How do investors estimate persistence of accruals?

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ABSTRACT

Stock prices reflect persistence differences across a wide range of accrual types that are categorized in Richardson, Sloan, Soliman, and Tuna (*Journal of Accounting and Economics*, 2005). Moreover, stock prices reflect short-term persistence differences more strongly than long-term persistence differences. These findings suggest that investors understand persistence of accrual types during the year accruals are recorded, and the accrual anomaly occurs partly due to investors' short horizon.

1. INTRODUCTION

The literature on investors' pricing of earnings shows that investors understand information about operating accruals during the year earnings are recorded (Dechow 1994; Collins et al 1994; Lang and Lundholm 2002). In contrast, the accrual anomaly literature documents a negative correlation between accruals and future stock returns, suggesting that investors do not fully understand the lower future persistence of accruals (Sloan 1996). The seemingly conflicting strands of literature above can be better connected if we are more informed about how investors estimate future persistence of accruals. This paper compares investors' pricing with earnings persistence of different accrual types, which are defined in Richardson, Sloan, Soliman, and Tuna (2005) (hereafter, RSST). The premise behind this analysis is that investors price accrual types in line with earnings persistence characteristics to the extent investors understand these characteristics. From any imbalance between investors' pricing and earnings persistence, we can tell how investors understand earnings persistence.

Unlike prior literature, which focuses on operating accruals, RSST (2005) define accruals as changes in all non-cash and non-equity balance sheet items and distinguish between working capital, non-current operating, and financial accruals. RSST find that less reliable accrual types are associated with less persistent earnings and lower future stock returns. The evidence of lower stock returns suggests that investors do not fully understand persistence of accruals, especially those of less reliable accruals.

This paper shows that stock returns reflect persistence differences across accrual types during the year accruals are recorded. More persistent accrual types draw higher concurrent stock returns, suggesting that investors understand persistence differences across accrual types. Furthermore, concurrent stock returns align with short-term persistence differences more

strongly than long-term persistence differences. For instance, investors overprice one-year-ahead persistence of accruals by 15%, whereas they overprice five-year-ahead persistence of accruals by 30% more relative to cash flows. The relative overestimation of long-term persistence of accruals is larger for companies in which institutional investors trade more frequently.

This paper makes two major contributions. First, it explains accrual anomaly with investor myopia, i.e., investors' failure to price long-term earnings implications (Abarbanell and Bernard 2000; Bushee 2001). It is harder to infer investor myopia using one-year-ahead return reversals, which is the traditional evidence of accrual anomaly, because return reversals may occur not only because accruals mean-revert in the short-term but also because lower long-term persistence of accruals become more clear during the first year after the accruals. Second, my paper shows that investors understand persistence characteristics of different accrual types during the year accruals are recorded. This conclusion complements Subramanyam (1996) and DeFond and Park (2001), who find that investors price discretionary accruals less strongly than non-discretionary accruals, consistent with the lower persistence of discretionary accruals. My analyses are immune to specification issues introduced by discretionary accrual models (Fields, Lys, and Vincent 2001).

Showing that investors understand persistence differences across accrual types does not contradict the prior evidence on accrual anomaly. In that regard, my findings parallel those of Ball and Bartov (1996) about the post-earnings announcement drift anomaly (Bernard and Thomas 1989). Ball and Bartov find that investors act as if they are aware of the serial correlation in quarterly earnings but underestimate the extent of this correlation. Likewise, I find that investors are aware of persistence differences across accrual types but that they underestimate the extent of these differences, especially the long-term differences.

The paper is organized as follows. Section 2 presents literature and research design. Section 3 describes the sample. Section 4 presents empirical analyses. Section 5 concludes.

2. LITERATURE AND RESEARCH DESIGN

Accrual accounting records economic events irrespective of the timing of cash flows, and thus purports to measure an entity's performance better than the cash flow accounting. However, accruals are less persistent than cash flows either due to transitory nature of growth or errors in accrual choices (Dechow, Kothari, and Watts 1998; Fairfield, Whisenant, and Yohn 2003).

The accrual anomaly literature documents that investors fail to fully price the less persistent nature of accruals (Sloan 1996; Pincus et al. 2007). For instance, the extant evidence rejects the null hypothesis of the Mishkin test, which predicts that investors fully understand the one-year-ahead persistence of accruals relative to cash flows (Sloan 1996, 305). Investors overvalue accruals, resulting in future stock return reversals that are exploitable by simple trading strategies (Battalio et al. 2011). Nevertheless, return reversals do not explain whether and how investors understand accruals and cash flows during the year earnings are recorded.

The literature on investors' pricing of earnings shows that investors understand information about accruals during the year earnings are recorded. Stock prices encompass information about concurrent cash flows and earnings (Dechow 1994; Charitou 1997). Callen and Segal (2004) document that accrual news drives concurrent stock returns more strongly than cash flow news and expected return news. Subramanyam (1996) finds that investors price discretionary accruals, which communicate information about future profitability. Overall, the literature shows that investors react to operating accruals.

The above strands of literature lack a comparison between the pricing of accruals and short- and long-term earnings persistence of accruals. This paper combines the two strands of

literature by investigating how investors price a wide range of accrual types with diverse short- and long-term persistence characteristics.

2.1. Pricing of different accrual types

RSST (2005) argue that reliable accruals are less subjective and result in smaller measurement errors. RSST rate the reliability of the accrual types as follows: working capital accruals (ΔWC) *medium-reliability*; non-current operating accruals (ΔNCO) *low* to *medium-reliability*; and financial accruals (ΔFIN) *high-reliability*. More reliable accruals reverse less in the future years, resulting in earnings that are more correlated with current accruals and cash flows, i.e., more persistent earnings.

RSST find that return reversals are stronger in companies with less reliable accrual types, suggesting that investors fail to fully understand how accrual reliability affects earnings persistence. In this paper, I compare concurrent stock returns with short-term and long-term earnings persistence of different accrual types, which are defined by RSST. This design enables a direct testing of how investors estimate persistence of different accrual types.

2.2. Investor myopia and the pricing of accruals

A popular claim in the press and the literature is that investors underprice a company's expected long-term earnings relative to its expected short-term earnings (Porter 1992). Bushee (2001) finds that institutional investors with short horizons underprice long-term earnings of companies. In contrast, Abarbanell and Bernard (2000) do not find a profitable trading strategy using the purported investor myopia. The authors conclude that measurement errors in discount rates or analyst forecast errors drive underpricing of long-term earnings. My research design distinguishes between pricing of short- and long-term persistence of accrual types and enables testing of whether investor myopia explains the accrual anomaly.

