CONDITIONAL PERSISTENCE AND ACCOUNTING ANOMALIES

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Accounting-based anomalies are often attributed to investors' misconceptions concerning the persistence of earnings. Relatedly, it has been shown that the market reaction to an accounting variable depends not on its *unconditional* persistence (a variable's autocorrelation coefficient), but on its *conditional* persistence (the power of a variable's persistence to explain the persistence of a variable higher in the hierarchy). Here, we assert that investors' over-emphasis on a variable's unconditional persistence, rather than on its conditional persistence, provides a plausible partial explanation for some of these anomalies. Specifically, we show that when the conditional persistence of operating profit margin (OPM) is relatively low the post-earnings-announcement drift decreases substantially, and the post-revenue-announcement drift vanishes. Furthermore, the accrual anomaly is also related to the conditional persistence of accruals, and it largely disappears when the conditional persistence of accruals is relatively high. In addition, we find that analysts' forecast attributes are associated with the conditional persistence of both OPM and accruals.

Key words: Accrual Anomaly, Post-Announcement Drift, Conditional Persistence, Market Mispricing, Analysts' Forecasts, Financial Ratios.

JEL Codes: G14, M41

1. Introduction

The literature on accounting-based stock price anomalies suggests that the market may misprice accounting information.[1] These anomalies include the post-earnings-announcement drift (Bernard and Thomas, 1989 and 1990; Chan et al., 1996; Doyle et al., 2006; and Livnat and Mendenhall, 2006), the post-revenue-announcement drift (Jegadeesh and Livnat, 2006a and 2006b), and the accrual anomaly (Sloan, 1996; and Richardson et al., 2005). Previous studies have documented significant abnormal stock returns for trading strategies based on these anomalies. For instance, Jegadeesh and Livnat (2006a) form quintile portfolios based on the magnitude of standardized unexpected earnings and standardized unexpected revenue. They find that the difference in stock returns between the highest and lowest quintile portfolios, six months after portfolio formation, is 5.5% for unexpected earnings, and 4.5% for unexpected revenue. Sloan (1996) forms portfolios based on the magnitudes of cash and accrual components of earnings, and finds that these portfolios generate an average annual abnormal return of 10.4%.

These three accounting-based anomalies are partly attributed to investors' misperception of persistence. While the post-earnings-announcement drift and the post-revenue-announcement drift are often attributed to incorrect estimation of earnings persistence (Jegadeesh and Livnat, 2006a, 2006b), Sloan's (1996) accrual anomaly occurs because investors fail to recognize that the accrual and cash flow components of earnings have different persistence, and that larger accrual component of earnings reduces its overall persistence.[2]

Amir et al. (2011) distinguish between two persistence measures – *conditional persistence* and *unconditional persistence*. Unconditional persistence is the autocorrelation

[1] See Richardson et al. (2010) for a review of this research.
[2] Other studies indicate that different components of earnings have different persistence and should therefore be priced differentially by equity investors. See, for example, Lipe (1986) and Ertimur et al., (2003).

coefficient obtained from a variable's time series, whereas conditional persistence is defined as the marginal contribution of a component variable's persistence to the persistence of a variable higher in the hierarchy. They argue that the market reaction to an earnings component should depend on its conditional persistence, not on its unconditional persistence. Amir et al. (2011) decompose unexpected change in return on net operating assets (URNOA) into unexpected changes in operating profit margins (UOPM) and unexpected changes in asset turnover (UATO). They show that while UATO is unconditionally more persistent than UOPM, the persistence of UOPM is more powerful than the persistence of UATO in explaining the persistence of URNOA (that is, the conditional persistence of UOPM is larger than that of UATO); hence, the market reaction to UOPM is stronger than that to UATO.[3]

Since the three accounting anomalies mentioned earlier are claimed to be associated with incorrect estimation of persistence, this paper examines whether investors' inability to distinguish between unconditional and conditional persistence of earnings components could be a common driver behind these anomalies, rather than the incorrect estimation of unconditional persistence, as suggested in prior studies. Initially, we examine whether the market fully recognizes the distinction between conditional and unconditional persistence of unexpected operating profit margins (UOPM). We focus on UOPM because previous studies have found that this ratio has low unconditional persistence, but high conditional persistence. Also, the three accounting anomalies described earlier are related to earnings and earnings component, hence the focus here is on unexpected profit margins.

We design the following test: First, we measure the conditional and the unconditional persistence of UOPM for each firm/quarter. Second, we rank all companies, each quarter, according to their conditional persistence of UOPM, and assign integers for each company,

[3] The persistence of RNOA and its components has also been examined in other studies. For example, Romer (1986), Nissim and Penman (2001), and Penman and Zhang (2006) find that the *unconditional* persistence of ATO is larger than that of OPM.

starting with a value of "1" for the company with the lowest conditional persistence of UOPM. We repeat this process for unconditional persistence of UOPM. Third, we measure for each firm/quarter the difference between the ranks of conditional and unconditional persistence of UOPM, and divide this difference by the number of companies in the quarter. Thus, we obtain a measure of the distance between conditional and unconditional persistence of UOPM – *adjusted conditional persistence* of UOPM – denoting it as ACP(UOPM). Fourth, we estimate the contemporaneous and subsequent market reaction to ACP(UOPM), after controlling for UOPM, standardized unexpected earnings (SUE), standardized unexpected revenue (SURG) and other risk measures. We find that the conditional persistence of UOPM is priced by the market; however, it is not fully priced. Buying (selling) stocks of firms with high (low) ACP(UOPM) earns abnormal returns of about 1% for a window of 90 days subsequent to SEC filings.[4] Furthermore, in a portfolio analysis, this trading strategy yields abnormal returns of more than 1.5% when SUE or SURG are high; the market reacts more positively to higher ACP(UOPM) when SUE or SURG are high, because the higher persistence of UOPM contributes to the persistence of good news. These results suggest that equity investors are partly fixated on the traditional and less complicated measure of unconditional persistence.

Next, we examine whether investors' failure to fully recognize the implications of conditional persistence on stock prices can serve as an explanation for accounting-based anomalies. We begin with investigating the association between ACP(UOPM), and SUE and between ACP(UOPM) and SURG.

Focusing on the market's delayed reaction to unexpected earnings, we find that the post-earnings-announcement drift, combined with low adjusted conditional persistence of

[4] Soliman (2008) and Amir et al. (2011) find that OPM and ATO are associated with current stock returns, but only ATO is associated with subsequent returns. Penman and Zhang (2006) indicate that changes in OPM and ATO are not associated with stock returns one year ahead after controlling for growth in net operating assets. Note, in this paper, we focus on market reaction to ACP(UOPM) rather than to OPM (or UOPM).

UOPM, is less than half of the post-earnings-announcement drift combined with high adjusted conditional persistence of UOPM. That is, the post-earnings-announcement drift is high when the conditional persistence of UOPM is relatively high and the unconditional persistence of UOPM is relatively low. This result suggests that the post-earnings-announcement drift is driven partly by investors' misconception of conditional persistence, rather than by incorrect estimation of unconditional persistence of earnings.

Turning to the post-revenue-announcement drift, we find that when ACP(UOPM) is low, there is no drift with respect to revenue surprises (SURG). Jegadeesh and Livnat (2006a, 2006b) argue that earnings surprises combined with revenue surprises in the same direction have higher persistence, resulting in a drift, with respect to the revenue surprise. However, when ACP(UOPM) is low, the marginal contribution of revenue surprises to the persistence of earnings surprises is negligible.

Next we examine the association between adjusted conditional persistence of accruals, ACP(ACC), and the accrual anomaly. Sloan (1996) shows that when the accrual component of earnings is relatively low (high) the persistence of earnings is relatively high (low). He argues that since the market does not fully appreciate the negative effect of accruals on earnings' persistence, there is a negative association between the magnitude of the accrual component of earnings and subsequent abnormal returns.

We measure ACP(ACC) in a way similar to that used to measure ACP(UOPM), decomposing earnings deflated by total assets (EARN) into two components: cash flows (CFO) and accruals (ACC). If investors' inability to distinguish between unconditional and conditional persistence of earnings components provides a partial explanation for the accrual anomaly, than we should expect a negative association between ACP(ACC) and the magnitude of the accrual-related drift. Specifically, when ACP(ACC) is low the accrual-related drift should be relatively strong because the accrual component of earnings has a

large negative impact on the persistence of earnings. This in turn will result in more positive subsequent abnormal returns when the accrual component of earnings is relatively small and more negative abnormal returns when the accrual component is relatively high. In contrast, when ACP(ACC) is high, we expect a small drift. When the conditional persistence of the accrual component of earnings is relatively high, the magnitude of accruals should not have a negative impact on the persistence of earnings.

Consistent with our prediction, we find that when ACP(ACC) is low, the difference in subsequent abnormal returns (for a window of 90 days) between the lowest and the highest quintiles of ACC is 3.2%, compared with 2.1% for the entire sample. However, when ACP(ACC) is high, there is no drift associated with the magnitude of accruals, and the subsequent abnormal returns are not significantly different from zero, for both low and high levels of accruals. That is, when the adjusted conditional persistence of accruals is high, there is no negative association between the magnitude of the accrual component of earnings and earnings' persistence; hence, market failure to price the accrual and cash flow components of earnings differently becomes irrelevant.

We also investigate whether the market mispricing of conditional persistence, reflected by subsequent abnormal returns, is also reflected in financial analysts' predictions. We focus on the association between the attributes of analysts' earnings forecasts in quarter t and the adjusted conditional persistence of profit margins and accruals in the prior quarter. If financial analysts fail to incorporate the conditional persistence of UOPM and accruals into their earnings predictions, we would expect their earnings forecasts to be less informative, that is, less accurate, more biased and more dispersed.

