

Quarterly Accruals or Cash Flows? Return Analysis

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Abstract

This study explores the incremental roles of accruals and net operating cash flows in generating abnormal returns using **quarterly** and **rolling four-quarter** data for the entire population of firms, as well as specific industries. Our results show that quarterly net operating cash flow (OCF) is a stronger signal about subsequent quarter's returns than accruals, and that this result is also true for rolling four-quarter OCF and accruals data. However, when rolling four-quarter OCF and accruals are used to construct portfolios that are held for a whole year, OCF dominates accruals in the first three fiscal quarters, but not in the fourth quarter. Our industry-specific results are consistent with the entire population results; OCF is a stronger signal of future returns than accruals. Investment managers and financial analysts should focus more attention on the OCF than accruals, except possibly for industries where accruals are important in predicting future returns.

Quarterly Accruals or Cash Flows? Return Analysis

Sloan's (1996) original accruals study, which documented an accruals anomaly and provided the potential reasons for it, has been followed by many studies that investigated and mostly confirmed his findings. Accruals, which are the difference between earnings and net operating cash flows (OCF), have been shown to be less persistent than net operating cash flows, a fact ignored by some investors. Thus, an investment strategy based on long (short) positions in companies with low (high) accruals earns abnormal returns of about 10% over the subsequent year, presumably capitalizing on the reversal of accruals within one year; firms with low (high) accruals tend to have higher (lower) earnings over the subsequent year, leading to higher (lower) stock prices. The accruals anomaly can be attributed to market failures in evaluating correctly the quality of earnings, ignoring the information content embedded in the breakdown of earnings into OCF and accruals.

The finance and accounting literature has independently investigated whether cash flows can be used by investors to form portfolios that will yield abnormal returns. For example, Lakonishok, Vishny and Schleifer (1994) show that portfolios based on low cash flow multiples (value companies) outperform those with high multiples (glamour or growth companies). Hackel, Livnat and Rai (1994, 2000) show that portfolios based on low free cash flow multiples can yield future abnormal returns. Thus, professional investors and analysts can either use accruals or net operating cash flows in their investment decisions or when they forecast future earnings. Which of the two will yield higher future returns is ultimately an empirical question with meaningful implications for practitioners. The academic literature on

this topic is sparse, relates only to annual accruals and cash flows, and is inconclusive.¹ Furthermore, practitioners would find it attractive to identify the industries in which accruals or cash flows work better, so they can focus on the relevant variable when making investment decisions or analyzing firms' future prospects.

Our study first investigates whether **quarterly** and rolling four-quarter accruals are more or less strongly associated with subsequent abnormal returns than OCF-based signals. The focus on quarterly accruals and net operating cash flows makes it more applicable to investment professionals and analysts who have to consider timely information about firms, instead of the annual accruals used by most prior studies. The study then examines the associations of subsequent abnormal returns with accruals and net operating cash flows in 17 industries, attempting to highlight those where the two signals (accruals and cash flows) can be most effective in terms of their implications for future stock returns.

Our quarterly results show that abnormal returns from two days after the SEC filing through one day after the subsequent preliminary earnings announcement are negatively and significantly associated with accruals, in line with prior research. In contrast (but consistent with prior research), net operating cash flow is positively and significantly associated with abnormal returns over the same window. The results also show that OCF is incrementally and significantly associated with future returns even after controlling for accruals, but accruals are not significantly associated with future returns after controlling for cash flows. Thus, practitioners who use quarterly OCF and accruals signals should focus more on OCF than on accruals in making investment decisions or in evaluating the future prospects of firms.

Our results indicate that rolling four-quarter accruals are an important signal about future returns (next quarter and four quarters) even after considering the influence of OCF.

¹ We review the accruals literature in the next section.

However, rolling four-quarter accruals seem to dominate OCF only in the fourth quarter when the holding period is one year. Thus, most of the evidence we present in this study supports the conclusion that OCF is a stronger signal than accruals about future returns.

Our specific industry analysis shows that rolling four-quarter accruals are significantly and negatively associated with returns over the subsequent year in five out of our 17 industries, whereas OCF is significantly and positively related to future returns in all but one industry. When the industry analysis is carried out with both signals, OCF remain incrementally significant in 13 of 17 industries, whereas accruals are incrementally significant in only five industries, and even then with the opposite sign (positive instead of negative as shown for the entire population). Thus, OCF shows its dominance even for our industry analysis.

