

Predictive Power of Accounting Estimated: Empirical Evidence from Indonesia

Miss Silvy Astari



บทคัดย่อและแฟ้มข้อมูลฉบับเต็มของวิทยานิพนธ์ตั้งแต่ปีการศึกษา 2554 ที่ให้บริการในคลังปัญญาจุฬาฯ (CUIR)
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อำนาจการพยากรณ์ของประมาณการทางบัญชี หลักฐานเชิงประจักษ์จากประเทศอินโดนีเซีย



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

สาขาวิชาการเงิน ภาควิชาการธนาคารและการเงิน

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งานศึกษาชิ้นนี้ได้ค้นคว้าเกี่ยวกับการใช้องค์ประกอบของรายการคงค้างที่ถูกประมาณการโดยผู้จัดการ เพื่อพยากรณ์ศักยภาพของบริษัทโดยอาศัย ซึ่งศักยภาพดังกล่าวถูกชี้วัดด้วยกระแสเงินสดและรายได้สุทธิ เพื่อเป็นการยืนยันผลการศึกษาของข้าพเจ้า ในการศึกษาครั้งนี้ กระแสเงินสดจะถูกจำแนกออกเป็นสองส่วนอันได้แก่กระแสเงินสดจากการดำเนินงานและกระแสเงินสดอิสระ ในขณะที่รายได้สุทธิถูกจำแนกออกเป็นรายได้สุทธิและรายได้จากการดำเนินงาน กระบวนการค้นคว้าถูกออกแบบให้ทำการพยากรณ์ผลลัพธ์ล่วงหน้าหนึ่งปีและสองปี โดยอาศัยข้อมูลจากสามกลุ่ม ได้แก่ อุตสาหกรรมวัตถุดิบ การแปรรูป และการบริการ ที่จดทะเบียนในตลาดหลักทรัพย์ประเทศอินโดนีเซียครอบคลุมช่วงเวลาระหว่างปี 1997 ถึง 2012 และเพื่อเป็นการยืนยันประโยชน์อันจะได้รับการรับรองประกอบเหล่านี้ ข้าพเจ้าได้ทดสอบโดยการคำนวณว่าจะสามารถได้รับผลตอบแทนที่มากกว่าปกติหรือไม่ ผลการศึกษาพบว่าองค์ประกอบของรายการคงค้างที่ถูกประมาณการโดยผู้จัดการสามารถนำมาใช้เพื่อคาดการณ์กระแสเงินสดจากการดำเนินงานและกระแสเงินสดอิสระได้ล่วงหน้าหนึ่งปีและสองปี และยังสามารถคาดการณ์รายได้จากการดำเนินงานได้ล่วงหน้าหนึ่งปี ในขณะที่สามารถคาดการณ์รายได้สุทธิได้ล่วงหน้าสองปี การใช้องค์ประกอบของรายการคงค้างที่ถูกประมาณการโดยผู้จัดการในการประมาณการกระแสเงินสดอิสระเท่านั้นที่พบว่าสามารถสร้างผลตอบแทนที่มากกว่าปกติ

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ลายมือชื่อนิสิต

ลายมือชื่อ อ.ที่ปรึกษาหลัก

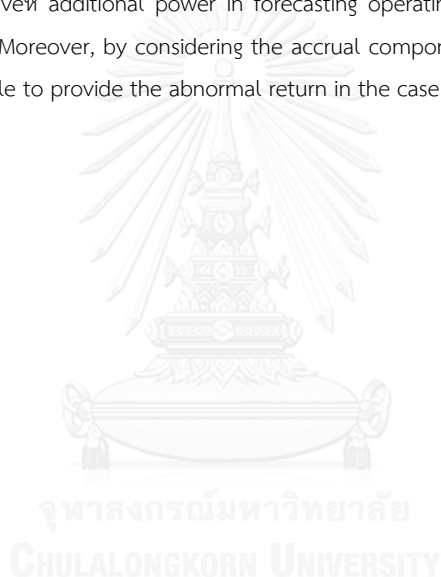
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This study examines the ability of accrual components estimated by managers in predicting firm performance which is represented by cash flow and earnings. To confirm my findings, I extend the classification of cash flow in to two groups which are cash flow from operation and free cash flow while earnings are divided into net income and operating income. The investigation is designed to forecast 1 year and 2 years ahead using the data from 3 sectors : raw material, processing, and service companies listed in the Indonesian Stock Exchange spanning from 1997 to 2012. In addition, I investigate the usefulness of these components by testing whether they can provide abnormal returns. The findings show that the accrual components estimated by managers have additional power in forecasting cash flow from operation and free cash flow in one and two years ahead. Meanwhile, it also give additional power in forecasting operating income in one year ahead and net income in two year ahead. Moreover, by considering the accrual components estimated by managers in making investment decisions, it is able to provide the abnormal return in the case of forecasting free cash flow only.



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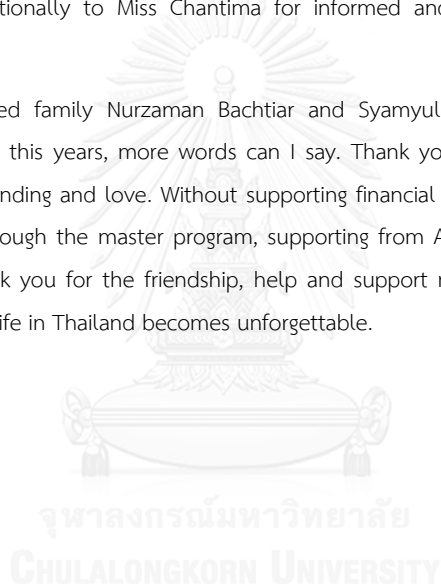
Student's Signature

Advisor's Signature

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Chapter I: Introduction

1.1 Background

The International Accounting Standard Board (IASB) and Financial Accounting Standard Board (FASB) (2010) defined the general purpose of financial statement as “The objective of financial statement is to provide financial information about the reporting entity that is useful for existing and potential investors, lenders and other creditors in making decision about providing resources to the entity. Those decisions involve buying, selling, or holding equity and debt instruments and providing or setting loans and other forms of credit”. The statement implied that the financial statement should provide useful information to help users, including regulators in making decisions related to the firms. Furthermore, another statement by IFRS 2001, “... asserts that economic decision that are taken by users of financial statements requires an evaluation of the ability of an entity to generate cash and cash equivalents”, emphasizes that the role of financial statement do not only provide information about current firm activities, but also give information about future firm performances.

Empirical evidence shows that two components of financial statements have been popularly used by market participants, namely earnings and cash flows. A study by Govindarajan (1980) , did a survey on security analysts to distinguish whether they use the earnings information or cash flow information in analyzing the firm performance. He found that security analysts used earnings information rather than cash flow in their professional reports. Moreover, Baber, Janakiraman et al. (1996) discovered that executive compensation could affect the firm’s earnings report. They showed that earnings persistent are higher when the CEO is approaching retirement. There could be two implications, firstly; CEO’s performance might be measured against the earnings figure. Secondly, the management may try to manage earnings figure to generate their performance. Besides, Suadi (1998) found that the cash flow figures are related to a dividend in the future. Dividends show the portion that

has been paid to investors. The entire studies indicate that earnings and cash flow figures are actually used by readers of the financial statements for decisions making.

Another strand of research examined which figures that has the highest ability to predict the future firm performances. Prior study by Bowen, Burgstahler et al. (1986) asserted that cash flow is a useful predictor compared to earnings for predicting the future cash flow for one until two years ahead. However, for long forecasting horizon, earnings and cash flows have equivalent predictability. Further, Habib (2008) stated that earnings and cash flows are essential information because it can indicate the future stock return. Those prior studies show that these components turned out to measure the firm's achievement. Moreover, MJ (1991) predicted the financial distress using data from U.S, by comparing earnings and cash flow models. He found that earnings possess more ability in predicting financial distress compared to cash flow. Using Indonesian data, Hidayatullah (2009) noted that all of cash variables have high ability in predicting future cash flow from operation compared to earnings. This evidence implied that the debate on whether earnings or cash flows could predict future performances better is far from over. Therefore, this issue has become one of the research questions in my study.

To reach the objective of the financial statement, accounting standard methods keep evolving such as the change in transaction recording from cash basis to accrual basis. Under the cash basis, firm discloses the amount of the transactions when the cash is generated or issued. On the other hand, the accrual basis discloses the amount of the transaction when the transaction appears, no matter when cash is generated or issued. The fact of accrual items is to ensure that the managers are able to provide forward looking number. The reason is due to the ability of the managers in estimating the cash to be received or issued in the future. Accrual accounting is important based on FASB No 8, 2010 "Reporting entity economic resources claims and changes in its economic resources and claims during a period provides a better basis for assessing the entity past and future performance than information solely about cash

receipts and payment during the period". This statement implies that the accrual figure is needed because it will provide better information about future performance of the firms in the next period of time. Evidence by Dechow, Sloan et al. (1995) found that accrual components increase the relationship between earnings and stock returns. However, there are timing and matching problems under the cash flow method. Her study supported the FASB statement, which reinforced the usefulness of accrual basis. Furthermore, Francis, LaFond et al. (2005) showed that the lower quality accrual is associated with the higher cost of debt, larger equity betas and smaller price multiple on earnings. These evidences implied that accrual figures can provide a picture about current and forward looking number of firm performances.

Prior study by Jones (1991), Subramanyam (1996) and Xie (2001) decomposed the total accrual component into discretionary and non-discretionary. Discretionary represents the amounts that are approximated by the manager. Meanwhile, the non- discretionary is related to the conditions of the firms such as the economic situation. Discretionary figures have been widely studied; Subramanyam (1996) suggested that discretionary accrual improves the quality of information provided. Otherwise, Bernard and Skinner (1996) argued that increase or decrease managerial discretion is the signal value of accounting earnings. Those previous studies implied the used of discretionary accruals can enhance and detect the accounting earnings in the firm.

Beside the use of discretionary accrual, this component can mislead the users of the financial statement in making decision related to the firms. Evidenced from Sutanto (2000) asserted that managers use any method in calculating accrual numbers in a way to benefited themselves. As well as Ghosh and Olsen (2009) examined that discretionary accrual have been used by managers to manage their earning during uncertain situation The prior study implied that the accrual items have been seen as managerial manipulation of accounting figures. Properly supervised are needed in order to make the accrual item be able to give

additional information about firm future performance. However, I did not focus on discretionary and non-discretionary items in my study.

The information's in the financial statements is noteworthy in helping the readers to analyze the firm activities. This situation makes the important role of the managers become more appearances, which needed more investigation to determine the role of managers in the firms. In this study classifies the accrual items into estimated and non-estimated by manager. I follow the classification by Lev, Li et al. (2010). They used U.S. data and found that accrual estimated by manager has improved the ability of earnings in predicting future earnings but it is not improved the ability of earnings in predicting future cash flow.

I conduct this research in Indonesia to provide empirical evidence whether the management estimate actually increase the usefulness of information in the financial statement. I argue that the result from Lev, Li et al. (2010) could not be hold in Indonesia, the reason is according to Ebaid (2011) the characteristics between developed countries and emerging countries are different in term of the behaviors of the stock exchange market situation and participants. He found that emerging markets have less number of firms listed in the stock market compared to developed markets. Then the investors in emerging market are less mature compared to the investors in developed markets. Besides, the processing information is less efficient in emerging markets and the last is there is less disclosure requirement in composing financial statement emerging market. From this evidence, I am interested to distinguish whether the accrual components estimated by manager have additional power in forecasting the firm's performance. Another reason I choose Indonesian data because most of the investors in Indonesia are foreigners and most of local investors are institutional. This situation makes the financial statement become more essential. The institutional have to provide return to their customers and to make investment decision they will rely on the information in the firm's financial statement. This context will lead the firms

to provide reliable information and the managerial estimate should give additional power to predict firm performances.

Improving the predictive ability of earnings does not mean that it is useful in practice for the users of financial statements. To increase confidence of my result and to distinguish whether the managerial estimate have contributions for investors in making investment decisions, I calculate the economic significance. Study by Poon and Granger (2003) examined that the researchers should not rely only on the statistical significant only, but also have to predict the error from economic significance. Besides, Lewellen (2004) asserted that in the finance literature, economically significant considerations have been used to sharpen the result of statistical evidence by conducting the return predictability. With this explanation, I do a significant test by calculating the abnormal return using the CAPM method; by performing a zero investment return. In this step, I compare the return from a portfolio with accounting accrual estimated by manager and portfolio without accounting accrual estimated by manager.