Recall that higher ACP(UOPM) means high conditional persistence relative to the unconditional persistence. Therefore, if analysts do not take into consideration the adjusted conditional persistence of UOPM, and instead are fixated on its unconditional persistence,

we would expect to find a positive association between ACP(UOPM) and signed forecast errors (bias), absolute forecast errors (accuracy), and the standard deviation of forecasts (dispersion). Consistent with our expectations, we find that ACP(UOPM) in quarter t-1 is positively associated with forecast errors in quarter t, absolute forecast errors in quarter t, and the standard deviation of quarter t forecasts.

The positive association between forecast errors in quarter t and ACP(UOPM) in quarter t-1 suggests that financial analysts tend to overestimate future earnings when ACP(UOPM) is low, but rather underestimate future earnings when ACP(UOPM) is high. This implies that when ACP(UOPM) is high (low) analysts are fixated on the low (high) unconditional persistence, whereas the more relevant persistence is higher (lower). This pattern provides an explanation for the finding that ACP(UOPM) is not fully priced by the market.

As for the accrual component of earnings, when ACP(ACC) is high, the conditional persistence relative to the unconditional persistence is high. Therefore, the negative effect of the accrual component on earnings' persistence, documented by Sloan (1996), should diminish, resulting in more accurate and less dispersed forecasts. We therefore expect to find a negative association between ACP(ACC) and absolute forecast errors and the standard deviation of forecasts. Our empirical findings are consistent with our expectations: ACP(ACC) in quarter t-1 is negatively associated with absolute forecast errors in quarter t, and the standard deviation of the forecasts in quarter t.

Overall, our results suggest that investors' and analysts' inability to distinguish between conditional and unconditional persistence of earnings components provides a plausible explanation for the post-earnings-announcement drift, the post-revenue-announcement drift, and the accrual anomalies.

The contribution of the study is in raising the possibility and providing empirical evidence that investors' inability to distinguish between conditional and unconditional persistence offers an explanation for three accounting-based anomalies that are based on the misperception of persistence. In particular, the results imply that investors' inability to distinguish between unconditional and conditional persistence, rather than the misperception of unconditional persistence, is the driver behind these anomalies. In addition, we find that the conditional persistence of earnings components is associated with the quality of analysts' earnings forecasts. Overall, this study provides empirical evidence supporting the argument that investors are fixated on unconditional persistence, partially ignoring the conditional persistence of earnings components.

The remainder of the study is organized as follows: Section 2 discusses the sample and variable definitions and provides descriptive statistics on the main variables. Sections 3, 4, and 5 present and discuss the empirical results, while Section 6 concludes the study.

2. Sample, Variables and Descriptive Statistics

Following Nissim and Penman (2001), return on net operating assets (RNOA) is measured as core operating income after tax (COI) divided by net operating assets (NOA). Operating profit margin (OPM) is measured as COI divided by net revenues, and asset turnover (ATO) is measured as net revenue divided by NOA. Unexpected variables (denoted as URNOA, UOPM, and UATO) are measured as raw ratios minus these ratios in the same quarter last year. Consistent with Sloan (1996), we measure earnings (EARN) as earnings before extraordinary items and discontinued operations, divided by total assets. The cash component of earnings (CFO) is measured as cash flows from continuing operations divided by total assets, and the accrual component of earnings (ACC) is the difference between EARN and CFO.

Earnings surprises are computed as standardized unexpected earnings (SUE):

$$SUE_{i,t} = \frac{EPS_{i,t} - E(EPS_{i,t})}{S_{i,t}},$$

Where EPS_{it} is earnings per share for firm *i* in quarter *t*, $E(EPS_{it})$ is expected earnings per share for firm *i* in quarter *t*, measured as earnings per share in the same quarter last year plus an average drift (D_{it}) over the previous eight quarters, and S_{it} is the standard error of the unexpected earnings per share:

$$E(EPS_{i,t}) = EPS_{i,t-4} + D_{i,t},\ D_{i,t} = \frac{1}{8}\sum_{j=1}^{8}(EPS_{i,t-j} - EPS_{i,t-j-4}),\ \text{and}$$

$$S_{i,t} = \frac{1}{7}\sqrt{\sum_{j=1}^{8}(EPS_{i,t-j} - E(EPS)_{i,t-j})^2}$$

Standardized unexpected revenue (SURG) is measured in a similar manner (see Appendix A).

We compute size-adjusted buy-and-hold stock returns for current and post-SEC filing windows. Current stock returns, denoted as AR(C), are computed for each firm/quarter from one day before the preliminary earnings announcement until one day after the SEC filing. Post-SEC filing returns, denoted as AR(90), are measured as excess buy-and-hold size-adjusted returns for a 90-day window starting two days after the current SEC filing date.

The sample includes all companies with complete stock returns and financial data available on Compustat and CRSP during 1991-2008 with market value of equity above $10 million at quarter-end. We exclude financial institutions (1-digit SIC = 6) and public utilities (2-digit SIC = 49) because the structure of their financial statements is incompatible with those of other companies. To limit the effect of extreme observations, each quarter we rank the sample according to each of the RNOA components, SUE, SURG and buy-and-hold excess returns, and remove the extreme one percent of the observations on each side. Table 1

lists the number of observations each year. The full sample includes 83,936 firm-quarter observations for 3,849 different firms.

(Table 1 about here)

Table 2 contains descriptive statistics for key variables. In addition to the main research variables described above, we report statistics for book-to-market ratios (BM), measured as book value of equity at quarter-end divided by market value of common equity, and firm size, measured as market value of common equity at quarter-end (SIZE). Mean buy-and-hold current abnormal returns for the contemporaneous and post-SEC filing returns are zero, by construction. The distribution of post-SEC filing returns is slightly skewed to the right as the median is slightly negative.

Consistent with prior studies, mean quarterly RNOA, OPM and ATO are 0.03, 0.05 and 0.61, respectively. Mean and median unexpected ratios (URNOA, UOPM, and UATO) are around zero, as expected. Mean EARN (0.01) equals the sum of mean CFO (0.02) and mean ACC (-0.01), by construction. Consistent with Jegadeesh and Livnat (2006b), mean SUE is negative (-0.09), while median SUE is positive (0.02). Also consistent with prior studies, the distribution of book-to-market ratios is skewed to the right as the mean (0.61) is larger than the median (0.49).

(Table 2 about here)

To estimate the conditional persistence of unexpected operating profit margins (UOPM) for each firm/quarter, we follow the three-step procedure suggested by Amir et al. (2011). First we estimate the unconditional persistence (the first auto-correlation over the previous eight quarters) for URNOA, UOPM, and UATO for each firm/quarter and denote it as $P(URNOA)_{it}$, $P(UOPM)_{it}$, and $P(UATO)_{it}$, respectively. Second, we estimate the following regression for each firm using the previous eight quarters:

$$P(URNOA)_{it} = \alpha_{0it} + \alpha_{1it} P(UOPM)_{it} + \alpha_{2it} P(UATO)_{it} + \varepsilon_{it} \quad (1)$$

This way we obtain slope coefficients for each firm/quarter because we always use the lagged eight quarters for estimation. We also compute the mean of UOPM. Third, we compute the conditional persistence as $CP(UOPM)_{it} = \alpha_{1it} \times Mean(UOPM)_{it}$.

Next, we measure for each firm/quarter the distance between the conditional and unconditional persistence of UOPM. We focus on the distance because we would like to examine whether investors and analysts are fixated on unconditional rather than conditional persistence in setting equity prices and predicting future earnings.

Initially, we rank all companies, each quarter, according to their unconditional persistence, $P(UOPM)_{it}$, assigning integer values starting with "1" for the company with the lowest $P(UOPM)_{it}$. Then, we rank all companies, each quarter, according to their conditional persistence, $CP(UOPM)_{it}$, assigning integer values starting with "1" for the company with the lowest conditional persistence. To complete the process we compute the difference between the ranks and divide by the number of companies in the quarter, N_t:

$$ACP(UOPM)_{it} = \{Rank[CP(UOPM)_{it}] - Rank[P(UOPM)_{it}]\} / N_t$$

Thus, we obtain a measure of the distance between conditional and unconditional persistence and refer it as *adjusted conditional persistence* (ACP). $ACP(UOPM)_{it}$ could in theory range between -1 and 1, although in practice the distribution is narrower.

Table 3 provides information on the distribution of the different persistence measures. The mean unconditional persistence of UOPM is 0.25, slightly smaller than that of URNOA. The mean conditional persistence of UOPM is 0.18. The adjusted conditional persistence, ACP(UOPM), which is the distance between the conditional and unconditional persistence, centers around zero. While in theory this variable could range from -1 to +1, 90% of the observations are within the interval (-0.52, 0.47).

(Table 3 about here)

Table 4 presents Spearman correlations for scaled-quintile variables. To convert a variable to a scaled-quintile format, we rank, each quarter, all firms according to the value of each specific variable and assign them into quintiles. The variable is then transformed into a scaled-quintile variable with values ranging from zero to one according to the respective quintile, in a similar manner to Rajgopal at al. (2003): "0" in the bottom quintile, "0.25" in the second quintile, "0.50" in the third quintile, "0.75" in the fourth quintile, and "1" in the upper quintile. The transformation is made on a quarter-by-quarter basis. We compute pair-wise Spearman correlations, each quarter, and average these correlations over all quarters.

There is a high correlation between URNOA and UOPM (0.81), and between P(URNOA) and P(UOPM) (0.71). That is, changes in RNOA are explained primarily by the firm's ability to generate operating profits from sales. The correlations between URNOA and SUE, and between UOPM and SUE are also high (Spearman = 0.57), as all three variables essentially measure profitability. The correlation between the conditional and unconditional persistence of UOPM is 0.45, suggesting that in many cases the conditional and unconditional correlations have similar ranks. Finally, the rank correlations between ACP(UOPM) and the three risk factors, BETA, book-to-market ratio (BM), and firm size (SIZE), are relatively low, ranging between -0.06 and 0.08. These low correlations suggest that adjusted conditional persistence is unlikely to be associated with risk.

