**Shou-Min Tsao[1], Che-Hung Lin[2]**
# DO ANALYSTS' CASH FLOW FORECASTS HELP INVESTORS?

*This study examines the effect of analysts' cash flow forecasts on accruals mispricing. We find that investors tend to overestimate the information in accruals but that accrual mispricing is significantly lower for the firms with analysts' cash flow forecasts. Our results suggest that these forecasts improve the efficiency of investors' reactions to earnings announcements by conveying information on accrual components of reported earnings.*
*Keywords: accruals; cash flow forecasts; earnings quality.*
*JEL classification: D22; D53; G17.*

**Шоу-Мінь Цао, Че-Хенг Лінь**
## ЧИ ДОПОМОГАЮТЬ ІНВЕСТОРАМ АНАЛІТИЧНІ ПРОГНОЗИ РУХУ ГРОШОВИХ КОШТІВ?

*У статті проведено оцінювання впливу аналітичних прогнозів руху грошових коштів на (не)вірне нарахування коштів. Доведено, що інвестори схильні перебільшувати інформацію щодо нарахувань, однак похибки по них є значно нижчими у фірм, які користуються аналітичними прогнозами. Висунуто припущення, що такі прогнози мають здатність підвищувати якість реакції інвестора на задекларований прибуток.*
*Ключові слова: нарахування коштів; прогноз руху грошових коштів; якість прибутку.*
*Форм. 4. Табл. 4. Літ. 18.*

**Шоу-Минь Цао, Че-Хунг Линь**
## ПОМОГАЮТ ЛИ ИНВЕСТОРАМ АНАЛИТИЧЕСКИЕ ПРОГНОЗЫ ДВИЖЕНИЯ ДЕНЕЖНЫХ СРЕДСТВ?

*В статье проведена оценка влияния аналитических прогнозов движения денежных средств на (не)верное начисление средств. Доказано, что инвесторы склонны преувеличивать информацию по начислениям, однако погрешность по начислениям значительно ниже у фирм, которые пользуются аналитическими прогнозами. Сделано предположение, что такие прогнозы могут повышать качество реакции инвестора на заявленную прибыль.*
*Ключевые слова: начисление средств; прогноз поступления денежных средств; качество прибыли.*

**Introduction.** Increased transparency of accruals for firms with analysts' cash flow forecasts increases managers' perceived costs of accrual management. Therefore, cash flow forecasts reduce accrual management and increase its reliability. Despite this, whether the provision of cash flow forecasts improves the efficiency of market participants' reactions to future implications of current accruals remains unclear. This study therefore contributes to literature by examining the effect of analysts' cash flow forecasts on the mispricing of accruals.

We posit that provision of cash flow forecasts reduces accrual mispricing. First, S. Richardson et al. (2005) show that accrual mispricing is negatively related to accruals reliability. Thus, analysts' cash flow forecasts reduce accrual mispricing due to higher reliability of accruals. Second, cash flow forecasts provide transparency of accrual management and thus allow investors readily distinguish between earnings surprises attributable to cash flows and those attributable to accruals. Accordingly,

---

[1] National Central University, Jhongli, Taiwan (ROC).
[2] Correspondent author; Fortune Institute of Technology, Kaohsiung, Taiwan (ROC).

investors equipped with cash flow forecasts can better understand managerial assumptions used to record accruals and thus better predict future economic benefits and valuation implications of accruals.

We use cross-sectional tests to test our hypothesis. Specifically, we compare investors' reactions to accrual information at annual earnings announcement between firm-year observations with analysts' cash flow forecasts and firm-year observations without such forecasts. We employ a hedge portfolio approach and a regression approach in our analyses. Our sample is based on all firm-years with both one-year-ahead analysts' annual earnings and cash flow forecasts in the I/B/E/S Detail History US. Both hedge portfolio approach and regression approach reveal that 1-month, 3-month, 6-month, and 12-month hedge portfolio returns based on current accruals are significantly smaller for the sample with analysts' cash flow forecasts than those without these forecasts. Thus, our results are consistent with the notion that analysts' cash flow forecasts are associated with a significant reduction in investors' overreaction to current accruals. Analysts' cash flow forecasts seem to increase the speed at which the market incorporates information on stock prices by conveying information on the accrual components of reported earnings.