3. SAMPLE

The sample includes non-financial U.S. companies over fiscal years 1963 to 2010. The company financials and stock returns are obtained from the CRSP/COMPUSTAT merged industrial and CRSP databases, respectively. Observations with missing total assets, total liabilities, current assets, current liabilities, cash, sales, earnings, one-year-ahead earnings, and stock returns are dropped. Other missing variables used in defining accruals are set to zero.[1] The final sample consists of 145,853 observations from 14,010 unique companies.

3.1. Stock returns, earnings, and cash flows

Stock returns, R_t, is defined for the year ending three months after the end of a company's fiscal year *t*, to incorporate annual earnings announcements. I add delisting returns into stock returns as in Beaver, McNichols, and Price (2009), who show that delisting returns change inferences on accounting-based anomalies. I measure annual earnings, E_t, as income before extraordinary items for fiscal year *t* deflated by market capitalization at the beginning of year *t*.[2] In order to reduce the effect of outliers, E_t is winsorized at -1 and +1 (RSST 2005); the number of winsorized observations is fewer than 0.5% of the sample.

3.2. Accruals

RSST categorize annual changes in all non-cash and non-equity balance sheet items into working capital, non-current operating, and financial accruals based on their reliability characteristics. Appendix 1 displays this classification, which is summarized below:

i) Working capital accruals (ΔWC) are changes in current operating assets (ΔCOA) less changes in current operating liabilities (ΔCOL). COA, which are current assets net of cash and short-term

[1] The missing long-term debt, investments and advances, debt in current liabilities, preferred stock, and short-term investments data are set to zero. The alternative of dropping observations does not qualitatively change the results but considerably reduces the number of observations.

[2] Deflation by average total assets (as opposed to market capitalization) yields similar results.

investments, are subject to managerial discretion. Thus, ΔCOA are deemed *low-reliability*. COL, which are current liabilities net of short-term financial debt, are measured more accurately than COA. Thus, ΔCOL are deemed *high-reliability*. Overall, ΔWC are rated *medium-reliability*.

ii) Non-current operating accruals (ΔNCO) are changes in non-current operating assets (ΔNCOA) less changes in non-current operating liabilities (ΔNCOL). NCOA, which are total assets net of current assets, investments, and advances, are subject to extensive managerial discretion. Thus, ΔNCOA are deemed *low-reliability*. NCOL, which are total liabilities net of current liabilities and long-term debt, are subject to varying degrees of managerial discretion. Thus, ΔNCOL are deemed *medium-reliability*. Overall, ΔNCO are rated *low* to *medium-reliability*.

iii) Financial accruals (ΔFIN) are the sum of changes in short-term investments (ΔSTI), long-term investments (ΔLTI), and financial liability (ΔFINL). Most financial accruals reflect verifiable market-based or contract-based valuations; ΔSTI and ΔFINL are considered *high-reliability*. ΔLTI include accruals of varying reliabilities and are considered *medium-reliability*. Overall, ΔFIN are rated *high-reliability*.

All accrual types are deflated by market capitalization at the beginning of year *t*. In order to reduce the effect of outliers, accruals are winsorized at -1 and +1. The number of winsorized observations is less than 0.5% of the sample for any of the accrual types.

3.3. Descriptive statistics

Table 1 presents descriptive statistics for the sample. Consistent with prior literature, the annual return distribution is skewed. The average (median) R_t is 18.2% (4.4%). Company earnings are positive on average, despite the increasing frequency of negative earnings in recent years. The average (median) E_t is 0.021 (0.054). Similarly, the average (median) one-year ahead

earnings, E_{t+1}, is 0.011 (0.053). In order to test earnings persistence over different horizons, future company earnings are summed over three and five years. The sum of company earnings from year one to three, $E_{[t+1,\ t+3]}$, has average (median) of 0.071 (0.166). The sum of company earnings from year one to five, $E_{[t+1,\ t+5]}$ has average (median) of 0.170 (0.289).

Total accruals, $TACC_t$, are the sum of the RSST accrual types, ΔWC_t, ΔNCO_t, and ΔFIN_t. The average (median) $TACC_t$ is 0.037 (0.041), indicating that the balance sheet accruals sum up to about 4% of a company's market capitalization. Similar to the descriptive statistics in RSST (2005), ΔWC_t and ΔNCO_t have positive averages (medians) of 0.045 (0.020) and 0.014 (0.009), respectively, whereas ΔFIN_t has a negative average (median) of -0.024 (-0.004). Moreover, ΔNCO_t and ΔFIN_t are more volatile than ΔWC_t, and therefore make up a large proportion of the cross-sectional volatility in total accruals.

Table 2 provides correlations of the selected variables. R_t, E_t, and $TACC_t$ are positively correlated. ΔWC_t and ΔNCO_t are positively correlated, yet both types of accruals are negatively correlated with ΔFIN_t. The correlations of earnings and accruals with future earnings show that accruals are less persistent than earnings. Collectively, Tables 1 and 2 show that an average company grows its operating and investment activities and finances this growth through debt.

4. EMPIRICAL ANALYSES

4.1. Earnings persistence of accruals

This section tests persistence differences across accrual types. RSST regress future earnings on current earnings and total accruals and find a positive (negative) coefficient estimate on earnings (total accruals), suggesting that total accruals are less persistent than cash flows. Similarly, I regress future earnings of different horizons on current earnings and total accruals.

$$E_{[t+1,\, t+k]} = \alpha + \beta_1 E_t + \beta_2 TACC_t + \varepsilon_t, \quad (1)$$

where k=1, 3, and 5. The longest horizon is set at five years, because the effect of accruals on earnings is unclear after three to five years.[3] To examine the persistence of accruals, Eq. (1) is preferable to an alternative model of regressing future earnings on current cash flows and accruals, because the coefficient on accruals, β_2, shows the incremental persistence of accruals over that of cash flows, which is proxied by the coefficient on earnings, β_1 (RSST, 2005). Theoretically, if earnings followed a random walk (mean-reverted), then β_1 is expected to be k (less than k). If accruals were as persistent as (less persistent than) cash flows, then β_2 is expected to be 0 (negative).

Similar to RSST, this paper estimates annual cross-sectional regressions and report time-series averages of the annual regression coefficients (Fama and MacBeth 1973). Panel A of Table 3 provides estimates of Eq. (1). When the dependent variable is E_{t+1}, the coefficient estimate on E_t is 0.577 and that on $TACC_t$ is -0.045. Both coefficients are significant and similar, though somewhat lower in magnitude, to those in Table 5, Panel A in RSST (2005).[4] The coefficient on E_t is less than one, suggesting that earnings mean-revert. The coefficient on $TACC_t$ is negative, suggesting that the accrual component of earnings is less persistent than the cash flow component. When the horizon is extended to three and five years, the coefficients on E_t ($TACC_t$) remain positive (negative). More importantly, the relative magnitude of the coefficient on $TACC_t$ over E_t increases with the earnings horizon. The ratio of regression coefficients, β_2/β_1, is -8%, -13%, and -17%, for one, three, and five years, respectively. This finding suggests that accruals are even less persistent than cash flows over longer horizons.