My result is slightly different with Lev, Li et al. (2010) . In my study, I found that the accrual components estimated by manager have additional power in forecasting cash flow and free cash flow in the short and the long term. Also, it has incremental power in forecasting net income in the long term and operating income in the short term. The different result in forecasting earnings is related to the method in calculating both items. Moreover, my result supported the FASB that assists the changing of accounting methods, from cash basis to accrual basis in order to provide reliable of information in the financial statements.

Hence, using the firms predicting performance number, the high abnormal returns appeared in the model with accrual components estimated by manager in forecasting free cash flow only. It can be summarized that the accrual components estimated by manager is useful for investors in forecasting free cash flow.

1.2 Research Questions

Accrual component estimated by manager are made by regulators to let manager able to give forward looking numbers. On the other hand, this part has been used by manager to do earnings management and it leads a question to this study “Whether the accrual components estimated by corporate management could provide predictive power information about firm future performances and it is useful for the investors in making investment decisions?”

1.3 Objectives

In this study, I have 2 objectives as follow:

1. By separating the accounting information into accrual component estimated by manager and accrual component non-estimated by manager, this will provide additional power in forecasting firm’s performance.
2. Whether including the accrual component estimated by manager in forecasting firm’s performance has helped investors in making an investment decisions.

1.4 Hypothesis

In order to answer my research question, I do several tests to generate the conclusion.

My hypotheses are:

Hypothesis 1: Accrual component estimated by the manager can increase the ability of earnings in predicting firm’s performance.

Hypothesis 2: Accrual component estimated by the manager is useful for investors in making investments decisions.

1.5 Contributions

The contributions of my study are, first, provide evidence to accounting authority that they have achieved their goal in accommodating the accrual component estimated by manager. Due to organization of accounting standards IFRS and FASB argue that the accrual method might deliver better information about the circumstance of the firms in the future. Second, giving empirical result that these components have provided additional information in predicting firm's performance. Third, it would be beneficial to the investors when they need to make investment decisions because when they concern on the accrual component estimated by managers, they will have abnormal returns.

The rest of the paper is organized as follows. Section 2 is literature reviews of prior studies contain of accrual components estimated by managers, forecasting earnings and future cash flow. Section 3 describes the background of my hypothesis. Section 4 shows the methodology in measuring the ability of the accrual components estimated by managers in forecasting firm performances. Section 5 includes the data and the summary statistic. Section 6 focus on the empirical result and the last is section 7 provides the conclusion.

Chapter II: Literature review

The firm is required to provide a report based on the situation of the firm in the past and present. It is expected to provide predictions about the circumstances of the firm in the future. The Financial Accounting Standard Board (FASB) and International Financial Reporting System (IFRS) as the primary accounting organization have made complete rules for firm in term of reporting financial statement. The firm has to follow the standard to facilitate the reader with a financial statement so that it is easy to understand the content of the financial report. Several items in financial report are based on the real activity of the firm. Additionally, some items are based on managerial estimation which the reason is to give the manager a space to convey their thoughts on the cash to be received or issued in the future. There are two elements that are essential for users of financial statement earnings and cash flow. The earnings are called total accrual figures because they include managerial estimation. However, the cash flow is based on cash inflows and cash outflows. Further details will be described in the next section.

2.1 The importance of earnings and cash flow

Earnings and cash flow are substantial information in order to attract attention of the user of financial report, e.g. regulators, creditors and accounting professionals. Foster (1977), Patell (1976) found that the stock market reacts when a firm releases earnings information and they also stated that investors use past earnings to forecast the future earnings. Parallel with the prior studies, Company (1991) organized a survey and discovered that earnings component is used in computing the executive compensation contracts. The two papers above implied that the earnings information is actually used in the decision-making process.

On the other hands, the crucial role of cash flow has been distinguished by Gentry and Hoque (1990). They claimed that when the cash flow from operation increases, the financial and credit health of the firm is growing as well. The reason is the firm does not have

to borrow cash and make the firm not to have the interest expense; the brief reason is that the firm has enough cash to cover their activity. Besides, when the cash flow from operation decreases, there is a possibility for the firm to have a debt and lead the interest expense to occur. This situation will affect the performance of the firm because excess debt in the long term will make the firm has poor performance. By using data from Indonesia, Suwardjono (2005) concluded that earning power and cash generating power are indicators that can influence the behavior of participant in the stock market. Those prior studies implied that the earnings and cash flow information can be used as references for evaluating the performance of the firm.

Due to the importance of these two components, more studies have distinguished the ability of cash flow and earnings in forecasting firm circumstance in the future. Krishnan and Largay III (2000), Yun, Kim et al. (2012), stated that cash flow has better ability in predicting earnings and future cash flow. Concerning on time frame, Finger (1994) found that in short term, earnings have excessive power in forecasting cash flow, however in long term, earnings and cash flow have the same ability. In this study, I use both figures as a measure of firm performance

According to IFRS and FASB, the firm has to form five financial statements in one period of time (one year). There are balance sheet, cash flow statement, net income, changing in equity report and note of the financial statement. As in this study, I use accrual items which are recognized in the balance sheet and cash flow items which are recognized in the cash flow statement. Accrual information can be used to calculate cash flow items and vice versa Dechow, Kothari et al. (1998) developed a modeling framework which considers the relationship between earnings, accrual and cash flow. They discovered that earnings are better element in predicting operating cash flow rather than current operating cash flow. This paper becomes a pioneer in distinguishing the relationship between three elements. The model is always evolving until today and researcher keeps extending the way of grouping the accrual

element to capture the power of the accrual component itself. Lengthen his own prior study Dechow, Richardson et al. (2008) examined the persistence of cash element in earnings. They differentiate cash item into three sections: cash can be retained by the firm, cash can be distributed to the debt holder and cash can be distributed to the equity holder. By classifying those variables, it was shown that the cash can be allocated to the equity holder which has higher persistence. Moreover, they stated that the combination of these three items is sufficient for assessing the performance of the firm and makes the former researchers eager to distinguish which item that has the highest influence to the firm performance. These findings help the regulator in setting accounting standards to evaluate their achievement in making a better standard. It is expected that the correct information appears in the financial statements and there will be less deception possibility.

Earnings and cash flow figures are often to be compared. Dechow (1994) provided evidence why earnings are usually used as a proxy for firm performance. She compared earnings figures with cash flow figures and wrote that earnings have a strong relationship with stock return rather than the realized cash flow in the short term. Hence, the solid relationship will occur when firms have substantial changes in working capital requirement, investment and financing activities. They also derived the conclusion that the realized cash flow has timing and matching problems which make the cash flow is less able to reflect the concrete performance. For example in recognizing the utility cost, according to cash basis, the cash is issued in the beginning of the month, but actually the expense was already used in the last month. This situation might mislead the computation of earnings in the right period of time.

Contradictory with Dechow (1994), a study by Lev and Zarowin (1999) stated that the cash flow is more informative than earnings. Cash flow is affected by accounting rules and it is able to reduce the earnings manipulation by managers. The latest study by Badertscher, Collins et al. (2012) is distinguished the ability of earnings; they wrote that the

accrual item is a more useful predictor of the future operating cash flow rather than the restated accruals, hence accrual item has a significantly relationship to the future cash flow. There is no clear conclusion directed to which one are the best figures that can be used as a proxy for firm performance. From this background, it conducts me to utilize earnings and cash flow from figures to measure the firm performance.

The aforementioned study uses data from United State; however, the result is practically the same when the data from Indonesia is used. Supriyadi (1999) examined the ability of earnings versus cash flow in predicting cash flow. He used three kinds of model, namely cash flow model, earnings model and earnings cash flow model. Then he declared that the cash flow data gives better information in forecasting cash flow compared to earnings. Afterwards, Syafriadi (2000) wrote that the use of financial statement can evaluate the performance of the firm in generating cash when they get information about earnings and cash flow component. Although the findings in prior studies are different but they believe that both figures can explain the state of the firm. In this study, I separate the cash flow information into free cash flow and operating cash flow. Moreover, I separate earnings into net income and operating income.

2.2 Benefit of accrual components

The purpose of accrual figures is to give managers an opportunity to dedicate their mind in order to provide an overview of the firm. But there is doubt from certain parties that argue managers use this item to enrich themselves. This doubt occurs because the number of accrual item is not accepted or has been removed by the firm yet. Baker and Cunningham (1993) found that the lender use accrual accounting information in making decision related to the firm. It makes the accrual figures more important because the financial report readers use this element to in making decision. A paper by Barth, Cram et al. (2001) has classified the accrual figure into several items and studied the relationship between accruals and future cash

flow. By disaggregating the accrual items into changes in account receivable, account payable, inventory, depreciation and amortization and other accruals. The aim of categorizing the accrual items is to determine whether every accrual figure has increased the ability of earnings in predicting cash flow. They have concluded that in the long term, depreciation and amortization have significant power in predicting cash flow. They found that different ability might be influenced by the quality of that component itself. Moreover, Francis, LaFond et al. (2005) examined the quality of accrual; they suggested that the price shares by investors reflect their perception of accrual quality. Hence, lower quality accrual is related with higher cost debt, small price multiple on earnings and large equity betas. In other words, the quality of accrual has influenced the perspective of an investor. It is explained that each accrual element has different ability to predict cash flow and earnings in the future and it depends on the quality of accruals and periodic predictions. Therefore, the roles of the manager to determine the accrual are indispensable.

Corresponding to the prior study, Tiono, Meiden et al. (2004) used data from Indonesia to state that inventory, depreciation and amortization cannot be used as a predictors of for future cash flow. Besides, Ratmono and Cahyonowati (2005) used balance sheet element as a measure of the accrual stage in the firm. They discovered that the accrual element has low persistence compared to the cash element. In both study, they separated the accrual component into several items and examined the ability of each variable in forecasting firm performance. In addition, Elingga (2008) extended the aforementioned study by separating the sample into two periods before and after the economic crisis. They found that when in the crisis period, accrual items which are depreciation and amortization will affect cash flow in the future. On the other hand, when the economy is stable, all of accrual items such as account receivable, inventory, account payable, depreciation and amortization are having a significant effect to cash flow in the future. The various results make me interested in extending to a further study by dividing the accrual element into the accrual component

estimated by manager and the accrual element non- estimated by managers. In my study, I conduct 5 OLS models which can explain not only the power of each component accrual, but also explain the ability of accrual and cash flow method in predicting firm performance.

Another point of view related to accrual component has been conducted by Elbert Ludica Toha (2012) who addressed that there is an accrual anomaly in Indonesia Stock Exchange market. Accrual anomaly is clearly persistence in 2005 and 2006, but not in 2003 and 2004. Hence, this paper has a lack data period, since they only examined for 4 years. The accrual anomaly implies that there is a negative association between accounting accruals (the non-cash component of earnings) and future stock returns. Besides, the less anomaly persistence in Indonesia Lev and Nissim (2004) used the data from U.S. stock market and suggested that accrual anomaly has consistently appeared for 30 years. Actually, these two papers cannot be compared to each other because of the data limitation however, Elbert Ludica Toha (2012) found the different result between Indonesia and U.S. is because the difference of accounting standard which is influenced by the country characteristic. Pincus, Rajgopal et al. (2007) wrote the accrual anomaly has been occurred in a common law country and less occurred in code law country. The degree of accrual in common low countries e.g. U.S., is higher than code law countries e.g. Indonesia. Code law system accounting rules merge with national laws and tend to have high perspective and procedure. Otherwise, common law system develops in a case by case basis with no attempt to cover all cases by covering code. Indeed, statute law is exist in common law, but is less detailed and more flexible rather than a code law system. Using data from the U.K. stock market, Soares and Stark (2009) investigated that the accrual anomaly does exist. This paper concluded that in the common law country, the anomaly accrual is prevalent. From the explanation above, it can be concluded that the accrual anomaly is more persistent in the common law countries e.g. U.K. and U.S., compared to the code law countries e.g. Indonesia, Malaysia, etc. In this paper, I did not test the accrual anomaly, however this evidence can clarify that my result might be

different with prior study Lev, Li et al. (2010) due to the persistence of accrual anomaly in the U.S. and Indonesia.

The background above shows that the researchers were interested in distinguishing the accrual item ability because some various results have been discovered. They keep developing the approach in classification of the accrual to get a reliable result. There are numerous lines in classifying the accrual item. Khansalar (2012), classified the accrual into three categories: trading, non-trading and financial accrual. He determined the relationship between current cash flow, future cash flow and accrual item. The result shows that the financial accruals have the highest coefficient in predicting cash flow compared to trading and non-trading item. The difference methods in classification of accrual might give better understanding about their ability and characteristic in order to predict the firm performance. The prior studies provide evidence whether the user of financial statement wants to forecast firm performance or do not, and they can focus only in several items. They do not have to spend too much time to analyze the entire variable in financial statement.