Our findings contribute to extant literature in several ways. First, prior studies reported that analysts' cash flow forecasts are informative to market participants by providing a positive association between stock returns and analysts' cash flow (earnings) forecast errors (Defond and Hung, 2003) and that cash flow (earnings) is more (less) predictive of future prospects for firms with analysts' cash flow forecasts (Call et al., 2009). However, these studies provide little insight on whether analysts' cash flow forecasts improve the efficiency of capital markets' reaction to the accrual components of earnings. We also add to literature by providing evidence that analysts' cash flow forecasts reduce investors' overreaction to accruals. Prior studies demonstrated that analysts' cash flow forecasts affect the financial reporting process, either serving as a disciplining mechanism that deters accrual management (McInnis and Collins, 2011) or as disciplining managers that report cash flow information that is informative about future firm prospects (Call et al., 2009). We provide insight on the effect of this changing financial reporting process on the efficiency of capital markets' reaction to reported earnings. Third, we add to literature that investigates accrual mispricing by showing that cash flow forecasts have significant effect on market participants' accurate valuation of accruals by increasing the transparency of accrual components.

The remainder of the paper is organized as follows. The next section reviews the prior literature and hypothesizes. Section III presents sample selection and descriptive statistics, Section IV explains the empirical results, Section V presents the robustness tests, and Section VI concludes.

**Background and hypothesis.**

*1. Analysts' cash flow forecasts literature.* In recent years, the importance of analysts' cash flow forecasts has increased dramatically. M. DeFond and M. Hung (2003) argue that analysts' incentives to provide cash flow forecasts are related to the demand of market participants who are concerned about the greater risk of financial misstatements associated with accruals. Cash flow forecasts therefore help market participants interpret the information contained in earnings.

M. DeFond and M. Hung (2003) provide evidence that firms with lower earnings quality motivate analysts to provide cash flow forecasts. Recent studies examined how cash flow forecasts by analysts affects accrual quality and cash flow quality. J. McInnis and D.W. Collins (2011) report that the provision of cash flow forecasts by analysts restrains earnings management and increases earnings quality. They argue that analysts who provide both earnings and cash flow forecasts also implicitly provide forecasts of the accrual component of the earnings forecast. Investors can readily decompose an earnings surprise into the portion attributable to cash flows and the portion attributable to accruals. Therefore, cash flow forecasts increase transparency of any accrual management undertaken to meet earnings thresholds, and thus accrual management will decline due to the increased cost of accrual manipulation. A. Call (2008) found that when analysts issue cash flow forecasts, they serve a monitoring role over the firm's reported cash flow information. Thus, current cash flow can better predict future cash flows in firms whose analysts issue cash flow forecasts. A. Call et al. (2009) found that analysts who issued earnings forecasts with cash flow forecasts are more precise than those who issue earnings forecasts without such forecasts. They also found that analysts' earnings forecasts reflect better knowledge of the implications of current earnings for future earnings when they are issued with forecasts.

Previous literature found that cash flow forecasts improve the quality of reported accruals due to higher transparency of accrual manipulations. Cash flow forecasts also increase the quality of cash flows due to analysts' monitoring role over the firm's reported cash flow information. Despite this evidence, whether cash flow forecasts improve the efficiency of market participants' reactions to future implications of currently announced earnings components remains unclear. Therefore, we add to the previous literature by examining the effect of cash flow forecasts on the mispricing of accruals.

*2. The accrual anomaly literature.* R.G. Sloan (1996) found that the cash flow component of earnings is more persistent than the accrual component of earnings. However, the earnings expectation embedded in stock prices fails to reflect higher (lower) persistence of the cash flow (accrual) component of earnings. Consequently, investors tend to overestimate (underestimate) earnings with high (low) earnings accruals. Recent studies show that analysts and investors do not incorporate predictable future earnings declines associated with high accruals (Richardson et al., 2005).