[3] The untabulated tests using ten-year earnings horizon have smaller sample size but provide qualitatively similar results to those using five-year horizon.

[4] There are two potential reasons for differences in the magnitude of coefficient estimates. First, RSST sample is smaller and ends in 2001, whereas the sample in this study ends in 2010. Second, RSST uses average total assets and this study uses last year's market capitalization as deflators.

Eq. (2) distinguishes between accrual types in RSST (2005).

$$E_{[t+1,\, t+k]} = \alpha + \beta_1 E_t + \beta_2 \Delta WC_t + \beta_3 \Delta NCO_t + \beta_4 \Delta FIN_t + \varepsilon_t, \quad (2)$$

where β_1, β_2, β_3, and β_4 represent the effect of a company's cash flows, and non-current operating, working capital, and financial accruals over *k*-year-ahead earnings, respectively. Panel B of Table 3 provides estimates of Eq. (2). When the dependent variable is E_{t+1}, the coefficient estimate on E_t is 0.577 and those on ΔWC_t, ΔNCO_t, and ΔFIN_t are -0.054, -0.042, -0.022, respectively. All coefficients are statistically significant and similar in order, though lower in magnitude, to those in Table 5, Panel B in RSST (2005). The negative coefficients on the accrual components indicate that all accrual types are less persistent than the cash flows. Furthermore, the coefficients are significantly different from each other. The lower coefficients on ΔWC_t and ΔNCO_t relative to ΔFIN_t are consistent with RSST (2005), who assess non-current operating accruals and working capital accruals to have low to medium reliability (versus financial accruals with higher reliability). When the earnings horizon is extended to three and five years, the signs of the coefficients remain. More importantly, the relative magnitude of the coefficients on the accrual types with respect to cash flows increases with the horizon. For ΔWC_t, the ratio of coefficients, β_2/β_1, is -9%, -13%, and -17% for one, three, and five years, respectively. For ΔNCO_t, the ratio of coefficients, β_3/β_1, is -7%, -13%, and -16% for one, three, and five years, respectively. For ΔFIN_t, the ratio of coefficients, β_4/β_1, is -4%, -10%, and -14% for one, three, and five years, respectively. Overall, all accrual types are even less persistent than cash flows over longer horizons.

Eq. (3) distinguishes between the asset and liability components of accrual types using the RSST's extended decomposition.

$$E_{[t+1,\, t+k]} = \alpha + \beta_1 E_t + \beta_2 \Delta COA_t + \beta_3 \Delta COL_t + \beta_4 \Delta NCOA_t + \beta_5 \Delta NCOL_t + \beta_6 \Delta STI_t + \beta_7 \Delta LTI_t + \beta_8 \Delta FINL_t + \varepsilon_t, \quad (3)$$

The less reliable accrual components (asset versus liability components) are predicted to have less persistence. Panel C of Table 3 provides estimates of Eq. (3). The results generally confirm the above prediction. When the dependent variable is E_{t+1}, the coefficients on ΔCOA_t, $\Delta NCOA_t$, and ΔLTI_t are negative and significant. The coefficients on the accrual liability components, ΔCOL_t, $\Delta NCOL_t$, and $\Delta FINL_t$ are positive and significant. The signs of the coefficients are similar to those in Table 5, Panel C in RSST (2005). Given that working capital liability and non-current operating liability components reduce earnings, the finding that these components increase with earnings persistence may seem surprising. RSST (2005) explain this finding by showing that an increase in operating liabilities indicates growth and thus higher future earnings. Similar to Panels A and B, coefficients on both asset and liability accrual components increase with the earnings horizon faster relative to the coefficients on current earnings.

Overall, the results in Table 3 extend the evidence in RSST (2005). More reliable accruals generally result in more persistent earnings. At the same time, the persistence gap between accruals and cash flows increases with the earnings horizon, suggesting that the accrual anomaly persists beyond the one-year horizon. Then, the well-known observation of lower one-year-ahead stock returns in relation to higher accruals is consistent with two distinct scenarios: First, accruals mean-revert (e.g., through write-downs) and negatively surprise investors during the one year following the accruals, suggesting that investors did not understand short-term earnings persistence during the year the accruals are recorded. Second, investors more clearly assess the possibility that accruals will mean-revert in future years (and drive returns down), suggesting that investors do not understand long-term earnings persistence during the year the accruals are recorded. The following sections distinguish between the two scenarios by investigating how investors price short- and long-term earnings persistence of accruals.

4.2. Investors' pricing of accruals

Eq. (4) models how investors price information about total accruals:

$$R_t = \alpha + \gamma_1 E_t + \gamma_2 TACC_t + \varepsilon_t \quad (4)$$

The independent variables in Eq. (4) are the same as those in Eq. (1), enabling a direct comparison between the two models. Table 4, Column 1 provides the estimates of Eq. (4). The coefficient on E_t is 0.888 and that on $TACC_t$ is 0.098, both statistically significant. The overpricing of accruals is evident, given that the coefficient on $TACC_t$ in the earnings persistence model, Eq. (1), is negative and that in the investors' pricing model, Eq. (4) is positive.

Eq. (5) models how investors price accruals in RSST's initial accrual decomposition:

$$R_t = \alpha + \gamma_1 E_t + \gamma_2 \Delta WC_t + \gamma_3 \Delta NCO_t + \gamma_4 \Delta FIN_t + \varepsilon_t, \quad (5)$$

Table 4, Column 2 provides coefficient estimates of Eq. (5) and t-statistics for the difference between the coefficients. The coefficients on E_t, ΔNCO_t, and ΔFIN_t are statistically significant and 0.917, 0.088, and 0.181, respectively. The coefficient on ΔWC_t is not significant. The non-current operating accruals and financial accruals are priced incrementally over cash flows. Financial accruals are priced more strongly than non-current operating accruals.

