

**Which Matters? Accuracy or Boldness?  
Analysts Earnings Forecast and Institutional Holdings**

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**Abstract**

This paper aims to investigate the effect of financial analysts' earnings forecast on the institutional trading. In specific, we address three issues regarding the effect of financial analysts earnings forecast on the institutional holdings: (1) Do institutional investors pay more attention and more sensitive to analyst earnings forecast with higher forecast accuracy? (2) Do institutional investors prefer analysts with higher accuracy on earnings forecast? (3) Do institutional investors prefer analysts with bold attitude toward earnings forecast? Firstly, our empirical results show that institutional investors do pay attention to the accuracy of financial analysts earnings forecast. That is, firms with higher accuracy of analysts' earnings forecast tend to attract more institutional investors' attention and thus higher institutional holdings. Secondly, our results evidence that institutional investors prefer analysts with higher accuracy in their earnings forecast. That means institutional investors tend to follow more closely those analysts whose earnings forecasts are more accurate. Finally, we find that institutional investors in general are indifferent to the boldness of analysts earnings forecast. However, institutional investors will pay more attention and follow more closely those analysts whose earnings forecasts are not only accurate but also close to the consensus.

**Keywords: financial analysts, earnings forecast, institutional holdings, accuracy of earnings forecast, boldness on earnings forecast**

## **1. Introduction**

In this paper, we examine the effects of both the accuracy and the boldness of analysts' earnings forecasts on the institutional investors' shareholdings. Prior related studies have focused on the impact of the level of analysts' earnings forecasts or analysts' earnings revisions on institutional holdings. However, to our knowledge, there has been no research investigating specifically on how institutional holdings are influenced by the accuracy and boldness of analysts' earnings forecasts. Therefore, this paper contributes to the literature by providing more insights on the role of accuracy and boldness of analysts' earnings forecasts on institutional investors' trading behavior.

In the literature, there has been well documented that analysts' earnings forecasts provide valuable information for the stock price movement. For example, Brown (1993) compares the analysts earnings forecast results and the results forecasted by time series models and concludes that analysts provide forecasts that are superior to the forecasts by using time series model. Eddy and Seifert (1992) also evidence that the stock price performance and analysts' earnings forecasts are closely related. In addition, the results from Womack (1996), Juergens (1999) and Barber et al. (2001) all indicate that on average analysts' favorable (unfavorable) recommendations are associated with positive (negative) abnormal stock returns. All of these studies suggest that analysts' earnings forecasts are of value to investors.

However, there are also other studies that find different results. For example, Forbes and Skerratt (1992) examine the role of analysts' revisions of earnings forecasts and find that some agency problems may reduce the reliability of analysts' earnings forecasts. Brown, Foster and Noreen (1985) find that analysts' earnings forecast revisions follow stock price changes, rather than vice versa. Both of these studies question the value of analysts' earnings forecasts to the investors.

The existing literature on the relationship between institutional trading and stock returns has concluded that institutional trading is positively correlated with the movement of stock returns (e.g., Edelman and Baker (1987)). Chan and Lakonishok (1993) find that institutional investors are better informed than individual investors and hence institutional trading leads price changes. This finding is also confirmed by other studies such as Sias,

Starks, and Titman (2001) and Chakravarty (2001). In addition, Gompers and Metrick (2001) document that the institutional ownership helps to forecast stock's future return. The empirical results by Nofsinger and Sias (1999) also suggest that firms with significant increases in institutional ownership outperform firms with significant decreases in institutional ownership. Chen, Jegadeesh, and Wermers (2000) report similar findings for mutual fund managers.

There have been also some discussions in the literature regarding the relation between analysts' earnings forecasts and institutional trading. However, the findings are mixed. Eakins et al. (1997/1998) find little evidence that institutional investors follow analysts' earnings forecasts. O'Brien and Bhushan (1990) evidence a positive relation between analyst following and institutional ownership while the causal relation is hard to establish. In their recent study, Chen and Cheng (2006) find that institutional investors increase their holdings of firms with favorable analysts recommendations while decrease their holdings of firms with unfavorable analysts recommendations. He, Mian and Sangkaraguruswamy (2005) also find that large traders or institutional investors tend to buy (sell) stocks for which star analysts revise their recommendations upward (downward). Both of these studies imply that institutional investors do pay attention to the analysts' recommendations.

While the above literature provides evidences regarding the influence of analysts' earnings forecasts on institutional holdings, none of them has yet explored the effect of either the accuracy or the boldness of analysts' earnings forecast on institutional holdings. This paper fills this gap by focusing on the effect of analysts' forecast accuracy and boldness and examines the possible influence of each of them on institutional holdings.

Our empirical evidence shows that institutional investors are able to identify the firms with more accurate analysts' earnings forecasts and pay more attention to those firms. Institutional investors are more sensitive to analysts' earnings forecasts when those forecasts are more accurate. Furthermore, institutional investors are not only more sensitive to analysts' forecasts on those firms with higher forecast accuracy but also more sensitive and follow more closely to those analysts who report more accurate earnings forecasts.

For the analyst's boldness in earnings forecast, we find that institutional investors' preference on the analysts with higher earnings forecast accuracy only applies to those analysts whose earnings forecast are close to the consensus. In other words, the accuracy of analysts' forecasts would affect institutional investing behavior more when analysts are not too bold in their earnings forecasts. This may imply that institutional investors do not blindly follow the analysts earnings forecast if their forecasts are too bold and far away from the consensus. That is, institutional investors tend to be selective and risk-averse when they follow the analysts with higher forecast accuracy.

The following sections of this paper are organized as follows. The next section describes the data that we use for the empirical part. Section 3 discusses the research design of this paper, including the measurements for accuracy and boldness of analysts' earnings forecasts, and the regression model. Empirical results are reported and discussed in section 4. Finally, section 5 presents our conclusions.