2.3 Informativeness of management estimated

Due to the characteristic of the accrual component that can be estimated by manager, these items become an interesting field to be explored more. Paper by Healy (1985) explained the use of accrual discretionary item as a proxy of total accruals. The assumption was that the discretionary accrual is bigger than non-discretionary accrual. It means the firm has a high discretionary accrual means the firm also has high total accruals. Further, he also explained that the discretionary accruals can detect management earnings. Short explanation of the discretionary items is the figures that contain of managerial estimation e.g. depreciation and amortization, inventory, PPE, etc. However, non-discretionary accrual items reflect business condition such as growth, and the length of operation cycle. The non-discretionary item is obtained by reducing total accrual with discretionary accrual. Estimation the non-

discretionary figures usually involves regression model and it is therefore difficult to implement in real life. Besides, misclassifying will mislead the result. Given these difficulties, I classify the accrual figures into the accrual figures estimated by manager and accrual figures not estimated by manager. I concentrate on accrual figures estimated by manager.

Subramanyam (1996) wrote that accrual items are having associated with contemporaneous stock prices, future earnings and cash flow. While, Baber, Chen et al. (2006) examined the aggregated power of accrual and aggregated discretionary accruals, in predicting one year ahead aggregated stock market return over risk free return. They found that the discretionary accrual item can forecast the return properly. He concluded that the reason of manager chooses accrual is to enhance the informativeness of accounting earnings. The findings above give evidence of the use of discretionary accrual component in forecasting firm performance.

Besides the use of the accrual figures, several papers found that this item has limited ability. Paper by Brochet, Faurel et al. (2008) distinguished the uses of accounting earnings element to forecast earnings and operating cash flow. The method is using the out of sample prediction, firm regression estimated and distinctive level of collecting the dependent variable. They used the market value of equity as a measure of future cash flow and stated that the accrual item gives a contribution in predicting cash flow when cash flow of the firm is volatile. Their findings reflect the accrual figures have limited ability in predicting cash flow. Lev, Li et al. (2010) expanded the classification of accrual. Using U.S. data, they divided the accruals into the accrual component estimated by manager and the one which is not estimated by manager. They summarized that the accrual component estimated by manager does not improve the ability of earnings in predicting cash flow, but it improves in predicting earnings. Both of evidences support that accrual figures has limited ability in forecasting firm performance.

While, widely use classification of the accrual components are discretionary and non-discretionary. However, I classify the accrual component into estimated by the manager and not estimated by the manager. The accrual component estimated by the manager consisted of the item that the managers can select the method to calculate the amount. Moreover, the accrual component not estimated by manager is the items that managers cannot put much of their thought into it. Perhaps, the results of my study enrich the empirical evidence in Indonesia.

2.4 Earning management

Earnings management has a strong relationship with accrual, due to the freedom of managers in choosing the method to compute accounting numbers and estimate how much cash can be generated and issue in the future. Management earnings are kind of a behavior that has been used by managers purposively to manipulate the firm's earnings, so that the figures match with the determined target.

There are numerous reasons for earnings management and plenty of researchers distinguish the motivation behind this behavior. Paper by Dechow and Skinner (2000), stated that the manager estimated related to manipulation by manager, because manager's estimated is difficult to measure. Whether it provides additional information about the firm condition in the future or uses this component in contrast to the firm's main objective. Brown and Caylor (2009) found that the managers uses discretionary revenue to avoid negative revenue of the firms. This strategic has affected the accounts receivable and the deferred revenue. It became one of the reasons why I use the deferred tax as the component of accrual estimated by manager, besides the managers has choices to pay their liability in the current year or deferred it in to next year.

There are several methods in conduct the earnings management which are income minimization, income maximization, income smoothing, etc. Several situation might

influence on the occurrence of earnings management Marakachi, (2001) believed that asymmetric information, performance in current time and in future, leverage factor and the size of the firm have affect to earnings management. Moreover, Ghosh and Pawlewicz (2009) found that high of uncertainty condition make the managers use the accrual component to manage their earnings. He argued that when the uncertainty environment of the firm is high, manager used the accrual accounting to reduce the variability of reporting income. From this explanation, it can be concluded that earnings management is occurs when firm has difficulty in their financial activities.

Earnings management harms the firms because it misleads the readers of financial statements. It cannot be denied that the managers has more information, which they can use it to manipulate some element in the financial statement. Study by Moses (1987) stated that big firm tends to do income smoothing (one type of earnings management) compares to the small firm. He argues that the reason is a big firm is having high political expense. Contrast with, Halim, Meiden et al. (2005) and Nuryaman (2007) distinguished the size of the firm has influenced the earnings management. When the firm is big, the probability of management earnings becomes smaller, vice versa. Dechow, Sloan et al. (1995) and Sutanto (2000) explain the probability of earnings management is higher when the managers has freedom to choose an accounting method for recording the firm activities. Management earnings occur because the rules can be mandatory (must be obeyed) and voluntary (management can choose). The managers can choose which method that has a benefit to them, it is called opportunistic manager. This result makes the readers of the financial statements to be more aware of the information provided by the firms. From previous studies, it can be concluded that the accrual component has been used as a tool for the managers in conduct earnings management. This should be in anticipation by the regulation that binds manager to lower the deviations.

Numerous components of earnings are associated to the choice of the managers. Rodríguez-Pérez and van Hemmen (2010) utilized five models to measure discretionary

accrual as a proxy for earnings management. They found that there is a positive relation between interaction variable (debt and diversification). They also stated that discretionary are important to firms since it can make income statement higher than the operating cash flow. Meanwhile, Stubben (2010) examined the ability of revenue and accrual model to detect and simulate the actual of earnings management. The result shows that the revenue model is more likely than the accrual model to detect the earnings management. In my study I do not focus on management earnings but concentrate on predicting the ability of managerial estimation in predicting the future earnings and cash flow.

The types of the firms have been considered by previous researchers, regarding the motivation of the occurrence earnings management. The readers of financial statements should give more attention to a particular situation to conclude impartial decision related to their preference. The result of my study might give a contribution to the regulators, whether the regulations are has well enough or should correct more

Chapter III: Development Hypothesis

I have two hypotheses in this study that are generated by analyzing and following several prior studies. In financial report, the managers have a right to perform their thought by estimated several components. The objective is to provide the picture about firm performances in the future. However, there is a believed that these components actually did not have the ability in predicting firm performances, instead becoming suspect of management earnings in the firms. I argued that this component needs to be investigated further, especially with the few cases of irregularities in financial statement reporting.

Hypothesis 1: Accrual component estimated by the manager increase the ability of earnings in predicting firm performances.

There are several ways in calculating the accrual components. Subramanyam (1996), Baber, Janakiraman et al. (1996), and Baber, Chen et al. (2006) believed that the discretionary accrual can forecast the cash flow and return properly in the future. Furthermore, Barth, Cram et al. (2001) and Yan et al. (2005), found that by desegregated the earnings component into accruals and cash flow has additional ability in forecasting cash flow of the firm. Moreover, in this paper it is classified the accruals into accrual estimated by manager and none estimated by manager. Prior studies showed that the accrual component has increased the ability of earnings in predicting firm performance. I also argued that the accrual component estimated by the manager have increased the ability of earnings in forecasting firm performances in Indonesian Stock Exchange market.

Hypothesis 2: Accrual component estimated by the manager is useful for investors in making investment decisions.

Beside the usefulness of accrual components in forecasting firm performances, it is distinguished whether these components have given the actual benefit to the investors in

conducting investment decisions. Abnormal return was conducted based on the predicted firm performances. This step was done because paper by Poon and Granger (2003) suggested that besides being statistically significant, the researchers also need to calculate economic significant test. To capture the economic significant, the CAPM abnormal return was calculated and compare the abnormal return between the models with accrual component estimated by manager and without management estimated. Lev, Li et al. (2010) found that the model with accrual component estimated by manager have abnormal return compared to model without accrual component estimated by the manager. I argued that my result is in line with Lev, Li et al. (2010) and it is implied that the accrual component estimated by manager have economic significant.



Chapter IV: Methodology

The objective of conducting the accrual method is to be able to predict the firm's performance by using the financial statements. Besides, it also provides a picture about firm's rights and liabilities in the future. In calculating the accrual components manager is allowed to choose several methods. The good side of accrual calculation is that it can picture the firm's performance. However, it could be negative when the manager uses it to for the purpose of earning management. Based on this background, the persistent of managerial estimate should be further investigated especially in Indonesia were most of the investors are foreigners and local institutions. This underlines the importance of financial statements as their main analysis tools. In this paper, I examine the ability of accrual components estimated by manager in predicting both short and long-term firm performances. There are 2 main tests in this study; first is forecasting the firm's performance and second is identify the usefulness of accrual components estimated by manager in practical situation. I measure the firm's performance by dividing it into cash flow and earnings. I classified cash flow into cash flow from operation (CFO) and free cash flow (FCF). In addition, I also classified earnings into operating income (OI) and net income (NI).

4. 1 Forecasting firm performance

Accounting standards have changed from cash basis into accrual basis; the reason is that the cash basis is limited to providing only past information and current activities of the firm. However, the accrual basis covers the past, the present and the future. There were different opinions according to prior studies. However, it is expected that the latter should deliver more beneficial information.

To examine the ability of accrual components estimated by manager, I conducted five OLS (ordinary least square) models. The reason is to measure the accuracy of each model in forecasting firm performance through error comparison; perhaps it can give empirical

evidence of adding more variable to the model. I used the information obtained from the balance sheet and the cash flow statement. The formula below shows how to calculate firm performance:

$$CFO_t = NI_t + D\&A_t + DT_t - \Delta INV_t - \Delta WC_t$$

$$NI_t = CFO_t - D\&A_t - DT_t + \Delta INV_t + \Delta WC_t$$

$$\Delta WC_t = (\Delta AR_t + \Delta OTHA_t + \Delta C_t) - (\Delta AP_t + \Delta TP_t + \Delta OTHL_t)$$

$$OTHA_t = TCA_t - C_t - INV_t - AR_t - STI_t$$

$$OTHL_t = TOCL_t - AP_t - TP_t - STD_t$$

$$OTHA_t = \text{Other current operating asset}$$

$$TCA_t = \text{Total current asset}$$

$$C_t = \text{Cash}$$

$$\Delta WC_t = \text{Changing in working capital}$$

$$D\&A_t = \text{Depreciation and amortization}$$

$$DT_t = \text{Deferred tax}$$

$$INV_t = \text{Inventory}$$

$$AR_t = \text{Account receivable}$$

$$STI_t = \text{Short term investment}$$

$$OTHL_t = \text{Other current operating liabilities}$$

$$TOCL_t = \text{Total current liabilities}$$

$$AP_t = \text{Account payable}$$

$$TP_t = \text{Tax payable}$$

$$STD_t = \text{Short term debt}$$

The Equation above shows how to calculate NI and CFO in cash flow statement. It can be seen that both of these components are related to each other and to calculate those items I use changing in working capital (ΔWC). ΔWC is a measure of accrual component not