Eq. (6) models how investors price accruals in RSST's extended accrual decomposition:

$$R_t = \alpha + \gamma_1 E_t + \gamma_2 \Delta COA_t + \gamma_3 \Delta COL_t + \gamma_4 \Delta NCOA_t + \gamma_5 \Delta NCOL_t + \gamma_6 \Delta STI_t + \gamma_7 \Delta LTI_t + \gamma_8 \Delta FINL_t + \varepsilon_t, \quad (6)$$

Table 4, Column 3 provides coefficient estimates of Eq. (6) and t-statistics for the difference between the coefficients. The coefficients on E_t, ΔCOA_t, ΔCOL_t, and $\Delta FINL_t$ are statistically significant and 0.845, 0.070, 0.377, and -0.217, respectively. The coefficients on $\Delta NCOA_t$, $\Delta NCOL_t$, ΔSTI_t, and ΔLTI_t are not significant. The results on the pricing of extended accrual types clarify the results on the pricing of initial accrual types. Both ΔCOA_t (e.g., changes

in inventory and receivables) and ΔCOL_t (e.g., changes in payables) are priced incrementally over cash flows. The seemingly surprising result about ΔCOL_t is potentially due to investors favorably pricing growth companies with ΔCOL_t, which relate positively with future earnings (as in Section 4.1). In contrast, the coefficient on $\Delta FINL_t$ is negative, suggesting that $\Delta FINL_t$ are priced incrementally negatively over cash flows.

4.3. Relative pricing

If investors understand persistence of accrual types, concurrent stock returns to a specific accrual should be in line with earnings persistence of that accrual. This section compares annual pricing coefficients in Eq.'s (4), (5), and (6) with annual persistence coefficients in Eq.'s (1), (2), and (3). I define relative pricing of an accrual using the relation between its pricing and persistence coefficients and by comparing this relation with that of current earnings (which is econometrically equivalent to cash flows). While this approach of determining pricing value is novel, it is akin to valuation studies that compare current returns with expected future earnings (Frankel and Lee 1998; Francis, Olsson, and Oswald 2000) and with realized future earnings (Collins, Kothari, Shanken, and Sloan 1994; Lundholm and Myers 2002).

The pricing definition is 'relative', because it does not measure an absolute pricing accuracy but it benchmarks pricing of accruals with pricing of cash flows. The premise behind this comparison is that if accruals were priced similarly to cash flows, then the accrual anomaly would not occur. This pricing comparison is performed independently each year and the resulting relative pricing values are averaged over the sample years.

Total accruals

The relative pricing value (Π) of an accrual in a year is defined as the ratio of the pricing coefficient to persistence coefficient on the accrual in that year, divided by the same ratio on E_0.

For total accruals, Π_TACC_t is computed as $(\gamma_2+\gamma_1)/(\beta_2+\beta_1)$ divided by γ_1/β_1 using the coefficients in Eq.'s (1) and (4). The numerator includes $(\gamma_2+\gamma_1)$ and $(\beta_2+\beta_1)$, because γ_1 (β_1) represents the effect of cash flows and γ_2 (β_2) represents the incremental effect of accruals over the effect of cash flows. A relative pricing value of one suggests that the accrual type is priced similarly to cash flows during that year. A relative pricing value that is greater (smaller) than one suggests that the accrual type is overpriced (underpriced) relative to cash flows during that year. By changing the horizon of Eq. (1), this comparison allows me to distinguish between the effects of short- and long-term investor horizon on the pricing of accruals.

Table 5, Panel A presents average Π_TACC_t's when earnings persistence is computed using one-, three-, and five-year horizons. Average Π_TACC_t's are 1.145 (t=3.43), 1.247 (t=5.41), and 1.312 (t=5.77) for *k*=1, 3, and 5, respectively. All relative pricing values are statistically significantly greater than one. Consistent with prior literature, the findings suggest that total accruals are overpriced with respect to cash flows. Furthermore, accrual overpricing is more severe over longer horizons. While investors overprice one-year-ahead persistence of total accruals by 14.5%, they overprice five-year-ahead persistence by 31.2%. The last column shows that the difference between the relative pricing values computed using earnings of the subsequent year and earnings of subsequent five years is statistically significant.

Initial accrual decomposition

I repeat the same analysis for the initial accrual decomposition. Specifically, Π_WC_t is computed as $(\gamma_2+\gamma_1)/(\beta_2+\beta_1)$ divided by γ_1/β_1 using the annual coefficients in Eq. (2) and (5). Similarly, Π_NCO_t is computed as $(\gamma_3+\gamma_1)/(\beta_3+\beta_1)$ divided by γ_1/β_1, and Π_FIN_t is computed as $(\gamma_4+\gamma_1)/(\beta_4+\beta_1)$ divided by γ_1/β_1.

Table 5, Panel B presents average relative pricing values. When one-year-ahead persistence is considered, average Π_WC_t, Π_NCO_t, and Π_FIN_t are 1.175 (t=1.75), 1.182 (t=4.74), and 1.036 (t=0.24), respectively. If investors have a one year horizon, they overprice persistence of working capital and non-current operating accruals, but not financial accruals. When three-year-ahead persistence is considered, average Π_WC_t, Π_NCO_t, and Π_FIN_t are 1.150 (t=3.37), 1.250 (t=6.20), and 1.261 (t=5.25), respectively. When five-year-ahead persistence is considered, average Π_WC_t, Π_NCO_t, and Π_FIN_t are 1.208 (t=4.18), 1.291 (t=5.96), and 1.323 (t=5.62), respectively. The relative pricing values uniformly deviate from one for longer earnings horizons. The *t*-statistics in the last column suggest that relative pricing values are significantly different for all accrual types when one-year-ahead earnings versus five-year-ahead earnings are used.

Extended accrual decomposition

I reperform the pricing analysis for the extended accrual decomposition. Π_COA_t is computed as $(\gamma_2+\gamma_1)/(\beta_2+\beta_1)$ divided by γ_1/β_1 using the annual coefficients in Eq.'s (3) and (6). $\Pi\_\Delta COL_t$, $\Pi\_\Delta NCOA_t$, $\Pi\_\Delta NCOL_t$, $\Pi\_\Delta STI_t$, $\Pi\_\Delta LTI_t$, and $\Pi\_\Delta FINL_t$ are defined similarly. Table 5, Panel C presents average relative pricing values. When one-year-ahead persistence is considered, average Π_COA_t, $\Pi\_\Delta COL_t$, $\Pi\_\Delta NCOA_t$, $\Pi\_\Delta NCOL_t$, $\Pi\_\Delta STI_t$, $\Pi\_\Delta LTI_t$, and $\Pi\_\Delta FINL_t$ are 1.161 (t=3.21), 1.207 (t=3.39), 1.104 (t=3.38), 1.018 (t=0.33), 1.297 (t=2.87), 1.136 (t=1.29), and 0.939 (t=0.48), respectively. For non-current operating and financial accruals, the liability components have lower relative pricing values than the asset components, although the difference is marginally significant only for financial accruals. When five-year-ahead persistence is considered, average Π_COA_t, $\Pi\_\Delta COL_t$, $\Pi\_\Delta NCOA_t$, $\Pi\_\Delta NCOL_t$, $\Pi\_\Delta STI_t$, $\Pi\_\Delta LTI_t$, and $\Pi\_\Delta FINL_t$ are 1.279 (t=5.19), 1.216 (t=6.74), 1.190 (t=4.79), 0.893

(t=2.11), 3.373 (t=1.25), 1.204 (t=2.30), and 0.754 (t=5.56), respectively. The *t*-statistics in the last column show that relative pricing values are significantly higher when five-year-ahead earnings versus one-year-ahead earnings are used for all accrual types except STI_t. This suggests stronger overpricing of accruals over longer earnings horizons. Similar to the results with short-term persistence, asset components are overpriced less than the liability components for all three major accrual types. The differences are statistically significant for non-current operating accruals and financial accruals. In fact, $\Pi\_\Delta NCOL_t$ and $\Pi\_\Delta FINL_t$ are less than one, suggesting underpricing of the liability components.