## **2. Data Description**

The financial analysts' earnings forecast data is obtained from the Detail History Database of the Institutional Broker Estimate System (I/B/E/S) Database. The beginning year of the Detail History Database in I/B/E/S is 1982. However, in 1982 the entire number of earnings forecast observations from all financial analysts in that year was only 473, which is quite small compared with other years.<sup>1</sup> Therefore, year 1982 is dropped from our sample period. Thus, our sample period would include years 1983 to 2005.

The institutional ownership data is retrieved from the 13F file of Thomson Financial Database. Our original sample period for the institutional ownership data is from 1980, the beginning year of the 13F file, to 2005. But in order to match with financial analysts' earnings forecast data from I/B/E/S, we restrict our final sample period from 1983 to 2005. The 13F file includes five different categories of institutional investors: bank trust departments, insurance companies, mutual funds, independent

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<sup>1</sup> In our sample period from year 1983 to year 2005, the numbers of earnings forecast observations from all financial analysts range from 64,988 to 177,474 in the I/B/E/S database.

investment advisors, and others. We sum up all of the five institutional categories to obtain the aggregate institutional ownership data.

The number of institutions and institutional ownership ratio for each year from 1983 to 2005 are shown in columns 2 and 3 in Table 1. From those two columns it is obvious that the number of institutions had been steadily increasing during this period. For example, in 1983 the number of institutions is 672 while in 2005 it is 1344, exactly twice the number in 1983. The institutional ownership ratio on average had also increased steadily from 1983 to 2005 with the lowest 36.34% in 1983 and the highest 64.72% in 2005.

Columns 5 through 7 in Table 1 report the minimum, mean and maximum earnings per share (EPS) forecast by all financial analysts on all firms for each year in our sample period. During that period, on average the mean of the analysts' earnings forecast for a firm ranges from \$1 to \$2 per share. It is interesting that both in 1987 when stock market crashed and in 2001 when high-tech bubble busted, the analysts' earnings forecasts declined dramatically. In 1987, the maximum EPS forecast declined to \$11.20 from previous year's \$17.70, a 36% decrease, and the minimum EPS forecast was also down from -\$9.0 to -\$12.33, roughly the same percentage decrease as the maximum EPS forecast. Similarly, in 2001, the maximum and minimum EPS forecasts on average decreased by 43% from \$14.68 to \$8.34 and 35% from -\$15.04 to -\$20.33, respectively. This may imply that most financial analysts' earnings forecasts are closely related to the market situations and their earnings forecast decisions are affected by current stock market momentum.

The last three columns in Table 1 list the minimum, mean and maximum number of financial analysts on a firm during 1983 to 2005. Because we eliminate those firms with less than 10 analysts in any year, the minimum number of analysts is always 10 throughout the sample period. The maximum number of analysts varies from 49 to 87 while the mean number of analysts ranges between 20 and 30. The average number of analysts on a firm was not affected by the market conditions as found in analysts' earnings forecasts.

### 3. Research Design

This paper aims to examine the effects of the accuracy and boldness of financial analysts' earnings forecasts on the institutional trading. In specific, this paper attempts to address the following three issues: (1) whether institutional investors will pay more attention and more sensitive to analysts' earnings forecast on those firms with more accurate analyst forecasts? (2) whether analysts with more accurate earnings forecasts will attract more institutional holdings on the firms that they analyze? And (3) whether institutional investors will be more sensitive to those analysts who are bold in their earnings forecasts?

#### 3.1. Measurement for the Accuracy of Earnings Forecast

In order to investigate the effect of either the accuracy of the overall analysts' earnings forecast or the accuracy of an analyst's earnings forecast, we need to find a way to measure the accuracy of analyst's earnings forecast. In this paper, we follow Hong et al. (2000) and Hong and Kubik (2003) to measure the accuracy of analyst's earnings forecast in the following way.

First of all, we calculate the earnings forecast error for each analyst on each firm in a particular year as in equation (1):

$$FE_{i,j,t} = |FEPS_{i,j,t} - AEPS_{j,t}| / P_{j,t}, \quad (1)$$

where  $FE_{i,j,t}$  is the average forecast error of  $i^{\text{th}}$  analyst on  $j^{\text{th}}$  firm in year  $t$ ;

$FEPS_{i,j,t}$  is the average forecasted EPS of  $i^{\text{th}}$  analyst on  $j^{\text{th}}$  firm in year  $t$ ;

$AEPS_{j,t}$  is the actual EPS of  $j^{\text{th}}$  firm in year  $t$ ;

and  $P_{j,t}$  is the average stock price of  $j^{\text{th}}$  firm in year  $t$ .

The accuracy of analyst's earnings forecast is calculated by the inverse of the forecast error (FE). That is, the smaller the value of forecast error, the more accurate the earnings forecast is.

For the accuracy of each analyst's earnings forecast, the easiest way is to simply take an average of the forecast errors among all of the firms that a particular analyst has reported earnings forecast on. And, use the inverse of that average forecast error as the forecast accuracy of that particular analyst. However, there are potential biases by doing so. Firstly, there may be significant differences in the values of earnings forecast and, thus, the values of earnings forecast error among firms in different industries. Therefore, by using such a measure of absolute accuracy may distort the true accuracy of each analyst.

Secondly, the number of analysts in a firm may be various. That is, for some firms there may be many analysts engaged in that firm's earnings forecast while other firms may only have few analysts providing earnings forecasts. The competitiveness or lack of competitiveness in the earnings forecast among analysts induced by the number of analysts on a firm may affect the measure of accuracy of each analyst's earnings forecast on that firm. Thus, it may be biased in reflecting the accuracy of each analyst's earnings forecast by using the absolute accuracy measure.

In order to resolve the above-mentioned problems induced by using absolute accuracy measure for analyst's earnings forecast, we employ the relative accuracy measure used by Hong et al. (2000) and Hong and Kubik (2003) to identify each analyst's earnings forecast accuracy as follows.