R.G. Sloan's (1996) accrual anomaly has received considerable attention over the past decade, and a series of studies refined our understanding of this anomaly. One issue is whether accruals disclosure in earnings releases or high-quality disclosures allow investors understand better the information in accruals for future earnings and thus reduce the accrual anomaly. H.D. Louis et al. (2008) find no evidence of accrual mispricing for the firms that disclose accrual information at earnings announcements. For these firms, the market can differentiate the discretionary and nondiscretionary components of earnings. However, investors fail to differentiate the discretionary and nondiscretionary components of earnings for firms that do not disclose accrual information at earnings announcements. M. Drake et al. (2009) investigate the link between the overall disclosure quality and the accrual anomaly. They provide strong evidence on mispricing for firms with low-quality disclosure and find a signi-

ficant reduction in mispricing for firms with higher-quality disclosure. We argue that analysts' cash flow forecasts provide detailed accrual information to analysts and investors. We extend prior literature regarding the role that increased disclosure plays in reducing accrual anomaly by investigating whether analysts' cash flow forecasts help investors understand the value implications of the information in accruals, thus mitigating investors' mispricing in accruals.

**Empirical Test.**

*1. Sample selection.* The initial sample includes all firm-years with the annual earnings forecasts in the I/B/E/S detailed files from 1993 to 2010. We use annual data because analysts usually forecast annual cash flows. We exclude financial institutions and firms in the utility sector from the sample because these firms operate in a different business environment than those in other industries. Financial data and stock returns are obtained from COMPUSTAT and CRSP, respectively. We eliminate observations lacking necessary accounting and returns data. The initial sample consists of 202,730 firm-year observations. After deleting the observations lacking the necessary financial and stock returns data used in our analysis, our final sample consists of 43,980 firm-year observations across 4,178 unique firms (13,004 firm-years for the sample with analysts' cash flow forecasts and 30,976 firm-years for the sample without analysts' cash flow forecasts). The proportion of earnings forecasts accompanied by a cash flow forecast increases rapidly over our sample period. The relative frequency increases from 2.35% in 1993 to 54.48% in 2010. Overall, the observations with analysts' cash flow forecasts consist of 29.57% for our sample period (untabulated).

*2. Measurement of variables.* The buy-and-hold size-adjusted returns (*BHAR*) across horizons of 1 month (*BHAR1*), 3 months (*BHAR3*), 6 months (*BHAR6*), and 12 months (*BHAR12*) is the compounded abnormal return for firm i for the period starting from the beginning of the fifth month after the fiscal year-end. It is calculated as the compounded raw return over the return accumulation period less the compounded equally weighted average return over the same return accumulation period for all the firms in the same CRSP size decile on the same CRSP exchange index to which firm *i* belongs. *ACC* is the difference between earnings for continuing operations and cash flows from operations of fiscal year *t*, scaled by the beginning total assets of fiscal year *t*. *CFO* is the cash flows from operations for year *t*, scaled by the beginning total assets of fiscal year *t*. *SIZE* is the natural log of the market value at the end of fiscal year *t*. *BTM* is the natural log of the book-to-market ratio at the end of fiscal year *t*.

Table 1 provides the univariate tests that compare the sample with analysts' cash flow forecasts and the sample without analysts' cash flow forecasts. The mean (median) of buy-and-hold size-adjusted returns over different periods are in general lower for the sample with analysts' cash flow forecasts relative to those without analysts' cash flow forecasts. The mean (median) accruals for the sample with cash flow forecasts are also significantly lower than those of the sample without cash flow forecasts (McInnis and Collins, 2011).

Table 2 provides Pearson and Spearman correlation matrices for the key variables in our analysis. The results of Pearson and Spearman correlations are generally similar. *BHAR1, BHAR3, BHAR6* and *BHAR12* are negatively associated with *ACC*

and positively associated with *CFO*. These findings are consistent with the results of prior accrual anomaly literature that the market overestimates (underestimates) the implications of the accrual (cash flow) component of earnings for future earnings.

