] and Lo and Lys [2000] further find the increasing information content is primarily attributable to larger firms. The information content of earnings announcements of smaller firms generally decreased or held constant. These results provide evidence on the phenomenon, but not the cause.

Francis, Schipper, and Vincent [2002a] analyze changing information content of earnings announcements of large firms in context of the amount of information provided in the earnings release. They find that although information content of earnings announcements did increase over-time, the amount of information provided in the earnings announcement press releases also expanded, primarily through the inclusion of detailed income statements.

[2] These studies include Buchheit and Kohlbeck [2002], Landsman and Maydew [2000], Lo and Lys [2000], and Kross and Kim [1999].

We consider another source of generally concurrent information – the conference call. During the 1990's, conference calls with financial analysts and institutional owners provided a convenient method for firms to provide information to investors. Managers were motivated to hold conference calls to save time and mitigate selective disclosure problems (Frankel, Johnson, and Skinner [1999]). Many firms therefore held quarterly conference calls in conjunction with their earnings release to provide additional information through management statements and answers to questions posed by financial analysts. New products and guidance on particular financial statement line items comprised approximately 40 percent of the analysts' questions in Tasker's [1998b] study of conference calls held by twelve high-technology firms. Other topics included revenue breakdown, industry trends and competition, non-financial details, and management's observations and plans.[3]

Although management has used conference calls for over ten years, research has been limited. Tasker [1998a] shows that firms with less informative financial statements are more likely to hold a conference call. Frankel, Johnson, and Skinner [1999] extend Tasker [1998a] by showing that conference calls provide value-relevant information and providing further analysis on determinants of conference calls. Bushee, Matsumoto, and Miller [2001] examine open conference calls where any individual can access the call in a real-time manner. Evidence suggests younger firms with little institutional ownership used open conference calls to provide additional information to its investors. We complement this research by considering the impact of conference calls on over-time changes in the information content of earnings announcements.

[3] Our review of selected conference calls indicates similar content for other industries.

First, we confirm whether conference calls for our sample firms do indeed provide information to investors as measured in the information content of the conference call. Continued and expanding use of conference calls and prior documentation of conference call content suggest that conference calls provide useful information to participants. We consider conference calls that are held either concurrent with, or independent of earnings announcements.[4]

Our review of the content of selected concurrent conference calls, Tasker's [1998a] detailed analysis, and the value relevance evidence of conference calls in the context of intra-day trading (Frankel, Johnson, and Skinner [1999]) suggest the information in conference calls held concurrent with earnings announcements should affect investors' beliefs and subsequent behavior. If both events provide unique information, the combined measure of the information content of the earnings announcements and concurrent conference calls should exceed the information content of earnings announcements that are not associated with a conference call.

H1: Conference calls held concurrent with earnings announcements provide incremental information content compared to earnings announcements without concurrent conference calls.

Frankel, Johnson, and Skinner's [1999] intra-day trading analysis assumes information of both sources to be immediately incorporated by market participants in price. However, the incorporation of information is not always immediate (Lee, Mucklow and Ready [1993]). The intra-day trading analysis also limits the ability of comparing the information content of the earning announcement with that of the

[4] We define independent as conference calls held outside of the three-day window centered on the earnings announcement.

conference call as investors may anticipate the conference call since it usually follows the earnings announcement and restrain trading to that time. We extend Frankel, Johnson, and Skinner [1999] by examining the information content of conference calls controlling for potential information lags and induced trading limitations. If the conference call contains information in addition to that contained in the earnings announcement, conference calls held independent of the earnings announcement are expected to have information content.

H2: Conference calls held independent of earnings announcements provide information to the market.

Our main investigation focuses on the influence of conference calls in explaining the previously documented over-time increase in the information content of large-firm earnings announcements. Conference call firms are generally larger (Frankel, Johnson and Skinner [1999]) suggesting the large firm results in Buchheit and Kohlbeck [2002] and Lo and Lys [2000] may be attributed to conference call activity.[5] If conference calls provide incremental information content as hypothesized, we expect any increase in information content of earnings announcements to be associated with firms that hold concurrent conference calls.

H3: The over-time increase in information content of earnings announcements is associated with the presence of concurrent conference calls.

Two possible alternatives are investigated. First, the over-time increase in information content of earnings announcements has been primarily attributed to a minority of firms within a portfolio of large-market-capitalization firms (Buchheit and

[5] Firms that hold open conference calls also tend to be larger (but younger) firms from the technology sector (Bushee, Matsumoto, and Miller [2001]).

Kohlbeck [2002]). We consider whether this minority of firms are also those that hold conference calls and the information content of the concurrent conference calls for these firms account for the increase. Second, conference call activity increased significantly during the 1990's (See Figure 1). As more firms were holding conference calls, the mean information content of earning announcements, when measured over a three-day window in the information content studies, also likely increased since conference calls are typically held on the same day that an earnings announcement is made.

Expanded disclosures in the form of detailed income and cash flow statements has been shown to explain the over-time increase in information content of large firm earnings announcements (Francis, Schipper, and Vincent [2002a]). We extend these findings by considering whether concurrent conference calls play an additional role in explaining the over-time change. Although the content of earnings announcements has expanded over the past decade providing additional information to the market, conference call activity has also expanded. Content analysis of selected conference calls and Tasker [1998a] suggest conference calls provide unique information in addition to the expanded earnings announcements. We therefore expect that the role of concurrent conference calls complements (and possibly subsumes) that of the expanded disclosures.

H4: The over-time increase in information content of earnings announcements is associated with the presence of concurrent conference calls, after controlling for the expanded earnings announcement disclosures.

