PREDICTIVE ABILITY OF INTERIM ANNOUNCEMENTS BY USING MEAN DEVIATION TESTING

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ABSTRACT

The study examines the predictive ability of interim announcement on projecting year-end financial statements. The investigation tests the accuracy of projected income statements by using proportional method of Q1, Q2, and Q3 interim announcements against actual year-end.

The study investigates 280 announcements from 70 of 415 firms listed in Indonesia Stock Exchange. The indicators being measured are the income statements components which include revenue, expense, other income/loss, net income, and earning per share (EPS) of the interim announcements. The study uses mean deviation as tools on measurements.

The finding indicates that income statements reported in the interim announcements, if projected proporsionally, deviate signifantly against the actual year-end (Q4), in most type of industries, which reflected by the significant mean deviation. The conclusion is consistent in all main components of income statements tested, including sales, expenses, other income/loss, net income, and earning per share (EPS). However, the study indicates that eventhough the deviation is still signicant, it is reduced in Q2 and Q3 as the periods are longer.

Keywords: *interim announcement, mean deviation, Indonesian Stock Exchange*

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1. Introduction

Kieso, Weygandt, and Warfield (2011) explained that the objective of financial statements is to provide information about the financial position, performance, and changes in financial position of an enterprise that is useful to a wide range of users in making economic decisions. However, the final accounts of companies which are often referred to as the earning annoucements or financial statements normally can only be expected to be announced around the first quarter of the subsequent year.

Considering time is the subject matter in decision making as asserted by Ariely and Zakay (2001), those historical information could be considered late in term of making current economic decisions. As decisions depend heavily on financial information and on the other side the information is ready lately, financial forecasting is becoming an option. Financial forecast estimates of future financial

outcomes. Using historical internal accounting and sales data, in addition to external market and economic indicators, a financial forecast is the best projection of final year performance. Managements use forecasting to do financial planning, which includes an assessment of their future financial needs. Forecasting is also used by investors to valuate firms and their securities.

Beattie (2011) explained that there are a number of different methods by which a business forecast can be made. They could be devided into two overarching approaches: qualitative and quantitative. Qualitative models include market research and delphi method while quantitative models include indicator approach, econometric model, and time series. The quantitative models use historical data—current year interim financial statement, growth rate from the prior year, sales percentage, and time series from several years as the basis to forecaste.

However, financial forecasting is also having problems. No body knows the future. Hunt (2006) elaborated seven forecasting issues which include: frequency and timeliness of information, finance skill and morale, cost and effort, accountability and ownership, flexibility, accuracy, and finally the transparancy and access to information. Clarke and McQueen (2001) stressed that the accuracy of proforma statements is limited by the validity of the assumptions used in creating them. Beatie (2011) concerned about the fact that historical data is all we have to go on and there is no guarantee that the conditions in the past will persist into the future. That is why, the main issue in forecasting financial statements is accuracy and the accuracy depends largely on the quality of the data used as a basis for the financial models and projections.

Based on the above background, this research examine the predictive data quality of historic interim announcements (Q1, Q2, and Q3) as the basis of forecasting final year-end income statement.

2. Research Questions and Aim of Study

The aim of study of this research is to test the accuracy of forecasting actual year-end income statement by using proportional approach, which investigates the following research questions:

1. How is the deviation of the year-end income statements (Q4) against projected income statements by using proportional approach of first quarter (Q1) announcement?
2. How is the deviation of the year-end income statements (Q4) against projected income statements by using proportional approach of second quarter (Q2) announcement?

3. How is the deviation of the year-end income statements (Q4) against projected income statements by using proportional approach of third quarter (Q3) announcement?

3. Literature Review

Accuracy of forecasting had been interested many researchers to be investigated. West (1996) had been doing research about asymptotic inference about predictive ability. The paper developed procedures for inference about the moment of smooth functions of out-of-sample predictions and realization. The aim is to provide tools for anaysis of predictive accuracy and efficiency, and, more generally, of predictive ability. The paper allows for nonnested and nonlinear models, as well as for possible dependence of predictions and predictions errors on estimated regression parameters. Simulation indicated that procedures can work well in samples of size typically available.

Giacomini and White (2003) argued that the framework for predictive ability testing by West (1996) is not necessarily useful for real-time forecast selection, i.e., for assessing which of two competing forecasting methods will perform better in the future. They propose an alternative framework for out-of-sample comparison of predictive ability which delivers more practically relevant conclusions. Their approach is based on inference about conditional expectations of forecasts and forecast errors rather than the unconditional expectations that are the focus of the existing literature. They capture important determinants of forecast performance that are neglected in the existing literature by evaluating what we call the forecasting method (the model and the parameter estimation procedure), rather than just the forecasting model. Compared to previous approaches, the tests are valid under more general data assumptions (heterogeneity rather than stationarity) and estimation methods, and they can handle comparison of both nested and non-nested models, which is not currently possible.