*Table 1.* **Comparisons of firms with analysts' cash flow forecasts with those without such forecasts,** *authors'*

| Variable | Mean values | | | Median values | | |
|---|---|---|---|---|---|---|
| | With forecasts ($n = 13{,}004$) | Without forecasts ($n = 30{,}976$) | Differences in means | With forecasts ($n = 13{,}004$) | Without forecasts ($n = 30{,}976$) | Differences in medians |
| *BHAR1* | 0.013 | 0.021 | −0.008 (0.000***) | 0.006 | 0.008 | −0.002 (0.001***) |
| *BHAR3* | 0.021 | 0.030 | −0.009 (0.000***) | 0.007 | 0.010 | −0.003 (0.006***) |
| *BHAR6* | 0.028 | 0.039 | −0.011 (0.000***) | 0.008 | 0.012 | −0.004 (0.009***) |
| *BHAR12* | 0.037 | 0.052 | −0.015 (0.003***) | 0.033 | 0.046 | −0.013 (0.009***) |
| *ACC* | −0.129 | −0.069 | −0.060 (0.017**) | −0.060 | −0.054 | −0.006 (0.000***) |
| *CFO* | 0.085 | 0.063 | 0.022 (0.010***) | 0.094 | 0.084 | 0.010 (0.000***) |
| *SIZE* | 6.115 | 5.642 | 0.473 (0.000***) | 5.984 | 5.558 | 0.426 (0.000***) |
| *BTM* | −0.843 | −0.728 | −0.115 (0.000***) | −0.798 | −0.673 | −0.125 (0.000***) |

***, ** and * indicate significance at the 1%, 5%, and 10% level, respectively, for the two-tailed tests.

**Results.** We employ both a hedge portfolio approach and a regression approach to test our hypothesis. The advantage of the portfolio approach lies in its ability to address the potential nonlinear relation between accruals (cash flows) and stock returns (Levi, 2008). The regression approach allows us examine the incremental association between accruals and stock returns after controlling for correlated omitted variables for stock returns.

*1. Portfolio approach.* Accrual-based hedge portfolios are constructed as follows. We rank firms from both samples (with and without forecasts) into 10 deciles based on the magnitude of accruals for each year. From these rankings, we create 3 portfolios for each subsample: 1) lowest accruals (*ACC1*) which consists of the firm-years with accruals in the lowest decile; 2) middle accruals which consists of the firms-years with accruals between the 2nd decile and the 9th decile (*ACC2* ~ 9); 3) the highest accruals which consists of the firms-years with accruals in the highest decile (*ACC10*). We then calculate the abnormal returns over 4 different holding periods for 3 portfolios. These 4 return accumulation periods begin 4 months following the end of the fiscal-year and end on trading day +21 (1 month), +64 (3 months), +127 (6 months), and +253 (12 months). The accruals strategy takes long (short) positions in the most negative (positive) accruals.

Table 3 reports the subsequent years' abnormal returns following the portfolio formation. Accruals have a monotonically negative relation with abnormal returns for

*Table 2.* **Pearson (Spearman) correlations matrices,** *authors'*

| Variables | BHAR1 | BHAR3 | BHAR6 | BHAR12 | ACC | CFO | SIZE | BTM |
|---|---|---|---|---|---|---|---|---|
| BHAR1 | 1 | 0.604*** | 0.470*** | 0.320*** | -0.004** | 0.004** | -0.002** | 0.055*** |
| BHAR3 | 0.567*** | 1 | 0.726*** | 0.532*** | -0.004** | 0.006** | -0.042*** | 0.135*** |
| BHAR6 | 0.402*** | 0.712*** | 1 | 0.698*** | -0.010** | 0.004** | -0.072*** | 0.216*** |
| BHAR12 | 0.289*** | 0.561*** | 0.752*** | 1 | -0.007** | 0.009** | -0.071*** | 0.187*** |
| ACC | -0.026*** | -0.033*** | -0.049*** | -0.017*** | 1 | -0.966*** | -0.001** | 0.004** |
| CFO | 0.061*** | 0.114*** | 0.154*** | 0.163*** | -0.324*** | 1 | -0.042*** | 0.008** |
| SIZE | -0.047*** | -0.099*** | -0.155*** | -0.146*** | -0.001** | -0.352*** | 1 | -0.367*** |
| BTM | 0.061*** | 0.151*** | 0.245*** | 0.196*** | 0.003*** | 0.186*** | -0.386*** | 1 |

The Pearson (Spearman) correlation is in the lower (upper) diagonal ***, ** and * indicate significance at the 1%, 5%, and 10% levels, respectively, for the two-tailed tests.