(Table 4 about here)

3. Market Reaction to Adjusted Conditional Persistence of UOPM

Initially, we examine the contemporaneous and post-SEC filing market reactions to the adjusted conditional persistence of UOPM [ACP(UOPM)]. We focus on UOPM pricing, because this ratio has low unconditional persistence, but high conditional persistence. This

enables us to examine whether the market fully appreciates the distinction between conditional and unconditional persistence. We use the following cross-sectional models:

$$AR(C)_{it} = \alpha_{0t} + \alpha_{1t} D_{PRNOA,it} + \alpha_{2t} ACP(UOPM)_{it}^{quin} + \alpha_{3t} D_{PRNOA,it} ACP(UOPM)_{it}^{quin} + \alpha_{4t} UOPM_{it}^{quin} + \alpha_{5t} SUE_{it}^{quin} + \alpha_{6t} SURG_{it}^{quin} + \alpha_{7t} BETA_{it}^{quin} + \alpha_{8t} BM_{it}^{quin} + \alpha_{9t} SIZE_{it}^{quin} + \psi_{it} \quad (2)$$

$$AR(90)_{it} = \delta_{0t} + \delta_{1t} D_{PRNOA,it} + \delta_{2t} ACP(UOPM)_{it}^{quin} + \delta_{3t} D_{PRNOA,it} ACP(UOPM)_{it}^{quin} + \delta_{4t} UOPM_{it}^{quin} + \delta_{5t} SUE_{it}^{quin} + \delta_{6t} SURG_{it}^{quin} + \delta_{7t} BETA_{it}^{quin} + \delta_{8t} BM_{it}^{quin} + \delta_{9t} SIZE_{it}^{quin} + \xi_{it} \quad (3)$$

The dependent variable in Equation (2) is the contemporaneous excess return [AR(C)], and the dependent variable in Equation (3) is the excess return for a 90-day window post-SEC filing [AR(90)]. The primary explanatory variable is the adjusted conditional persistence of UOPM, which is denoted as ACP(UOPM). We also include in the model the unexpected changes in operating profit margin (UOPM), standardized unexpected earnings (SUE), standardized unexpected revenue (SURG), and three commonly used risk variables – systematic market risk (BETA), book-to-market ratio (BM) and market value of equity (SIZE).

The impact of adjusted conditional persistence – ACP(UOPM) – on stock returns should depend on the sign of the variable higher in the hierarchy, which is URNOA. Consider for example two companies with positive URNOA; one company has high adjusted conditional persistence while the other has low adjusted conditional persistence. Clearly the market should react more positively to the URNOA announced by the company with the high adjusted conditional persistence. However, if both companies have a negative URNOA, the market should react less negatively to the company with the low adjusted conditional persistence. Hence, the association between current abnormal stock returns and adjusted conditional persistence should depend on the sign of URNOA. Hence, to complete the

model, we define a dummy variable – $D_{PRNOA,it}$ – equal to "1" if URNOA is positive and "0" otherwise. We then interact this variable with ACP(UOPM).

All the explanatory variables in the model are transformed to scaled-quintile variables with values ranging from 0 to 1 according to the respective quintile. The transformation is made on a quarter-by-quarter basis. We estimate two specifications (2a and 2b) of Equation (2), and two specifications (3a and 3b) of Equation (3). Each specification is estimated for each quarter and we report in Table 5 average coefficients and corresponding *t*-statistics as in Fama and MacBeth (1973).

The results in specification 2a, which includes only the control variables, show that the average coefficients on unexpected earnings (SUE) and unexpected revenue (SURG) are positive, as expected, and significant at the 0.01 level; the coefficient on SUE is significantly higher (at the 0.01 level) than that on SURG, as in Jegadeesh and Livnat (2006a, 2006b) and Kama (2009). The average coefficients on BM and SIZE are also positive, as expected, and significant at the 0.01 level. The average coefficient on BETA is not significantly different from zero.

Specification 2b includes all the explanatory variables in Equation (2). Recall that this specification allows ACP(UOPM) to interact with the sign of URNOA (D_{PRNOA}). We find that when URNOA is negative the average coefficient on ACP(UOPM) is negative (-0.50), and significant at the 0.01 level. However, when URNOA is positive the average coefficient on ACP(UOPM) is larger at the 0.01 level; this coefficient is also positive (-0.50+1.19=0.69) and significantly higher than zero at the 0.02 level.

Turning to the analysis of the post-announcement returns (Equation 3), we find (specification 3a) that the coefficients on SUE and SURG are still positive and significant at the 0.01 level; this result is consistent with the post-earnings and post-revenue drifts documented in prior studies. Specification 3b shows that when URNOA is negative, the

average coefficient on ACP(UOPM) is negative but insignificantly different from zero. This result means that an increase in the adjusted conditional persistence of UOPM combined with negative URNOA leads to negative but insignificant subsequent abnormal returns. However, when URNOA is positive (D_{PRNOA} = 1), the coefficient on ACP(UOPM) is, on average, positive and significant at the 0.01 level. This result means that an increase in the adjusted conditional persistence of UOPM combined with positive URNOA leads to positive subsequent abnormal returns of (1.06% - 0.09% =) 0.97% for a buy-and-hold window of 90 days (significant at the 0.01 level). Interestingly, the average coefficient on SUE is no longer significant.[5]

Overall, the results in Table 5 suggest that the *conditional persistence* of UOPM is priced by the market. However, it is not fully priced. Buying stocks of firms with high adjusted conditional persistence of UOPM and selling stocks of firms with low adjusted conditional persistence of UOPM earns positive and significant abnormal stock returns for a 90-day window post SEC filing.[6] The question whether the market mispricing of conditional persistence is associated with accounting-based anomalies is addressed next.

(Table 5 about here)

4. Accounting Anomalies and Conditional Persistence

Accounting-based anomalies are partly attributed to misperception of persistence. Therefore we examine whether investors' inability to distinguish between unconditional and conditional persistence provides a unified explanation for the post-earnings-announcement drift, the post-revenue-announcement drift and the accrual anomaly. To test this conjecture we design portfolio and multivariate regression analyses that focus on whether the adjusted

[5] We repeated the analysis with growth in working capital, URNOA and RNOA as additional control variables. Results (not tabulated) are qualitatively the same.

[6] We have replicated our analysis for buy-and-hold windows of 180 and 365 days subsequent to SEC filings. The results (not tabulated) confirm that the market does not fully price the conditional persistence of UOPM.

conditional persistence is associated with these anomalies. Specifically, we examine the association between the adjusted conditional persistence of UOPM [ACP(UOPM)] and the post-earnings-announcement drift and post-revenue-announcement drift, and the association between the adjusted conditional persistence of accruals [ACP(ACC)] and the accrual anomaly. We calculate ACP(ACC) in a manner similar to that employed in calculating ACP(UOPM), decomposing EARN to CFO and ACC (see Appendix A).

Table 6, Panel A, presents post-announcement excess returns for portfolios based on combinations of ACP(UOPM) and standardized unexpected earnings (SUE); Panel B presents post-announcement excess returns for portfolios based on combinations of ACP(UOPM) and standardized unexpected revenue (SURG); and Panel C presents post-announcement excess returns for portfolios based on combinations of adjusted conditional persistence of accruals, ACP(ACC), and the level of the accrual component of earnings (ACC). To form these portfolios, we rank all companies, each quarter, according to their ACP(UOPM), ACP(ACC), SUE, SURG, or ACC, and assign them into quintiles. Then, we construct portfolios of observations that fall into a specific combination: For instance, a combination denoted as ACP(UOPM)1/SUE1 includes observations in the lowest quintile of both ACP(UOPM) and SUE.

Results in Panel A show that, for the full sample, selling stocks of firms in the lowest quintile of ACP(UOPM), and buying stocks of firms in the highest quintile of ACP(UOPM), yields abnormal return of 0.73% in the 90 days after the SEC filing (significant at the 0.01 level). The increase in post-SEC filing abnormal returns from the lowest to the highest quintile of ACP(UOPM) is monotonic. Moreover, when SUE is in its lowest quintile, there is no difference in subsequent excess returns between the lowest and the highest quintiles of ACP(UOPM). However, when SUE is in its highest quintile, selling stocks of firms in the lowest quintile of ACP(UOPM), and buying stocks of firms in the highest quintile of

ACP(UOPM), yields excess return of 1.53% in the 90 days after the SEC filing (significant at the 0.01 level). Hence, the market reacts more positively (negatively) to higher adjusted conditional persistence of UOPM when SUE is positive (negative), because the higher persistence of UOPM contributes to the persistence of good (bad) earnings news.

Focusing on the post-earnings-announcement drift, Panel A shows that, for the entire sample, selling stocks of firms in the lowest quintile of SUE and buying stocks of firms in the highest quintile of SUE yields excess return of 1.90% in the 90 days after the SEC filing (significant at the 0.01 level). However, conditioning on ACP(UOPM) being in its lowest quintile [ACP(UOPM)1], the difference in excess return between the lowest and the highest quintiles of SUE is only 1.11%; this difference is 2.95% when ACP(UOPM) is in the highest quintile [ACP(UOPM)5]. This difference in differences (2.95% – 1.11% = 1.84%) is significant at the 0.01 level. These results suggest that the magnitude of the post-earnings announcement drift depends to a large extent on ACP(UOPM); In fact, the post-earnings-announcement drift coupled with low ACP(UOPM) is less than half of that drift coupled with high ACP(UOPM).[7] These results support the argument that investors' inability to distinguish between unconditional and conditional persistence provides a plausible explanation for the post-earnings-announcement drift.