First of all, for one particular firm during a particular year we calculate the average earnings forecast error for each analyst on that firm by using equation (1) above. Then, we sort all of the analysts on that firm according to their average forecast errors during that year. The analyst with the lowest (highest) average forecast error during that year is ranked the first (last). We then assign an accuracy score to each analyst on that firm during that year according to the following equation:

$$\text{Acc\_score}_{i,j,t} = 100 - \left[ \frac{\text{Rank}_{i,j,t} - 1}{\text{Number of Analysts}_{j,t}} \right] \times 100, \quad (2)$$



where  $Acc\_score_{i,j,t}$  : the analyst  $i$ 's accuracy score on firm  $j$  in year  $t$ ;

Number of Analysts $_{j,t}$  : the number of analysts on firm  $j$  in year  $t$ ;

Rank $_{i,j,t}$  : the rank of analyst  $i$ 's earnings forecast accuracy on firm  $j$  in year  $t$ .

Finally, we take an average of the accuracy scores among the firms on which each analyst has reported earnings forecast. This average accuracy score then represents the earnings forecast accuracy of each analyst during that year. We conduct the same process for each year in the entire sample period.

### 3.2. Measurement for the Boldness of Analyst's Earnings Forecast

One of the purposes of this paper is to examine the effect of the boldness of analyst's earnings forecast on the institutional holdings on a firm. In order to empirically test the significance of such an effect, we need to identify the degree of boldness of each analyst's earnings forecast. The analyst's boldness measurement is based upon the method used by Hong et al. (2000) as follows.

First, we calculate the consensus earnings forecast by averaging the earnings forecast on a firm by all of the analysts in a particular year as shown in equation (3) below:

$$\bar{F}_{j,t} = \frac{\sum_{i=1}^{N_{j,t}} F_{i,j,t}}{N_{j,t}}, \quad (3)$$

where  $\bar{F}_{j,t}$  : the consensus earnings forecast of all analysts on firm  $j$  in year  $t$ ;

$F_{i,j,t}$  : the earnings forecast of analyst  $i$  on firm  $j$  in year  $t$ ; and

$N_{j,t}$  : the number of analysts reporting earnings forecast on firm  $j$  in year  $t$ .

We then calculate each analyst's deviation from consensus of earnings forecast on a firm in a particular year by using the difference of each analyst's earnings forecast and the consensus dividing the average share price of the firm in that year, as shown in equation (4):

$$\text{deviation from consensus}_{i,j,t} = \frac{|F_{i,j,t} - \bar{F}_{j,t}|}{P_{j,t}}, \quad (4)$$

where  $F_{i,j,t}$  is analyst  $i$ 's earnings forecast on firm  $j$  in year  $t$ ;

$\bar{F}_{j,t}$  is the consensus earnings forecast on firm  $j$  in year  $t$ ; and

$P_{j,t}$  is firm  $j$ 's average share price in year  $t$ .

Next, by using the same process for ranking analyst's accuracy in earnings forecast that is stated above, we rank the boldness of each analyst on a firm according to his/her "deviation from consensus" in equation (4). Finally, by using the similar method in measuring the degree of analyst's accuracy in earnings forecast, we use equation (5) below to assign boldness score to each analyst on a particular firm during a particular year:

$$\text{Bold\_score}_{i,j,t} = 100 - \left[ \frac{\text{Rank}_{i,j,t} - 1}{\text{Number of Analysts}_{j,t}} \right] \times 100, \quad (5)$$

where  $\text{Bold\_score}_{i,j,t}$  is the boldness score assigned to analyst  $i$  on firm  $j$  in year  $t$ ;

$\text{Number of Analysts}_{j,t}$  is the number of analysts engaged in earnings forecast on firm  $j$  in year  $t$ ; and

$\text{Rank}_{i,j,t}$  is the boldness ranking of analyst  $i$  on firm  $j$ 's earnings forecast in year  $t$ .

Finally, we sum up each analyst's boldness scores for all of the firms that he/she reports earnings forecast on and divide it by the number of firms to obtain an average boldness score for each analyst in a particular year. Again, this process is repeated for each year in the entire sample period.

### 3.3. Regression Model

In our empirical analysis, we start with analyzing the effect of analysts' earnings forecast accuracy on the institutional holdings on a firm by controlling the number of analysts covering the firm and the market capitalization of the firm. It has been documented in the existing literature that the number of analysts covering a firm may affect the institutional holdings of the firm. For example, both O'Brien and Bhushan (1990) and Hussain (2000) find evidences that the institutional holdings on a firm would be higher if there are more analysts covering the firm. In other words, their findings

suggest that there exists a positive relationship between the number of analysts covering a firm and the institutional holdings on that firm.

For firm's market capitalization, there are also studies uncovering the relation between a firm's market capitalization and that firm's institutional holdings. For example, Falkenstein (1996) finds that institutional investors prefer to invest in stocks with larger market capitalization. Therefore, in order to have our result not being confounded with the effect from both the number of analysts and firm's market capitalization, we control those two variables in our empirical regression model.

The regression model that we use in our empirical analysis is as follows.

$$IH_{i,t} = b_0 + b_1 * EF_{i,t} + b_2 * Num_{i,t} + b_3 * Size_{i,t} + \varepsilon_{i,t}, \quad (6)$$

where  $IH_{i,t}$  = the institutional holdings of firm  $i$  during year  $t$ ;

$EF_{i,t}$  = the analysts' average earnings forecast on firm  $i$  during year  $t$ ;

$Num_{i,t}$  = the number of analysts who have coverage on firm  $i$ 's earnings forecast during year  $t$ ;

$Size_{i,t}$  = firm  $i$ 's market capitalization in year  $t$ ; and

$\varepsilon_{i,t}$  = the regression residuals.