4.4. Additional evidence on investor myopia: Institutional investors

The above evidence suggests that investors fail to understand longer horizon persistence of accruals relative to shorter horizon persistence. In order to check this interpretation, I compare pricing of accruals in companies with different institutional trading. Everything else equal, investors' high turnover of stocks is likely a result of investors' preferences for short-term earnings over long-run value. For instance, Bushee (2001) defines 'transient institutions', as institutions whose interest in companies is based on short-term profits and as those with high portfolio turnover and highly diversified portfolio holdings.

Similar to Bushee, I divide the sample each year into two with respect to the quarterly portfolio turnover of institutional investors, obtained from *Thomson Financial* database. The quarterly portfolio turnover of a company is defined as the sum of absolute quarterly changes in company stock holdings of all institutional investors divided by quarterly average of total institutional holdings of the company. The deflator effectively controls for company characteristics such as size, growth, and industry.

If investor myopia contributes to accrual anomaly, overpricing of accruals should be more pronounced in companies in which institutional investors trade more frequently. Table 6 shows that this is the case. The average relative pricing value of total accruals, Π_TACC_t, is not significantly different between the subsamples with high and low institutional portfolio turnover when one-year-ahead earnings persistence is used. In contrast, when three- or five-year-ahead earnings persistence is used, Π_TACC_t is significantly lower for companies with low institutional portfolio turnover. In other words, institutional investors that change their holdings less frequently better understand the long-term persistence of the accruals of their investments.

4.5. Sensitivity checks

This paper includes cross-sectional regressions of future earnings and concurrent returns on accrual types. Interpreting coefficients on financial variables in value-relevance regressions as informative about the relevance of those variables requires that either the confounding factors influencing the coefficients are absent or their effects are adequately controlled for (Kothari and Shanken 2003). This section provides related sensitivity tests.

Differences in company characteristics

The Fama and MacBeth (1973) procedure of estimating annual cross-sectional regressions and reporting annual averages of the regression coefficients control for serial correlation across observations as well as potential confounding factors unique to specific years. Furthermore, the relative pricing values compare the coefficient estimates of accrual types with those of earnings, thereby controlling for any factors that similarly affect both accrual types and cash flows. However, accrual structure of companies is shaped by company characteristics such as life cycle, business seasonality, and competition, which may also correlate with current returns

and future earnings. Such endogenous relations may result in biased coefficient estimates in the investors' pricing and persistence models.

To address the possibility of company characteristics biasing regression estimates, I control for size, book-to-market ratio, earnings volatility, and industry membership (two-digit SIC codes) as follows: At the beginning of each year, I group the above control variables into deciles, and, for each decile, I compute averages of the regression variables in Eq.'s (1) to (6), i.e., returns, earnings, future earnings, and accrual types. I then subtract from the regression variables their respective decile averages. Finally, I reperform regression analyses and recompute relative pricing values using the adjusted variables. This approach controls for the effect of company characteristics on regression coefficients and relative pricing values. The untabulated relative pricing values for each of the control variables are similar to those that are tabulated.

Corporate events

M&A and restructuring activities confound accrual computations from the balance sheet (Collins and Hribar 2002; Zach 2003). The findings do not change qualitatively when the analysis omits companies that have offered debt or equity to public or experienced M&A and restructurings, or when working capital accruals are defined from the statement of cash flows when available.[5]

Realized (versus expected) earnings

The use of concurrent stock returns as dependent variables in Eq.'s (4) to (6) is superior to the alternative dependent variable (future stock returns), because it does not predict the timing of return reversals. This method assumes that investors have the perfect foresight of future

[5] The corporate events are identified as in Zach (2003). Specifically, a merger is assumed if Compustat footnote item 2 is present or if goodwill changes. Restructurings are assumed if negative special items exceed 1% of lagged total assets. Equity issuance is assumed if cash flows from equity financing are greater than 10% of lagged total assets. Debt issuance is assumed if cash flows from debt financing are greater than 10% of lagged total assets.

earnings and ignores future earnings surprises. I release this assumption by including future stock returns, $R_{[t+1,\ t+k]}$, in Eq.'s (1) to (3) to proxy for future earnings surprises (Collins et al. 1994; Lundholm and Myers 2002). The untabulated results are qualitatively similar to the reported results, suggesting that investors' expectations about future earnings realizations are not due to earnings surprises that investors could not have anticipated in year *t*.

Decile regressions

Correlated omitted variables and measurement errors may confound coefficient estimates in the persistence and investors' pricing models. Furthermore, the relative pricing values may have skewed distributions, because they include ratios of point estimates. The (untabulated) median relative pricing values are similar in magnitude and statistically significantly greater one, alleviating the concern on skewed distributions of the ratios. I also perform decile regressions for the earnings persistence and investors' pricing models, and compute relative pricing values using coefficients from the decile regressions. The (untabulated) results are not significantly different than those that are reported.

5. CONCLUSION

The literature on investors' pricing of earnings documents that investors price total operating accruals as well as discretionary accruals (Dechow 1994; Subramanyam 1996). The literature on the accrual anomaly shows that investors do not fully understand persistence of accruals. The evidence in both strands of literature does not explain how investors understand future persistence of accruals. Furthermore, the extant accruals definition largely ignores financial and investment activities, which primarily affect long-term future earnings. This paper

takes a fresh look at how investors understand the future persistence of accruals in light of RSST's (2005) broader balance sheet classification of accruals.

I document the following results. First, investors distinguish between persistence differences of non-current operating, working capital, and financial accruals, despite the evidence of overpricing for all accrual types. That is, accrual types that are more persistent draw higher concurrent stock returns. The results are similar when the accrual types are divided into their asset and liability components, which have different persistence characteristics. Second, investors understand short-term (one-year-ahead) persistence effects of accruals more strongly than the long-term effects. For example, investors overvalue one-year-ahead earnings persistence of total accruals by 15% relative to cash flows, whereas they overvalue five-year-ahead earnings persistence of accruals by about 30% relative to cash flows. Third, long-term persistence of accruals is overpriced more severely in companies with short-term institutional investors.