Turning to Panel B, we show that when SURG is in its lowest quintile, there is no difference in the post-SEC filing window between the lowest and the highest quintiles of ACP(UOPM). In contrast, when SURG is in its highest quintile, selling stocks of firms in the lowest quintile of ACP(UOPM), and buying stocks of firms in the highest quintile of ACP(UOPM), yields an excess return of 1.83% for the post-SEC filing 90-day window (significant at the 0.01 level). Once again, the market reacts more positively (negatively) to

[7] We replicated the analysis in panel A of Table 6 using analysts' forecasts to calculate earnings surprises (as in Doyle et al., 2006, and Livnat and Mendenhall, 2006). In that case, there is no difference in post-earnings-announcement drift (PEAD) between the lower and the upper quintiles of ACP(UOPM). This is consistent with Doyle et al. (2006) and Livnat and Mendenhall (2006) who argue that PEAD based on SUE captures different mispricing than PEAD based on analysts' forecasts.

higher ACP(UOPM) when SURG is positive (negative), because the higher persistence of UOPM supports the persistence of good (bad) revenue growth.

Results in Panel B also show that, for the entire sample, selling stocks of firms in the lowest quintile of SURG and buying stocks of firms in the highest quintile of SURG yields an excess return of 1.32% in the 90 days after the SEC filing (significant at the 0.01 level). However, when ACP(UOPM) is in its lowest quintile, there is no difference in excess return between the lowest and the highest quintiles of SURG. The drift rises monotonically until it reaches 2.24% (significant at the 0.01 level) when ACP(UOPM) is in its upper quintile. Jegadeesh and Livnat (2006a, 2006b) argue that the post-revenue-announcement drift occurs because the persistence of earning surprises increases when it is driven by revenue surprises, rather than by expense surprises, and the market fails to fully recognize this. However, when ACP(UOPM) is in its lowest quintile the marginal contribution of SURG to the persistence of SUE seems to be insignificant; therefore, the post-announcement returns are not significantly different from zero, for both low and high SURG. As ACP(UOPM) increases, the marginal contribution of SURG to the persistence of SUE increases, and so does the post-revenue-announcement drift.

In Panel C, we examine the association between the adjusted conditional persistence of the accrual component of earnings [ACP(ACC)] and the magnitude of the accrual component (ACC). When ACC is in its lowest quintile, selling stocks of firms in the lowest quintile of ACP(ACC) and buying stocks of firms in the highest quintile of ACP(ACC), yields an excess return of -1.16% in the post-SEC filing window (significant at the 0.05 level). When ACC is in its highest quintile, selling stocks of firms in the lowest quintile of ACP(ACC), and buying stocks of firms in the highest quintile of ACP(ACC), yields an excess return of +1.29% for the post-SEC filing window (also significant at the 0.05 level).

That is, the market reacts more positively (negatively) to higher adjusted conditional persistence of ACC when ACC is high (low).

Consistent with Sloan (1996), buying stocks of firms in the lowest quintile of ACC, and selling stocks of firms in the highest quintile of ACC, yields an excess return of 2.11% in the post-SEC filing window (significant at the 0.01 level). However, when ACP(ACC) is in its upper quintile, there is no significant difference in post-SEC filing excess returns between the lowest and the highest quintiles of ACC. That is, when the adjusted conditional persistence of accruals is relatively high, there is no drift associated with the magnitude of accruals. In contrast, when ACP(ACC) is in its lowest quintile, the difference in post-SEC filing excess returns between the lowest and the highest quintiles of ACC is 3.18% (significant at the 0.01 level). Also notice that the accrual-related drift declines almost monotonically with the increase in ACP(ACC).

The results presented in Panel C suggest that there is an association between the adjusted conditional persistence of accruals and Sloan's (1996) accrual anomaly. The accrual anomaly is most noticeable when ACP(ACC) is low. When ACP(ACC) is in its lowest quintile, the conditional persistence of ACC is relatively low; hence, the level of ACC negatively affects the persistence of earnings, resulting in positive (negative) subsequent abnormal returns for low (high) levels of accruals. However, when ACP(ACC) is high, the conditional persistence of ACC is relatively high, presumably approaching the persistence of cash flows; hence, there is no negative association between ACC and earnings' persistence, and investors' failure to price the accrual and cash flow components of earnings differentially becomes irrelevant. Therefore, when ACP(ACC) is in its highest quintile post-announcement returns are not significantly different from zero, for both low and high levels of ACC.

(Table 6 about here)

We continue with a multivariate regression analysis of the association between conditional persistence and accounting anomalies. To examine the impact of ACP(UOPM) on the post-earnings announcement drift, we construct Equation (4):

$$AR(90)_{it} = \lambda_{0t} + \lambda_{1t} D_{ACP(UOPM)5,it} + \lambda_{2t} ACP(UOPM)_{it}^{quin} + \lambda_{3t} SUE_{it}^{quin} + \lambda_{4t} ACP(UOPM)_{it}^{quin} SUE_{it}^{quin} + \lambda_{5t} D_{ACP(UOPM)5,it} SUE_{it}^{quin} + \lambda_{6t} BETA_{it}^{quin} + \lambda_{7t} BM_{it}^{quin} + \lambda_{8t} SIZE_{it}^{quin} + \zeta_{it} \quad (4)$$

The dependent variable in Equation (4) is the excess return for a post-SEC filing window of 90 days. We define $D_{ACP(UOPM)5}$ as a dummy variable, which obtains the value of "1" if ACP(UOPM) is in the upper quintile for firm i in quarter t, and "0" otherwise. We include $D_{ACP(UOPM)5}$, ACP(UOPM) and SUE as explanatory variables in the model. We also include two interaction variables: [$D_{ACP(UOPM)5}$ X SUE] and [ACP(UOPM) X SUE]. As in the contemporaneous analysis, we control for BETA, BM, and SIZE. All independent variables are in scaled-quintile format.

Table 7, Panel A, presents average coefficients and corresponding *t*-statistics (in parentheses) from estimating Equation (4) each quarter. We present two specifications of the model. The first specification includes the interaction between ACP(UOPM) and SUE. The coefficient λ_4 on [ACP(UOPM) X SUE] is positive and significant at the 0.05 level, which reinforces our assertion regarding the association between ACP(UOPM) and the post-earnings-announcement drift. The coefficient on SUE is also positive and significant at the 0.01 level. The second specification includes an interaction between the upper quintile of ACP(UOPM) and SUE. The coefficient on this interaction variable is positive, as expected, and significant at the 0.05 level. In fact, this specification suggests that the post-earnings-announcement drift is (λ_3 =) 1.67% for the first four quintiles of ACP(UOPM), but it increases at the 0.05 level to ($\lambda_3 + \lambda_5$ = 1.67% + 1.11% =) 2.78% for the fifth quintile of

ACP(UOPM). These results are consistent with those reported in Table 6, namely, the drift is associated with the adjusted conditional persistence of UOPM.

Next, we examine whether ACP(UOPM) is associated with the post-revenue-announcement drift. We estimate Equation (5), which is similar to Equation (4), except for one change: Standardized unexpected earnings (SUE) is replaced with standardized unexpected revenue (SURG).

$$AR(90)_{it} = \lambda_{0t} + \lambda_{1t} D_{ACP(UOPM)5,it} + \lambda_{2t} ACP(UOPM)_{it}^{quin} + \lambda_{3t} SURG_{it}^{quin} + \lambda_{4t} ACP(UOPM)_{it}^{quin} SURG_{it}^{quin} + \lambda_{5t} D_{ACP(UOPM)5,it} SURG_{it}^{quin} + \lambda_{6t} BETA_{it}^{quin} + \lambda_{7t} BM_{it}^{quin} + \lambda_{8t} SIZE_{it}^{quin} + \zeta_{it} \quad (5)$$

As Table 7, Panel B, shows, the coefficient λ_4 on [ACP(UOPM) X SURG] in the first specification is positive, as expected, and significant at the 0.01 level. According to the second specification, the post-revenue-announcement drift is (λ_3 =) 0.94% for the first four quintiles of ACP(UOPM), but it increases at the 0.05 level to ($\lambda_3 + \lambda_5$ = 0.94% + 1.31% =) 2.25% for the fifth quintile of ACP(UOPM).

Next, we focus on the accrual anomaly. Specifically, we examine whether the adjusted conditional persistence of the accrual component of earnings, ACP(ACC) is associated with the magnitude of the anomaly. We construct Equation (6) in a manner similar to that employed in constructing Equations (4) and (5). In particular, we define $D_{ACP(ACC)5}$ as a dummy variable, which obtains the value of "1" if ACP(ACC) is in the upper quintile for firm i in quarter t, and "0" otherwise.

$$AR(90)_{it} = \lambda_{0t} + \lambda_{1t} D_{ACP(ACC)5,it} + \lambda_{2t} ACP(ACC)_{it}^{quin} + \lambda_{3t} ACC_{it}^{quin} + \lambda_{4t} ACP(ACC)_{it}^{quin} ACC_{it}^{quin} + \lambda_{5t} D_{ACP(ACC)5,it} ACC_{it}^{quin} + \lambda_{6t} BETA_{it}^{quin} + \lambda_{7t} B/M_{it}^{quin} + \lambda_{8t} SIZE_{it}^{quin} + \zeta_{it} \quad (6)$$

As Table 7, Panel C, shows, the coefficient λ_4 on [ACP(ACC) X ACC] in the first specification is positive, as expected, and significant at the 0.10 level. According to the second specification, the accrual-related drift is (λ_3 =) -2.88% for the first four quintiles of

ACP(ACC), but it drops (in absolute terms) at the 0.05 level to ($\lambda_3 + \lambda_5$ = -2.88% + 1.73% =) -1.15% for the fifth quintile of ACP(ACC).