3. Research Design

We adopt an approach in our study similar to prior research that investigates over-time changes in information content of earnings announcements by focusing on measuring information content and analyzing trends in the measures. First, we develop our information content metrics. We then develop empirical models to test our hypotheses.

Information Content Measures

We use two distinct metrics of information content to examine the role of conference calls on the information content of earnings announcements in the above models. The metrics, adopted from Beaver [1968], have been extensively studied during the past thirty years – unexpected price reactions and abnormal trading volume. Both measures are necessary to understand investor behavior. An earnings announcement may be thought to have information content if 1) the price moves to a new equilibrium based on the additional information, 2) individual investors trade on the additional information, or 3) both.

In developing these metrics, two time periods are identified and incorporated into their measurement. The event window consists of the three-day window centered on the earnings announcement (or conference call) and captures the price reaction or trading volume in response to the earnings announcement (or conference call). A three-day window is used to capture events occurring prior to (after) the days trading and is consistent with prior research. The estimation period represents a one-year period ending on the month prior to the event that is used to obtain firm-specific parameter estimates of

return and volume market models to predict expected returns and volume during the event window. Each of these metrics is discussed in the following paragraphs.

Price Reaction Metric - The price reaction metric (the U-statistic) compares a firm's unexpected returns during an event window (numerator) to the estimated variance of the firm's unexpected returns over comparable event windows (denominator). A U-statistic during the earnings announcement window that is significantly greater than the U-statistics in surrounding event windows suggests that earnings announcements contain information used to price securities. We base our metric on Patell's [1976] variant of Beaver's U-statistic that controls for variance due to prediction outside the estimation period. First, unexpected returns (u) during the event window are determined using a firm specific market model as follows.[6]

$$u_{it^*} = R_{it^*} - (\hat{\beta}_{0i} + \hat{\beta}_{1i} R_{Mt^*}) \quad (1)$$

where t^* is the three-day event window, R is the natural log of the firm's daily return, R_M is the natural log of market's daily return, and $\hat{\beta}_{0i}$ and $\hat{\beta}_{1i}$ are firm-specific parameter estimates from the market model. Consistent with prior research, we assume the error terms in our market model are independent across firms and across time (Patell [1976]).

We then divide the square of the unexpected returns by the estimated variance and a term to reflect the increase in variance due to prediction outside the estimation period. The resultant price reaction metric is presented below (see Patell [1976] for further discussion of the derivation of the U-statistic).

[6] We utilize the Sharpe [1964] market model and *CRSP* value-weighted returns to proxy for the market return.

$$U_{it*} = \frac{u_{it*}^{2}}{C_{it*}\ S_i^{2}} \text{ x } \frac{(T-4)}{(T-2)} \qquad (2)$$

where t^* is the three-day event window, t are trading days during the estimation period, u is the firm's unexpected return from Equation 1, C is the increase in variance due to prediction outside the estimation period calculated as $1+1/T+\frac{(R_{Mt*}-\overline{R}_M)^2}{\sum_{r=1}^{T}(R_{Mr}-\overline{R}_M)^2}$, $\overline{R}_M$ is mean market return during the estimation period, S^2 is the estimated variance of the residuals during the estimation period, and T is the number of days in the estimation period. Similar to Beaver [1968], a U-statistic between zero and one implies smaller than normal price volatility while an index greater than one implies larger than normal price volatility (i.e. a significant price reaction to earnings information).[7]

Volume Reaction Metric - We follow Bamber [1986] and Bamber and Atiase [1994] in developing a metric to measure abnormal trading volume. The premise of this metric is that abnormal trading volume is derived from comparing firm specific trading volume to an expected volume. We further assume no abnormal trading volume is the norm; our expected abnormal trading volume is therefore zero.

Our metric estimates firm-specific parameters relating the natural log percentage of firm shares to the natural log percentage of market shares traded during an estimation

[7] The return residuals are leptokurtic as the market model disturbances for many firms deviate from normality with respect to skewness and kurtosis. Marais [1984] demonstrated that the asymptotic properties of the U-statistic are affected. Specifically, the expected variance of the U-statistic is equal to two plus the kurtosis of the disturbance distribution. We have therefore adjusted our variance measures in the determination of significance levels for the univariate tests of the U-statistic discussed later.

period.[8] These parameters are then used to determine the abnormal trading volume (ATV) during the event window.

$$ATV_{it^*} = V_{it^*} - [\hat{\kappa}_{0i} + \hat{\kappa}_{1i} V_{Mt^*}] \quad (3)$$

where t^* is the three-day event window, V is the natural log of the percentage of the firm's shares traded, V_M is the natural log of the percentage of the market's shares traded, and $\hat{\kappa}_{0i}$ and $\hat{\kappa}_{1i}$ are firm-specific parameter estimates from the market model estimated by regressing firm volume on market volume during the estimation period.

Empirical Models

Our first two hypotheses concern the information content of conference calls. We first compare the information content measures of earnings announcements combined with concurrent conference calls and earnings announcements without concurrent conference calls to determine if the market assigns a differential level of information content to each information source (H1). Existing research suggests that the conference call provides new information compared to the earnings announcement (see Tasker [1998b] for example). In this case, we also would expect the combined information content metrics to exceed those with only an earnings announcement.

The second hypothesis requires analysis of firms where the effect of conference calls is separate from the earnings announcements. We identify the non-earnings announcement period as seven to twenty-one days before or after the earnings announcement. Sufficient separation is therefore obtained to limit the effect of

[8] We also consider a straight percentage shares traded and the square root of percentage shares traded. However, consistent with Bamber [1987], we find that the natural log resulted in the highest R-squared when calculating our market model parameters in the estimation period and therefore utilize the natural log percentages in the determination of our volume metric.

anticipation when the quarterly earnings announcement does not have a concurrent conference call and has one or more conference calls in the non-earnings announcement period associated with it. We compare the conference call metrics to their expected values of no new information to determine if the conference call provides information to the market (H2).