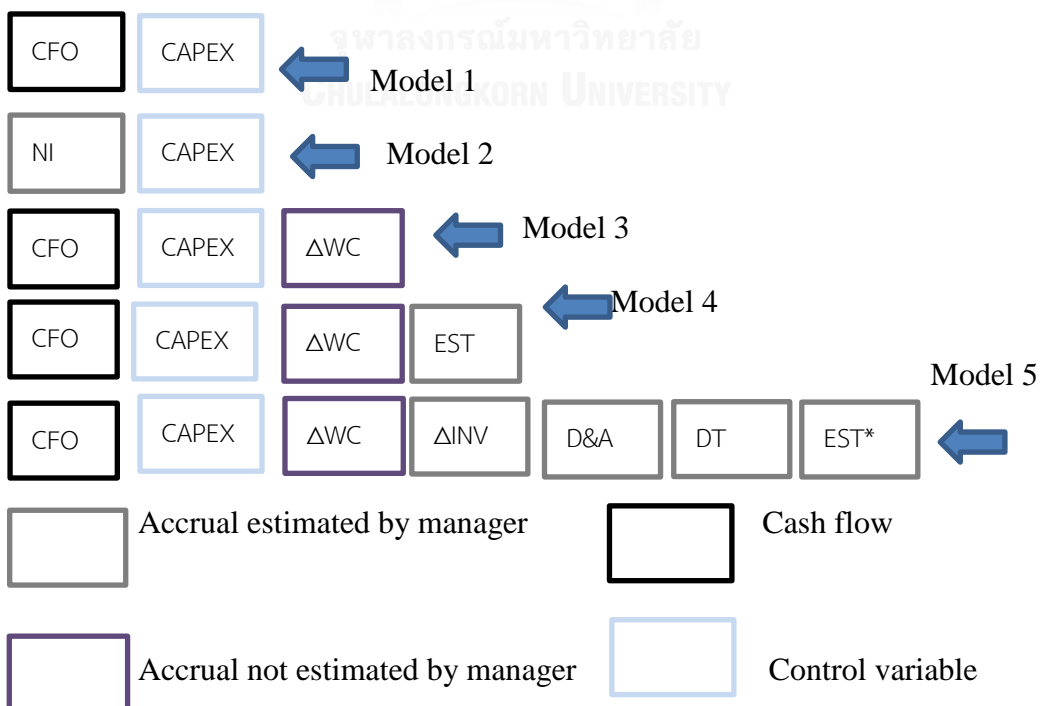
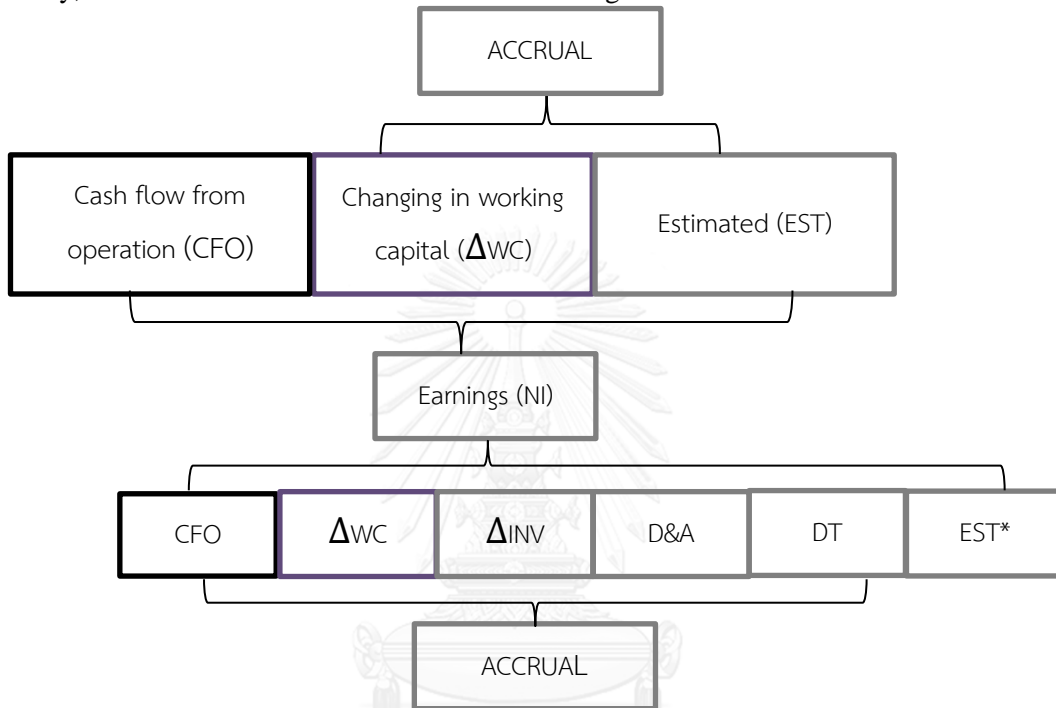
estimated by manager, and I argue that managers cannot put much estimation on this component. This is due to the fact that ΔWC captures the residue of current asset minus current liabilities. However, the way I calculated this number is different with normal accounting practice. I exclude ΔINV from this component because in calculating ΔINV , managers can choose several methods causing different earnings of the firm. Moreover, I will include ΔINV into accrual components estimated by manager. Accrual component estimated by manager allows managers to put their judgment in calculating several components in financial statements. In calculating ΔINV , the manager has several options to choose: first in first out (FIFO), last in first out (LIFO) and the average method.

In other case, managers also can choose to use double declining balance, based on activity, straight line method in calculating depreciation and amortization. Hence managers can choose to pay the tax in current year or differed into next year. The method that the manager chooses affects the earnings of firms. Moreover, manager also can give their estimation on pension fund, research and development expense, etc. These components are not often found in financial statements, which is why I include those components into other net estimated.

After clear with the method and understanding on accrual components estimated and non-estimated by manager, then I generated all of the variables into 5 OLS models. Each model shows the ability of the accounting variables in forecasting firm performance. The entire variable is divided with the average asset of each firm to make the variable can be comparable with the rest of variables in my samples. I separate the regressions through different sectors, because every sector will have different characteristics and will make my result turn to be biased. The classification is based on the main activity of the firm, for example mining sector will have different amount of inventory comparing to service sector.

The chart above explain the formula in calculating NI_t (earnings) which can be calculated from CFO_t , accrual component not estimated by manager (ΔWC_t) and accrual

component estimated by manager (EST_t). Accrual component estimated by manager itself can be classified into changing in inventory (ΔINV_t), depreciation and amortization ($D\&A_t$), deferred tax (DT_t) and other estimates (EST^*_t) including pension, write downs, research and development expense. To give more understanding about the variable that consists in my study, then the chart below summarize how I arrange the model and the variable inside:



The Equation below shows the variable in 5 OLS models:

$$\text{Model 1: } CFO_{t+1} = \alpha_1 + \beta_1 CFO_t + \beta_2 CAPEX_t + \varepsilon_t \quad (1)$$

$$\text{Model 2: } CFO_{t+1} = \alpha_1 + \beta_1 NI_t + \beta_2 CAPEX_t + \varepsilon_t \quad (2)$$

$$\text{Model 3: } CFO_{t+1} = \alpha_1 + \beta_1 CFO_t + \beta_2 \Delta WC_t + \beta_3 CAPEX_t + \varepsilon_t \quad (3)$$

$$\text{Model 4: } CFO_{t+1} = \alpha_1 + \beta_1 CFO_t + \beta_2 \Delta WC_t + \beta_3 EST_t + \beta_4 CAPEX_t + \varepsilon_t \quad (4)$$

$$\text{Model 5: } CFO_{t+1} = \alpha_1 + \beta_1 CFO_t + \beta_2 \Delta WC_t + \beta_3 \Delta INV_t + \beta_4 D\&A_t + \beta_5 DT_t + \beta_6 CAPEX_t + \beta_7 EST^*_t + \varepsilon_t \quad (5)$$

Where :

t = Denotes the current year

CFO_t = Cash flow from operation

NI_t = Net income

ΔWC_t = Changing in working capital between year t+1 and year t (excluding inventory)

$CAPEX_t$ = Capital expenditure

ΔINV_t = Changing in inventory between year t+1 and t.

$D\&A_t$ = Depreciation and amortization.

DT_t = Deferred tax.

ε_t = Error of each model

EST_t = Estimated component come from $CFO_t - NI_t - \Delta WC_t$

EST^*_t = Net estimates component in more details $CFO_t - NI_t - \Delta WC_t - \Delta INV_t - D\&A_t - DT_t$

Every model that I conduct has explanation. To make each of models can be comparable then I include the capital expenditure. The reason is that this component can

provide benefit for firm in the future and it became my control variable. The explanation of each model below:

Model one consists of CFO_t , this model based on total cash inflow and out flow of the firm or called cash basis. The number is generated from the real activity of the firm, which manager cannot put their assessment to these figures; it is inferred that there is no accrual figures are included. Using the cash flows from operations as it is own value in the future is similar to autoregressive model.

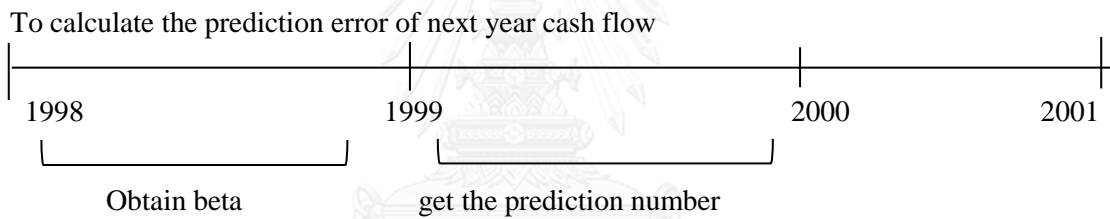
Model two contains of NI_t or namely earnings which is based on accrual basis. Accrual basis means that there is several components in this number are come from managerial estimate. Net income is the combination of CFO_t and accrual components. As mentioned before prior the study by Dechow, Sloan et al. (1995) show that the cash basis have time and matching problem, so there is high possibility that the accrual basis have better ability in forecasting firm performance rather than the cash basis.

Model three includes CFO_t and accrual component not estimated by managers (ΔWC). The reason of conducting this model is the accrual component non-estimated by managers (ΔWC) might increase the ability of earnings in predicting firm performance. The method in calculating (ΔWC) in my study is different with the accounting theory. Because I deducted the inventory in my current asset, the reason is I will include ΔINV_t as accrual component not estimated by manager. In calculating ΔINV_t manager can choose the method, which means that the amount is depending on manager preference. However, the closes meanings in accounting term should be ΔWC_t .

Model four consist of CFO_t , Accrual component not estimated by managers (ΔWC_t) and estimated by managers (EST_t). I want to distinguish whether including the accrual components estimated by managers have increase the ability of earnings in forecasting firm performances. (EST_t) will be separate in more details in model 5.

Model five contains of CFO_t , Accrual component not estimated by the manager (ΔWC_t), disaggregate the accrual components estimated by manager into changing in inventory (ΔINV_t), depreciation and amortization ($D\&A_t$) and deferred tax (DT_t) accrual components estimated by manager (EST^*_t). The objective is to distinguish whether each components of accrual estimated by manager has additional power in forecasting future firm performances.

After the explanation of the variable in my models and the objective of doing every model, then the steps bellow show how I calculated the predicted firm performance or called the estimated firm performance. To forecast one year, firm should operate in four years consecutive. According to figure below the period January 1999, December 1999 is time t and January 2000, December 2000 is time t+1.



1. Accounting information collected at time t. Time t+1 is used to estimate the model.

$$CFO_{(2000)} = \alpha + \beta_1 CFO_{(1999)} + \beta_2 CAPEX_{(1999)} + \varepsilon_{(1999)}$$

2. Then α and β is used to predict estimated cash flow in following year $ECFO_{(2001)}$ for each firm in a different type of industry

$$ECFO_{(2001)} = \alpha + \beta_1 CFO_{(2000)} + \beta_2 CAPEX_{(2000)}$$

3. Determined the prediction error for each firm in different type of industry :

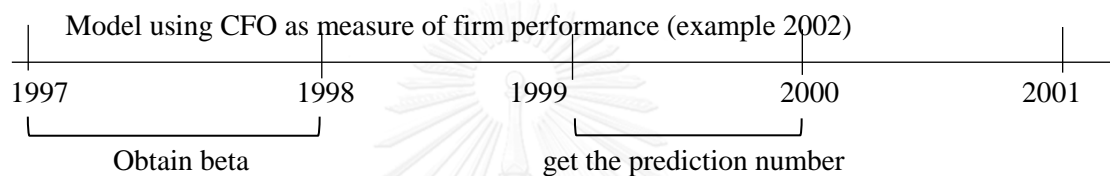
$$CFO_{(2001)} - ECFO_{(2001)}$$

$$ECFO_{(2001)} = CFO \text{ estimated from the model}$$

In this section I use model 1 and $CFO_{(t)}$ as measure of firm performances. The step is first, I conduct regression use $CFO_{(1999)}$ and $CAPEX_{(1999)}$ as my X variable and $CFO_{(2000)}$ as my Y variable. Second, I took advantage of alpha and beta to find the predicted CFO_{2001}

figures. Third, after I get the predicted CFO_{2001} figures; I deduct the actual amount with the predicted amount to get the error and this amount becomes numerator to calculate the forecasting error. I do this step from the year 1997 - 2011 with 4 measurement of firm performance there are CFO, FCF, NI, and OI. Besides, I conduct in 3 different types of industries. I forecast in next year (t+1) and next two years (t+2) to examine whether my result can be hold in the short term and in the long term.

To forecast 2 year a head the method is the same as forecasting 1 year ahead. The different is the range of the firm operation is longer which 6 years consecutive.



1. Run the regression to get the alpha and beta.

$$CFO_{(2000)} = \alpha + \beta_1 CFO_{(1998)} + \beta_2 CAPEX_{(1998)} + \varepsilon_{(1998)}$$

2. Predict for each firm in a different type of industry

$$ECFO_{(2002)} = \alpha + \beta_1 CFO_{(2000)} + \beta_2 CAPEX_{(2000)}$$

3. Determined the error for each firm in different type of industry:

$$CFO_{(2002)} - ECFO_{(2002)}$$

In order to distinguish the best model among the 5 models, I obtain the error measurement which represents the tolerance interval (margin of error). I conduct three methods; there are Mean Absolute Forecast Error (MAER), the adjusted R^2 and Theils U statistic.