Overall, the results of Table 7 suggest that the conditional persistence of unexpected operating profit margins and the accrual component of earnings are associated with the magnitude of the post-SEC filing excess stock returns in a predictable manner. These results reinforce the inferences drawn from the portfolio analysis.[8]

Taken together, the results in Tables 6 and 7 establish a link between accounting-based anomalies and the conditional persistence. We suggest that the investors' inability to distinguish between unconditional and conditional persistence of earnings components provides a partial explanation for accounting anomalies that are based on misperception of persistence, such as the post-earnings-announcement drift, the post-revenue-announcement drift, and the accrual anomaly. In particular, the results imply that the misperception of *conditional* persistence, rather than the misperception of *unconditional* persistence, is the driver behind these anomalies.

(Table 7 about here)

5. Conditional Persistence and Analysts' Earnings Forecasts

The empirical analysis thus far has focused on the market pricing of accounting information by investors. We next turn our focus to analysts' earnings predictions, and examine whether analysts predict earnings based on the conditional persistence of earnings components, or whether, like investors, they are fixated on the unconditional persistence measure of these components. Specifically, we examine whether the adjusted conditional

[8] We replicate the analysis presented in Tables 6 and 7 using the adjusted conditional persistence of the change in ACC [ACP(UACC)] instead the level of ACC. Results are qualitatively the same.

persistence of UOPM and ACC in quarter t-1 are associated with three forecast attributes in quarter t: (i) forecast accuracy; (ii) forecast bias; (iii) and forecast dispersion.

Forecast errors for firm i in quarter t (FE_{it}) are computed as reported earnings per share minus the average of all forecasts announced in the month immediately preceding that of the earnings announcement (as reported in I/B/E/S), deflated by the stock price at the end of the prior quarter. Consistent with Gu and Wu (2003), we require that stock price be at least \$3 to avoid the small deflator problem.[9] Forecast accuracy is measured as the absolute value of the forecast error. Bias is measured as the signed forecast error.[10] Forecast dispersion is measured as the standard deviation of forecasts, deflated by the stock price at the end of the previous quarter. In measuring dispersion, we limit our sample to firm/quarter observations with a minimum of three different analysts' earnings forecasts.[11] We construct the following cross-sectional models:

$$DEP\,VAR_{it} = \gamma_{0t} + \gamma_{1t} ACP(UOPM)_{it-1} + \gamma_{2t} UOPM_{it-1} + \gamma_{3t} BM_{it} + \gamma_{4t} SIZE_{it} + \mu_{it} \quad (7a)$$

$$DEP\,VAR_{it} = \gamma_{0t} + \gamma_{1t} ACP(ACC)_{it-1} + \gamma_{2t} ACC_{it-1} + \gamma_{3t} BM_{it} + \gamma_{4t} SIZE_{it} + \mu_{it} \quad (7b)$$

The dependent variables in both equations are the three analysts' forecast attributes. Equation (7a) includes UOPM and ACP(UOPM) as explanatory variables, and Equation (7b) includes accruals (ACC) and the adjusted conditional persistence of accruals, ACP(ACC), as explanatory variables. Consistent with prior studies, we control for the book-to-market ratio (BM) and firm size (SIZE).[12] We estimate Equations (7a) and (7b) each quarter and report the average coefficients and *t*-statistics as in Fama and MacBeth (1973). Coefficient estimates are multiplied by 1,000.

[9] Using actual earnings as a deflator instead of stock price at the beginning of the quarter does not have a material effect on the results (not tabulated). Also, using firms with stock prices above \$1 instead of \$3 does not have a material effect on the results (not tabulated).

[10] Imposing a minimum of two or three different forecasts for the purpose of calculating accuracy and bias does not change the results significantly.

[11] Using a minimum of two different analysts instead of three does not have a material effect on the results.

[12] See, Atiase (1985), Bhushan (1989), Collins et al. (1987), and Lang and Lundholm (1996).

Table 8 provides the results of this analysis. Focusing on Equation (7a) in the left section of the table, higher ACP(UOPM) is associated with less accurate forecasts, as reflected in the positive coefficient on ACP(UOPM) when the dependent variable is the absolute forecast errors. Higher ACP(UOPM) is also associated with more pessimistic forecasts and more dispersed forecasts (all three coefficients are significant at the 0.05 level or better). These results suggest that analysts' forecasts are less informative about future earnings when the conditional persistence of UOPM is high relative to its unconditional persistence. In particular, if analysts are fixated on the unconditional persistence and do not fully appreciate the conditional persistence, then when ACP(UOPM) is high they will place low persistence on the predicted earnings, whereas the actual persistence is high, resulting in higher forecast errors. These findings are consistent with the results in Table 6 because we would expect the anomalies to be stronger when analysts' earnings forecasts are less informative about future earnings. In addition, the positive association between signed forecast errors in quarter t and ACP(UOPM) in quarter t-1 suggests that analysts overestimate future earnings when ACP(UOPM) is low, and underestimate future earnings when ACP(UOPM) is high. This result is consistent with, and provides an explanation for, the market mispricing of ACP(UOPM).

Turning to Equation (7b), we find a negative association between ACP(ACC) in period t-1 and absolute forecast errors and dispersion in period t; the coefficient estimate on ACP(ACC) is both negative and significant at the 0.07 level or better for these specifications. These results suggest that analysts' forecasts are more informative about future earnings when ACP(ACC) is high. In particular, high ACP(ACC) reflects observations where the conditional persistence of ACC is relatively high and the unconditional persistence of ACC is relatively low. Hence, when ACP(ACC) is high the negative effect of the accrual component on earnings' persistence diminishes, and analysts'

failure to price the accrual and cash flow components of earnings differentially becomes irrelevant, resulting in higher accuracy and lower dispersion. These findings are consistent with the results in Table 6 because we would expect the anomalies to be weaker when analysts' earnings forecasts are more informative about future earnings. We also find no significant association between forecast bias in quarter t and ACP(ACC) in the preceding quarter. This result is consistent with the zero drift with respect to the level of ACP(ACC) observed in Tables 6, Panel C, for the full sample.

Overall, the results in Table 8 suggest that ACP(UOPM) is negatively associated with the quality of earnings predictions, while ACP(ACC) is positively associated with the quality of earnings forecasts. Specifically, If analysts are fixated on unconditional persistence of profit margins instead of on the conditional persistence of this variable, they will underestimate earnings' persistence when ACP(UOPM) in period t-1 is high, resulting in less accurate, less optimistic and more dispersed forecasts in period t. However, when ACP(ACC) in period t-1 is high, the misperception of earnings' persistence, attributed to the negative effect of the accrual component of earnings on overall earnings persistence, is diminished, resulting in more accurate and less dispersed forecasts in period t.

(Table 8 about here)

6. Summary

The accounting literature suggests that different components of earnings have different persistence and should therefore be priced differently by investors. The literature has also argued that the mispricing of accounting information is related to investors' misperception of the differential persistence of earnings components. Recently it has been suggested that the market reaction to an accounting variable should depend not on its unconditional persistence, but on its conditional persistence. We therefore examine whether market mispricing of

accounting information can be partially explained by investors' inability to distinguish between the unconditional and conditional persistence of earnings components, rather than by incorrect estimation of unconditional persistence.

We examine three accounting-based anomalies that have been attributed to incorrect estimation of persistence, and show that the magnitude of these anomalies is significantly associated with the level of adjusted conditional persistence (conditional persistence adjusted to the level of unconditional persistence), and that analysts' forecast attributes are associated with adjusted conditional persistence. As a result, we are capable of constructing a profitable trading strategy based on adjusted conditional persistence. Overall, we suggest that both equity investors and financial analysts are fixated on the time series properties of earnings components (that is, unconditional persistence), partially ignoring the co-movements of variables over time (that is, conditional persistence). This fixation may contribute to low quality of earnings' predictions and market mispricing.

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Appendix A
Variable Definitions

Excess Return Measures	
AR(C)	Current excess buy-and-hold size-adjusted stock returns from one day before the preliminary earnings announcement until one day after the SEC filing
AR(90)	Excess buy-and-hold size-adjusted stock returns for a 90-day (calendar) window, starting two days after the current SEC filing date
Ratios and Unexpected Ratios	
RNOA	Return on net operating assets, measured as quarterly core operating income after-tax (COI), divided by net operating assets (NOA).
URNOA	Unexpected change in quarterly RNOA, measured as $RNOA_t - RNOA_{t-4}$.
D_{PRNOA}	A dummy variable equal to "1" if unexpected changes in return on net operating assets (URNOA) is positive for firm i in quarter t, and "0" otherwise.
OPM	Core operating profit margin after tax, measured as quarterly core operating income after tax (COI) divided by sales.
UOPM	Unexpected change in quarterly OPM, measured as $OPM_t - OPM_{t-4}$.
ATO	Asset turnover, measured as quarterly sales divided by net operating assets.
UATO	Unexpected change in quarterly ATO, measured as $ATO_t - ATO_{t-4}$.
Cash Flow and Accrual Components of Earnings	
EARN	Earnings before extraordinary items and discontinued operations, divided by total assets**.**
CFO	Cash flows from continuing operations, divided by total assets**.**
ACC	The accrual component of earnings, measured as the difference between earnings before extraordinary items and discontinued operations and operating cash flows from continuing operations, divided by total assets. ACC = EARN – CFO**.**
Unexpected Earnings and Unexpected Revenue	
SUE	Standardized unexpected earnings, measured as earnings per share in quarter t (EPS_t) minus earnings per share in the same quarter last year (EPS_{t-4}) plus an average drift (D_t), deflated by the standard error of unexpected earnings per share over the previous eight quarters (S_t). $SUE_{i,t} = \frac{EPS_{i,t} - E(EPS_{i,t})}{S_{i,t}}$, $E(EPS_{i,t}) = EPS_{i,t-4} + D_{i,t}$, $D_{i,t} = \frac{1}{8}\sum_{j=1}^{8}(EPS_{i,t-j} - EPS_{i,t-j-4})$, $S_{i,t} = \frac{1}{7}\sqrt{\sum_{j=1}^{8}(EPS_{i,t-j} - E(EPS)_{i,t-j})^2}$
SURG	Standardized unexpected revenue growth, measured as revenue per share in quarter t (RPS_t) minus revenue per share in the same quarter last year (RPS_{t-4}) plus an average drift (D_t), deflated by the standard error of unexpected revenue per share over the previous eight quarters (S_t). $SURG_{i,t} = \frac{RPS_{i,t} - E(RPS_{i,t})}{S_{i,t}}$, $E(RPS_{i,t}) = RPS_{i,t-4} + D_{i,t}$, $D_{i,t} = \frac{1}{8}\sum_{j=1}^{8}(RPS_{i,t-j} - RPS_{i,t-j-4})$, $S_{i,t} = \frac{1}{7}\sqrt{\sum_{j=1}^{8}(RPS_{i,t-j} - E(RPS)_{i,t-j})^2}$
Persistence Measures	
P(UOPM)	Unconditional persistence of UOPM, measured for each firm/quarter as the first autocorrelation of UOPM over the previous eight quarters.