Our third and fourth hypotheses consider the over-time influence of firms holding conference calls concurrent with earnings announcements. Changing information content of earnings announcements has been examined in the past by regressing mean annual or quarterly metrics of information content on trend variables generally over periods of considerable length – typically twenty years of data or more (Lo and Lys [2000] and Buchheit and Kohlbeck [2002]). Longer time periods allows for variation in quarterly or annual mean values to be observed. However, the availability of conference call data limits our study to the time period from 1995 to 2000 and we believe quarterly firm metrics (as opposed to quarterly mean data) will do a better job at capturing variation over our shorter sample period. For our hypotheses tests, we include the trend variables and controls for concurrent conference calls and expanded earnings announcement disclosures. Since only larger firms exhibit the over-time increase in information content of earnings announcements, our tests are also designed to control for size (Buchheit and Kohlbeck [2002]).

We first design tests to examine firms that hold concurrent conference calls and a related control group of firms that do not hold a conference call during an earnings

announcement.[9] The following regression is estimated where the information content metric is determined each quarter for each firm.

$$IC_{it} = \Sigma_j [SIZEj (\alpha_{0j} + \alpha_{1j} TIME_t + \alpha_{2j} CC + \alpha_{3j} (TIME_t * CC))] + \varepsilon_{it} \quad (4)$$

where IC is the firm's quarterly measure of information content of earnings (price or volume reaction to earnings announcements as discussed in the preceding section), TIME is fiscal quarter and year number where 1995, 2nd quarter = 1 and 2000, 4th quarter = 23, CC is an indicator variable equal to one if the firm held a concurrent conference call and zero otherwise, and SIZE is an indicator variable indexed to the size quintile j of the firm (firms are ranked each quarter).

A non-zero coefficient on CC indicates the conference call has information content in addition to the earnings release's information content captured in the intercept consistent with prior research (H1). We test the third hypothesis by analyzing the estimated coefficients on TIME variables and the TIME*CC interaction terms. The estimated coefficient on the TIME variable indicates if the information content of earnings announcements is increasing (decreasing) over-time after controlling for the presence of conference calls. A positive (negative) coefficient on the interaction term, TIME*CC, suggests that the information content in conference calls is increasing (decreasing) over-time.

Our fourth hypothesis controls for the inclusion of detailed income statements in the earnings announcements based on the findings of Francis, Schipper, and Vincent [2002a]. We limit our tests to the largest size quintile to focus on explaining prior research's primary results with respect to over-time changes in the information content of earnings

[9] In our robustness tests, we consider a sub sample of firms that held earnings announcements both with and without concurrent conference calls (3,445 observations). We utilize the non-conference call observations for each firm as a within firm control group to limit other potentially influential factors.

announcements.[10] We first consider the impact of expanded disclosures on the over-time change in information content of earnings announcements over our sample period by modifying Equation 4 to include a variable to capture expanded disclosure rather than concurrent conference calls.

$$IC_{it} = \phi_0 + \phi_1 TIME_t + \phi_2 IS + \phi_3 (TIME_t * IS) + \varepsilon_{it} \quad (5)$$

where IC and TIME are as defined for Equation 4 and IS is an indicator variable equal to one if the firm's earnings release includes a detailed income statement and zero otherwise. Similar to the estimation of Equation 4, IS captures the main effect and the interaction term captures whether the information content of the expanded disclosures is changing over time. The findings of Francis, Schipper, and Vincent [2002a] would suggest that the coefficient on TIME would not be significant.

We investigate the differential impact of concurrent conference calls and the inclusion of detailed income statements in the earnings releases by incorporating both terms in the estimation equation. We also assume both the conference call and detailed income statement provide a constant level of new information to the market over the sample period in developing the following model.

$$IC_{it} = \gamma_0 + \gamma_1 TIME_t + \gamma_2 CC + \gamma_3 IS + \gamma_4 (CC * IS) + \varepsilon_{it} \quad (6)$$

where the variables are as previously defined. After controlling for the inclusion of detailed income statements, we do not expect to find an over-time effect ($\gamma_1 = 0$) and concurrent conference calls influence the information content of earnings announcements ($\gamma_2 > 0$). If detailed income statements provide information, γ_3 will be significant and positive ($\gamma_3 > 0$). A substitution (complementary) effect between the two types of

[10] Analyzing only the largest firms is consistent with the methodology of Francis, Schipper, and Vincent [2002a].

disclosures is evidenced by a significant negative (positive) coefficient on the interaction term, γ_4.

4. Sample Description

Our sample is selected from data available in the *Compustat* database. We identify all quarterly earnings announcement release dates from the second quarter 1995 through December 2000. We use this period because it corresponds with the availability of conference call data from *First Call*.[11] We then match the *Compustat* data with daily returns reported in the Center for Research and Securities Prices (*CRSP*) database and conference call data from *First Call*. Our initial sample consists of 146,697 firm quarter observations. We eliminate observations for insufficient return data, incomplete financial data, extreme information content measures (1st percentile and 99th percentile), and conference calls not held concurrent with an earnings announcement but within twenty-one days of the earnings announcement. Our final sample consists of 103,190 quarterly observations for 9,823 firms.