Clark and McCracken (2010) later doing testing for unconditional predictive abilitity which begin by providing an overview of the literature, including both empirical applications and theoretical contributions, then delineate two distinct methodologies for conducting inference: one based on the analytics in West (1996) and the other based on those in Giacomini and White (2006). These two approaches are then described in the context of pairwise tests of equal forecast accuracy between two models. They considered both non-nested and nested comparisons. Monte Carlo evidence provides some guidance as to when the two forms of analytics are most appropriate, in a nested model context.

Chen, Francis, and Jiang (2005) developed and tested a model of investor learning about the predictive ability of security analysts. The model shows that when investors rely on an analyst's record of past forecasting performance to update their beliefs about the analyst's true predictive ability, investors will increase their

weights on the analyst's past performance and decrease their weights on prior perceived ability.

Similar those researches, this study will examine the level of accuracy of the financial forecasting. However, instead of using predictive ability analysis, this research will use mean deviation testing by measuring the distance of the actual to forecasted figures of financial information provided in the income statement.

4. Hypotesis of Interest

Blackborby dan Russel (1995) said that on budgeting and forecasting year-end performance, governments, academicians, firms' managements, and investors, often use two approaches: proportional approach and decentralization approach. By using proportional approach, firms' is assumed to grow steadily during the year and the year end performance can be predicted by using interim announcements.

Based on that premise, this study examines these following hypothesis.

H1: Year-end earnings announcement can be predicted with no significant deviation by using proportional approach of first quarter interim (Q1) announcement.

H2: Year-end earnings announcement can be predicted with no significant deviation by using proportional approach of second quarter interim (Q2) announcement.

H3: Year-end earnings announcement can be predicted with no significant deviation by using proportional approach of third quarter interim (Q3) announcement.

5. Methodology

The study tested the predictive ability of interim announcements to forecaste year end performance by using mean deviation testing. The data being tested would be the financial statements of companies listed in the Indonesia Stock Exchange on year 2011 which published at www.idx.co.id. The study uses 280 announcements from 70 of 415 firms listed in Indonesia Stock Exchange on 2012. Purposive sampling is used to ensure the representation of industries in the samples.

Mean deviation is an important descriptive statistic that is not frequently encountered in mathematical statistics. This is essentially because while mean deviation has a natural intuitive definition as the "mean deviation from the mean," the introduction of the absolute value makes analytical calculations using this statistic much more complicated than the standard deviation. The mean deviation--

also called the mean absolute deviation (Farid and Siswanto, 2011), is the mean of the absolute deviations of a set of data about the data's mean.

For a sample size N, the mean deviation is defined in the following equation.

$$\mathrm{MD} \equiv \frac{1}{N}\sum_{i=1}^{N}|x_i - \bar{x}|,$$

where $\bar{x}$ is the mean of the distribution and N is the number of data.

This research will seek for the minimum deviation among three options of forecasting income statements. The first steps is to verify whether each option is having sigificant mean deviations between the forecasted and the actual income statement. To answer the problem formulation, each financial statement components in Quarter 1 (Q_1) will be forecasted by using each method, then the forecasted result will ba compared with the actual report. The mean distribution will be calculated to see the accuracy of the forecasted income statement by the using the methods compared with the actual figures. If the option is having significant mean deviation, then it will be excluded from the option. If it is not, then it will be continue with next step to choose the minimum mean deviation. This process will be iterated to data from Quarter 2 (Q_2) and Quarter 3 (Q_3).

This research will use level of confidence of 95%. The tolerable error being accepted would be 5%, with the following decision criteria.

Decision rules:

- If the absoute mean deviation of forecasted year-end income statement by using quarterly report ($|DR_n|$) is less than the tolerable error of 5%, then the hypotesis would be accepted.

  $| DR_n | \leq 5\% \rightarrow$ Hypothesis is accepted.

- If the absoute mean deviation of forecasted year-end income statement by using quarterly report ($|DR_1|$) is more or equal than the tolerable error of 5%, then the hypotesis would be accepted.

  $| DR_n | \geq 5\% \rightarrow$ Hypothesis is rejected

6. Discussion

This study of predictive ability of interim income statements elaborates income statements by its components: sales, expenses, other income/(loss), income after tax, and earning per share (EPS).

Table 1 to Table 5 disclose the predictive ability of each component which reflected by the mean deviation of forecasted income statements by using each interim income statements data agaist the year-end announcement.

Table 1. Sales Component Predictive Ability

	Mean Deviation		
Industri	Q1	Q2	Q3
Property	11.70%	19.41%	10.37%
Retail	11.32%	11.93%	1.98%
Transportation	-3.68%	-2.43%	-8.99%
Agrobusiness	-0.91%	14.18%	-5.53%
Developer	23.45%	14.13%	9.50%
ICT	15.25%	8.78%	4.48%
Mean	11.08%	11.44%	3.67%

Table 1 as shown above discloses that sales reported in interim reports of Q1 to Q3, if projected proporsionally will deviate signifantly with the actual year-end sales (Q4), in most type of industries, which reflected by the deviation of more than 5%. Total mean deviation of Q1 and Q2 is consistent with the conclusion which shows meand deviation of 11.08% and 11,44% respectively. The deviation is reduced to 3.67% in the Q3 which indicate that predictive ability will improve as the performance periods is longer.