First, Mean Absolute forecast Error (MAER). This method use absolute sign and did not consider about the symbol whether it is more or less than the actual number. It is becomes the main method in my study to calculate the error. If the MAER of the model is low, it is suggested that the model has high predictive ability in forecasting earnings or cash flow. The formula as follow:

$$\text{MAER} = \left| \frac{\text{Actual earnings} - \text{predicting earnings}}{\text{Actual earnings}} \right|$$

The second method is the adjusted R^2 . The amount is from yearly regression of actual value and the predicted value over the sample period. The adjusted R^2 is the coefficient of determination, represents how well the model is fit with the variable. It is explained the ability of the X variable in explaining the Y variable. The closer the adjusted R^2 to 1 indicates that X variables are able to determine the Y variable; however, this situation is applicable in time series data because the variables tend to underlying trend and make it highly correlated. Moreover, my data is cross sectional which is good to distinguish the best model and make the adjusted R^2 is lower than time series data. The formula is:

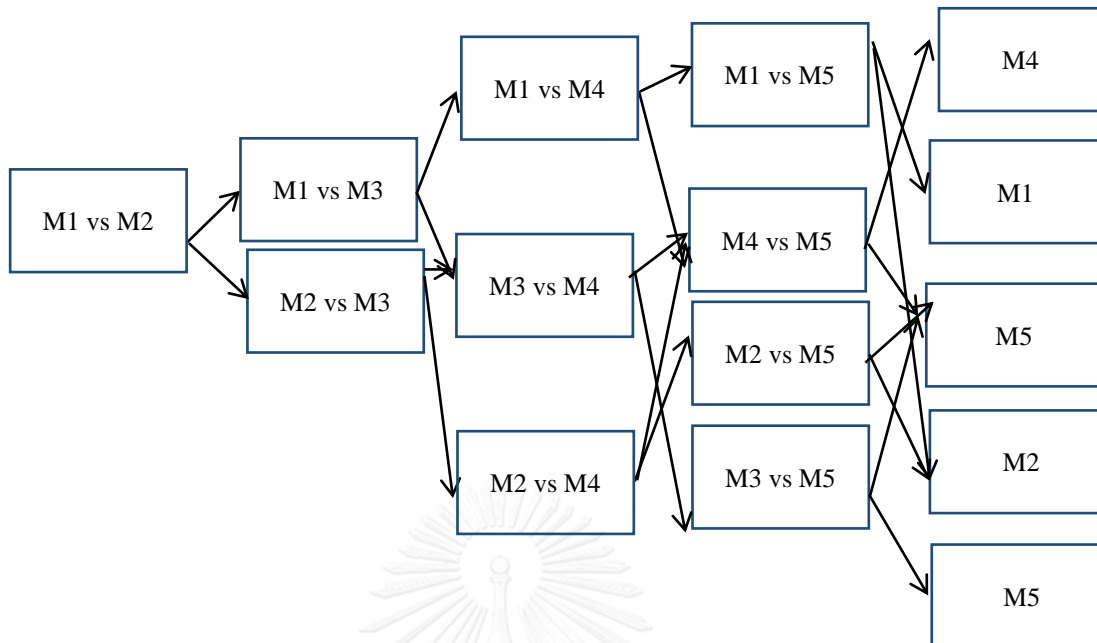
$$\text{Adjusted } R^2 = 1 - \frac{\text{residual sum}}{\text{The total sum of square}}$$

Theil's U statistic is the average of the yearly U statistic. The lowest amount of Theil's U statistic implied that the model can forecast better than another model. The method squares the deviations result and turn to put more weight to large errors to exaggerate errors. This make the error become more appears. The formula as follows:

$$\text{Theil's U} = \frac{(\text{Actual earnings} - \text{predicting earnings})^2}{(\text{Actual earnings})^2}$$

The implication of the test above is to measure which model that can give closer prediction to the actual number. I calculate the MAER, the adjusted R^2 and Theil's U in forecasting 1 year and 2 years ahead, to determine whether the result in the short term can be held in the long term. I conduct the error measurement in every year cross industry.

The following chart is explaining how to choose the best model:



The chart above explanation as bellow:

1. Compare model 1 and model 2.

Model 1 consists of cash from operation (cash flow figures) and model 2 consists of net income (accrual figures). The objective of comparing these two models is to measure whether using the accrual component has more predictive ability rather than using cash flow item in predicting firm performance.

- MAER of model 1 < MAER of model 2: It is implied the cash flow item has additional power in forecasting firm performance.
- MAER model 1 > MAER model 2: It is referred to the accrual item has additional power in predicting the firm performance.

2. Compare model 1 or model 2 with model 3

Model 3 contains cash flow from operation (cash flow figures) and changing in working capital (accrual component not estimated by manager). This model is become my center model, because it is not included the managerial estimate.

- MAER of model 1 or model 2 < MAER model 3: It is showed that there is no increasing power when disaggregate the accrual into accrual component not estimated by manager and operating cash flow in forecasting the firm circumstance.
- MAER model 1 or MAER model 2 > MAER model 3: It is implied that the accrual component not estimated by manager has improved the ability of earnings in predicting the firm performance.

3. Compare model 1 or model 2 or model 3 with model 4

Model 4 consists of cash flow from operation, changing in working capital (accrual component not estimated by manager), managerial estimate (accrual components estimated by manager).

- MAER Model 1 or model 2 or model 3 < MAER model 4: It is showed that disaggregating the earnings into cash flow from operation, accrual element non-estimated by managers and estimated by manager did not have enhanced the power of earnings in predicting firm's performance.
- MAER Model 1 or model 2 or model 3 > MAER model 4: It is referred to accrual components estimated by manager have additional power in forecasting firm's circumstance.

4. Compare model 1, model 2, model 3 or model 4 with model 5

In model 5 there are cash flow from operation (cash flow figures), changing in working capital (accrual not estimated by manager), changing in inventory, deferred tax, depreciation and amortization (accrual estimated by manager) and other accrual estimated by manager (pension, research and development expense, etc.)

- MAER Model 1 or model 2 or model 3 or model 4 < model 5: It is implied that disaggregate the accrual components estimated by manager into several item, did not have additional power in forecasting firm's performance.

- MAER model 1 or model 2 or model 3 or model 4 > model5: It is suggested that when disaggregating the accrual figures estimated by manager into 4 major figures that have been widely appeared in the financial statement; it is increase the ability of earnings in predicting firms circumstance.

By comparing every model in every figure in measuring the firm performance, perhaps I can generate reliable conclusion and capture the managerial estimate in financial report. Have to be remembered that model 1, model 3 did not contain accrual components estimated by manager, besides model 2 has managerial estimate as in total numbers. However, model 4 and model 5 have accrual components estimated by manager, perhaps by conducting model 5 by disaggregating the accrual component estimated by manager into depreciation and amortization, deferred taxes, changing in inventory and other estimated component would get better ability in forecasting firm performances.

4.2 Usefulness of managerial estimates

Usefulness of managerial estimate becomes the last test in my study. The objective of this test is to make sure my result is unbiased. Prior study by Poon and Granger (2003) stated that researchers should not rely on statistical significant only but also have to examine the economic significant. To measure the economic significant, I calculated the abnormal return using the CAPM method, then I compare the abnormal return between the 5 models. I argue that the model with accrual component estimated by manager has more abnormal return compared to the model without managerial estimate. I performed a series of portfolio and focusing on incremental stock return. The portfolio is generated based on the predicted value of cash flow and earnings (number come from previous test) in order to perform a portfolio.

CAPM model described the relationship between risks and expected return. The steps I used to conduct the CAPM returns were as follows:

1. Rank the firm (across industry) using the result of previous tests where the measure comes from the predicted firm performances.
2. Set the ranked firms into 10 portfolios. 1 portfolio consists of 10% from total firms in each year and each model.
3. Generate all of the variables based on monthly data.
4. Apply the zero investment strategy by long (invest) in the top portfolio and short (sell) in the bottom portfolio. Then, deduct the monthly data from the top portfolio with the bottom portfolio.
5. Calculate the CAPM abnormal returns using the data from conducting the zero investment return and run regression in every firm's performance.
6. Rebalance the portfolio in every years from year 2001-2012
7. The last step, compare the abnormal return from each model.

The Equation of CAPM is as follows:

$$r_{p,t} - r_{f,t} = \alpha_p + \beta_p (r_{m,t} - r_{f,t}) + \varepsilon r_{p,t}$$

$$r_{p,t} = \frac{1}{N} \sum r_{i,t} - \frac{1}{N} \sum r_{j,t}$$

$r_{p,t}$ = Return on portfolio p (portfolio p is a zero investment portfolio)

N = Number of stocks in the portfolio

$r_{i,t}$ = Return tock i in a long portfolio

$r_{j,t}$ = Return tock j in a short portfolio

r_f = Risk free rate = $(1 + \text{annual raterisk free rate})^{1/12}$

α_p = The portfolio abnormal return

β_p = Beta of portfolio

$r_{m,t}$ = Return on the market index calculated from $r_{m,t} = \frac{TRI_{m,t} - TRI_{m,t-1}}{TRI_{m,t-1}}$

$TRI_{m,t}$ = Price index of Indonesian stock exchange market

The explanation of each variable in the CAPM formula are, return on portfolio ($r_{p,t}$) represented the return of portfolio that I rebalance every year. I generate return of portfolio by deducting the average returns of long portfolio with the average return of short portfolio. Risk free rate showed the Indonesian government's bond middle rate for 90 days total return on the market ($r_{m,t}$) the total return market or price index of the Indonesian Stock Exchange market. Beta portfolio (β_p) showed the abnormal return of portfolio. The entire data that I generate is monthly based. Due to the absence of the Indonesian government's bond middle rate for 90 days from the years 1997-2000, I conducted the CAPM abnormal returns using the sample from the year 2001-2012.

The highest abnormal return model implies that the model gives benefit for investor in making investment decisions. In this method I did not measure market efficiency, but I measured whether the model with managerial estimate will outperform in the real life comparing to model without managerial estimate. I argue that the abnormal return of each model is different, because every model is contained of various variables. Distinct variables will have different power in predicting the firm performance.

Chapter V: Data

5.1 Explanatory and explained variables

I used Indonesia Stock Exchange Market (IDX) from the year 1997-2012. The variables in my paper are generated from Data Stream. The accuracy is needed to classify the variables because it might not capture the power of the accrual component estimated and non-estimated by manager. The explanation and the calculation that I use in this study will be explained below:

1. Net income (NI_t): Provides information about firm activities which is calculated from deducting the revenue with the cost of goods sold, depreciation and amortization, tax and interest. (NI_t) located on the income statement, the number is the combination between the accrual and the cash flow.
2. Operating income / Earnings before Interest and Tax (OI_t): Pictures the firm efficiency and represents how much money dedicated to the owners, expansion, debt reduction, etc. It is calculated by including tax and interest into net income.
3. Cash flows from operation (CFO_t): Shows the definite cash inflow and outflow from the operating activity of the firm. Users of financial statement are concerned about this component since there is no room for manager to manipulate.
4. Free cash flow (FCF_t): Represents the ability of a firm to take advantage of investment opportunities more than the investment plan. Besides, it determined the amount of cash that will be distributed to security and corporate entity. The variable is extract from the Equation below:

$$FCF_t = CFO_t - CAPEX_t$$

5. Capital expenditure ($CAPEX_t$): Shows the firm cash that has been allocated to fixed asset.

6. Estimate (EST_t): Defines as the total accrual component estimated by manager. Managerial estimate referred to the manager freedom in selecting the method of calculating the accounting number. The Equation is as follows:

$$EST_t = CFO_t - NI_t - \Delta WC_t$$

This component shows the number that can be estimated by manager. Several items include in this figures there are inventory, deferred tax, depreciation and amortization, etc.