Descriptive statistics of our sample are presented in Table 1. Panel A presents pooled results while Panel B partitions the data as to whether the firm held a conference call concurrent with the earnings announcement. The sample contains a diversity of firms and is heavily skewed by larger firms. On average, our information content measures indicate the earnings announcements provide information without considering the presence of a conference call (mean U-statistic, 1.79, and abnormal trading volume, 0.74, are significantly greater at the 0.05 level than their expected values of 1 and 0,

[11] First Call is a services firm specializing in collecting and distributing information (including existence of conference calls) related to financial analysts. First Call began collecting the conference call information in 1995. We discarded the first quarter of 1995, as the data appear incomplete.

respectively). Comparing the conference call with non-conference call firms indicates that the conference call firms are larger, carry less debt, and are more profitable. The U-statistic and abnormal trading volume metrics for earnings announcements with concurrent conference calls are also significantly greater than non-conference call earnings announcements indicating the influence on the information content of the quarterly earnings announcements. The quintile analysis (Panel C) indicates the fifth quintile firms (largest firms) are more leveraged and profitable with greater information content measures.

5. Results

We first provide univariate results comparing our information content metrics between conference call and non-conference call observations (Table 2). Across both metrics, we find that while each earnings announcement provides information, the earnings announcements with concurrent conference calls have significantly more information content ($p < 0.05$).

Second, we examine the information content of conference calls independent of earnings announcements. We select firms that did not have conference calls concurrent with the earnings announcement but did hold conference calls between seven and twenty-one days of the earnings announcements (2,133 observations). We also exclude firms that had increases in outstanding shares concurrent with the conference call to limit confounding effects. Consistent with prior research, we find that the conference calls do provide information to the market supporting our second hypothesis (Table 3). Similar results are obtained whether the conference call preceded or followed the earnings

announcements. Results are qualitatively the same when we expand the non-earnings announcement sample to the period from between two and twenty-one days of the earnings announcement.

Results of our main hypotheses concerning concurrent conference calls are reported in Tables 4 (unexpected price reactions) and 5 (abnormal trading volume). We first estimate a base model that excludes the conference call information to provide a baseline analysis. Consistent with Buchheit and Kohlbeck [2002] and Lo and Lys [2000], we find that size influences the over-time changes in the information content of earnings announcements. Both measures of information content of earnings announcements are found to be increasing over the 1995 to 2000 time period for the largest firms when we estimate the base model. Generally decreasing or insignificant trends are found for the four smaller size quintiles.

We control for conference calls when we estimate Equation 4. The first hypothesis is further supported as α_2 is positive and significant for all but the smallest two quintiles in the case of the U-statistic and the smallest quintile in the case of abnormal trading volume. The estimated coefficient for the time trend variable (α_1) for the largest firms in the price reaction model (Table 4) becomes insignificant, as are all time trend variables. The estimated coefficient for the time trend variable for the largest firms in the abnormal trading volume model is also insignificant (Table 5), while the estimated coefficients for all other size quintiles are negative and significant. In contrast to prior research, the information content of earnings announcements remains constant or decreases across all size quintiles when we control for concurrent conference calls. The trend is generally inversely related to firm size – the smaller the firm, the greater the decrease.

We pursue changes in information content and activity of concurrent conference calls over our sample period to more fully understand the implications of our findings. In general, we find that the estimated coefficients for the interaction terms of size, time trend, and conference call in the estimation of Equation 4 are insignificant suggesting the information content of conference calls remains fairly steady.

Our analysis of conference call activity suggests a possible explanation for our results. Managers' use of conference calls increased over the 1995 to 2000 time period as evidenced in Figure 1. For firms in the largest quintile of our sample, the percentage of earnings announcements with a concurrent conference call increased from 21% at the beginning of 1995 to 71% at the end of 2000. For the smallest firms, the percentage of conference calls increased almost eighteen-fold during the period. However, during the 4^{th} quarter of 2000, small-firm conference calls were held concurrently with earnings announcements just 18% of the time. We also regress the conference call percentage on a time trend variable and find a significant increase ($p<0.0001$) in the use of conference calls across all size quintiles (Table 6, Panel A).

We concentrate our additional analysis on the price reaction for the quintile of largest firms as prior research provides evidence that larger firms exhibit the over-time increase and are also more likely to hold conference calls. We estimate the base model separately for earnings announcement observations with and without concurrent conference calls (Table 6, Panel B). In each regression, the estimated coefficient for the time trend variable is insignificant (although the trend coefficient is significant and positive for the full sample in Table 4). The information content of the earnings announcements for both types of firms therefore did not increase over our sample period. However, the earnings

announcements with concurrent conference calls do have higher measures of information content and the proportion of earnings announcements with concurrent conference calls increased over the sample period. We take this as evidence that increasing concurrent conference call activity is the primary force behind the increase in information content of earnings announcements.

We select a random sample of forty firms from our largest quintile of firms to perform tests of our fourth hypothesis on the competing influence of expanded disclosures in earnings releases.[12] We collect quarterly earnings releases for these forty firms and identify those firms that include a detailed income statement. Descriptive statistics for this sub sample are presented in Table 7. Detailed income statements were included in over 70 percent of our observations, compared to 36 percent that held concurrent conference calls. We also find a low correlation of 0.106 (p-value = 0.002) between concurrent conference calls and the inclusion of detailed income statements suggesting the effect of each on the over-time change in information content of earnings announcements is independent.

We first confirm that our sub sample data are consistent with the full sample and then analyze the impact of the expanded earnings release disclosures. Table 8 presents an analysis of our information content metrics. Consistent with our earlier results, both information content metrics are significantly greater than their expected values and the conference call metrics are greater than those for firms that did not hold concurrent conference calls. We find similar results when including detailed income statements in the earnings release. When we consider the interaction of concurrent conference calls

[12] We follow the approach of Francis, Schipper, and Vincent [2002a] that used a sample of thirty-five firms for their tests. Our random sample of forty firms is drawn across three stratifications to ensure all firm types with respect to existence of concurrent conference calls are represented in our sample.

and inclusion of detailed income statements, we find the lowest (highest) measures of information content when neither (both) are present.

