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Errors in Estimating Accruals: The Role of Accrual Measurement[1]

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Research Paper

Introduction

There are different ways in which accruals are measured in academic research. Some studies measure accruals as changes in balance sheet accounts; other studies start from statements of cash flows and adjust key numbers using information extracted from the income statement. Specific details in individual studies can also vary, so readers may be left with an uneasy feeling that research executions allow for too many degrees of freedom. Ohlson (2014) synthesizes the research on accruals by providing a conceptual construct of accruals as the change in non-cash assets and liabilities. According to Ohlson (2014), without referring to any particular accounting principles, accounting introduces accruals because transactions may, or may not, have a cash component. He then supposes that (i) the accounting satisfies clean surplus for both concepts of earnings, and (ii) the dividends and capital contributions are of a cash variety, i.e., the two accounting regimes treat these transactions the same. It follows that the accrual equals the difference between the two regime's net worth changes (ending minus beginning balances). Using Elementary algebra he communicates the statement. In the interest of simplicity, he assumes zero dividends and capital contributions. First note that one infers earnings from the clean surplus relation, i.e., the increase in net worth (or book value). Second, suppose that all assets/liabilities must be classified into one or the other out of two kinds:

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ca = cash assets and the approximate equivalent of cash, positives net of negatives.

oa = other assets/liabilities, net.

Then:

$$\{ca(t) + oa(t)\} - \{ca(t-1) + oa(t-1) = Earnings\}$$
$$ca(t) - ca(t-1) = Cash\,Earnings$$
$$oa(t) - oa(t-1) = Accruals$$

In other words, the difference in non-cash assets (net of non-cash liabilities) identifies the accrual. As the last expression shows, it is inferred from assets/liabilities other than cash (and its approximate equivalents, positive or negative).

In using this conceptual construct to measure accruals a delicate point must be noted. Because the arrangement embeds clean surplus accounting, each of the earnings measurements must be comprehensive, while the accrual measure used in most pervasive accrual models is not comprehensive. And also there are dividends and capital contributions as well as some events that may affect current assets and liabilities but not period earnings, so measuring accruals based on changes in balance sheet accounts includes accruals that are less manipulated for earnings management purposes. McNichols and Wilson (1988) outline a general discretionary accruals framework that is the foundation for most earnings management studies in accounting. In the model, accruals are partitioned into discretionary and non-discretionary components, and discretionary accruals are commonly used as an indicator of earnings management. Discretionary accruals equal measured accruals minus predicted non-discretionary accruals. Considering events that may affect current assets and liabilities but not period earnings, using a balance sheet approach in measuring accruals may classify accruals stemming from such events as discretionary accruals especially if these events do not be controlled in accrual models, and this is the case in the most pervasive accrual models in academic researches. So measuring accruals as the changes in balance sheet accounts may increase type one error in detecting earnings management.

MATERIALS AND METHODS

The purpose of this study is to investigate type one errors due to how accruals are measured in the test of earnings management. To investigate this problem in this study Jones (1991) and Dechow and Dichev's (2002) models, respectively as representative of revenue-based accrual models and cash-flow-based accrual models are examined using 157 firms listed in the Tehran Stock Exchange from 2007 to 2018 under two different ways of accrual measurement approaches (accrual measurement approaches are

divided into two categories named balance-sheet vs. cash flow statement approaches in this study). First of all, we computed the difference between total accruals under the two accrual measurement approaches (DIFF). Then we estimated Jones's (1991) and Dechow and Dichev's (2002) models separately under the two accrual measurement approaches for the full sample, the coefficients are used to predict the non-discretionary accruals. Each difference from this predicted number is supposed to be discretionary. The difference between discretionary accruals under these two approaches was considered as the error in estimating discretionary accruals due to the accrual measurement approach.

RESULTS AND DISCUSSION

The coefficient between DIFF and the error in estimating discretionary accruals shows that the difference due to the measurement approach is classified as discretionary accruals. For the test of type one error, we conducted a simulation analysis of earnings management. We followed the approach of Dechow et al. (1995) and draw 250 random samples from the full sample and we set the size of each random sample to 30. The empirical tests were separately applied to each of the samples described above. The firm years in each sample represent the event years that were to be tested for earnings management. We, therefore, began by matching each firm year represented in a sample with the remaining non-event-years for that firm to form the estimation period. Each of the Jones's (1991) and Dechow and Dichev's (2002) models were estimated once using the balance-sheet approach in measuring total accruals and once using the cash flow statement approach in measuring total accruals. Then the coefficients were used to predict the non-discretionary accruals. Each difference from this predicted number is supposed to be discretionary. Since the sample selection procedure was completely random, no earnings management was expected. We compute the Type I error rate as the percentage of times out of the 250 random samples that the null hypothesis of no earnings management was rejected at the 5% significance level using one-tailed tests, in favor of negative or positive earnings management. Results do not show an unacceptable type one error at the 95% confidence level for any of these approaches since for a sample of 250 and at the 95% confidence level, the confidence interval of a two-tailed frequency test with a rejection frequency of 5% is (2.3%, 7.7%).

CONCLUSION

Findings show that the difference due to the measurement approach is classified as discretionary accruals. However, the simulations performed for the test of earnings management do not show an unacceptable type one

error at the 95% confidence level for any of these approaches, suggesting that researchers can rely on Ohlson's structure in measuring accruals.

Keyword: accruals, earnings management, measurement, the estimation error.

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