P(ACC)	Unconditional persistence of accruals, measured for each firm/quarter as the first autocorrelation of accruals (ACC) over the previous eight quarters.
CP(UOPM)	Conditional persistence of UOPM. CP(UOPM) is measured for each firm/quarter using the following procedure: We estimate the following regression on a firm-by-firm basis using the previous eight quarters: $$P(URNOA)_{it} = \alpha_{0it} + \alpha_{1it} P(UOPM)_{it} + \alpha_{2it} P(UATO)_{it} + \varepsilon_{it}$$ We obtain slope coefficients for each firm/quarter. We also compute the mean of UOPM using the previous eight quarters [Mean(UOPM)$_{it}$]. Then, we compute the conditional persistence for each firm/quarter as: $$CP(UOPM)_{it} = \alpha_{1it} \times Mean(UOPM)_{it}$$
CP(ACC)	Conditional persistence of accruals (ACC). CP(ACC) is measured for each firm/quarter using the following procedure: We estimate the following regression on a firm-by-firm basis using the previous eight quarters: $$P(EARN)_{it} = \alpha_{0it} + \alpha_{1it} P(ACC)_{it} + \alpha_{2it} P(CFO)_{it} + \varepsilon_{it}$$ We obtain slope coefficients for each firm/quarter. We also compute the mean of ACC using the previous eight quarters [Mean(ACC)$_{it}$]. Then, we compute the conditional persistence for each firm/quarter as: $$CP(ACC)_{it} = \alpha_{1it} \times Mean(ACC)_{it}$$
ACP(UOPM)	We rank all companies, each quarter, according to their unconditional persistence, P(UOPM), assigning integer values starting with "1" for the company with the lowest P(UOPM). Then, we rank all companies, each quarter, according to their conditional persistence, CP(UOPM), assigning integer values starting with "1" for the company with the lowest conditional persistence. We compute the difference between the ranks and divide by the number of companies in the quarter, N_t: $$ACP(UOPM)_{it} = \{Rank[CP(UOPM)_{it}] - Rank[P(UOPM)_{it}]\} / N_t$$ Thus, we obtain a measure of the distance between conditional and unconditional persistence and refer to it as adjusted conditional persistence of UOPM, or ACP(UOPM).
ACP(ACC)	We rank all companies, each quarter, according to their unconditional persistence of accruals, P(ACC), assigning integer values starting with "1" for the company with the lowest P(ACC). Then, we rank all companies, each quarter, according to their conditional persistence, CP(ACC), assigning integer values starting with "1" for the company with the lowest conditional persistence. We compute the difference between the ranks and divide by the number of companies in the quarter, N_t: $$ACP(ACC)_{it} = \{Rank[CP(ACC)_{it}] - Rank[P(ACC)_{it}]\} / N_t$$ Thus, we obtain a measure of the distance between conditional and unconditional persistence and refer to it as adjusted conditional persistence of accruals, or ACP(ACC).
Scaled-Quintile Transformation	
X^{quin}	A variable X transformed to a scaled-quintile format, ranging from 0 to 1. The variable is ranked each quarter and the observations in the lowest quintile are assigned the value "0", the observations in the upper quintile are assigned the value "1", and the middle quintiles are assigned the values 0.25, 0.50 and 0.75, respectively. For instance, $UOPM^{quin}$ is UOPM transformed to a scaled-quintile format, ranging from 0 to 1.

Indicator Variables	
$\mathbf{D_{ACP(UOPM)5}}$	A dummy variable equal to "1" if ACP(UOPM) is in the upper quintile for firm i in quarter t**.**
$\mathbf{D_{ACP(ACC)5}}$	A dummy variable equal to "1" if ACP(ACC) is in the upper quintile for firm i in quarter t.
Analysts' Forecast Errors	
FE	Forecast error, computed as reported earnings per share minus the average of all forecasts announced in the month immediately preceding that of the earnings announcement (as reported in I/B/E/S), deflated by the stock price at the end of the prior quarter. Forecast accuracy is measured as absolute forecast error deflated by the stock price at the end of the previous period; forecast bias is measured as signed forecast error, deflated by the stock price at the end of the previous period; and forecast dispersion is measured as standard deviation of forecasts, deflated by the stock price at the end of the previous quarter.
Control Variables	
BM	The book-to-market ratio, measured as book value of common equity at quarter-end divided by market value of common equity**.**
SIZE	Market value of common equity at quarter-end (in millions of dollars).
BETA	Systematic market risk, as reported by *the Center for Research in Security Prices* (CRSP)

Table 1
Sample selection

Year	Full Sample
1991	1,261
1992	4,179
1993	4,776
1994	4,986
1995	5,169
1996	5,396
1997	5,433
1998	5,391
1999	5,368
2000	5,157
2001	5,011
2002	5,091
2003	5,111
2004	5,085
2005	4,818
2006	4,504
2007	4,222
2008	2,978
Observations	83,936
Companies	3,849

Note: The sample includes all companies with complete stock returns and financial data available on Compustat and CRSP with market value of equity above $10 million at quarter-end. We exclude financial institutions (1-digit SIC = 6) and public utilities (2-digit SIC = 49). We also remove the extreme 1% of observations (on both sides) in Return on Net Operating Assets (RNOA), components of RNOA, standardized unexpected earnings (SUE), standardized unexpected revenue (SURG) and current abnormal returns (AR(C)).

Table 2
Descriptive statistics

Variable	N	Mean	Std. Dev.	5th Pctl.	25th Pctl.	Median	75th Pctl.	95th Pctl.
AR(C)	83,936	0.00	0.12	-0.18	-0.06	-0.00	0.06	0.21
AR(90)	83,936	0.00	0.21	-0.30	-0.12	-0.01	0.10	0.34
RNOA	83,936	0.03	0.06	-0.03	0.01	0.02	0.04	0.10
OPM	83,936	0.05	0.10	-0.08	0.02	0.05	0.09	0.17
ATO	83,936	0.61	0.50	0.15	0.33	0.48	0.73	1.49
URNOA	83,936	-0.01	1.40	-0.06	-0.01	0.00	0.01	0.05
UOPM	83,936	0.00	0.17	-0.10	-0.01	0.00	0.01	0.09
UATO	83,936	-0.00	3.46	-0.28	-0.05	0.00	0.05	0.24
EARN	59,276	0.01	0.03	-0.06	0.00	0.02	0.04	0.08
CFO	59,276	0.02	0.04	-0.05	0.00	0.02	0.04	0.08
ACC	59,276	-0.01	0.04	-0.08	-0.03	-0.01	0.00	0.05
SUE	83,936	-0.09	1.60	-2.71	-0.68	0.02	0.69	2.32
SURG	83,936	0.10	1.42	-2.33	-0.82	0.24	0.99	2.29
BM	83,936	0.61	0.49	0.14	0.31	0.49	0.77	1.17
SIZE	83,936	3,838.2	17,869.9	24.5	112.4	443.0	1,752.8	14,259.2

Note: Variables are defined as follows: **AR(C)** is current excess buy-and-hold size-adjusted stock returns from one day before the preliminary earnings announcement until one day after the SEC filing; **AR(90)** is excess buy-and-hold size-adjusted stock returns for a 90-day (calendar) window, starting two days after the current SEC filing date; **RNOA** is return on net operating assets, measured as quarterly operating income, divided by net operating assets; **OPM** is core operating profit margin after tax, measured as quarterly core operating income after tax divided by sales; **ATO** denotes asset turnover; measured as quarterly sales divided by net operating assets; **URNOA, UOPM**, **UATO** are unexpected variables, measured as the difference between the current variable and its level in the same quarter last year; **EARN** is the earnings before extraordinary items and discontinued operations, divided by total assets; **CFO** is the operating cash flows from continuing operations, divided by total assets; **ACC** is the accrual component, measured as the difference between earnings before extraordinary items and discontinued operations and operating cash flows from continuing operations, divided by total assets; **SUE** is standardized unexpected earnings, measured as quarterly earnings per share minus earnings per share in the same quarter last year minus a drift, scaled by the standard deviation of earnings in the prior eight quarters; **SURG** (standardized unexpected revenue) is similar to SUE but with sales per share; **BM** is the book-to-market ratio, measured as book value of common equity at quarter-end divided by market value of common equity; **SIZE** is market value of common equity at quarter-end (in millions of dollars).