Regression results of the earnings release sub sample are presented in Table 9. Our estimations of the base model and Equation 4 for both information content metrics are consistent with Tables 4 and 5 – an over-time effect exists and the time effect disappears when concurrent conference calls are considered. The estimation of Equation 5 provides minimal evidence of any influence of inclusion of detailed income statements.[13] When we control for both concurrent conference calls and inclusion of detailed income statements in the estimation of Equation 6, we again find that the over-time effect disappears and that both disclosures influence the information content of earnings announcements.

In summary, we find conference calls have information content whether alone or concurrent with earnings announcements. Concurrent conference calls appear to be a factor in explaining increasing information content of earnings announcements. After controlling for conference calls, the over-time increase in the information content of earnings announcements largely disappears. We also find that our results are partially independent of the effect of expanded earnings release disclosures over the same time period. The over-time increase in information content of earnings announcements documented in prior research is likely due to increasing conference call activity and possibly expanding disclosures in earnings releases, at least as it relates to the 1995 to 2000 time period.

[13] The small sample size limits the power of our tests and may therefore biases against finding results.

Sensitivity tests

We perform additional tests to substantiate our results. As discussed more completely in the following paragraphs, we consider factors such as systematic differences in firms that hold conference calls, industry effects, the effect of earnings surprises on the information content, excluding the 4th quarter of 2000 when Regulation FD is effective, and alternative measures of information content and related tests. In each case, we find our results are robust.

Prior research has documented systematic differences between those firms that hold conference calls and those that choose not to hold conference calls (Tasker [1998a] and Frankel, Johnson and Skinner [1999]). Therefore, differential reactions to earnings announcements may be due to systematic differences between these two types of firms. We address this concern by performing a within firm comparison of those firms that had at least one earnings announcement during the sample period with a conference call and one earnings announcement without a conference call (3,445 firms where 44 percent of firm quarter observations have concurrent conference calls). If systematic differences are driving the results, we should see no difference in the magnitude of earnings reactions within the conference call firm sub-sample. We generally reject the null hypothesis that the means are equivalent and conclude it is unlikely that systematic differences between conference call and non-conference call firms are driving our results (Table 10).

Industry affiliation has been shown to affect empirical estimations and information content of earnings announcements. We therefore consider a specification that analyzes our data based on five broad industry classifications. We use industry classifications proposed in Landsman and Maydew [1999] that classify firms as traditional fixed asset

intensive firms, intangible-intensive firms, utilities, financial services, and service firms. Over 50 percent of the firms in our sample are classified as traditional fixed asset-intensive firms with the other industry grouping comprising from three percent (utilities) to eighteen percent (financial services). A comparison of conference call intensity indicates utilities and financial services hold substantially fewer conference calls. The information content of earnings announcements with concurrent conference calls exceeds that of earnings announcements without concurrent conferences calls across all industry classifications and size portfolios. We then estimate Equation 4 for each information content measure and industry. Our results (not presented) are consistent with industry effects in prior information content studies (Buchheit and Kohlbeck [2002]) in that fixed asset intensive firms mirror our overall results. Conference calls do not appear to be important communication mediums in utilities, and the role of conference calls in other industries is weaker than our overall results.

The possibility exists that unexpected earnings may influence our results as the level of the absolute value of unexpected earnings has also increased over our sample period. Comparing the absolute values of unexpected earnings for conference call and non-conference call firms indicates systematic differences in that both the magnitude and rate of increase for non-conference call firms is greater. Accordingly, we consider the impact of unexpected earnings on our regression results reported in Tables 4 and 5. Even though the estimated coefficients for the absolute value of unexpected earnings are significant for some types of firms (for example, the smallest quintile of firms), we generally find that our results and inferences are unaffected. For the firms that we had forecast information,

we also find minimal correlation between numbers of analysts and whether firms hold conference calls suggesting our findings are independent of analyst following.

We consider an alternative non-parametric measure of our price reaction metric where we define "large" U-statistics (not presented).[14] Consistent with prior research, we find that a minority of firms drive our results as only 35 percent (26 percent) of our firms have a U-statistic greater than 1.5 (2.0). We consider how the percentage of firms exhibiting "large" U-Statistics varied over time, size portfolios, and existence of a concurrent conference call. We find no material differences, suggesting changes in the magnitude of the price reaction do not affect our results.

Finally, we consider two alternative measures of abnormal trading volume from Bamber [1986] and Atiase and Bamber [1994]. The first compares the percentage of the firm shares traded during the event window to the median daily percentage during the estimation period. The second alternative metric is the difference between the percentage of the firm and market's shares traded during the event window. Our results substantially confirm those reported in Table 5.

6. Concluding Remarks

Prior research provided evidence of declining value relevance of accounting information and questioned the ongoing role of accounting information. In response, other research documented that the information content of earnings announcements increased over time and that this increase is concentrated in earnings announcements of large firms or certain subsets of firms. This research suggests that changes to financial

[14] We define "large" as a U-statistic greater than 1.5 and alternatively 2.0 consistent with the methodology in Bamber, Christianson, and Gaver [2000].

reporting over the past thirty years has had a positive impact on the importance of accounting and its role in the capital markets and investors' decisions. We provide evidence to reconcile these viewpoints.

Over the same period, a number of additional sources of information, such as analyst reports and recommendations, company press releases, and more recently, conference calls, have crept into the earnings announcement timeframe. These other sources have been shown to provide incremental information to the market. Without fully understanding the impact and interaction of each of these additional sources of information one cannot make inferences about the earnings announcement itself and how its importance has changed over-time.