Table 2. Expenses Predictive Ability

	Mean Deviation		
Industri	Q1	Q2	Q3
Property	162.72%	35.80%	2.00%
Retail	99.56%	93.15%	88.43%
Transportation	29.92%	-1.99%	-7.03%
Agrobusiness	170.20%	179.15%	161.17%
Developer	116.14%	36.41%	8.77%
ICT	13.60%	11.73%	5.79%
Mean	100.02%	50.48%	32.59%

From the expense side, Table 2 as shown above discloses that expenses reported in interim reports of Q1 to Q3 if projected proporsionally will also deviate signifantly with the actual year-end expense (Q4), in most type of industries, which reflected by the deviation of more than 5%. Total mean deviation of Q1, Q2, and Q3 in consistent with the conclusion which shows mean deviation of 100.02%, 50.48%, and 32,59 respectively. The table shows that deviation is reduced as the performance periods is longer.

Table 3. Other Income/(Loss)-Net

	Mean Deviation		
Industri	Q1	Q2	Q3
Property	1203.55%	426.59%	269.62%
Retail	-239.80%	-565.76%	930.68%
Transportation	-179.46%	-625.96%	-465.86%
Agrobusiness	-155413.44%	41.03%	58.42%
Developer	42.57%	-2296.16%	617.85%
ICT	276.41%	163.97%	53.67%
Mean	-153300.98%	-6948.18%	-816.61%

From the other income/loss component view, Table 3 as shown above discloses that the other income/loss reported in interim reports of Q1 to Q3 if projected proporsionally will deviate signifantly with the actual year-end other income/loss (Q4), in most type of industries, which reflected by the deviation of more than 5%. Total mean deviation of Q1, Q2, and Q3 is consistent with the conclusion which shows 153300.98%, -6948.18%, and -816.61% respectively. This conclusion indicate that other income/loss accounts is naturally unpredictable.

Table. 4 Interim Income After Tax

	Mean Deviation		
Industri	Q1	Q2	Q3
Property	-465.06%	40.14%	27.53%
Retail	42.09%	35.54%	-263.68%
Transportation	9.07%	-70.24%	18.84%
Agrobusiness	116.04%	53.11%	-61.51%
Developer	87.80%	7.10%	51.45%
ICT	53.21%	3.30%	-8.64%
Mean	-35.42%	-4.02%	-29.37%

Interim income after tax component as shown in Table 4 above discloses that net income after tax reported in interim reports of Q1 to Q3, if projected proporsionally will deviate signifantly with the actual year-end sales (Q4), in most type of industries, which reflected by the deviation of more than 5%. Total mean deviation of Q1 and Q3 is consistent with the conclusion which reflected by the mean deviation of -35.42% and -29.37%. The total mean deviation of Q2 indeed shows mean deviation of -4.02% which less than decision rules of 5%,

however, this conclusion is only due to huge correction in transportation industry. This table indicate that net income is naturally unpredictable by using interim announcement data.

Table. 5 Interim Earning Per Share Predictive Ability

	Mean Deviation		
Industri	Q1	Q2	Q3
Property	460.13%	29.00%	10.17%
Retail	27.49%	33.25%	-1.77%
Transportation	56.90%	43.52%	21.92%
Agrobusiness	114.80%	-0.71%	-5.56%
Developer	94.78%	2.12%	25.07%
ICT	84.92%	84.79%	-9.37%
Mean	147.24%	29.44%	9.65%

The same conclusion consistent from the view of earning per share (EPS). Table 5 as shown above discloses that EPS reported in Q1 to Q3 if projected proporsionally deviate signifantly with the actual year-end (Q4) in most type of industries, which reflected by the deviation of more than 5%. Total mean deviation of Q1, Q2, and Q3 is consistent with the conclusion which shows mean deviation of 147.24% and -29.37%. The total mean deviation of Q2 indeed mean deviation of -4,02% which less than decision rules of 5%, however, this conclusion is only due to huge correction in transportation industry. This conclusion indicate that net income is naturally unpredictable by using interim announcement data.

7. Conclusion

Based of the above discussion, this study conclude that income statements reported in interim announcements, if projected proporsionally, deviate signifantly against the actual year-end (Q4), in most type of industries, which reflected by the significant mean deviation. The conclusion is consistent in all main components of income statements tested, including sales, expenses, other income/loss, net income, and earning per share. However, the study eventhough the deviation is still signicant, the deviation is reduced in Q2 and Q3 as the performance periods are longer.

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