Showing that investors differentiate between persistence of different accrual types and cash flows does not contradict evidence about the accrual anomaly. Rather, my findings identify short horizon of investors as a potential explanation for the accrual anomaly. A fruitful avenue for future research is to examine how companies' disclosure choices affect accrual pricing. The literature shows that current stock returns reflect future earnings news more strongly when firms make more credible disclosures (Lundholm and Myers 2002). Future research can extend the literature using the setting of this paper. It will be interesting to examine how disclosure of information about accrual types in different outlets (such as 10-Q reports and earnings announcements) affects pricing of the persistence of accruals. Such research will also complement Levi (2008), who finds that accrual mispricing, as measured by future stock return reversals, is mitigated when earnings press releases involve information about accruals.

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Appendix 1. Categorization of accruals

Non-cash assets			Liabilities		
	Initial (extended) classification	Reliability rating		Initial (extended) classification	Reliability rating
Short-term investments	ΔFIN (ΔSTI)	High	Debt in current liabilities	ΔFIN (ΔFINL)	High
Receivables	ΔWC (ΔCOA)	Low	Accounts payable	ΔWC (ΔCOL)	High
Inventory	ΔWC (ΔCOA)	Low	Income taxes payable	ΔWC (ΔCOL)	High
Other current assets	ΔWC (ΔCOA)	Low	Other current liabilities	ΔWC (ΔCOL)	High
PP&E	ΔNCO (ΔNCOA)	Low	Long-term debt	ΔFIN (ΔFINL)	High
Investments - Equity method	ΔNCO (ΔNCOA)	Low	Other liabilities	ΔNCO (ΔNCOL)	Medium
Investments - Other	ΔFIN (ΔLTI)	Medium	Deferred taxes	ΔNCO (ΔNCOL)	Medium
Intangibles	ΔNCO (ΔNCOA)	Low	Minority interest	ΔNCO (ΔNCOL)	Medium
Other assets	ΔNCO (ΔNCOA)	Low	Preferred stock	ΔFIN (ΔFINL)	High

The appendix displays the categorization of balance sheet accruals in Richardson, Sloan, Soliman, and Tuna (RSST, 2005). The initial classification divides accruals into three major types: Working capital accruals, non-current operating accruals, and financial accruals. The extended classification divides major accrual types into asset and liability components. The reliability rating shows RSST's assessment of the extent to which accrual types accurately and verifiably measure what they purport to measure.

Working capital accruals, ΔWC, are defined as the change in current operating assets, ΔCOA, less the change in current operating liabilities, ΔCOL. COA is defined as current assets (Compustat item 'act') – cash and short-term investments ('che'). COL is defined as current liabilities ('lct') – debt included in current liabilities ('dlc'). Overall, ΔWC has a ***medium-reliability*** rating.

Non-current operating accruals, ΔNCO, are defined as the change in non-current operating assets, ΔNCOA, less the change in non-current operating liabilities, ΔNCOL. NCOA is defined as total assets ('at') – current assets ('act') – investments and advances ('ivao'). NCOL is defined as total liabilities ('lt') – current liabilities ('lct') – long-term debt ('dltt'). Overall, ΔNCO has a ***low to medium-reliability*** rating.

Financial accruals, ΔFIN, are defined as the change in short-term investments, ΔSTI, plus the change in long-term investments, ΔLTI, less the change in financial liabilities, ΔFINL. STI is defined as the short-term investments ('ivst'). LTI is defined as long-term investments ('ivao'). FINL is defined as the sum of debt in current liabilities ('dlc'), long-term debt ('dltt'), and preferred stock ('pstk'). Overall, ΔFIN has a ***high-reliability*** rating.

Table 1. Descriptive statistics

	N	Mean	Std Dev	Q1	Q2	Q3
R_t	145,853	0.182	0.884	-0.231	0.044	0.373
E_t	145,853	0.021	0.194	-0.010	0.054	0.101
E_{t+1}	145,853	0.011	0.213	-0.018	0.053	0.100
$E_{[t+1, t+3]}$	118,919	0.071	0.470	-0.032	0.166	0.294
$E_{[t+1, t+5]}$	96,890	0.170	0.650	0.005	0.289	0.491
$TACC_t$	145,853	0.037	0.233	-0.022	0.041	0.111
ΔWC_t	145,853	0.014	0.192	-0.026	0.009	0.060
ΔCOA_t	145,853	0.042	0.228	-0.011	0.022	0.093
ΔCOL_t	145,853	0.030	0.162	-0.010	0.014	0.058
ΔNCO_t	145,853	0.045	0.242	-0.016	0.020	0.091
$\Delta NCOA_t$	145,853	0.054	0.246	-0.011	0.024	0.101
$\Delta NCOL_t$	145,853	0.011	0.091	-0.001	0.001	0.014
ΔFIN_t	145,853	-0.024	0.266	-0.093	-0.004	0.050
ΔSTI_t	145,853	0.004	0.108	0.000	0.000	0.000
ΔLTI_t	145,853	0.002	0.073	0.000	0.000	0.000
$\Delta FINL_t$	145,853	0.029	0.248	-0.026	0.000	0.075

The sample includes all non-financial U.S. companies with non-missing financials between years 1963 and 2010. R_t is the stock returns for the year ending three months after a company's fiscal-year end. E_t is income before extraordinary items (Compustat item 'ib') deflated by market capitalization at the beginning of fiscal year *t*. E_{t+1} is income before extraordinary items during year *t*+1 deflated by market capitalization at the beginning of fiscal year *t*+1. $E_{[t+1, t+3]}$ ($E_{[t+1, t+5]}$) is cumulative income before extraordinary items for years *t*+1 to *t*+3 (*t*+5) deflated by the market capitalization at the beginning of the respective fiscal years. Accruals are defined based on RSST (2005). Total accruals, $TACC_t$, is the sum of the three major accrual types: non-current operating accruals, ΔNCO_t, working capital accruals, ΔWC_t, and financial accruals, ΔFIN_t. Each major accrual type consists of asset and liability components, which differ in their reliability ratings. All major accrual types and their components are deflated by market capitalization at the beginning of fiscal year *t*. Working capital accruals, ΔWC_t, are the change in current operating assets, ΔCOA_t, less the change in current operating liabilities, ΔCOL_t. COA_t is defined as current assets ('act') less cash and short-term investments ('che'). COL_t is defined as current liabilities ('lct') less debt included in current liabilities ('dlc'). Non-current operating accruals, ΔNCO_t, are the change in non-current operating assets, $\Delta NCOA_t$, less the change in non-current operating liabilities, $\Delta NCOL_t$. $NCOA_t$ is defined as total assets ('at') less current assets ('act') and investments and advances ('ivao'). $NCOL_t$ is defined as total liabilities ('lt') less current liabilities ('lct') and long-term debt ('dltt'). The financial accruals, ΔFIN_t, are defined as the change in short-term investments, ΔSTI_t, plus the change in long-term investments, ΔLTI_t, less the change in financial liabilities, $\Delta FINL_t$. STI_t is defined as the short-term investments ('ivst'). LTI_t is defined as long-term investments ('ivao'). $FINL_t$ is defined as the sum of debt in current liabilities ('dlc'), long-term debt ('dltt'), and preferred stock ('pstk'). To mitigate the effect of outliers, earnings and deflated accruals are winsorized at +1 and -1.