We confirm prior research that concurrent conference calls are informative and provide incremental information to earnings announcements. The conference call structure grants participants an opportunity to ask managers questions that are frequently forward-looking. Our results suggest that the information contained in conference calls combined with the increased number of firms adopting them as a means of additional disclosure is the driving force behind prior research that documented increasing information content of earnings announcements, at least as it relate to our 1995 to 2000 time period. After controlling for the information in conference calls, the information content of earnings announcements remains constant (decreases) during our period of study when measured as a price reaction (abnormal trading volume).

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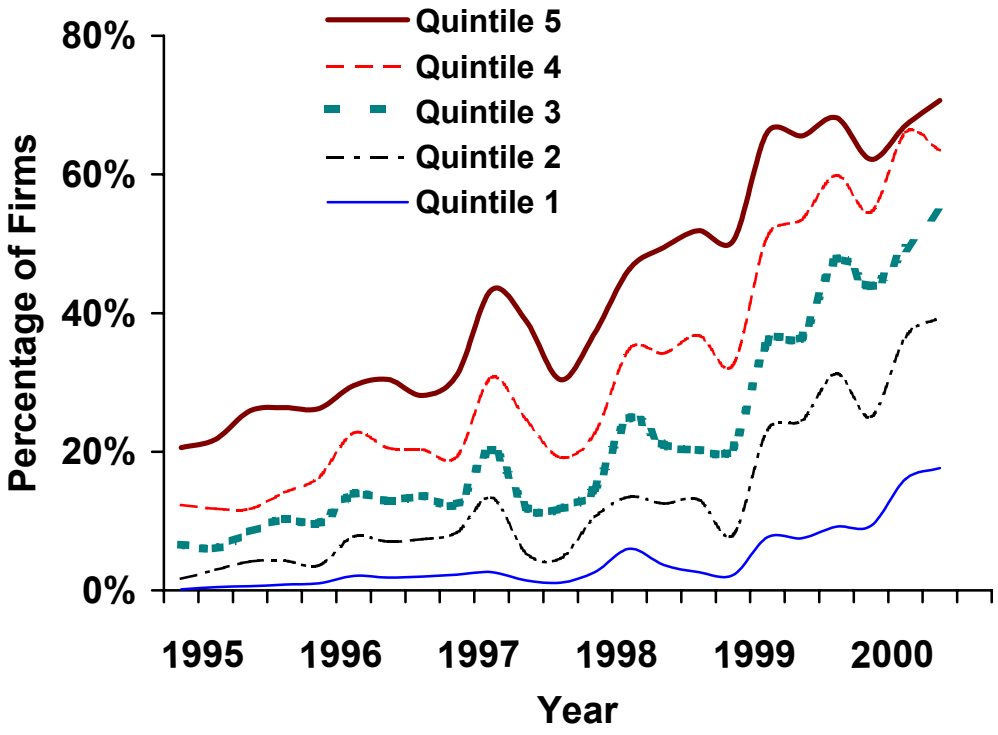
Figure 1 - Trend in Percentage of Firms Holding Conference Calls (1995 to 2000)



Note: Percentage of firms holding a conference call during the three-day window around an earnings announcement date. Quintile 1 (Quintile 5) are the smallest (largest) firms.

Table 1 - Sample Descriptive Statistics

Panel A: Pooled (N=103,190) [1]

	Mean	Median	Standard Deviation	25th Percentile	75 Percentile
Total assets (millions)	2,753	209	17,718	51	894
Debt to equity	0.54	0.54	0.30	0.33	0.72
Market to book	3.87	1.96	97.38	1.22	3.48
Return on assets	-0.9%	0.7%	12.0%	-0.4%	1.9%
Earnings per share	0.21	0.15	8.61	-0.03	0.38
U-statistic	1.79	0.91	2.48	0.37	2.11
Abnormal trading volume	0.74	1.02	5.51	-1.99	4.08

Panel B: Conference Call Partition

	Conference Call (N=23,365)		Non-Conference Call (N=79,702)		
	Mean	**Median**	**Mean**	**Median**	**Equality of Means t-statistic**
Total assets (millions)	4,771	578	2,159	149	14.91 **
Debt to equity	0.52	0.53	0.54	0.54	10.70 **
Market to book	4.06	2.36	3.82	1.87	0.40
Return on assets	0.3%	1.1%	-1.2%	0.6%	24.45 **
Earnings per share	0.22	0.23	0.20	0.13	0.48
U-statistic	2.06	1.09	1.70	0.87	3.17 **
Abnormal trading volume	2.20	2.05	0.31	0.68	46.74 **

Table 1 - Sample Descriptive Statistics (continued)

Panel C: Mean Statistics for Each Size Quintile

(N≈20,600 for each quintile)	1 (Smallest)	2	3	4	5 (Largest)
Concurrent Conference Call Percentage	4%	13%	22%	32%	43%
Total assets (millions)	58	172	389	947	12,204
Debt to equity	0.52	0.51	0.52	0.54	0.60
Market to book	2.33	3.52	5.29	4.02	4.21
Return on assets	-4.1%	-2.1%	-0.5%	0.6%	1.3%
Earnings per share	-0.17	0.02	0.13	0.25	0.80
U-statistic	1.72	1.66	1.71	1.84	2.00
Abnormal trading volume	-0.81	-0.08	0.69	1.54	2.37

** Difference is significant at the 0.05 level or better.

[1] The Pearson correlation coefficient between the U-statistic and abnormal trading volume for the pooled sample is 0.216, significant at $p<0.0001$.