7. Changing in Working Capital (ΔWC_t): Implies the difference between the current working capital and the past working capital. Working capital is part of the accrual component but it cannot be estimated by manager, because it is showing the current activity of the firm and manager cannot put much of their thought into this item. The way I calculated the changing in working capital is different with the accounting theory. The reason is that I only put the components that are no exposure into managerial estimation. The formula below give understanding about how I calculate the changing in working capital :

$$WC_t = \text{current operating asset}_t - \text{inventory} - \text{current operating liabilities}_t$$

$$\rightarrow \text{current operating asset}_t = \text{account receivable}_t + \text{other current operating asset}_t$$

$$\rightarrow \text{other current operating asset}_t = \text{total current asset}_t - \text{cash}_t$$

$$- \text{inventory}_t - \text{account receivable}_t - \text{short term investment}_t$$

$$\rightarrow \text{current operating liabilities}_t = \text{account payable}_t + \text{tax payable}_t$$

$$+ \text{other current operating liabilities}_t$$

$$\rightarrow \text{other current operating liabilities}_t = \text{total current liabilities}_t$$

$$- \text{account payable}_t - \text{tax payable}_t - \text{short term debt}_t$$

Cash, inventory, account receivable and short term investment are the current assets element. I exclude inventory as a component in the working capital is because the manager can choose any method in calculating the inventory of the firm. This is the

reason why I put it in my major model which is in model 5. Here is the Equation for calculating the change in working capital:

$$\Delta WC_{t+1} = WC_{t+1} - WC_t$$

Changing in working capital has effect to cash flow from operation of the firm because it is the main part of the firm is daily operation.

8. Cash (C_t): Uses to pay the operational activity of the firm. It is effect the operational of the firm and being included as current assets such as bank accounts and marketable securities.
9. Account receivable (AR_t): Comes from operating activity of the firm in the short term period, within a period of few days or months. (Prone to convert into the cash and related with goods and service that have been ordered or send to costumer, merely costumer did not pay it yet).
10. Short term investment (STI_t): Represents the investment of the firms that will expire within 1 year. It is implying that the firms has excess cash and invests in stocks and bonds; the reason is to get higher interest than normal savings account. Not all of firms will have this account, which is sometimes included as a part of cash equivalent.
11. Total current asset (TCA_t): Shows the amount that can be used to pay the activity of the firm. It is taken into consideration in cash, account receivable, inventory, and other liquid asset.
12. Account payable (AP_t): Represents the obligation of the firm to be paid in the short term and have effect in operating activity of the firm.
13. Income Tax payable ($T_{i,t}$): Shows the amount that has to be paid within one year and related to the law regulation in firm's home country. The reliability of net income is influenced by the time difference also related with income tax payable.
14. Short term debt (STD_t): Refers to debts that occur in the firms and with a due payment of not over than 1 year, e.g. debt to the bank.

15. Total current liability (TCL_t): Determines the amount that firms have to repay in the short term. This component is recorded in the balance sheet, contain of short term debt, accounts payable and other debts. The firm liability should be paid in less than 1 year.
16. Net estimates (EST^*_t): Means that the manager can put their adjustment into this component. It is effecting the income statement of the firm, because there is managerial control which might mislead the readers of financial report. The Equation are :

$$EST^*_t = EST_t - INV_t - D\&A_t - DT_t$$

Inside of net estimated elements there are process research and development, pensions fund, asset write downs, etc. Due to the small amounts of these figures, I include these figures as a net estimated variable. Besides, not all firms have this component.

17. Change in inventory (ΔINV_t): Represents the turnover of revenue and earnings for the firm's owner. (Influenced by the managerial estimate due to three choices method to calculate). The choices of the managers will affect the net income. The Equation bellow is used to calculate change in inventory:

$$\Delta INV_{t+1} = \Delta INV_{t+1} - \Delta INV_t$$

High inventory may lead high expense such as inventory storage expense, damage expense, obsolescent expense, etc. Low inventory may also lead to business risk because it is losing potential sales.

18. Depreciation and amortization ($D\&A_t$): Represent the deduction of cash from using firm's tangible and intangible assets. Depreciation is related to tangible asset cost over the asset life. On the other hand, amortization is related to intangible assets. The amount is depending on the manager's estimation; there are 3 methods in calculating

depreciation and amortization: double declining balance, calculation based on activity, straight line method.

19. Deferred tax (DT_t): Shows the amount of tax that has been deferred by firms. This component playing an important role in revenue manipulation. Deferred tax can be classified into two, deferred tax asset and deferred tax liability. Deferred tax asset can reduce the subsequent period income tax expense. On the other hand, deferred tax liability is the difference between the company's accounting and tax carrying value.

5.2 The sample

The samples in my paper consist of every firm listed on the Indonesian Stock Exchange market (IDX). I extract the data of each variable from Data Stream and sector classification from Indonesian Stock Exchange market (IDX) website. The data covers the period of 1997-2012. The types of data in my paper are cross sectional data and yearly data.

The total firms in Indonesian Stock Exchange Market is 462 firms in year the 2012 and it is classifies into 9 sectors; However, I combine my sample into 3 sectors, Because I will have heterogeneous firms in a group that may affect my forecasting result besides, there is limited data available. I remove the financial sector in my sample, because the different firm's characteristic with the rest of my samples. The criteria of combining into 3 sectors are based on the main activity of the firms as follows:

- Main sector: Main activity of the firms is producing raw material industry. Contain of agriculture and mining (manufacture) industry.
- Second sector: Main activity of the firms is processing industry. Contain of Based industry & chemical, various industries and industry of consumption good.
- Third sector: Main activity of the firms is service industry. Contain of Property & real estate, Infrastructure, utility & transportation, Trading, service & investment.

In determining the sample, I conduct several stage Firstly, I took the data for each variable from Data Stream from the years 1997-2012. The total observations in this path are 6000 observation exclude financial sector. However, due to my objective to forecast 1 year ahead, firms have to have four year consecutive data; if the firm did not have one variable in my model then I remove it from my sample. It is make my sample reduce into 3000 observations. Perhaps, it can picture the firm performance of the firm. Secondly, I classify my sample according to sector based on the IDX website. Thirdly, I have to make sure that my data is normal and there is no auto correlation problem. The way to normalize the firm variables is by dividing the variables with the average asset of each firm. The average asset is the combination between the total asset of the firm at the beginning of the year and at the end of the year divided by two. The last step, I discard the outliers of each variable, e.g. high changing in working capital (ΔWC) bigger than one is removed from the sample because working capital is the part of the asset and it should not be bigger than the average asset of the firm. High working capital is good, but it might imply that the firm has too much inventory or have excess money. Besides, it will affect the estimated component and the non-estimated component, because the changing in working capital is included in calculating these 2 components. To avoid the unreliable result then, I have to cut those samples. I conduct the statistical variable of my sample; total observations are 2125.

After I get all of data from every years and every industry then I test the descriptive statistic of my variable; the objective is to summarize my sample and check whether there is abnormal number. Also I calculated the Pearson Spearman Correlation test, to distinguish the correlation between variable and review whether there is auto correlation problem in my sample. After that, I do regression analysis to distinguish the relationship between the variable, by looking on the t statistic to discover the significance of the variable.

Table 1 Statistic of variables in financial statement from the year 1997-2012

Represent the descriptive statistic of firm in Indonesia Stock Exchange market of total observation across industry.

	CFO	OI	NI	CAPEX	FCF	DT	DNA	Δ INV	Δ WC	EST	ESTIMATE
Mean	0.063	0.077	0.024	0.065	-0.002	-0.003	0.044	0.017	0.040	-0.001	-0.059
Median	0.058	0.075	0.029	0.037	0.007	-0.001	0.039	0.008	0.030	0.007	-0.051
Maximum	0.695	0.833	0.582	0.795	0.644	0.227	0.235	0.802	0.840	0.973	0.978
Minimum	-0.779	-0.842	-0.975	0.000	-0.797	-0.509	0.000	-0.522	-0.941	-0.820	-0.944
Std. Dev.	0.103	0.115	0.104	0.084	0.118	0.046	0.029	0.071	0.141	0.183	0.225
Skewness	-0.140	-0.446	-1.558	3.009	-0.995	-3.029	1.536	0.601	-0.057	0.042	0.013
Kurtosis	7.565	8.900	13.791	16.615	7.933	30.730	6.892	19.022	9.646	6.070	5.813
Jarque-Bera	1856.3	3159.2	11192.	19659.3	2510.7	71469.	2181.7	22901.	3919.6	837.1	702.1
Probability	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sum	135.50	163.92	52.51	140.33	-4.83	-6.45	94.82	36.87	85.27	-2.28	-127.54
Sum Sq. Dev.	22.792	28.510	23.400	15.168	29.999	4.502	1.843	10.967	42.789	71.584	107.994
Observations	2129	2129	2129	2129	2129	2129	2129	2129	2129	2129	2129

From table 1 it is show that the overall mean of my variable is positive except free cash flow, deferred tax, estimated and net estimated. The average mean is ranging from -0.0603 - 0.0768. The result is consistent with Barth, Cram et al. (2001), which is state that the mean and median of net income and cash flow from operation is positive, but the estimated number is negative. Negative estimated is due to including the depreciation and amortization in measuring net income but those component is not include in calculating the cash flow from operation. The net estimated -0.051 is negative, the reason is to calculate net estimated is by deducting estimated -0.001 which is already negative, depreciation and amortization, differed tax. Over all, the standard deviation of my sample is low, the range from 0.0295 – 0.2251.

Besides, the standard deviation of net income 0.1048 and operating income 0.1156 is higher than standard deviation of cash flow from operation 0.1030; it is imply that earning is more volatile than cash flow from operation. Kurtosis statistic of all variable is positive range from 5.8177 – 30.7466 it is show biased from the normal distribution.

Table2. The Spearman and Pearson correlation of variable in financial statement form the year 1997-2012

Represent the correlation of variable cross industry, every variable in the table have been divide with the average asset of each firms.

	CFO	EBIT	NI	ΔCAPEX	FCF	DT	DNA	ΔINV	ΔWC	ESTIMATE	NET ESTIMATE
CFO	1										
EBIT	0.4609	1									
NI	0.4425	0.9175	1								
ΔCAPEX	0.2895	0.3048	0.2856	1							
FCF	0.7359	0.2828	0.2722	(0.3097)	1						
DT	0.1606	0.1169	0.1077	0.1265	0.0613	1					
DNA	0.2568	0.0425	0.0116	0.3505	0.0214	0.1473	1				
ΔINV	(0.1447)	0.1239	0.1214	0.1567	(0.2107)	(0.0171)	(0.0356)	1			
ΔWC	(0.0064)	0.0823	0.0832	0.1775	(0.1158)	(0.0188)	(0.0102)	0.3259	1		
ESTIMATE	0.3173	(0.2693)	(0.3185)	(0.1102)	0.3452	0.0228	0.1720	(0.4002)	(0.7332)	1	
NET ESTIMATE	0.2314	(0.2990)	(0.3337)	(0.2077)	0.3275	(0.1810)	(0.0237)	(0.5706)	(0.6953)	0.9093	1

The Spearman and Pearson correlation is range at -0.7332 – 0.9093. There are two components which have a high positive correlation between net income (NI) and operating income (OI) 0.9175, because to calculate the NI is by deducting OI with tax and interest. Besides, high correlated is appear between net estimated and estimated 0.9093. Net estimated is calculated by deducting estimated component of depreciation and amortization (DNA), deferred tax (DT) and changing in inventories (ΔINV). It is prove by negative correlation between net estimated and DNA, DT and ΔINV. The negative correlation has been finds between NI and estimated -0.3185 and net estimated -0.3337, because NI is calculated by deducting the CFO with estimated and net estimated item. Low estimated and net estimated will enhance the NI. Negative correlation also appears in CFO with ΔINV -0.1447 and ΔWC -0.0064 the reason is the same as the negative correlation between net incomes and estimated

Table A.1 in Appendix section is show the regression result through year 1997- 2012 by combining the all sectors. Table A.2 show the result of each model across sector in forecasting 1 year and 2 years ahead in forecasting firm performance (cash flow from operation, free cash flow, operating income, net income). The result shows that cash flow from operation item is significant in most of the model in forecasting firm performance for 1 year ahead. It is shown by star sign; however, in forecasting 2 years ahead, cash flow from operation did not have significant presence.



Chapter VI: Empirical Result

Financial statements are used for a various purposes. One of the purpose is to explain activities of the firm, whether the firm has achieved its optimum performance or not. Due to the regulations from accounting standard, information in the financial statement must contain of managerial estimate. A financial statement is expected to provide predictions about the future firm performance. However, there is a perception that a financial statement has a strong relationship with the earnings management. To further investigate this issue, I perform three methods to measure the errors between the actual number and the predicted number. I perform three methods to make my conclusion reliable whether the accrual components estimated by manager has additional power in forecasting firm performance:

- Mean forecasting error (MAER)
- Theil's U statistic
- The Adjusted R^2

I use mean absolute forecast error (MAER) as the main criteria for concluding the best model. According to Lev et al (2010), they also used the MAER result as a major method in calculating the error. The reason is that the MAER is considered in an absolute sign, which make the error cannot cancel each other out. Besides, I also calculated the adjusted R^2 and Theil's U statistic in order to give affirmation in determining the conclusion. The adjusted R^2 provides information regarding the power of X variables to explain the Y variable. Moreover, Theil's U statistic does square the deviation amount and creates the weight of error becomes higher.

