

## Development of Item Forecasting Models Based on Cash Flow Characteristics<sup>1</sup>

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### OBJECTIVE

The fundamental aim of this research is to apply the characteristics of cash flows, namely timing, and matching, in important models for estimating accruals to improve the quality and explanatory power of these models. These features are evident in the serial correlation of cash flow changes and the cash cycle of operations. To examine this objective, the Jones model (1991), the Jeter and Shivakumar model (1999), the McNichols model (2002), and the Ball and Shivakumar model (2006), which are among the most significant models for estimating accruals, are modified and investigated.

### METHODS

In terms of the type and nature of the discussed problem and the research goals, the present research is fundamental-experimental because its initial data is obtained through observation and is examined by applying statistical

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methods and accepted criteria. According to the gathering method of descriptive information, this research can be included in correlation or concordance research. The main feature of these studies is to find the relationship between variables, but not necessarily a causal relationship in which only the existence of the relationship between independent and dependent variables is examined in the form of combined data (combination of time series data and cross-sectional data). We obtain data from Tehran Stock Exchange and Using a sample of 167 firms listed in the Tehran Stock Exchange from 1390 through 1399. To avoid problems of accrual computation using balance-sheet data, working-capital accruals, and cash flows are based on data from the statement of cash flows that became available in 1390. We remove financial institutions, Insurance Companies, Variable fiscal years, and firm years with mergers and acquisitions or discontinued operations. The final sample contains 1,670 firm years with necessary data. The hypotheses of this research have been investigated using multivariate linear regression and Stata statistical software (version 18 of Stata software).

## **RESULTS**

The results of this study provide the achievements of this research demonstrate that the incorporation of cash flows and their characteristics in accruals estimation models entails several important outcomes. Firstly, the inclusion of these variables in the models leads to capturing the conceptual economic essence that goes beyond mere econometric concepts. Secondly, the explanatory power of the models significantly increases and improves compared to standard models. Thirdly, the modified models result in the emergence of discretionary accruals accruals items with greater reliability. Lastly, the adjusted Jones model, incorporating cash flows and their characteristics, exhibits the highest explanatory power among the examined models.

## **CONCLUSION**

In this paper, When a business entity has a longer operational cycle, any significant change in revenues or cash flow cycle leads to further changes in the items of working capital. On the other hand, changes in revenues alone are not sufficient to explain the changes in the accruals items, and the deficiency

in cash flows is compensated by entering into predictive accruals models. The combination of changes in cash flows, Negative serial correlation in cash flow changes, and the length of the operating cycle in accruals models improve their explanatory power. These variables enhance the discriminative power and explanatory capability of accruals models and aid in detecting earnings management. The adjusted models generate an estimate of discretionary items that better predict cash flows and future earnings. Furthermore, the final validation test of the modified models in this study demonstrates that the highest explanatory power is related to the Jeter and Shivakumar (1999) model, adjusted for cash flows and its Properties, which can be used as a preferred model.

However, the study also finds that changes in revenues alone are not enough to explain the variations in the accruals items. To overcome this limitation and accurately predict accruals, the researchers incorporate predictive accruals models. These models take into account multiple factors, such as changes in cash flows, negative serial correlation in cash flow changes (meaning that consecutive cash flows tend to move in opposite directions), and the length of the operating cycle. Including these variables significantly enhances the explanatory power of the accruals models.

By improving the discriminative power and explanatory capability of the accruals models, the researchers can better identify instances of earnings management. This is crucial for ensuring transparency and financial integrity in business reporting.

After adjusting the models with the mentioned variables, they produce estimates of discretionary items that offer improved predictions of cash flows and future earnings. These adjusted models are more reliable for decision-making, as they account for a broader range of factors affecting financial performance.

Finally, the paper validates the modified models, and the results indicate that the accruals model proposed by Jeter and Shivakumar (1999), adjusted for cash flows and its properties, exhibits the highest explanatory power among the tested models. Therefore, this model is recommended as the preferred one for detecting earnings management and making accurate predictions related to cash flows and future earnings.

In summary, the paper emphasizes the significance of considering operational cycle length, changes in cash flows, and negative serial correlation in cash flow changes when developing accruals models. These factors contribute to the models' effectiveness in detecting earnings management and improving the prediction of cash flows and future earnings for business entities.

**Keywords:** Accruals, Cash-Flow Changes, Timing, Matching.

**JEL Classification:** M40, M41.

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