Table 2 – Comparison of Information Content of Earnings Announcements with and without Conference Calls

(N=103,190)

Information Content Metric	With Conference Call	t-statistic [1]	Without Conference Call	t-statistic [1]	Wilcoxon Rank Sum Test	Equality of Means t-statistic
U-statistic	2.06	7.50**	1.70	9.13**	23.54**	3.17**
Abnormal trading volume	2.20	76.53**	0.31	15.40**	46.38**	46.74**

** / * significant at the 0.05 / 0.10 level or better.

[1] t-statistic compares the mean value with the expected value of 1 (0) for the U-statistic (abnormal trading volume).

Table 3 –Information Content of Conference Calls Independent of Earnings Announcements

		U-statistic		Abnormal trading volume	
	N	Mean	t-statistic[1]	Mean	t-statistic[1]
Pooled	2,133	2.35	5.75 **	2.15	15.51 **
Conference call precedes earnings announcement	1,143	2.77	5.15 **	2.33	11.75 **
Conference call follows earnings announcement	1,008	1.89	2.60 **	1.96	10.13 **

** / * significant at the 0.05 / 0.10 level or better.

[1] t-statistic compares the mean value with the expected value of 1 (0) for the U-statistic (abnormal trading volume).

Table 4 – Regression of Price Reaction to Earnings Announcements on Time, Size and Conference Call

Equation 4: $U_{it} = \Sigma_j [SIZEj (\alpha_{0j} + \alpha_{1j} TIME_t + \alpha_{2j} CC + \alpha_{3j} (TIME_t * CC))] + \varepsilon_{it}$

	Base Model [1]		Equation 4 [1]	
(N =103,190)	**Coefficient estimate**	**t-statistic**	**Coefficient estimate**	**t-statistic**
$SIZE_1$	1.70	46.26**	1.70	45.81**
$SIZE_2$	1.59	43.22**	1.60	41.77**
$SIZE_3$	1.68	45.75**	1.68	42.15**
$SIZE_4$	1.80	48.91**	1.79	42.68**
$SIZE_5$	1.87	50.86**	1.79	39.89**
$SIZE_1$ * TIME	0.002	0.57	0.001	0.24
$SIZE_2$ * TIME	0.006	2.24**	0.003	0.88
$SIZE_3$ * TIME	0.003	0.94	-0.003	-1.08
$SIZE_4$ * TIME	0.004	1.48	-0.005	-1.39
$SIZE_5$ * TIME	0.011	4.07**	0.005	1.26
$SIZE_1$ * CC			0.184	0.60
$SIZE_2$ * CC			0.088	0.57
$SIZE_3$ * CC			0.328	2.90**
$SIZE_4$ * CC			0.379	4.01**
$SIZE_5$ * CC			0.457	5.62**
$SIZE_1$ * TIME * CC			-0.002	-0.10
$SIZE_2$ * TIME * CC			0.006	0.69
$SIZE_3$ * TIME * CC			-0.001	-0.20
$SIZE_4$ * TIME * CC			-0.001	-0.21
$SIZE_5$ * TIME * CC			-0.007	-1.24
Adjusted R^2	34%		34%	

** / * significant at the 0.05 / 0.10 level or better.

[1] Variables are defined as follows: U is the price reaction metric, TIME is fiscal quarter and year number where 1995, 2nd quarter = 1 and 2000, 4th quarter = 23, CC is an indicator variable equal to one if the firm held a concurrent conference call and zero otherwise, and SIZE is an indicator variable indexed to the size quintile of the firm.

Table 5 – Regression of Volume Reaction to Earnings Announcements on Time, Size and Conference Call

Equation 4: $ATV_{it} = \Sigma_j [SIZEj (\alpha_{0j} + \alpha_{1j} TIME_t + \alpha_{2j} CC + \alpha_{3j} (TIME_t * CC))] + \varepsilon_{it}$

	Base Model [1]		Equation 4 [1]	
(N =103,190)	**Coefficient estimate**	**t-statistic**	**Coefficient estimate**	**t-statistic**
$SIZE_1$	0.04	0.47	0.07	0.81
$SIZE_2$	0.77	9.67**	0.84	10.15**
$SIZE_3$	1.33	16.69**	1.41	16.26**
$SIZE_4$	1.48	18.62**	1.61	17.81**
$SIZE_5$	1.86	23.34**	1.77	18.20**
$SIZE_1$ * TIME	-0.069	-12.00**	-0.074	-12.57**
$SIZE_2$ * TIME	-0.070	-12.16**	-0.090	-14.20**
$SIZE_3$ * TIME	-0.052	-9.08**	-0.089	-13.03**
$SIZE_4$ * TIME	0.005	0.81	-0.046	-6.24**
$SIZE_5$ * TIME	0.042	7.28**	0.008	0.29
$SIZE_1$ * CC			0.70	1.07
$SIZE_2$ * CC			1.06	3.18**
$SIZE_3$ * CC			1.44	5.89**
$SIZE_4$ * CC			0.86	4.22**
$SIZE_5$ * CC			1.02	5.77**
$SIZE_1$ * TIME * CC			0.01	0.26
$SIZE_2$ * TIME * CC			0.01	0.66
$SIZE_3$ * TIME * CC			0.01	0.93
$SIZE_4$ * TIME * CC			0.04	3.31**
$SIZE_5$ * TIME * CC			0.01	0.88
Adjusted R^2	6%		7%	

** / * significant at the 0.05 / 0.10 level or better.

[1] Variables are defined as follows: ATV is volume reaction metrics based on a market model, TIME is fiscal quarter and year number where 1995, 2nd quarter = 1 and 2000, 4th quarter = 23, CC is an indicator variable equal to one if the firm held a concurrent conference call and zero otherwise, and SIZE is an indicator variable indexed to the size quintile of the firm.