We also use the same regression model to test the effect of an analyst's earnings forecast accuracy and boldness on the institutional holdings. In specific, we first identify and categorize the analysts into three forecast accuracy groups: rank 1 through rank 3, with rank 1 representing the analyst group with the highest earnings forecast accuracy while rank 3 representing the analyst group with the lowest earnings forecast accuracy. Separately we also identify and categorize the analysts into three forecast boldness groups with rank 1 representing the boldest analysts and rank 3 representing the analysts with the least boldness in their earnings forecast. We then run the regression in equation (6) for each of the accuracy and boldness analyst groups. Finally, we compare the differences in the regression coefficients

among the analyst groups of various degrees of accuracy and boldness and test the significance of differences in earnings forecast coefficients among those groups.

## 4. Empirical Results

In section 4.1, we first analyze the effect of the accuracy of analysts earnings forecast on the institutional holdings both by looking at the effect in general and by further examining the effects for the firms with different degrees of analyst forecast accuracy. In section 4.2, we investigate the effect of individual analyst's earnings forecast accuracy on institutional holdings. That is, we examine whether institutional investors will pay more attention to analysts with higher accuracy in earnings forecasts by identifying and categorizing the analysts into three earnings forecast accuracy groups.

Section 4.3 reports the results of the effect of analysts' boldness in earnings forecast on the institutional holdings. That is, we examine whether institutional investors will be more sensitive to bold analysts or to more conservative analysts in their earnings forecasts. Similar to the analysis on analysts' accuracy, the analysis on analysts' boldness is conducted by identifying and categorizing the analysts into three groups according to each analyst's boldness in earnings forecast. Finally, in order to disentangle the effects of analyst's accuracy and boldness on institutional holdings, we perform analysis of the effect of analyst's accuracy (boldness) on institutional holdings by controlling the analyst's boldness (accuracy).

### *4.1. Do Institutional Investors Prefer Firms with More Accurate Earnings Forecast?*

Table 2 shows the results of regression model in equation (6) in exploring the effects of analysts' earnings forecast accuracy on institutional holdings by controlling number of analysts covering a firm and firm's market capitalization. The first column in Table 2 reports the results in general by looking at the overall significance of analysts' earnings forecast on a firm's institutional holdings.

Next, we examine the effect of analysts' earnings forecast accuracy on the institutional holdings by first segregating all firms into three groups according to the

analysts' forecast accuracy on the firm and then run the regression for the firms in each of the groups. These results are shown in columns two through four, and the last column which shows the difference of results between firms with the most accurate earnings forecast and firms with the least accurate earnings forecast.

First of all, from column one, the coefficient of analysts' earnings forecast variable shows strong positive significance, implying that institutional holdings on a firm are significantly influenced by analysts' earnings forecasts on that firm. That is, firms with higher earnings forecast will attract more institutional holdings. In other words, the result indicates that institutional investors do pay attention to the analysts' earnings forecast reports and that institutional investors invest a firm according to average analysts' earnings forecast on that firm. The result holds in each group of firms with different degrees of analysts' forecast accuracy. This result is also consistent with findings by Chen and Cheng (2006) and Sangkaraguruswamy (2005) that institutional investors tend to increase (decrease) their holdings of firms with favorable (unfavorable) analyst recommendations

Next, we investigate the first empirical issue that this paper attempts to address: Do institutional investors pay more attention and thus more sensitive to more accurate earnings forecast? We address this issue by looking at the coefficient of earnings forecast in the last four columns, especially the last column, in Table 2.

From columns two, three and four of Table 2, it is obvious that the extents of the effect of analysts' forecast accuracy on the institutional holdings are different among those firms with different degrees of forecast accuracy. For example, the coefficient of analyst's earnings forecast variable "EF" for the firms with the most accurate analyst forecast ("FirmAcc1") is larger than that of the firms with moderate accurate analyst forecast and is much larger than that of the firms with the least accurate analyst forecast.

Furthermore, the last column shows that the difference between the accuracy coefficient of the firms with the most accurate forecast and that of the firms with the least accurate forecast is statistically significant. This result suggests that even if the effect of analysts earnings forecast on the institutional holdings prevails over firms with different degrees of analyst forecast accuracy, the effect is stronger and more significant for the firms with higher accuracy in analysts' earnings forecasts. In other words, institutional

investors are more sensitive to analysts' earnings forecasts for firms with higher analyst forecast accuracy. That means institutional investors will pay more attention to the firms that are provided more accurate earnings forecasts by the analysts.

Secondly, for the effect of the number of analysts, we find that the number of analysts covering a firm will positively affect the institutional holdings on that firm, suggested by the positive significance of the "Num" variable in the table. That is, the more analysts reporting a firm's earnings forecast, the more interested institutional investors would be in that firm. This result is consistent with findings by O'Brien and Bhushan (1990) and Hussain (2000). The fact that the analysts' forecast accuracy still has significant effect on institutional holdings after controlling the number of analysts covering a firm indicates that institutional investors look not only at how many analysts are covering the firm but also how accurate those analysts are reporting their earnings forecast. To our knowledge, this is the first evidence in the literature that addresses the effect of the accuracy of analyst earnings forecast on institution's trading.

Thirdly, the coefficient of "Size" or market capitalization of a firm is significant implying that firm size does matter to institutional investors when it comes to investing on the firm. In fact, it shows that institutional holdings tend to be higher for firms with larger sizes suggested by the positive sign of the "Size" variable. This is consistent with finding by Falkenstein (1996) that institutional investors prefer to invest in firms with larger market capitalization. Again, the fact that analysts' earnings forecast still remains a significant impact on institutional holdings after controlling for firm's market capitalization suggests that institutional investors pay attention to a firm's earnings forecast in addition to the effect from the firm's market capitalization.

Finally, the last column shows that the differences in the coefficients of both "Num" and "Size" between firms with the most accurate and the least accurate analyst forecasts are not significant. This indicates that the effects of number of analysts and firm size on institutional holdings are exactly the same for firms with different degrees of analysts earnings forecast. This result makes sense because there is no logical ground to believe that institutional holdings would be more sensitive to either number of analysts in a firm or firm size in a particular group of firms with a particular analyst forecast accuracy level. This also reinforces the result of the effect of analyst forecast accuracy

per se on the institutional holdings and provides further evidence that it is the analyst forecast accuracy that the institutional investors really focus on, in addition to the effect from the number of analysts and firm size.