6.1 Analysis explanation

I conducted 5 OLS models in order to distinguish the ability of accrual components estimated by manager in forecasting firm performance. Equations (1) and (2) are used for distinguishing the ability of aggregate earnings and cash flows to predict the next period of

firm performance. Equation (3) disaggregates the earnings into the cash flow from operation and the accrual component not estimated by manager, this model becomes the middle model. Equations (4) and (5) examine whether disaggregating earnings into accrual components estimated by manager and not estimated by managers could enhance the ability of current earnings to predict the future firm performance. Equation (4) disaggregates earnings into cash flow, aggregate accrual components estimated by managers and not estimated by manager. Accruals component estimated by manager are elaborated further by Equation (5).

Table A.2 and table A.3 in the Appendix shows the regression results in three sectors on average amount. The table shows that T statistic of cash flow from operation (CFO) is significant in most of the models in forecasting 1 year ahead, but not in 2 years ahead. Besides, the fact that the beta of CFO is high, it implies that CFO has a big effect to our forecasted firm performance.

6.2 Forecasting cash flow

Cash flow from operation (CFO) is essential for investor because it is implying the payoff that will be received by the investors. Table 6 displays the outcome in forecasting cash flow from operation.

Table 3¹ Forecasting cash flow from operation time t+1 and t+2

Table 3, Represents the average result of forecasting cash flow from operation (CFO) from 3 different types of sectors and methods in calculating the error from the year 1998-2012.

CFO (T+1)	MAER	Adjusted R^2	Theils U statistic
Model 1	4.715	0.166	1830
Model 2	4.847	0.139	1691

¹ *meaning of the statistic significant (0.05) between model 1 (CFO) and model 2(NI)

&meaning of the statistic significant(0.05) between model 1 (CFO) and model 3(CFO and Δ WC)

meaning of the statistic significant (0.05) between model 3 (CFO and Δ WC), model 4 (CFO, Δ WC,EST) and model 5 (CFO, Δ WC,DT,DNA, Δ INV,EST*)

Model 3	4.899&	0.173	2072
Model 4	4.717#	0.213	1559
Model 5	4.313#	0.256	1133
CFO (T+2)	MAER	Adjusted R^2	Theils U statistic
Model 1	4.808*	0.207	1050
Model 2	5.551	0.110	2269
Model 3	5.003&	0.170	1244
Model 4	4.918#	0.277	1138
Model 5	4.423#	0.200	684

I conduct several steps to distinguish the appropriate model that can predict the firm performance. First step, I compare the MAER² of model 1 (consist of CFO only) with MAER of model 2 (consist of NI inly) the number is 4.715 vs. 4.847. The lowest MAER is model 1 4.715 inference that total accrual did not have predictive power in forecasting CFO, in other words total CFO have better capability in predicting CFO. Second step, I compare MAER of model 1 with model 3 (consist of CFO and accrual component not estimated by manager) the number is 4.715 vs. 4.899, the reason is by including the managerial component not estimated by managers in model 3 might have increase the predictive power of earnings in predicting CFO. The lowest MAER is still Model 1, meaning that the accrual component not estimated by manager did not have excess ability than total CFO. Third step, I compare MAER of model 1 and model 4 (consist of CFO, accrual component estimated and not estimated by manager) the number is 4.715 vs. 4.717. Model 1 has the lowest MAER, but still I compare again with model 5 because there is possibility that when disaggregate the accrual components estimated by manager will have additional power in forecasting CFO; the amount

² Model 1 contain of cash flow from operation (CFO) and capital expenditure (CAPEX) ; Model 2 contain of net income (NI)and capital expenditure (CAPEX); Model 3 contain of cash flow from operation (CFO), capital expenditure (CAPEX) and changing in working capital(Δ WC); Model 4 contain of cash flow from operation (CFO), capital expenditure (CAPEX), changing in working capital(Δ WC), accrual component estimated by manager (EST); Model 5 contain of cash flow from operation (CFO), capital expenditure (CAPEX), changing in working capital (Δ WC), depreciation and amortization (D&A), deferred tax (DT), changing in inventory (Δ INV), net accrual component estimated by manager(*EST).

is 4.715 vs. 4.313 the lowest MAER is model 5. It is indicating that disaggregate the accrual components estimated by manager into depreciation and amortization (DNA), deferred tax (DT), changing in inventory (ΔINV), and net estimated (EST*) have increasing the predictive power of earnings in predicting CFO. With the deviation between the actual number and the predicted number in forecasting 1 year ahead are 431.3%. Besides, Model 5 also has the highest Adjusted R^2 which is imply the variable in model 5 can explain the CFO properly.

In addition, the same method is conducted in examining model with the highest ability in forecasting CFO in next 2 years. The model which has the lowest MAER is model 5 (4.423) suggested that the deviation between the actual number and the predicted number in forecasting 2 year ahead is 442.3%. The MAER result also in line with the result of Theils U statistic. The lowest Theils U statistic is in model 5 for forecasting next 1 and 2 year 1133 and 684. The conclusion is forecasting CFO in 1 year and 2 year a head model with disaggregated accrual component have excess ability to forecast future CFO comparing to the rest of the model.

In table 3, the error between the actual number and the predicted number is high 442.3% -555.1%; because I divide the entire variable with their own average asset to make my variable comparable across the firm. For example past CFO -0.003 and current CFO is 0.76 the deviation make the error is high. The high difference between past CFO and current CFO is also influenced by the average asset of the firm in every year.

Paper by Barth, Cram et al. (2001) and Poon wing Yan (2005) are also in line with my result. They found that by desegregating NI into CFO and accrual component, it has additional power in predicting CFO. Moreover, in my study I separate the accrual component into accrual components estimated by manager and not estimated by manager. The terminated is in forecasting CFO in short term and long-term is have similar result, whether by disaggregate the accrual component estimated by manager into DT, DNA, ΔINV , EST* has significant ability in forecasting CFO.

My result also support the FASB 1978 statement that clarified the earnings element might provide information about the present and future ability of the firm in generating cash. Besides, it is consistent with (Ebaid 2011) that distinguishes the relationship between earnings component and future CFO in emerging countries. The findings show that earnings components have elevated ability in forecasting CFO. He used information from Egypt firms and argued that there is different behavior between emerging country (ex; Indonesia, Malaysia, Egypt, etc.) and developed countries (ex: U.S, U.K, etc.). In emerging country the investor is less mature, the information processing is not efficient, the disclosure requirement is low and also the amount of firms listed in stock exchange is less than in developed countries. Moreover, my result is contradict with Lev, Li et al. (2010). They used U.S. data and I argue that the difference is due to the different characteristic of the country that has been explain by Ebaid (2011) before.

Free cash flow (FCF) can be described as ordinary cash flow after all the adjustment such as DNA. Brickley and McConnell (1987) aserted that firm with high positive FCF will pay an extra dividend. With the excess ability of FCF, I use this figure as a measuring of firm performance. Besides, there is different perspective in measure the cash flow; it could be CFO or FCF. In this study I conduct both of them.

Table 4³ Forecasting free cash flow time t+1 and t+2

Table 4, Represents the average result of forecasting free cash flow (FCF) from 3 different types of sectors and methods in calculating the error from the year 1998-2012

FCF(T+1)	MAER	Adjusted R^2	Theils U statistic
Model 1	3.717	0.1289	2570
Model 2	4.117	0.1138	2835

³ Lowest MAER meaning that the deviation is low and the model is not concern on the sign. Low theils U statistic refers to low deviation but include more weight to deviation. High Adjusted R^2 show that the Y variable can be explain very well with X variable.

Model 3	4.126&	0.1340	2494
Model 4	1.488#	0.1511	1237
Model 5	4.428	0.1672	2810
FCF(T+2)	MAER	Adjusted R^2	Theils U statistic
Model 1	3.278*	0.068	1013
Model 2	2.852	0.057	458
Model 3	3.296&	0.070	497
Model 4	2.858#	0.083	276
Model 5	3.337#	0.059	227

From the table above, it is demonstrated that model 4 have the lowest MAER which is 1.488 and Theils U statistic which is 1237. It is implied that the model 4 which contains of CFO, accrual estimated and non-estimated by manager has the highest ability in forecasting 1 year ahead of FCF. The deviation from the actual number and the predicted number is 148.8%. Free cash flow number show the after tax cash flow that available for creditors and shareholders, it is related to long term firm growth.

In forecasting 2 years ahead, Model 4 also has the lowest MAER 2.858; indicated that the deviation between the real number with the forecasting number is 285.8%. Actually the amount of MAER between model 2 and 4 is the same. However, model 4 is more significant than model 2, besides model 4 also have lower Theils U statistic which is 276 comparing to model 2 which is 458. My result is in line with Greenberg, Johnson et al. (1986) as they found that earnings have effect in predicting cash flow. It can be concluding that the accrual components estimated by manager have ability in forecasting CFO and FCF in short term and long term. In more detailed explanation, in forecasting CFO disaggregates the accrual component estimated by manager into DT, DNA, Δ INV and net estimated have the highest ability. Moreover, in forecasting FCF accrual component estimated by manager in total have the excessive power.

6.3 Forecasting earnings

In this study I classify the earnings into operating income and net income, due to the different perspective of prior studies about the definition of earnings. Hence this makes my study to be comparable with prior studies. There are mix results in forecasting operating income between short-term and long-term in using data from Indonesian Stock Exchange market.

Table 5⁴ Forecasting operating income time t+1 and t+2

Table 5, Represents the average result of forecasting operating income (OI) from 3 different types of sectors and methods in calculating the error from the year 1998-2012.

OI(T+1)	MAER	Adjusted R^2	Theils U statistic
Model 1	2.490	0.160	283
Model 2	2.398	0.292	269
Model 3	2.581&	0.178	304
Model 4	2.262	0.341	221
Model 5	1.882	0.353	65
OI (T+2)	MAER	Adjusted R^2	Theils U statistic
Model 1	2.683	0.110	249
Model 2	2.767	0.159	339
Model 3	2.940&	0.118	498
Model 4	2.734#	0.199	338
Model 5	3.130#	0.209	545

The lowest MAER is model 5 which is 1.882 in predicting 1 year ahead. It is implied that the difference between the actual number and the predicted number is 188%. This model also has the lowest theils U statistic which is 65 and the highest the adjusted R^2 which is 0.353, so it is suggested that the OI has been explaining very well by the combination of variables in model 5. The adjusted R^2 derived from the average of the adjusted R^2 regression

⁴ Free cash flow (FCF) = CFO- CAPEX, Working Capital (WC) = CA- C- INV – STI +ACC.REC)-(CL – STD + ACC.PAY +T), Estimates component (EST) = CFO – NI - Δ WC- CAPEX, Net estimate (*EST) = CFO – NI - Δ WC- D&A – DT - CAPEX

of every model. In conclusion disaggregating the accrual item into several items has the highest ability in forecasting OI in short-term period.

On the other hands, the contradicting result appears in predicting next 2 years of OI, the lowest MAER is in model 1 which is 2.683. It is shown that the deviation between the actual numbers with the predicting number is 268.3%, suggesting that the cash flow information as a sum has the highest ability in predicting OI in a long term period. The theils U statistic is also low in model 1 which is 249.

My result is in line with (Lev, Li et al. (2010)) in the short-term but not in the long-term. OI is calculated from deducting sales with cost of goods sold. In the long term, managerial estimate is not having additional power because OI is depending on the sales which are affected by the market. This situation make managerial estimate would not have an affect into OI in the long-term; however, in the short-term period, managerial estimate does have incremental power because in a short term manager can control several variables such as DNA.

The last measure of firm performance is Net Income (NI), it is shows the profit of firm activities after deducting taxes and interest. NI is belongs to accrual component which is adjusted the disclosure cash flow over time.

The outcome implies that the accrual component estimated by manager did not improve the predicting power of earnings in forecasting NI for 1 year ahead, but increases the ability of earnings in predicting NI in next 2 years.

Table 6⁵ Forecasting net income time t+1 and t+2

Table 6, Represents the average result of forecasting net income (NI) from 3 different types of sectors and methods in calculating the error from the year 1998-2012.