Table 6 – Impact of Conference Call Activity

Panel A: Over-Time Change in Conference Call Activity [1]

Model: $PCC_t = \lambda_0 + \lambda_1 TIME_t + \varepsilon_{it}$

	Size Portfolio				
	1 (Smallest)	**2**	**3**	**4**	**5 (Largest)**
Intercept	-0.026 **	-0.041	-0.022	0.013	0.125 **
TIME	0.005 **	0.014 **	0.020 **	0.024 **	0.024 **
Adjusted R^2	64.8%	73.0%	77.5%	84.7%	90.3%

Panel B: Analysis of U-statistics for the Largest Firm Portfolio [1]

Model: $U_{it} = \kappa_0 + \kappa_1 TIME_t + \varepsilon_{it}$

	N	**Mean U-statistic**	**Intercept**	**TIME**
Concurrent Conference Call	8,822	2.21	2.24 **	-0.01
No Conference Call	11,811	1.84	1.79 **	0.00
Difference		0.37 **		

** / * significant at the 0.05 / 0.10 level or better.

[1] Variables are defined as follows: PCC is the percentage of firms holding concurrent conference call each quarter, U is the price reaction metric, and TIME is fiscal quarter and year number where 1995, 2nd quarter = 1 and 2000, 4th quarter = 23.

Table 7 – Mean Descriptive Statistics of Earnings Release Sub Sample

N = 816 quarterly observations (40 firms)	Mean	Median	Standard Deviation	25th Percentile	75 Percentile
Percentage with conference calls [1]	36.2%	N/A	N/A	N/A	N/A
Percentage with detailed income statements [1]	72.4%	N/A	N/A	N/A	N/A
Total assets (millions)	18,324	4,801	39,717	2,479	13,381
Debt to equity	3.43	1.43	10.49	0.98	2.49
Market to book	4.44	2.85	10.33	1.93	5.19
Return on assets	1.9%	1.5%	2.7%	0.4%	2.6%
Earnings per share	0.55	0.51	0.58	0.28	0.78
U-statistic	2.04	1.12	2.65	0.52	2.41
Abnormal trading volume	1.91	1.51	3.84	-0.53	4.36

[1] The Pearson correlation coefficient between firms in the sub sample holding concurrent conference calls and including detailed income statements in the earnings release for the pooled sample is 0.106, p-value = 0.002.

Table 8 - Comparison of Information Content of Earnings Announcements for Earnings Release Sub Sample

	N	U-statistic	t-statistic [1]	Abnormal trading volume	t-statistic [1]
Overall	816	2.04	11.21 **	1.90	14.1 **
Concurrent Conference Call					
Yes	296	2.27	7.71 **	2.68	12.64 **
No	520	1.91	8.18 **	1.46	8.60 **
Equality of Means (p-value)		0.066		<0.001	
Earnings Announcement includes detailed income statement					
Yes	591	2.20	10.53 **	2.11	13.21 **
No	225	1.60	4.11 **	1.37	5.58 **
Equality of Means (p-value)		0.001		0.014	
Interaction					
Neither	162	1.44	3.24 **	0.95	3.40 **
Income Statement only	358	2.11	7.58 **	1.69	8.03 **
Conference Call only	63	2.08	2.62 **	2.46	5.12 **
Both	233	2.34	7.37 **	2.75	11.59 **

** / * significant at the 0.05 / 0.10 level or better.

[1] t-statistic compares the mean value with the expected value of 1 (0) for the U-statistic (abnormal trading volume).

Table 9 – Regressions of Information Content of Earnings Announcements for Earnings Release Sub Sample

Panel A: Unexpected Price Reaction as Dependent Variable (U) [1]

(N =816)	Base Model	Equation 4	Equation 5	Equation 6
Intercept	1.80 **	1.60 **	1.51 **	1.33 **
TIME	0.02 *	0.03	0.01	0.01
CC		0.79 *		0.51 *
TIME * CC		-0.03		
IS			0.45	0.65 **
TIME * IS			0.01	
CC * IS				-0.31

Panel B: Abnormal Trading Volume as Dependent Variable (ATV) [1]

(N =816)	Base Model	Equation 4	Equation 5	Equation 6
Intercept	1.29 **	1.04 **	0.81 *	0.65 *
TIME	0.05 **	0.04	0.05	0.03
CC		1.30 **		1.37 **
TIME * CC		-0.01		
IS			0.73	0.69 *
TIME * IS			-0.01	
CC * IS				-0.39

** / * significant at the 0.05 / 0.10 level or better.

[1] Variables are defined as follows: U is the price reaction metric, ATV is volume reaction metrics based on a market model, TIME is fiscal quarter and year number where 1995, 2nd quarter = 1 and 2000, 4th quarter = 23, CC is an indicator variable equal to one if the firm held a concurrent conference call and zero otherwise, and IS is an indicator variable equal to one if the firm's earnings release included a detailed income statement.

Table 10 - Comparison of Firm Means for Firms with at Least One Conference Call

(N =3,445 firms)

Information Content Metric	With Conference Call	t-statistic [1]	Without Conference Call	t-statistic [1]	Wilcoxon Rank Sum Test	Equality of Means t-statistic
U-statistic	1.91	38.31**	1.79	38.43**	2.02**	3.66**
Abnormal trading volume	1.66	30.93**	1.38	28.04**	4.77**	3.59**

** / * significant at the 0.05 / 0.10 level or better.

[1] t-statistic compares the mean value with the expected value of 1 (0) for the U-statistic (abnormal trading volume).