#### *4.2. Do Institutional Investors Pay More Attention to Analysts with Higher Accuracy in Earnings Forecast?*

This section reports empirical evidence as to whether or not institutional investors would pay more attention and thus more sensitive to analysts with higher forecast accuracy. In the next section, we analyze the result regarding the institutional investors' preferences on the analysts' boldness in their earnings forecasts.

Table 3 reports the result for the institutional investors' sensitivity on earnings forecast to analysts with different degrees of forecast accuracy. We first categorize the analysts into three groups according to their earnings forecast accuracy with "AlystAcc1" representing the most accurate analyst group and "AlystAcc3" representing the least accurate analyst group. We then perform regression for each analyst accuracy group and test the significance of the difference in earnings forecast variable between most accurate and least accurate analyst groups.

First of all, from the first three columns of Table 3, we find that all of the coefficients are positive and significant. This means that no matter in which forecast accuracy group, firms with higher analyst earnings forecast, with more analysts covering and with larger market capitalization will attract more institutional interests. These results basically are the same as what we find in Table 2 above.

The last column of Table 3 reports the result of the difference between analysts with the most accurate and those with the least accurate earnings forecast. That is, it reports the result as to whether institutional investors would be able to identify and differentiate analysts with different degrees of accuracy in earnings forecast and reflect that on their investing behavior. Except for the intercept term, among those three explanatory variables, only the coefficient of "EF" variable is significantly positive. That means institutional investors not only are able to identify the accuracy of analysts earnings forecast but they also incorporate this information into their investing behavior.

That is, institutional investors are more sensitive to analysts with more accurate earnings forecast.

The other two variables, number of analysts covering and firm size, show no significance on the difference between the most accurate and the least accurate analyst groups. This implies that the effects of both the number of analysts covering and firm size on the sensitivity of institutional holdings to firm's earnings forecast are the same disregard how analysts are accurate in their earnings forecasts.

In sum, the results shown in Table 3 indicate that institutional investors are not only more sensitive to firms with higher earnings forecast accuracy, but they are also more sensitive and pay more attention to those analysts who are able to forecast firms' earnings more accurately.

#### *4.3. Do Institutional Investors Pay More Attention to Analysts with Bold Earnings Forecast?*

This section reports the empirical results that address the question: Whether institutional investors would pay more attention to analysts with bold earnings forecast? In order to examine whether there exists an effect of analysts' boldness in earnings forecast on institutional holdings, we first identify each analyst's boldness in a way specified in section 3 above. We then assign each analyst into one of the three groups according to his/her earnings forecast boldness: group "AlystBold1" represents analysts with the boldest attitude in their earnings forecast while "AlystBold3" represents those with the least bold (more conservative) attitude toward their earnings forecast. Finally, we run the regression in equation (6) for each of the analyst boldness groups and then examine the differences in coefficients among those three groups. The results are presented in Table 4.

The first three columns in Table 4 report, respectively, the regression coefficients for analysts with the boldest, moderate bold and most conservative toward their earnings forecast. Similar to the results of Table 3, all of the coefficients in those three columns in Table 4 are positively significant. This indicates that firms with higher analyst earnings forecast, with more analysts covering or with larger capitalization, will draw more institutional investors' attention and thus attract higher institutional holdings.



The last column presents the differences in coefficients between the boldest and the most conservative analyst groups. None of the coefficients in that column is significant. This suggests that, in general, institutional investors do not have preferences over analysts with different degrees of boldness in their earnings forecasts. In other words, whether an analyst is bold or conservative in earnings forecast will not affect institutional investors' investing decision on a firm.

The comparison between the results from Table 3 and Table 4 suggests that institutional investors indeed prefer analysts with more accuracy in earnings forecast. That is, they tend to follow those analysts with higher earnings forecast accuracy in making their investing decisions. However, they will not be affected by an analyst's boldness toward earnings forecast. These results imply that institutional investors emphasize more on the accuracy than the boldness of an analyst's earnings forecast. Based upon the common findings in the literature that analysts tend to be over-optimistic on their earnings forecasts (e.g., Jegadeesh et al. (2004)), the above results suggest that institutional investors will not be fooled by analysts' over-optimistic forecasts unless their forecasts are also accurate enough.

In addition to separately analyzing the effect of accuracy and boldness of analyst's earnings forecast on the institutional holdings, it is also interesting to look at the interactive effect of analyst's accuracy and boldness on institutional holdings. The purpose is to further examine whether institutional investors' preference on the analysts with high accuracy of earnings forecast is only limited to a particular type of analysts in terms of forecast boldness or it prevails regardless of analysts' boldness.

On one hand, institutional investors may prefer analysts with high accuracy in earnings forecast because these analysts are bold, not tend to herd with other analysts. In this case, institutional investors may see those analysts with bold earnings forecast as unique, having more insightful information and more trustable. Therefore, institutional investors tend to trust more on these analysts who are not only accurate but bold in their earnings forecast.

However, on the other hand, institutional investors may prefer analysts with high accuracy but are conservative and more coincide with the consensus earnings forecast. In this case, institutional investors may feel safer to follow those analysts who are accurate

in forecast but also conservative and closer to the consensus forecast. Another reason why institutional investors may tend to follow analysts with earnings forecast closer to the consensus is the “prudent-man” rule that institutional investors are required by the SEC regulation. Thus, which case is more applicable to the institutional investors is really an empirical issue and it needs to be tested empirically.

In order to test which of the above two scenarios would apply to the institutional investors, we first divide analysts into three boldness groups. Then, in each of the boldness group, we further divide analysts into three accuracy groups. Finally, we run the same regression as in equation (6) for each of the accuracy groups and test the significance of the difference in the earnings forecast variable between the boldest and the least bold analyst groups. The results are shown in Table 5.