Table 2. Correlations across stock returns, earnings, cash flows, and accrual types

	R_t	E_t	$TACC_t$	ΔWC_t	ΔNCO_t	ΔFIN_t	E_{t+1}	$E_{[t+1, t+3]}$	$E_{[t+1, t+5]}$
R_t		0.111	0.118	0.014	0.021	0.067	0.146	0.083	0.028
E_t	0.368		0.544	0.245	0.296	0.025	0.495	0.443	0.399
$TACC_t$	0.218	0.532		0.361	0.464	0.126	0.241	0.167	0.131
ΔWC_t	0.024	0.231	0.371		0.153	-0.450	0.094	0.065	0.056
ΔNCO_t	0.070	0.279	0.419	0.166		-0.598	0.106	0.061	0.054
ΔFIN_t	0.101	0.050	0.159	-0.371	-0.498		0.049	0.042	0.024
E_{t+1}	0.284	0.636	0.280	0.103	0.135	0.050		0.747	0.624
$E_{[t+1, t+3]}$	0.187	0.575	0.226	0.088	0.112	0.026	0.796		0.880
$E_{[t+1, t+5]}$	0.117	0.527	0.199	0.081	0.113	0.006	0.695	0.890	

The table presents Pearson (above diagonal) and Spearman (below diagonal) correlation coefficients among selected financial variables. The correlations are significant at the 1% level. Table 1 presents variable definitions.

Table 3. Earnings persistence of accruals

Panel A. Persistence of total accruals

	Dependent variable		
	E_{t+1}	$E_{[t+1, t+3]}$	$E_{[t+1, t+5]}$
Intercept	0.021	0.092	0.193
	(4.82)	(5.89)	(7.40)
E_t	0.577	1.352	1.833
	(25.07)	(20.68)	(18.91)
$TACC_t$	-0.045	-0.178	-0.308
	(-10.12)	(-18.06)	(15.60)
Adj. R^2	39.1%	30.6%	24.6%

Panel B. Persistence of accrual types based on initial accrual decomposition

	Dependent variable		
	E_{t+1}	$E_{[t+1, t+3]}$	$E_{[t+1, t+5]}$
Intercept	0.022	0.092	0.193
	(5.02)	(5.94)	(7.42)
E_t	0.577	1.342	1.812
	(24.51)	(20.27)	(18.56)
ΔWC_t	-0.054	-0.179	-0.312
	(-9.88)	(-14.85)	(-11.82)
ΔNCO_t	-0.042	-0.174	-0.283
	(-8.42)	(-14.63)	(-9.87)
ΔFIN_t	-0.022	-0.133	-0.254
	(-5.54)	(-12.21)	(-10.39)
Adj. R^2	39.5%	30.7%	24.8%
t-statistic ($\Delta WC_t = \Delta NCO_t$)	2.23	0.41	1.16
t-statistic ($\Delta WC_t = \Delta FIN_t$)	6.68	4.97	3.65
t-statistic ($\Delta NCO_t = \Delta FIN_t$)	6.34	4.00	1.51

Panel C. Persistence of accrual types based on extended accrual decomposition

	Dependent variable		
	E_{t+1}	$E_{[t+1, t+3]}$	$E_{[t+1, t+5]}$
Intercept	0.021	0.091	0.191
	(4.80)	(5.85)	(7.33)
E_t	0.572	1.333	1.807
	(24.37)	(20.12)	(18.87)
ΔCOA_t	-0.046	-0.168	-0.311
	(-7.34)	(-12.57)	(-11.80)
ΔCOL_t	0.076	0.172	0.285
	(8.89)	(10.75)	(9.93)
$\Delta NCOA_t$	-0.044	-0.165	-0.256
	(-5.75)	(-13.58)	(-10.15)
$\Delta NCOL_t$	0.063	0.236	0.424
	(4.06)	(7.67)	(7.49)
ΔSTI_t	-0.094	-0.360	-0.681
	(-1.33)	(-1.51)	(-1.67)
ΔLTI_t	-0.034	-0.159	-0.282
	(-4.19)	(-7.00)	(-7.61)
$\Delta FINL_t$	0.014	0.109	0.208
	(2.06)	(10.50)	(10.69)
Adj. R^2	40.5%	31.1%	25.4%
t-statistic ($\Delta COA_t = \Delta COL_t$)	8.98	13.85	11.98
t-statistic ($\Delta NCOA_t = \Delta NCOL_t$)	4.99	11.20	9.61
t-statistic ($\Delta STI_t = \Delta FINL_t$)	1.53	1.96	2.18
t-statistic ($\Delta LTI_t = \Delta FINL_t$)	4.10	9.96	10.56

The panels present coefficient estimates of regressing future earnings on current earnings and accrual types. T-statistics are reported in parentheses below the coefficients. Panel A uses total accruals, Panel B accruals from the initial accrual decomposition, and Panel C accruals from the extended accrual decomposition. All regression models use the Fama and MacBeth (1973) procedure of estimating annual cross-sectional regressions and reporting time-series averages of the resulting coefficients and adjusted R^2's. The average coefficients are tested for equality at the end of the panels. Table 1 presents variable definitions.