⁵ Mean signed error forecast (MER) $(\text{actual} - \text{predicted}) / \text{actual}$, Mean absolute forecast error (MAER) $\text{Absolute}(\text{actual} - \text{predicted}) / \text{actual}$, Theils U statistic $\text{average of yearly U statistic, } (\text{actual} - \text{predicted})^2 / \text{actual}^2$, Adjusted R^2 $\text{average of adjusted } R^2$ from 1998-2012 $(1 - \text{residual sum} / \text{the total sum of square})$

NI (T+1)	MAER	Adjusted R^2	Theils U statistic
Model 1	2.821*	0.155	156
Model 2	3.064	0.339	279
Model 3	3.323	0.174	479
Model 4	2.908	0.377	240
Model 5	3.509	0.400	448
NI (T+2)	MAER	Adjusted R^2	Theils U statistic
Model 1	3.448	0.106	796
Model 2	3.517*	0.164	1175
Model 3	4.168&	0.114	2359
Model 4	3.429#	0.206	775
Model 5	3.344#	0.238	386

This result is contradictive with forecasting OI. The model with the lowest MAER in forecasting 1 year ahead is model 1 which is 2.821 defining that the deviation between the actual numbers with the predicted number is 282.1%. This model also has the lowest Theils U statistic which is 156. It can be concluded that the CFO figure has the highest ability in predicting NI in next 1 year.

Furthermore, in forecasting 2 years ahead model 5 3.344 which is consists of disaggregate accrual component estimated by manager has incremental power in forecasting NI. It is explained that the difference between the actual number and the predicted number is 334.4%. Model 5 has the lowest Theils U statistic amount 386 which is indicate the result of square the deviation between the actual and the predicted number.

In forecasting NI in long term, accrual components estimated by manager have incremental power because manager can use their estimated in their financing decision. NI is calculated from deducting OI with taxes and interests. When manager chooses to borrow money from bank in long term it will increase the interest and decrease of the tax. With this choice, it affects the NI of the firm in the long-term; moreover, in short term accrual component estimated by manager does not have additional power because in short term the

NI is depending on the market. Because the method of calculating OI and NI is different then I argue the result is contradicted.

The objective of my paper is to forecast the ability of accrual figures estimated by manager in predicting firm performance, from the result above, it can be concluded that in forecasting cash flow which I separate into CFO and FCF in short term and long term, accrual components estimated by manager have additional power. However, in forecasting earnings, I separate into OI and NI, the result is mixed. Accrual components estimated by managers have additional power in forecasting NI in long term and OI in short term. On the other hand, accrual components estimated by manager did not have incremental power in forecasting OI in long term and NI in short term. The reason is because the way in calculating NI needs more managerial estimate comparing to calculating OI. NI has relationship with taxes and interests but OI did not have it.

Due to the high error of 5 OLS models that I have conducted ranging from 148.8%-551.5%, it leads me question whether I calculated it in the right way or missing particular step. To increase the reliance of my study, then I conduct the random walk test models. This test is to distinguish past information to forecast the future firm performance Bowen, Burgstahler et al. (1986), Yun, Kim et al. (2012) used random walk model to distinguish the ability of cash flow figures and earnings figures in predicting cash flow.

Table 7. Forecasting random walk model 1 year and 2 year ahead

Represent the random walk model from the year 1998-2012 based on the past information from 3 different types of sectors and methods.

T+1	MAER	Adjusted R^2	Theils U statistic
CFO	3.398	0.743	260
FCF	5.020	0.737	3093
OI	1.611	0.711	69
NI	2.625	0.529	196

T+2	MAER	Adjusted R^2	Theils U statistic
CFO	3.830	0.704	492
FCF	5.481	0.681	1677
OI	2.440	0.665	253
NI	3.280	0.487	456

From the result it can be seen that there is high MAER in using random walk model range from 161.1%- 548.1%, this result is only slightly different with my OLS result 148.8%- 551.5%. It can be implied that my result is correct but the reason of high error is because I divided the entire variable of my sample with the average asset. The high different between average asset of last year and current year turn to make the predicted and the actual number have the high deviation. If the average asset is high, it will affect the amount of every variable that I have.

6.4 Usefulness of managerial estimate

After I examined the forecasting firm performance method, then I measure the ability of accrual figures estimated by manager in helping the investors to make an investment decisions. I conduct the portfolio of CAPM abnormal based on predicted firm performance numbers. If the model with the accrual components estimated by manager has higher abnormal return rather than a model without accrual components estimated by manager, it implies that managerial estimate have economic significant. It is imply that when the investors use information contains of accrual component estimated by manager; they gain excess return comparing to investing without concerning on accrual component estimated by manager.

In calculating the error of my forecasting model I use data from 1998-2012 but when I calculate the CAPM abnormal return I use data from the year 2001-2011. The reason is because the risk free rate from Indonesia 90 days bond middle rate is not available from the year 1998-2000.

Table 8 Abnormal returns by CAPM method from the year 2001-2012

The result of CAPM abnormal return by doing zero investment strategy and the portfolio constructed from the predicted firm performance number by holding portfolio for 1 year.

CAPM	CFO	FCF	OI	NI
Model 1	-0.014	-0.007	0.009	-0.009
Model 2	-0.018	-0.016	-0.029	-0.008
Model 3	-0.008	-0.006	-0.011	-0.010
Model 4	-0.021	0.006	-0.025	-0.028
Model 5	-0.017	-0.009	-0.026	-0.028

The output in table 8 shows the average abnormal return. I compare the CAPM abnormal return and select the highest abnormal return in each measure of firm performances. Most of the result show that there is negative return, however, it turn to be FCF and OI have positive number which is mean that it have the abnormal return. Using the predicted number of FCF, model 4 have 6% yearly abnormal return and using the predicted number of OI model 1 have 8% yearly abnormal return. It is imply that when investor want to forecast FCF they can concern on accrual components estimated by manager, because it is give abnormal return when calculate the zero investment strategy.

The CAPM result strengthen my finding because it is show the benefit of concerning accrual components estimate by manager in real life will have positive effect for investor in process of decision making.

Chapter VII: Conclusion

Nowadays, the roles of financial statement have become more essential in every business cycle. The Information in a financial statement helps users in making decision. To give reliable information about the firm condition, managers need to estimate several figures. However, in case that managers use the estimated components to enrich themselves, financial statement may also lead managers to cause frauds in the firm.

The objective of this study is to distinguish the ability of accrual components in forecasting the firm performance. I measure the firm performance with cash flow from operation, free cash flow, net income and operating income in Indonesian Stock Exchange market from the year 1997 to 2012. I use five OLS models to measure the ability of the model with the accrual component estimated by manager and the model without accrual component estimated by manager. Besides, I use three methods to measure the forecasting error; i.e. the mean absolute forecast error (MAER), the Adjusted R^2 and theils U statistic. I also consider the CAPM abnormal return to make sure that the accrual component estimated by manager can help investors in making investment decision.

Using the classification of accounting component from (Lev, Li et al. (2010)). I found that by disaggregating the accrual component estimated by manager into changing in inventory, deferred tax, depreciation and amortization, the ability of earnings in predicting cash flow from operation, free cash flow increases in short term and long term. Moreover, disaggregating the accrual component estimate by manager increases the earnings power in forecasting operating income for short term and operating income for long term. Besides, in calculating the economic significance of accrual component estimated by manager, the abnormal return is high only when calculating the free cash flow. It is means that accrual component estimate by manager have significance role in forecasting free cash flow.

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APPENDIX

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Table A.1. Represent the result in conducting disaggregate regression in different 3 types of industry over period from the year 1998-2012.

The classification of the variable based on the main activity of the firm and firm have to has at least 4 year consecutive data

Variable	Sector 1	Sector 2	Sector 3
CFO	0.380	0.353	0.280
CAPEX	0.031	(0.026)	0.072
Δ WC	(0.211)	(0.170)	(0.117)
Δ INV	(0.122)	(0.160)	(0.115)
DNA	0.151	(0.076)	(0.108)
DT	0.163	0.097	0.553
EST	(0.097)	(0.109)	(0.112)
Adjusted R^2	0.240	0.147	0.255
No of observation	276	976	892

TABLE A.2.1 CASH FLOW FROM OPERATION (CFO) (T+1)

MODEL	INTERCEPT	CFO	NI	CAPEX	ΔWC	ESTIMATE	ΔINV	DNA	DT	*EST
MODEL 1	0.0427	0.3007		0.1100						
MODEL 2	0.0504		0.3001	0.1174						
MODEL 3	0.0429	0.3057		0.1167	(0.0251)					
MODEL 4	0.0437	0.4436 *		0.0699	(0.2482)	(0.2147)				
MODEL 5	0.0217	0.4406 *		0.0103	(0.2943)		(0.2395)	0.2956	(0.0882)	(0.2622)

TABLE A.2.2. FREE CASH FLOW (FCF) (T+1)

MODEL	INTERCEPT	CFO	NI	CAPEX	ΔWC	ESTIMATE	ΔINV	DNA	DT	*EST
MODEL 1	0.0183	0.2241		0.1100						
MODEL 2	0.0245		0.2199	0.1174						
MODEL 3	0.0182	0.2274		0.1167	(0.0208)					
MODEL 4	0.0258	0.0336		0.0699	(0.4328)	(0.2147)				
MODEL 5	0.0089	0.3142		0.0103	(0.1842)		(0.1086)	0.0571	0.0212	(0.1575)

TABLE A.2.3. OPERATING INCOME (OI) (T+1)

MODEL	INTERCEPT	CFO	NI	CAPEX	ΔWC	ESTIMATE	ΔINV	DNA	DT	*EST
MODEL 1	0.0081	0.2845		0.0700						
MODEL 2	0.0130		0.4888*	0.0205						
MODEL 3	0.0055	0.2948		0.0698	(0.0397)					
MODEL 4	0.0056	0.5671 *		(0.0054)	(0.4029)	(0.4249)				
MODEL 5	0.0132	0.5706 *		0.0251	(0.3924)		(0.3547)	(0.6457)	(0.2815)	(0.4087)

TABLE A.2.4. NET INCOME (NI) (T+1)

MODEL	INTERCEPT	CFO	NI	CAPEX	ΔWC	ESTIMATE	ΔINV	DNA	DT	*EST
MODEL 1	0.0516	0.3341		0.1267						
MODEL 2	0.0557		0.5510*	0.0894						
MODEL 3	0.0552	0.3505		0.1144	0.0554					
MODEL 4	0.0457	0.6523 *		0.0575	(0.4350)	(0.4678)	(0.2147)			
MODEL 5	0.0509	0.6686 *		0.0919	(0.4304)		(0.3722)	(0.7153)	(0.4497)	(0.4527)

TABLE A.3.1. CASH FLOW FROM OPERATION (CFO) (T+2)

MODEL	INTERCEPT	CFO	NI	CAPEX	ΔWC	ESTIMATE	ΔINV	DNA	DT	*EST
MODEL 1	0.0484	0.2837		0.1044						
MODEL 2	0.0582		0.1934	0.1209						
MODEL 3	0.0483	0.2919		0.1140	(0.0104)					
MODEL 4	0.0504	0.3691		0.0700	(0.1379)	(0.1222)				
MODEL 5	0.0311	0.3500		0.0213	(0.1639)		(0.1780)	0.3874	(0.2748)	(0.1562)

TABLE A.3.2. FREE CASH FLOW (FCF) (T+2)

MODEL	INTERCEPT	CFO	NI	CAPEX	ΔWC	ESTIMATE	ΔINV	DNA	DT	*EST
MODEL 1	0.0181	0.1738		(0.2100)						
MODEL 2	0.0240		0.1322	(0.2140)						
MODEL 3	0.0194	0.1771		(0.2107)	(0.0073)					
MODEL 4	0.0221	0.2387		(0.2627)	(0.1092)	(0.0948)				
MODEL 5	0.0152	0.2136		(0.2474)	(0.0936)		(0.0452)	0.0348	(0.1701)	(0.0918)

TABLE A.3.3. OPERATING INCOME (OI) (T+2)

MODEL	INTERCEPT	CFO	NI	CAPEX	ΔWC	ESTIMATE	ΔINV	DNA	DT	*EST
MODEL 1	0.0568	0.2726		0.1392						
MODEL 2	0.0636		0.3486	0.1180						
MODEL 3	0.00537	0.2905		0.1366	0.0459					
MODEL 4	0.0554	0.4606		(0.0905)	(0.2525)	(0.2859)				
MODEL 5	0.0524	0.4528		0.1027	(0.2182)		(0.2137)	(0.2237)	(0.5000)	(0.2459)

TABLE A.3.4. NET INCOME (NI) (T+2)

MODEL	INTERCEPT	CFO	NI	CAPEX	ΔWC	ESTIMATE	ΔINV	DNA	DT	*EST
MODEL 1	0.0115	0.2305		0.0808						
MODEL 2	0.0172		0.3091	0.0559						
MODEL 3	0.0086	0.2408		0.0837	0.0438					
MODEL 4	0.0105	0.3974		0.0366	(0.2239)	(0.2579)				
MODEL 5	0.0120	0.3628		0.0487	(0.1674)		(0.2081)	(0.2102)	(0.2026)	(0.1993)

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