Table 3
Conditional and unconditional persistence – Descriptive statistics

Variable	Mean	Std. Dev.	5th Pctl.	25th Pctl.	Median	75th Pctl.	95th Pctl.
P(URNOA)	0.28	0.37	-0.38	0.01	0.31	0.57	0.81
P(UOPM)	0.25	0.37	-0.39	-0.01	0.27	0.54	0.80
Coefficient [P(UOPM)]	0.69	0.56	-0.23	0.41	0.77	1.01	1.43
CP(UOPM)	0.18	0.29	-0.20	0.00	0.14	0.33	0.65
ACP (UOPM)	-0.00	0.30	-0.52	-0.18	0.01	0.19	0.47

Notes:

1. The table presents descriptive statistics for the unconditional and conditional persistence of UOPM. Unconditional persistence, P(UOPM), is measured for each firm/quarter as the first auto-correlation over the previous eight quarters.

2. Conditional persistence, CP(UOPM), is measured for each firm/quarter using the following procedure: We estimate the following regression on a firm-by-firm basis using the previous eight quarters:
$$P(URNOA)_{it} = \alpha_{0it} + \alpha_{1it} P(UOPM)_{it} + \alpha_{2it} P(UATO)_{it} + \varepsilon_{it} \quad (1)$$
We obtain slope coefficients for each firm/quarter. We also compute the mean of UOPM using the previous eight quarters – Mean(UOPM)_{it}. Then, we compute the conditional persistence for each firm/quarter as:
$$CP(UOPM)_{it} = \alpha_{1it} \times Mean(UOPM)_{it}$$

3. To compute adjusted conditional persistence, ACP(UOPM), we rank all companies, each quarter, according to their unconditional persistence, P(UOPM), assigning integer values starting with "1" for the company with the lowest P(UOPM). Then, we rank all companies, each quarter, according to their conditional persistence, CP(UOPM), assigning integer values starting with "1" for the company with the lowest conditional persistence. To complete the process we compute the difference between the ranks and divide by the number of companies in the quarter, N_t:
$$ACP(UOPM)_{it} = \{Rank[CP(UOPM)_{it}] - Rank[P(UOPM)_{it}]\} / N_t$$
Thus, we obtain a measure of the distance between conditional and unconditional persistence and define it as adjusted conditional persistence of UOPM, denoting it ACP(UOPM).

4. See Table 2 for definitions of other variables.

Table 4
Rank correlations of scaled-quintile variables

		1	2	3	4	5	6	7	8	9	10	11
1.	**URNOA^{quin}**		0.81	-0.03	-0.03	0.02	0.04	0.57	0.22	0.00	-0.11	0.03
2.	**UOPM^{quin}**			-0.03	-0.04	0.01	0.04	0.57	0.19	-0.02	-0.14	0.04
3.	**P(URNOA) ^{quin}**				0.71	0.36	-0.33	-0.00	0.01	-0.07	-0.03	0.05
4.	**P(UOPM)^{quin}**					0.45	-0.46	-0.01	0.00	-0.08	0.01	0.01
5.	**CP(UOPM)^{quin}**						0.47	0.02	-0.00	-0.05	0.11	-0.06
6.	**ACP(UOPM)^{quin}**							0.02	-0.01	0.03	0.08	-0.06
7.	**SUE^{quin}**								0.24	0.02	-0.06	0.03
8.	**SURG^{quin}**									0.00	-0.07	0.04
9.	**BETA^{quin}**										0.18	-0.28
10.	**BM^{quin}**											-0.48
11.	**SIZE^{quin}**											

Note: The table presents average quarterly Spearman correlations for unexpected return on net operating assets (URNOA), unexpected operating profit margin (UOPM), the persistence measures of UOPM [P(UOPM), CP(UOPM) and ACP(UOPM)], standardized unexpected earnings (SUE), standardized unexpected revenue (SURG), systematic risk (BETA), book-to-market (BM), and firm size (SIZE). Variables are transformed to a scaled-quintile variable with values ranging from 0 to 1. See Table 1 for sample selection, and Table 2 for definitions of variables.

Table 5
The association between abnormal stock returns and adjusted conditional persistence of UOPM

	Dep. Var. = AR(C)		Dep. Var. = AR(90)	
	Spec. 2a	**Spec. 2b**	**Spec. 3a**	**Spec. 3b**
Intercept	-4.53 (-11.3***)	-4.82 (12.0***)	-1.25 (-1.3)	-1.71 (-1.8*)
D_{PRNOA}		-0.49 (2.9***)		0.79 (2.4**)
ACP(UOPM)^{quin}		-0.50 (-2.8***)		-0.09 (-0.3)
D_{PRNOA}ACP(UOPM)^{quin}		1.19 (4.7***)		1.06 (2.6***)
UOPM^{quin}		1.00 (5.2***)		1.05 (2.6***)
SUE^{quin}	3.55 (20.4***)	2.25 (12.3***)	1.71 (5.5***)	0.19 (0.7)
SURG^{quin}	1.69 (11.1***)	1.54 (10.0***)	0.77 (3.8***)	0.60 (3.1***)
BETA^{quin}	-0.07 (-0.2)	-0.01 (-0.0)	-0.85 (-0.8)	-0.87 (-0.9)
BM^{quin}	1.43 (6.2***)	1.65 (7.2***)	0.61 (0.9)	0.80 (1.2)
SIZE^{quin}	2.28 (7.4***)	2.39 (7.8***)	0.19 (0.3)	0.30 (0.4)
Adj-R^2	0.03	0.04	0.02	0.03
Observations	82,684	82,684	82,684	82,684

Notes:

1. The table presents results of estimating Equations (2) and (3):

$$AR(C)_{it} = \alpha_{0t} + \alpha_{1t} D_{PRNOA,it} + \alpha_{2t} ACP(UOPM)_{it}^{quin} + \alpha_{3t} D_{PRNOA,it} ACP(UOPM)_{it}^{quin} + \alpha_{4t} UOPM_{it}^{quin} + \alpha_{5t} SUE_{it}^{quin} + \alpha_{6t} SURG_{it}^{quin} + \alpha_{7t} BETA_{it}^{quin} + \alpha_{8t} B/M_{it}^{quin} + \alpha_{9t} SIZE_{it}^{quin} + \psi_{it} \quad (2)$$

$$AR(90)_{it} = \delta_{0t} + \delta_{1t} D_{PRNOA,it} + \delta_{2t} ACP(UOPM)_{it}^{quin} + \delta_{3t} D_{PRNOA,it} ACP(UOPM)_{it}^{quin} + \delta_{4t} UOPM_{it}^{quin} + \delta_{5t} SUE_{it}^{quin} + \delta_{6t} SURG_{it}^{quin} + \delta_{7t} BETA_{it}^{quin} + \delta_{8t} B/M_{it}^{quin} + \delta_{9t} SIZE_{it}^{quin} + \xi_{it} \quad (3)$$

2. We present two specifications for each equation. The dependent variable in specifications 2a-2b is the current abnormal stock returns [AR(C)], computed as excess buy-and-hold stock returns starting from one day before the preliminary earnings announcement until one day after the SEC filing date. The dependent variable in specifications 3a-3b is the abnormal stock return [AR(90)] for a 90-day window starting two days after the SEC filing.

3. Explanatory variables are:
   - UOPM – unexpected operating profit margin;
   - ACP(UOPM) – the adjusted conditional persistence of UOPM;
   - SUE – standardized unexpected earnings;
   - SURG – standardized unexpected revenue;
   - BETA – systematic market risk;
   - BM - the book-to-market ratio;
   - SIZE – market value of common equity;
   - $D_{PRNOA,\ it}$ – a dummy variable equal to "1" if unexpected changes in return on net operating assets (URNOA) is positive for firm i in quarter t, and "0" otherwise.

4. All explanatory variables are transformed to a scaled-quintile form, where each variable ranges from 0 to 1.

5. We present average coefficients and corresponding *t*-statistics (in parentheses). Coefficient estimates are multiplied by 100.

6. *, **, *** – Significantly different from zero at the 0.10, 0.05, and 0.01 levels, respectively.

Table 6
The association between accounting anomalies and adjusted conditional persistence - Portfolio analysis

Panel A – Post-earnings-announcement drift (N=83,936)

	Full Sample	SUE1	SUE5	SUE5 – SUE1
		-0.81***	1.09***	1.90***
ACP(UOPM)1	-0.27*	-0.51	0.60*	1.11**
ACP(UOPM)2	-0.01	-0.92***	1.11***	2.03***
ACP(UOPM)3	0.07	-1.21***	0.50	1.71***
ACP(UOPM)4	0.14	-0.64*	0.98***	1.62***
ACP(UOPM)5	0.46***	-0.82**	2.13***	2.95***
ACP(UOPM)5 – ACP(UOPM)1	0.73***	-0.31	1.53***	1.84***

Panel B – Post-revenue-announcement drift (N=83,936)

	Full Sample	SURG1	SURG5	SURG5 - SURG1
		-0.54***	0.78***	1.32***
ACP(UOPM)1	-0.27*	-0.35	-0.37	-0.02
ACP(UOPM)2	-0.01	-0.55	0.52	1.07**
ACP(UOPM)3	0.07	-0.47	0.96***	1.43***
ACP(UOPM)4	0.14	-0.52	1.27***	1.79***
ACP(UOPM)5	0.46***	-0.78**	1.46***	2.24***
ACP(UOPM)5 – ACP(UOPM)1	0.73***	-0.43	1.83***	2.26***

Panel C – The accrual anomaly (N=59,276)

	Full Sample	ACC1	ACC5	ACC1 – ACC5
		1.13***	-0.98***	2.11***
ACP(ACC)1	0.17	1.56***	-1.62***	3.18***
ACP(ACC)2	0.17	1.30***	-1.06**	2.36***
ACP(ACC)3	0.36*	1.46***	-1.14***	2.60***
ACP(ACC)4	0.10	0.95**	-0.82**	1.77***
ACP(ACC)5	0.21	0.40	-0.33	0.73
ACP(ACC)5 – ACP(ACC)1	0.04	-1.16**	1.29**	2.45***

Notes:

1. The table presents the association between accounting anomalies and adjusted conditional persistence. Panel A presents the market reaction to combinations of portfolios formed based on adjusted conditional persistence of UOPM [ACP(UOPM)] and standardized unexpected earnings (SUE); Panel B presents the market reaction to portfolios formed based on adjusted conditional persistence of UOPM [ACP(UOPM)] and standardized unexpected revenue (SURG), and Panel C presents the market reaction to portfolios

formed based on adjusted conditional persistence of ACC [ACP(ACC)] and the level of accruals (ACC).