Panels A, B and C of Table 5 report the results for the analyst groups with the boldest, moderate bold and the least bold attitude toward earnings forecast, respectively. The boldest analysts are those whose earnings forecasts are far from the consensus while the analysts with the least bold forecast are those with earnings forecasts close to the consensus. In both panels A and B, there is no significance in the differences of any regression coefficient between the more accurate and the less accurate analyst groups. However, in panel C the difference in analysts’ earnings forecast variable “EF” between analysts with high and low forecast accuracy is strongly significant, while the differences in other two variables, number of analysts covering and firm size, are both insignificant.

By comparing the results in Table 3 with those in Table 5, it is rather interesting to find that while Table 3 shows strong significance on the difference in analysts’ earnings forecast variable between analysts with high and low accuracy, Table 5 exhibits that only in the least bold (close to consensus) analyst group that difference is significant. These results indicate that it is only within the group of analysts whose earnings forecasts are close to the consensus that institutional investors prefer those analysts with high forecast accuracy. Institutional investors do not prefer analysts with higher forecast accuracy if these analysts report their earnings forecast far from the consensus. This empirical evidence confirms the case where institutional investors feel safer to follow analysts who are not only accurate in forecast but their forecasts are also closer to the

consensus. The result also implies that the “prudent-man” rule may have affected institutional investors’ investing behavior following analyst earnings forecast.

Next, in order to examine whether analyst’s forecast boldness may exhibit significant impact on institutional holdings within certain forecast accuracy groups, we conduct the analysis by controlling the analyst’s accuracy and examine the analyst’s boldness on institutional holdings. This part of results is shown in Table 6. Again, we focus on the last column in Table 6, especially on the coefficient of “EF” which shows the differential effect between boldest and least bold analysts on institutional holdings.

First of all, it is obvious from Table 6 that none of the “EF” coefficients in the last column of each panel is significant. This indicates that institutional investors do not particularly prefer analysts with bold or conservative attitude toward earnings forecast as long as they are with similar forecast accuracy. This result reinforces our findings in Table 4 that institutional investors are indifferent to analyst’s boldness but only focus on analyst’s accuracy.

Furthermore, although not statistically significant, the sign of “EF” coefficient in the last column of each panel being negative suggests that even within the same accuracy group, institutional investors tend to prefer analysts whose earnings forecasts are closer to the consensus and thus more conservative. This result coincides with the finding in Table 5 where institutional investors prefer analysts with high accuracy only when their earnings forecasts are closer to the consensus.

## **5. Conclusions**

This paper addresses three issues regarding the effect of financial analysts earnings forecast on the institutional holdings: (1) Do institutional investors pay attention to analysts earnings forecast accuracy? (2) Do institutional investors prefer analysts with higher earnings forecast accuracy? (3) Do institutional investors prefer analysts with bold attitude toward earnings forecast? We summarize our conclusions regarding those three issues as follows.

First of all, our empirical evidence shows that institutional investors do pay attention to the accuracy of financial analysts earnings forecast. That is, firms with higher accuracy of analysts' earnings forecast tend to attract more institutional investors' attention and draw higher institutional holdings on those firms. This effect is significant in addition to both the effect from the number of analysts and that from firm size, both of them exhibit positive impact on institutional holdings as well.

Secondly, our results indicate that institutional investors prefer analysts with higher accuracy in their earnings forecast. That means institutional investors tend to follow those analysts whose earnings forecast are more accurate. This result implies that institutional investors are able to not only identify the firms with more accurate earnings forecast reports but also differentiate and follow the analysts whose earnings forecast reports are more accurate.

Finally, we find that institutional investors' preference on the analysts with higher earnings forecast accuracy only applies to those analysts whose earnings forecast are close to the consensus. This implies that institutional investors do not blindly follow the analysts earnings forecast if their forecasts are too bold and far away from the consensus. It also suggests that institutional investors tend to be selective and risk-averse when they follow the analysts with higher forecast accuracy.

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**Table 1**  
**Descriptive Statistics**

Year	Institutional Holdings		No. of Firms	Analyst EPS Forecasts			Number of Analysts		
	No. of Institutions	Institutional Ownership (%)		Min. EPS Forecast (\$)	Mean EPS Forecast (\$)	Max. EPS Forecast (\$)	Min.	Mean	Max.
1983	672	36.34	15846	-11.00	1.41	16.00	10	30.32	65
1984	701	38.13	15506	-10.05	1.53	11.71	10	28.40	87
1985	750	40.95	16151	-7.88	1.44	13.35	10	27.32	60
1986	806	41.88	16707	-9.00	1.22	17.70	10	25.99	56
1987	824	42.05	17271	-12.33	1.17	11.20	10	26.48	73
1988	790	42.74	16090	-7.73	1.55	16.00	10	25.81	56
1989	833	43.10	17089	-21.00	1.54	25.00	10	26.43	70
1990	786	45.48	15351	-11.35	1.34	18.85	10	24.17	61
1991	738	46.20	13694	-13.17	1.10	19.38	10	22.37	50
1992	750	47.99	13833	-5.00	1.14	21.00	10	22.09	50
1993	879	45.38	16273	-4.50	1.20	14.00	10	23.02	58
1994	945	49.09	16799	-3.90	1.28	15.02	10	22.19	56
1995	950	50.77	16956	-6.71	1.48	20.40	10	21.87	49
1996	1005	50.97	17831	-6.75	1.42	23.30	10	21.51	54
1997	1082	52.67	18970	-10.81	1.37	16.68	10	21.13	57
1998	1151	54.04	19848	-13.86	1.17	15.95	10	20.53	52
1999	1191	51.78	21126	-11.70	1.07	24.30	10	21.23	49
2000	1213	55.21	21873	-15.04	1.18	14.68	10	21.99	59
2001	1217	54.84	22038	-20.33	1.08	8.34	10	22.49	60
2002	1318	57.06	24009	-14.09	1.01	9.20	10	22.61	62
2003	1293	54.68	24056	-19.62	1.22	12.42	10	22.85	67
2004	1358	59.75	24752	-15.54	1.46	19.56	10	21.84	55
2005	1344	64.72	24086	-11.30	1.75	24.73	10	21.32	56