*Table 3.* **Average Returns across Various Portfolios based on prior year's accruals for both firm-years, with and without analysts' cash flow forecasts,** *authors'*

| | With forecasts | | | | | Without forecasts | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Accrual portfolio | | | | % of 1-year hedge portfolio returns | Accrual portfolio | | | | % of 1-year hedge portfolio return |
| | Lowest | 2–9 | Highest | Hedge | | Lowest | 2–9 | Highest | Hedge | |
| No. of firm-years | 2,585 | 9,061 | 1,358 | | | 5,985 | 21,055 | 3,936 | | |
| Size-adjusted returns | | | | | | | | | | |
| 1-month | 0.028 | 0.011 | -0.002 | 0.030 | 41.10 | 0.035 | 0.022 | -0.009 | 0.044 | 39.64 |
| 3-month | 0.043 | 0.020 | -0.009 | 0.052 | 71.23 | 0.057 | 0.044 | -0.017 | 0.074 | 66.67 |
| 6-month | 0.048 | 0.029 | -0.013 | 0.061 | 83.56 | 0.061 | 0.054 | -0.022 | 0.083 | 74.77 |
| 12-month | 0.056 | 0.040 | -0.017 | 0.073 | 100.00 | 0.075 | 0.60 | -0.036 | 0.111 | 100.00 |

both accrual-based samples with and without analysts' cash flow forecasts. The individual hedge portfolio returns for 1-month, 3-month, 6-month, and 12-month for the cash flow forecasts sample are 0.030, 0.052, 0.061, and 0.073, respectively, which are significantly smaller than the individual hedge portfolio returns of the sample without analysts' cash flow forecasts, which are 0.044, 0.074, 0.083, and 0.111, respectively.

Table 3 also shows that the provision of analysts' cash flow forecasts speeds up the dissemination of current earnings information into stock prices. For the sample with analysts' cash flow forecasts, the 3-month (6-month) hedge portfolio returns are 5.2% (6.1%), which is 71.23% (83.56%) of the 12-month hedge portfolio returns. However, for the sample without forecasts the 3-month (6-month) hedge portfolio returns are 7.4% (8.3%), which is 66.67% (74.77%) of the 12-month hedge portfolio returns. These results provide strong evidence of accrual mispricing for the sample without cash flow forecasts and a significant reduction in accrual mispricing for the sample with forecasts.

**2. Regression analysis.** We use the following regression models to test our hypothesis:

$$BHAR_{t+1} = \beta_0 + \beta_1 RACC_{i,t} + \beta_2 ACFF_{i,t} \times RACC_{i,t} + \\ + \beta_3 RSIZE_{i,t} + \beta_4 RBTM_{i,t} + \beta_5 I\_D + \beta_6 Y\_D + \varepsilon_{i,t}, \tag{1}$$

where $RACC_{i,t}$ is the portfolio decile rank of accruals, scaled between 0 and 1; $ACFF_{i,t}$ is a dummy variable that equals 1 for firm-years with analysts' cash flow forecasts, and 0 otherwise; $RSIZE_{i,t}$ is the portfolio decile rank of firm size, scaled between 0 and 1; $RBTM_{i,t}$ is the portfolio decile rank of $BTM$, scaled between 0 and 1; $I\_D$ is the 48 binary variables based on Fama and French's 48 industry classification; $Y\_D$ is the 18 binary variables based on year classification from 1993 to 2010.