Table 4. Investors' pricing of accruals

	Dependent variable		
	R_t	R_t	R_t
Intercept	0.059	0.060	0.056
	(1.91)	(1.97)	(1.83)
E_t	0.888	0.917	0.845
	(8.53)	(8.98)	(9.18)
$TACC_t$	0.098		
	(4.11)		
ΔWC_t		0.018	
		(0.65)	
ΔNCO_t		0.088	
		(3.99)	
ΔFIN_t		0.181	
		(5.65)	
ΔCOA_t			0.070
			(2.79)
ΔCOL_t			0.377
			(10.67)
$\Delta NCOA_t$			0.019
			(1.01)
$\Delta NCOL_t$			0.085
			(1.71)
ΔSTI_t			-0.185
			(-0.41)
ΔLTI_t			0.043
			(0.76)
$\Delta FINL_t$			-0.217
			(-6.30)
Adj. R^2	10.4%	11.3%	13.2%
t-statistic ($\Delta WC_t = \Delta NCO_t$)		3.79	
t-statistic ($\Delta WC_t = \Delta FIN_t$)		5.08	
t-statistic ($\Delta NCO_t = \Delta FIN_t$)		3.51	
t-statistic ($\Delta COA_t = \Delta COL_t$)			6.11
t-statistic ($\Delta NCOA_t = \Delta NCOL_t$)			1.25
t-statistic ($\Delta STI_t = \Delta FINL_t$)			0.07
t-statistic ($\Delta LTI_t = \Delta FINL_t$)			3.48

The table presents coefficient estimates of regressing current stock returns on current earnings and different accrual types. T-statistics are reported in parentheses below the coefficients. Column 1 uses total accruals only, Column 2 accruals from the initial accrual decomposition, and Column 3 accruals from the extended accrual decomposition. All regression models use the Fama and MacBeth (1973) procedure of estimating annual cross-sectional regressions and reporting time-series averages of the resulting coefficients and adjusted R^2's. The average coefficients are tested for equality at the end of the panels. Table 1 presents variable definitions.

Table 5. Relative pricing values of accruals with respect to cash flows

Panel A. Relative pricing values of total accruals

	Horizon			
	1 year	3 years	5 years	*t*-statistic (1 year = 5 years)
Π_TACC_t	1.145 (3.43)	1.247 (5.41)	1.312 (5.77)	8.03

Panel B. Relative pricing values of accrual types based on initial accrual decomposition

	Horizon			
	1 year	3 year	5 year	*t*-statistic (1 year = 5 years)
Π_WC_t	1.175 (1.75)	1.150 (3.37)	1.208 (4.18)	6.52
Π_NCO_t	1.182 (4.74)	1.250 (6.20)	1.291 (5.96)	5.94
Π_FIN_t	1.036 (0.24)	1.261 (5.25)	1.323 (5.62)	7.34
t-statistic ($\Delta WC_t = \Delta NCO_t$)	0.08	3.36	2.39	
t-statistic ($\Delta WC_t = \Delta FIN_t$)	0.92	0.39	0.96	
t-statistic ($\Delta NCO_t = \Delta FIN_t$)	0.60	4.13	4.04	

Panel C. Relative pricing values of accrual types based on extended accrual decomposition

	Horizon			
	1 year	3 year	5 year	*t*-statistic (1 year = 5 years)
Π_COA_t	1.161 (3.21)	1.204 (4.46)	1.279 (5.19)	6.47
Π_COL_t	1.207 (3.39)	1.252 (8.20)	1.216 (6.74)	2.55
Π_NCOA_t	1.104 (3.38)	1.156 (4.87)	1.190 (4.79)	5.52
Π_NCOL_t	1.018 (0.33)	0.924 (1.70)	0.893 (2.11)	2.58
$\Pi\_\Delta STI_t$	1.297 (2.87)	1.389 (4.57)	3.373 (1.25)	1.10
$\Pi\_\Delta LTI_t$	1.136 (1.29)	1.136 (1.76)	1.204 (2.30)	3.63
$\Pi\_\Delta FINL_t$	0.939 (0.48)	0.774 (5.34)	0.754 (5.56)	7.15
t-statistic ($\Delta COA_t = \Delta COL_t$)	0.48	1.03	1.11	
t-statistic ($\Delta NCOA_t = \Delta NCOL_t$)	1.33	3.82	4.08	
t-statistic ($\Delta STI_t = \Delta FINL_t$)	1.78	5.28	1.37	
t-statistic ($\Delta LTI_t = \Delta FINL_t$)	1.89	3.31	3.70	

The panels present average relative pricing values (Π) for different accrual types. The relative pricing value for an accrual type in a year is the ratio of the sum of the coefficient on accrual type and earnings (E_t) in the investors' pricing model (Table 4) to the sum of the coefficient on the accrual type and earnings in the earnings persistence model (Table 3) for that year, divided by the respective ratio of earnings. If the earnings persistence of an accrual type is priced similarly as that of earnings, the relative pricing value will take the value of one. A relative pricing value that is greater (less) than 1 indicates overpricing (underpricing) of that accrual type with respect to earnings (equivalently, cash flows). Panel A presents average relative pricing values for total accruals only, Panel B for accruals based on initial accrual decomposition, and Panel C for accruals based on extended accrual decomposition. The parentheses below the average relative pricing values present *t*-statistics testing whether the averages are statistically different from one. T-statistics at the end of the panels test for equality across relative pricing values for different accrual types. T-statistics on the last columns of the panels test significances in differences between the average relative pricing values using earnings with one-year and five-year horizons. Table 1 presents variable definitions.

Table 6. Institutional portfolio turnover and relative pricing values of accruals

	Horizon			
Π_TACC_t	1 year	3 years	5 years	*t*-statistic (1 year = 5 years)
Sample companies with high institutional portfolio turnover	1.156 (1.58)	1.345 (7.17)	1.403 (6.38)	2.83
Sample companies with low institutional portfolio turnover	1.126 (3.77)	1.177 (4.94)	1.296 (5.42)	4.57
t-statistic (top = bottom)	0.34	3.52	1.92	

The table presents average relative pricing values for total accruals (Π_TACC) of the sample divided into two groups each year with respect to the turnover of company stocks by institutional investors. The institutional portfolio turnover of a company-year is calculated as the sum of quarterly absolute changes in company stock holdings of all institutional investors divided by the average total institutional holdings of the company during the year. The relative pricing value for total accruals (Π_TACC) in a year is the ratio of the sum of the coefficient on total accruals ($TACC_t$) and earnings (E_t) in the investors' pricing model (Table 4) to the sum of the coefficient on the accruals and earnings in the earnings persistence model (Table 3) for that year, divided by the respective ratio of earnings. If earnings persistence of an accrual type is priced similarly as that of earnings, the relative pricing value will take the value of one. A relative pricing value that is greater (less) than one indicates overpricing (underpricing) of that accrual type with respect to earnings (equivalently, cash flows). The parentheses below the average relative pricing values show *t*-statistics testing whether the averages are statistically different from one. T-statistics in the last row test for equality between the average relative pricing values across the subsamples of high and low institutional portfolio turnover. T-statistics in the last column test for equality between the average relative pricing values using earnings with one-year and five-year horizons. Table 1 presents variable definitions.