**Table 2**  
**Accuracy of Earnings Forecast and Institutional Holdings**

This table reports results from the following regression:

$$IH_{i,t} = b_0 + b_1 * EF_{i,t} + b_2 * Num_{i,t} + b_3 * Size_{i,t} + \varepsilon_{i,t},$$

where  $IH_{i,t}$  is the institutional holdings for firm  $i$  in year  $t$ ;  $EF_{i,t}$  is the average analysts' earnings forecast for firm  $i$  in year  $t$ ;  $Num_{i,t}$  is the number of analysts covering firm  $i$  in year  $t$ ;  $Size_{i,t}$  is the market capitalization of firm  $i$  in year  $t$  and  $\varepsilon_{i,t}$  is the regression residual term. FirmAcc1, FirmAcc2 and FirmAcc3 represent firms with highest, medium and lowest accuracy in earnings forecast, respectively. The numbers in parentheses are standard errors. "\*\*\*" and "\*\*\*\*" represent significance at 5% and 1% level, respectively.

	All	FirmAcc1	FirmAcc2	FirmAcc3	FirmAcc1- FirmAcc3
Intercept	13.471*** (0.009)	14.891*** (0.020)	14.879*** (0.020)	14.865*** (0.020)	0.026 (0.028)
EF	0.181*** (0.006)	0.147*** (0.008)	0.146*** (0.008)	0.124*** (0.008)	0.023** (0.012)
Num	0.124*** (0.001)	0.055*** (0.001)	0.054*** (0.001)	0.054*** (0.000)	0.0001 (0.0014)
Size	0.021*** (0.001)	0.026*** (0.000)	0.026*** (0.000)	0.026*** (0.000)	-0.0006 (0.0006)



**Table 3**  
**Analyst's Accuracy and Institutional Holdings**

This table reports results from the following regression:

$$IH_{i,t} = b_0 + b_1 * EF_{i,t} + b_2 * Num_{i,t} + b_3 * Size_{i,t} + \varepsilon_{i,t},$$

where  $IH_{i,t}$  is the institutional holdings for firm  $i$  in year  $t$ ;  $EF_{i,t}$  is the average analysts' earnings forecast for firm  $i$  in year  $t$ ;  $Num_{i,t}$  is the number of analysts covering firm  $i$  in year  $t$ ;  $Size_{i,t}$  is the market capitalization of firm  $i$  in year  $t$  and  $\varepsilon_{i,t}$  is the regression residual term. AlystAcc1, AlystAcc2 and AlystAcc3 represent analysts with highest, medium and lowest accuracy in earnings forecast, respectively. The numbers in parentheses are standard errors. "\*\*\*" and "\*\*\*\*" represent significance at 5% and 1% level, respectively.

	AlystAcc 1	AlystAcc 2	AlystAcc 3	AlystAcc 1 – AlystAcc 3
Intercept	14.8944*** (0.0198)	14.8900*** (0.0196)	14.8815*** (0.0196)	0.0129 (0.0279)
EF	0.1544*** (0.0081)	0.1361*** (0.0079)	0.1296*** (0.0083)	0.0248** (0.0116)
Num	0.0539*** (0.0010)	0.0537*** (0.0009)	0.0536*** (0.0009)	0.0003 (0.0013)
Size	0.0257*** (0.0004)	0.0261*** (0.0004)	0.0262*** (0.0004)	-0.0005 (0.0006)

**Table 4**  
**Analyst's Boldness and Institutional Holdings**

This table reports results from the following regression:

$$IH_{i,t} = b_0 + b_1 * EF_{i,t} + b_2 * Num_{i,t} + b_3 * Size_{i,t} + \varepsilon_{i,t},$$

where  $IH_{i,t}$  is the institutional holdings for firm  $i$  in year  $t$ ;  $EF_{i,t}$  is the average analysts' earnings forecast for firm  $i$  in year  $t$ ;  $Num_{i,t}$  is the number of analysts covering firm  $i$  in year  $t$ ;  $Size_{i,t}$  is the market capitalization of firm  $i$  in year  $t$  and  $\varepsilon_{i,t}$  is the regression residual term. AlystBold1, AlystBold 2 and AlystBold 3 represent analysts with the boldest, moderate bold and the least bold earnings forecast, respectively. The numbers in parentheses are standard errors. "\*\*\*" and "\*\*\*\*" represent significance at 5% and 1% level, respectively.

	AlystBold 1	AlystBold 2	AlystBold 3	AlystBold 1 - AlystBold 3
Intercept	14.8886*** (0.0196)	14.8859*** (0.0195)	14.8813*** (0.0197)	0.0073 (0.0278)
EF	0.1441*** (0.0081)	0.1463*** (0.0082)	0.1412*** (0.0082)	0.0029 (0.0116)
Num	0.0538*** (0.0009)	0.0539*** (0.0009)	0.0539*** (0.0009)	-0.0001 (0.0013)
Size	0.0260*** (0.0004)	0.0260*** (0.0004)	0.0260*** (0.0004)	0.0000 (0.0006)

**Table 5****Analyst's Accuracy and Institutional Holdings by Controlling Analyst's Boldness**

This table reports results from the following regression:

$$IH_{i,t} = b_0 + b_1 * EF_{i,t} + b_2 * Num_{i,t} + b_3 * Size_{i,t} + \varepsilon_{i,t},$$

where  $IH_{i,t}$  is the institutional holdings for firm  $i$  in year  $t$ ;  $EF_{i,t}$  is the average analysts' earnings forecast for firm  $i$  in year  $t$ ;  $Num_{i,t}$  is the number of analysts covering firm  $i$  in year  $t$ ;  $Size_{i,t}$  is the market capitalization of firm  $i$  in year  $t$  and  $\varepsilon_{i,t}$  is the regression residual term.  $AlystAcc1$ ,  $AlystAcc2$  and  $AlystAcc3$  represent analysts with highest, medium and lowest accuracy in earnings forecast, respectively. And,  $AlystBold1$ ,  $AlystBold2$  and  $AlystBold3$  represent analysts with the boldest, moderate bold and the least bold earnings forecast, respectively. The numbers in parentheses are standard errors. “\*\*\*” and “\*\*” represent significance at 5% and 1% level, respectively.