Following prior literature, we predict that the coefficient on $RACC$ ($\beta_1$) will be negative. A positive coefficient on $ACFF$ x $RACC$ ($\beta_2$) in Model (1) is consistent with the notion that analysts' cash flow forecasts reduce stock market investors' overreaction to accrual information. We also control for $RSIZE$ and $RBTM$ because prior studies show they are predictive of future stock returns (Chan et al., 1996).

Table 4 reports the regression results of Model (1). The dependent variables are 1-month (*BHAR1*), 3-month (*BHAR3*), 6-month (*BHAR6*), and 12-month (*BHAR12*) buy-and-hold size-adjusted returns starting from at the beginning of the fifth month after the firm's fiscal year-end. Consistent with prior accrual anomaly literature, the coefficients on $RACC$ ($\beta_1$) are significantly negative, indicating that investors overestimate the persistence of accruals for the subsequent year's earnings, which results in lower future returns for firms with higher accruals. The coefficients on $ACFF$ x $RACC$ ($\beta_2$) are significantly positive across $BHAR$ with different horizons (i.e., over 1 to 12 months), suggesting that analysts' cash flow forecasts reduce market's overreaction to accrual information. For other control variables, the signs, in general, align with previous studies.

**Additional Tests.**

**1. Controlling for cash flows.** R.G. Sloan (1996) and subsequent studies primarily focus on accrual anomaly. However, recent research suggests that focusing on

accrual mispricing without considering cash flow mispricing is incomplete (Barone and Magilke, 2009). In particular, given that cash flows and accruals are negatively correlated (Dechow et al., 1998), the omission of cash flow may lead to a correlated omitted variable problem and thus may bias the results in favor of accrual anomaly. Thus, we analyze the impact of this correlated omitted variable problem and determine whether accrual anomaly still exists. We then again investigate whether the analysts' cash flow forecasts reduce the accrual anomaly. We extend Model (1) as

$$BHAR_{t+1} = \beta_0 + \beta_1 RACC_{i,t} + \beta_2 RCFO + \beta_3 ACFF_{i,t} \times RACC_{i,t} +$$
$$+ \beta_4 ACFF_{i,t} \times RCFO_{i,t} + \beta_5 RSIZE_{i,t} + \beta_6 RBTM_{i,t} + \beta_7 I\_D + \beta_8 Y\_D + \varepsilon_{i,t}, \quad (2)$$

where *RCFO* is the portfolio decile rank of cash flows, scaled between 0 and 1. The results of Model (2), which remain qualitatively similar to the results of Table 4, suggesting that our results are robust after considering the correlated omitted variable problem with respect to cash flow (untabulated).

*Table 4.* **Regressions of stock returns on explanatory variables,** *authors'*

| Variables | Expected sign | BHAR1 | BHAR3 | BHAR6 | BHAR12 |
|---|---|---|---|---|---|
| Intercept | ? | 0.028 (0.000***) | 0.048 (0.000***) | 0.138 (0.000***) | 0.202 (0.000***) |
| RACC | - | −0.042 (0.000***) | −0.074 (0.000***) | −0.081 (0.000***) | −0.108 (0.000**) |
| ACFF*RACC | + | 0.014 (0.003***) | 0.015 (0.076*) | 0.018 (0.086*) | 0.031 (0.050**) |
| RSIZE | - | −0.012 (0.000***) | −0.025 (0.010***) | −0.039 (0.002***) | −0.048 (0.041**) |
| RBTM | + | 0.004 (0.000***) | 0.027 (0.000***) | 0.050 (0.000***) | 0.070 (0.000***) |
| I_D | ? | Yes | Yes | Yes | Yes |
| Y_D | ? | Yes | Yes | Yes | Yes |
| Adj. $R^2$ | | 0.111 | 0.185 | 0.222 | 0.171 |
| No. of observations | | 43,980 | 43,980 | 43,980 | 43,980 |

***, ** and * indicate significance at the 1%, 5%, and 10% level, respectively, for the two-tailed tests.

**2. Sample selection bias.** Differences in firm characteristics across the samples with and without cash flow forecasts show that unobserved factors encouraging analysts to provide cash flow forecasts may influence the extent of accrual mispricing. Therefore, our results may be subject to sample selection bias. To mitigate this concern, we employ a research design that involves J.J. Heckman's (1979) two-step procedure and matched sample to control for the potential selection bias arising from our cross-sectional tests.