2. To form portfolios, we initially rank all companies, each quarter, according to their ACP(UOPM), ACP(ACC), SUE, SURG, or ACC, and assign them into quintiles. Then, we construct portfolios of observations that fall into the two-variable combination of quintiles. For example, a combination of ACP(UOPM)1/SUE1 includes observations in the lowest quintile of both ACP(UOPM) and SUE.
3. We report mean size-adjusted abnormal returns (in percentage) for a 90-day window starting on the second day after the SEC filing date.
4. *, **, *** – Significantly different from zero at the 0.10, 0.05, and 0.01 levels, respectively.

Table 7
The association between accounting anomalies and adjusted conditional persistence - Regression analysis

Panel A – Post-earnings-announcement drift (N = 82,684)

Intercept	$D_{ACP(UOPM)5}$	$ACP(UOPM)^{quin}$	SUE^{quin}	$ACP(UOPM)^{quin} SUE^{quin}$	$D_{ACP(UOPM)5} SUE^{quin}$	$BETA^{quin}$	BM^{quin}	$SIZE^{quin}$	Adj-R^2
-0.88		-0.13	1.25	1.30		-0.85	0.61	0.19	0.02
(-0.9)		(-0.3)	(2.6***)	(2.0**)		(-0.8)	(0.9)	(0.3)	
-0.92	-0.17		1.67		1.11	-0.82	0.53	0.22	0.02
(-1.0)	(-0.5)		(4.7***)		(2.0**)	(-0.8)	(0.8)	(0.3)	

Panel B – Post-revenue-announcement drift (N = 82,684)

Intercept	$D_{ACP(UOPM)5}$	$ACP(UOPM)^{quin}$	$SURG^{quin}$	$ACP(UOPM)^{quin} SURG^{quin}$	$D_{ACP(UOPM)5} SURG^{quin}$	$BETA^{quin}$	BM^{quin}	$SIZE^{quin}$	Adj-R^2
-0.30		-0.66	-0.05	2.48		-0.79	0.51	0.27	0.02
(-0.3)		(-1.5)	(-0.1)	(3.6***)		(-0.8)	(0.8)	(0.4)	
-0.59	-0.20		0.94		1.31	-0.77	0.52	0.25	0.02
(-0.6)	(-0.5)		(4.0***)		(2.2**)	(-0.8)	(0.8)	(0.3)	

Panel C – The accrual anomaly (N=59,276)

Intercept	$D_{ACP(ACC)5}$	$ACP(ACC)^{quin}$	ACC^{quin}	$ACP(ACC)^{quin} ACC^{quin}$	$D_{ACP(ACC)5} ACC^{quin}$	$BETA^{quin}$	BM^{quin}	$SIZE^{quin}$	Adj-R^2
1.68		-0.74	-3.30	1.54		-0.80	-0.47	1.00	0.03
(1.1)		(-1.4)	(-5.8***)	(1.7*)		(-0.7)	(-0.6)	(1.0)	
1.48	-0.79		-2.88		1.73	-0.76	-0.50	0.99	0.03
(1.0)	(-1.5)		(-7.7***)		(2.2**)	(-0.7)	(-0.6)	(1.0)	

Notes:

1. The table presents a regression analysis for the association between accounting anomalies and adjusted conditional persistence. Panel A presents results of estimating Equation (4) – the association between ACP(UOPM), SUE, and post-SEC filing buy-and-hold abnormal returns of 90 days, starting two days after the SEC filing date. Panel B presents results of estimating Equation (5) – the association between ACP(UOPM), SURG, and post-SEC filing buy-and-hold abnormal returns. Panel C presents results of estimating Equation (6) – the association between ACP(ACC), ACC, and post-SEC filing buy-and-hold abnormal returns.
2. We present average coefficients and corresponding *t*-statistics (in parentheses) from estimating the following equations each quarter:

$$AR(90)_{it} = \lambda_{0t} + \lambda_{1t} D_{ACP(UOPM)5,it} + \lambda_{2t} ACP(UOPM)_{it}^{quin} + \lambda_{3t} SUE_{it}^{quin} + \lambda_{4t} ACP(UOPM)_{it}^{quin} SUE_{it}^{quin} + \lambda_{5t} D_{ACP(UOPM)5,it} SUE_{it}^{quin} + \lambda_{6t} BETA_{it}^{quin} + \lambda_{7t} BM_{it}^{quin} + \lambda_{8t} SIZE_{it}^{quin} + \zeta_{it} \quad (4)$$

$$AR(90)_{it} = \lambda_{0t} + \lambda_{1t} D_{ACP(UOPM)5,it} + \lambda_{2t} ACP(UOPM)_{it}^{quin} + \lambda_{3t} SURG_{it}^{quin} + \lambda_{4t} ACP(UOPM)_{it}^{quin} SURG_{it}^{quin} + \lambda_{5t} D_{ACP(UOPM)5,it} SURG_{it}^{quin} + \lambda_{6t} BETA_{it}^{quin} + \lambda_{7t} BM_{it}^{quin} + \lambda_{8t} SIZE_{it}^{quin} + \zeta_{it} \quad (5)$$

$$AR(90)_{it} = \lambda_{0t} + \lambda_{1t} D_{ACP(ACC)5,it} + \lambda_{2t} ACP(ACC)_{it}^{quin} + \lambda_{3t} ACC_{it}^{quin} + \lambda_{4t} ACP(ACC)_{it}^{quin} ACC_{it}^{quin} + \lambda_{5t} D_{ACP(ACC)5,it} ACC_{it}^{quin} + \lambda_{6t} BETA_{it}^{quin} + \lambda_{7t} BM_{it}^{quin} + \lambda_{8t} SIZE_{it}^{quin} + \zeta_{it} \quad (6)$$

3. $D_{ACP(UOPM)5}$ is a dummy variable equal to "1" if ACP(UOPM) is in the higher quintile for firm i in quarter t; $D_{ACP(ACC)5}$ is a dummy variable equal to "1" if ACP(ACC) is in the higher quintile for firm i in quarter t; see Table 2 for definitions of other variables.
4. Explanatory variables are transformed to a scaled-quintile variable with values ranging from 0 to 1. Coefficient estimates are multiplied by 100.
5. *, **, *** – Significantly different from zero at the 0.10, 0.05, and 0.01 levels, respectively.

Table 8
The association between analysts' earnings forecasts and adjusted conditional persistence

	Equation (7a)			Equation (7b)		
Coefficient	**Accuracy**	**Bias**	**Dispersion**	**Accuracy**	**Bias**	**Dispersion**
Intercept	1.09 (11.6***)	0.08 (0.7)	0.49 (7.4***)	0.34 (2.3**)	0.88 (6.2***)	0.05 (1.0)
ACP(UOPM)	0.18 (2.5**)	0.26 (3.0***)	0.10 (2.3**)			
UOPM	-7.72 (-11.8***)	5.47 (7.0***)	-0.49 (-9.0***)			
ACP(ACC)				-0.17 (-1.8*)	0.15 (1.4)	-0.12 (-2.4**)
ACC				-5.15 (-3.8***)	1.14 (0.67)	-3.81 (-3.1***)
BM	3.10 (16.5***)	-0.84 (-3.8***)	1.95 (19.9***)	4.07 (10.8***)	-1.67 (-4.4***)	2.36 (19.4***)
SIZE	-0.01 (-10.1***)	-0.01* (-1.7*)	-0.01 (-5.1***)	-0.01 (-11.2***)	-0.00 (-1.05)	-0.01 (-3.0***)
Adj-R^2	0.15	0.03	0.16	0.12	0.02	0.14
Observations	42,282	42,282	32,407	35,629	35,629	29,483

Notes:

1. The table presents results of estimating the association between adjusted conditional persistence and four analyst forecast attributes: forecast accuracy, measured as absolute forecast error (FE) deflated by the stock price at the end of the previous period; forecast bias, measured as signed forecast error, deflated by the stock price at the end of the previous period; and forecast dispersion, measured as standard deviation of forecasts, deflated by the stock price at the end of the previous quarter.
2. We estimate Equations (7a) and (7b) each quarter and present average coefficients and corresponding *t*-statistics (in parentheses):

$$DEP\,VAR_{it} = \gamma_{0t} + \gamma_{1t} ACP(UOPM)_{it-1} + \gamma_{2t} UOPM_{it-1} + \gamma_{3t} BM_{it} + \gamma_{4t} SIZE_{it} + \mu_{it} \qquad (7a)$$

$$DEP\,VAR_{it} = \gamma_{0t} + \gamma_{1t} ACP(ACC)_{it-1} + \gamma_{2t} ACC_{it-1} + \gamma_{3t} BM_{it} + \gamma_{4t} SIZE_{it} + \mu_{it} \qquad (7b)$$

3. Coefficient estimates are multiplied by 1,000.
4. See Table 2 for definitions of the explanatory variables.
5. *, **, *** – Significantly different from zero at the 0.10, 0.05, and 0.01 levels, respectively.