<b>A: AlystBold 1</b>				
	AlystAcc 1	AlystAcc 2	AlystAcc 3	AlystAcc 1 - AlystAcc 3
Intercept	14.9730*** (0.0221)	14.9512*** (0.0208)	14.9359*** (0.0217)	0.0371 (0.0310)
EF	0.1437*** (0.0091)	0.1416*** (0.0086)	0.1293*** (0.0085)	0.0144 (0.0125)
Num	0.0506*** (0.0010)	0.0519*** (0.0010)	0.0518*** (0.0010)	-0.0012 (0.0014)
Size	0.0252*** (0.0005)	0.0254*** (0.0004)	0.0257*** (0.0005)	-0.0005 (0.0007)
<b>B: AlystBold 2</b>				
	AlystAcc 1	AlystAcc 2	AlystAcc 3	AlystAcc 1 - AlystAcc 3
Intercept	14.9344*** (0.0214)	14.9733*** (0.0204)	14.9313*** (0.0208)	0.0031 (0.0298)
EF	0.1533*** (0.0087)	0.1439*** (0.0084)	0.1409*** (0.0087)	0.0124 (0.0123)
Num	0.0524*** (0.0010)	0.0511*** (0.0010)	0.0522*** (0.0010)	0.0002 (0.0014)
Size	0.0255*** (0.0004)	0.0257*** (0.0004)	0.0257*** (0.0004)	-0.0002 (0.0006)
<b>C: AlystBold 3</b>				
	AlystAcc 1	AlystAcc 2	AlystAcc 3	AlystAcc 1 - AlystAcc 3
Intercept	14.8933*** (0.0238)	14.9538*** (0.0212)	14.8487*** (0.0251)	0.0446 (0.0346)
EF	0.1549*** (0.0096)	0.1323*** (0.0088)	0.1209*** (0.0106)	0.0340*** (0.0143)
Num	0.0532*** (0.0011)	0.0513*** (0.0010)	0.0539*** (0.0011)	-0.0007 (0.0016)
Size	0.0239*** (0.0005)	0.0260*** (0.0005)	0.0240*** (0.0005)	-0.0001 (0.0007)

**Table 6****Analyst's Boldness and Institutional Holdings by Controlling Analyst's Accuracy**

This table reports results from the following regression:

$$IH_{i,t} = b_0 + b_1 * EF_{i,t} + b_2 * Num_{i,t} + b_3 * Size_{i,t} + \varepsilon_{i,t}$$

where  $IH_{i,t}$  is the institutional holdings for firm  $i$  in year  $t$ ;  $EF_{i,t}$  is the average analysts' earnings forecast for firm  $i$  in year  $t$ ;  $Num_{i,t}$  is the number of analysts covering firm  $i$  in year  $t$ ;  $Size_{i,t}$  is the market capitalization of firm  $i$  in year  $t$  and  $\varepsilon_{i,t}$  is the regression residual term. AlystAcc1, AlystAcc2 and AlystAcc3 represent analysts with highest, medium and lowest accuracy in earnings forecast, respectively. And, AlystBold1, AlystBold 2 and AlystBold 3 represent analysts with the boldest, moderate bold and the least bold earnings forecast, respectively. The numbers in parentheses are standard errors. "\*\*\*" and "\*\*\*\*" represent significance at 5% and 1% level, respectively.

<b>A: AlystAcc 1</b>				
	AlystBold 1	AlystBold 2	AlystBold 3	AlystBold 1 - AlystBold 3
Intercept	14.9715*** (0.0221)	14.9323*** (0.0213)	14.8906*** (0.0239)	0.0809*** (0.0326)
EF	0.1399*** (0.0090)	0.1539*** (0.0087)	0.1597*** (0.0097)	-0.0198 (0.0132)
Num	0.0508*** (0.0010)	0.0524*** (0.0010)	0.0533*** (0.0011)	-0.0025 (0.0015)
Size	0.0252*** (0.0005)	0.0255*** (0.0004)	0.0241*** (0.0005)	0.0011 (0.0006)
<b>B: AlystAcc 2</b>				
	AlystBold 1	AlystBold 2	AlystBold 3	AlystBold 1 - AlystBold 3
Intercept	14.9395*** (0.0212)	14.9499*** (0.0203)	14.9457*** (0.0209)	-0.0062 (0.0298)
EF	0.1262*** (0.0083)	0.1415*** (0.0085)	0.1348*** (0.0086)	-0.0086 (0.0119)
Num	0.0522*** (0.0010)	0.0515*** (0.0010)	0.0517*** (0.0010)	0.0005 (0.0014)
Size	0.0255*** (0.0004)	0.0265*** (0.0004)	0.0261*** (0.0005)	-0.0005 (0.0006)
<b>C: AlystAcc 3</b>				
	AlystBold 1	AlystBold 2	AlystBold 3	AlystBold 1 - AlystBold 3
Intercept	14.9367*** (0.0215)	14.9202*** (0.0212)	14.9095*** (0.0243)	0.0272 (0.0324)
EF	0.1186*** (0.0084)	0.1348*** (0.0088)	0.1197*** (0.0101)	-0.0011 (0.0132)
Num	0.0518*** (0.0010)	0.0521*** (0.0010)	0.0515*** (0.0011)	0.0003 (0.0015)
Size	0.0257*** (0.0005)	0.0260*** (0.0004)	0.0254*** (0.0005)	0.0002 (0.0007)