In the first stage procedure we model the analysts' decision to provide cash flow forecasts by applying the probit regression model developed by M. DeFond and M. Hung (2003). Following DeFond and Hung (2003), magnitude of accruals (*MA*), accounting choice heterogeneity (*ACH*), earnings volatility (*EV*), capital intensity (*CI*), Z-score (*ZS*) and log size (*LS*) are the instruments. The second stage reruns equation (1) after including the inverse Mills ratio (*RMills*) from the first stage regression as an additional independent variable:

$$BHAR_{t+1} = \beta_0 + \beta_1 RACC_{i,t} + \beta_2 ACFF_{i,t} \times RACC_{i,t} + \beta_3 RSIZE_{i,t} +$$
$$+ \beta_4 RBTM + \beta_5 RMill_{i,t} + \beta_6 I\_D + \beta_7 Y\_D + \varepsilon_{i,t}. \tag{3}$$

Untabulated indicates that self-selection biases are not an issue because the beta coefficient on the inverse Mills ratio (*RMills*) is not significant. In addition, the coefficient on *ACFF* x *RACC* for the regression *BHAR1, BHAR3, BHAR6* and *BHAR12* are still significantly positive after controlling for *RMills*, suggesting that our main results are not sensitive to the potential selection bias.

*3. Discretionary vs. nondiscretionary accruals.* S. Farshadfar and R. Monem (2011) find that market overestimates one-year-ahead earnings implications of discretionary accruals and consequently overprices these accruals. In addition, literature shows that market does not materially misprice nondiscretionary accruals. These results suggest that overpricing of total accruals (Sloan, 1996) is largely due to discretionary accruals. Therefore, we distinguish between discretionary and nondiscretionary accruals and use both nondiscretionary and discretionary accruals and rerun our regression analysis. Specifically, we extend the Model (1) as

$$BHAR_{t+1} = \beta_0 + \beta_1 RDAC_{i,t} + \beta_2 RNACC_{i,t} + \beta_3 ACFF_{i,t} \times RDAC_{i,t} +$$
$$+ \beta_4 ACFF_{i,t} \times RNACC_{i,t} + \beta_5 RSIZE_{i,t} + \beta_6 RBTM_{i,t} + \beta_7 I\_D + \beta_8 Y\_D + \varepsilon_{i,t}, \tag{4}$$

where *RDAC* is the portfolio decile rank of discretionary accruals, scaled between 0 and 1, given that *DAC* is the discretionary accruals for year t, scaled by the beginning total assets of fiscal year *t*; *RNACC* is the portfolio decile rank of nondiscretionary accruals, scaled between 0 and 1, given that *NACC* is the nondiscretionary accruals for year t, scaled by the beginning total assets of fiscal year *t*.

We find that the regression coefficients on *ACFF* x *RNACC* and *ACFF* x *RDAC* are both positive, suggesting that analysts cash flow forecasts reduce market's overreaction to discretionary and nondiscretionary accruals. However, the coefficients on *ACFF* x *RDAC* are much higher than the coefficients on *ACFF* x *RNACC*. These results suggest that analysts' cash flow forecasts play a more important role in reducing the mispricing of discretionary accruals relative to the mispricing of nondiscretionary accruals (untabulated).

*4. Working capital accruals.* Prior studies show that working capital accruals do a better job than total accruals in capturing the accruals that lead to unanticipated earnings reversals (Zuo, 2015). Thus, we also perform tests to determine whether our results are robust using working capital accruals. We measure working capital accruals as the sum of the increase in accounts receivable, increase in inventory, decreases in accounts payable and accrued liabilities, decrease in accrued income taxes, and increase (decrease) in other assets (liabilities), scaled by the beginning total assets of fiscal year t. The untabulated analyses using working capital accruals show that results remain qualitatively unchanged. Thus, our findings remain robust when we use working capital accruals.

**Conclusion.** We argue that analysts' cash flow forecasts allow investors understand better the managerial assumptions associated with accruals and thus better forecast future economic benefits and valuation implications of accruals because analysts' cash flow forecasts increase the transparency of accrual manipulation and thus improve accrual quality. We employ a portfolio approach and a regression approach

to test this hypothesis. The accrual-based hedge portfolio tests show that 1-month, 3-month, 6-month, and 12-month hedge returns are significantly smaller for the firms with cash flow forecasts relative to the firms without such forecasts. In the regression approach we control for other factors related to future returns and find no qualitative effect on the results with respect to the provision of analysts' forecasts. In sum, our results demonstrate that the provision of analysts' cash flow forecasts improve the efficacy of investors' reactions to earnings announcements by conveying information in the accrual components of the reported earnings.

### References:

*Barone, G.J., Magilke, M.* (2009). An examination of the effects of investor sophistication on the pricing of accruals and cash flows. Journal of Accounting, Auditing & Finance, 24(3): 385–414.

*Call, A.* (2008). Analysts' cash flow forecasts and the predictive ability and pricing of operating cash flows. Working paper. University of Georgia.

*Call, A., Chen, S., Tong, Y.* (2009). Are analysts' earnings forecasts more accurate when accompanied by cash flow forecasts? Review of Accounting Studies, 14(2/3): 358–391.

*Chan, L.K., Jegadeesh, N., Lakonishok, J.* (1996). Momentum strategies. Journal of Finance, 53(1): 1681–1713.

*Cohen, R.B., Gompers, P.A., Vuolteenaho, T.* (2002). Who underreacts to cash-flow news? evidence from trading between individuals and institutions. Journal of Financial Economics, 66(2/3): 409–462.

*Dechow, P.M., Kothari, S.P., Watts, R.L.* (1998). The relation between earnings and cash flows. Journal of Accounting and Economics, 25(2): 133–168.

*DeFond, M., Hung, M.* (2003). An empirical analysis of analysts' cash flow forecasts. Journal of Accounting and Economics, 35(1): 73–100.

*Drake, M., Myers, J.N., Myers, L.A.* (2009). Disclosure quality and the mispricing of accruals and cash flow. Journal of Accounting, Auditing, and Finance, 24(3): 357–384.

*Farshadfar, S., Monem, R.* (2011). Discretionary accruals and the predictive ability of earnings in the forecast of future cash flows: evidence from Australia. Corporate Ownership and Control, 9(1): 597–608.

*Heckman, J.J.* (1979). Sample selection bias as a specification error. Econometrica, 47(l): 153–161.

*Levi, S.* (2008). Voluntary disclosure of accruals in earnings press releases and the pricing of accruals. Review of Accounting Studies, 13(1): 1–21.

*Louis, H., Robinson, D., Sbaraglia, A.* (2008). An integrated analysis of the association between accrual disclosure and the abnormal accrual anomaly. Review of Accounting Studies, 13(1): 23–54.

*Mashruwala, C., Rajgopal, S., Shevlin, T.* (2006). Why is the accrual anomaly not arbitraged away? The role of idiosyncratic risk and transaction costs. Journal of Accounting and Economics, 42(1/2): 3–33.

*McInnis, J., Collins, D.W.* (2011). The effect of cash flow forecasts on accrual quality and benchmark beating. Journal of Accounting and Economics, 51(3): 219–239.

*Pincus, M., Rajgopal, S., Venkatachalam, M.* (2007). The accrual anomaly: International evidence. Accounting Review, 82(1): 169–203.

*Richardson, S., Sloan, R., Soliman, M., Tuna, I.* (2005). Accrual reliability, earnings persistence and stock prices. Journal of Accounting and Economics, 39(3): 437–485.

*Sloan, R.G.* (1996). Do stock prices fully reflect information in accruals and cash flows about future earnings? Accounting Review, 71(3): 289–315.

*Zuo, L.Y.* (2015). Abnormal accruals and the predictive ability of future cash flow: evidence in China. Advance in Management, 8(4): 29–40.

Стаття надійшла до редакції 17.03.2016.