The results of this study can be used by investment professionals and financial analysts. The results indicate the superiority of net operating cash flows for forming portfolios and for assessing the future prospects of firms, even after controlling for accruals. These results carry over to most industries. However, the results also indicate that accruals may provide additional relevant information about firms' future prospects beyond OCF and that a combination of the two signals may be the most valuable for investors. The study is also beneficial for academic studies on accruals and its role as compared to OCF. Whereas current academic studies on this issue are inconclusive, they have one common denominator – they all use annual data and investigate the effects of the signals on portfolios held for one year. Our study sheds light on OCF and accruals signals that are based on quarterly data (single quarter and rolling four-quarter), and show the sensitivity of prior results to the use of annual data. Practitioners are more likely interested in using quarterly data when those are available.

2. Literature Review and Research Design

Underlying the accruals anomaly is the premise that accruals tend to be less persistent than net operating cash flows because of intentional or unintentional managerial errors in forecasting future demand, events, or cash flows that inflate or deflate current accruals. For example, managers may intentionally use positive accruals to elevate earnings when operating cash flows are low and negative accruals to reduce high levels of earnings when operating cash flows are high. Sloan (1996) and others document a negative association between net operating cash flows and accruals, as well as higher earnings for companies with higher levels of accruals. Xie (2001) and DeFond and Park (2001) provide evidence that the accrual anomaly is driven by the mispricing of abnormal accruals, i.e., those that are subject to managerial discretion. In contrast, Beneish and Vargus (2002) find that the accruals anomaly can mainly be attributed to mispricing of income-increasing accruals, regardless of whether total or discretionary accruals are used. Thomas and Zhang (2002) attribute the accruals anomaly to investors' failure to correctly understand the role of one component of accruals - inventory changes. Richardson, Sloan, Soliman and Tuna (2004) provide evidence that the accruals anomaly can be attributed to those accounts that have low earnings quality and potentially high managerial discretion.

Several studies attempt to determine whether the accrual anomaly is unique, supplemented, or subsumed by other known anomalies. Collins and Hribar (2000) show that the accruals anomaly is separate from the post-earnings-announcement drift, and provide evidence that combining both anomalies yields greater abnormal returns than each of them alone. Barth and Hutton (2004) show that the accruals anomaly can be combined with analysts' earnings revisions to yield even greater abnormal returns. Desai, Rajgopal and Venkatachalam

(2004) find that the accruals anomaly is subsumed by the value-glamour (growth) anomaly, i.e., that selecting firms into portfolios based on their cash flow multiples eliminates significant abnormal returns from further using accruals in the portfolio strategy. Their results are challenged by both Cheng and Thomas (2006) and Barone and Magilke (2006) who show that accruals can contribute significantly to future abnormal returns even after controlling for the information in net operating cash flows. Finally, Fairfield, Whisenant and Yohn (2003) suggest that the accrual anomaly is partially driven by mispricing the implications of growth in net operating assets for future profits and returns.

As for most anomalies, a question remains why the accruals anomaly persists and is not arbitrated away. Collins, Gong and Hribar (2003) provide evidence that firms with a greater proportion of institutional investors, who are supposed to be more sophisticated, are subject to a weaker accruals anomaly. Mashruwala, Rajgopal and Shevlin (2005) find that the annual accruals strategy does not earn positive abnormal returns in all twelve months after portfolio formation, and that it is indeed weaker for companies with lower arbitrage risk. Lev and Nissim (2006) show that firms with extreme accruals have attributes that institutional investors shun. Thus, the continued existence of the accruals anomaly may be attributed to professional investors' failure in eliminating it completely. Finally, Kraft, Leone and Wasley (2006) argue that the accruals anomaly is likely driven by relatively few extreme observations and the failure to properly use delisting returns.

Most accrual studies have followed Sloan's (1996) use of annual cash flows and accruals, which are associated with annual buy and hold returns. There are just a few studies that examine whether the accruals anomaly is present in quarterly data. Collins and Hribar (2000) provide such evidence, but they accumulate returns from the *assumed* SEC filing date

through the subsequent two quarters, and not from the *actual* date on which investors obtain access to the SEC filings. DeFond and Park (2001) examine whether investors seem to interpret quarterly earnings surprises correctly, depending on abnormal working capital accruals for a sample of observations in the years 1992-1995. They show that abnormal returns for good earnings news firms with income-decreasing accruals during the 80-day period after the preliminary earnings announcement exceed those with income-increasing accruals. However, they essentially assume that the market has the accrual information at the time of the preliminary earnings announcement.² Livnat and Santicchia (2006) use quarterly accruals and cash flows to demonstrate that, similar to annual accruals, quarterly accruals have lower levels of persistence than quarterly net operating cash flows, and that firms with the lowest (highest) accruals in the current quarter have positive (negative) abnormal returns over the period from two days after the SEC filing through the day after the subsequent quarterly earnings announcements.

We seek to extend this literature by exploring two questions:

1. Are quarterly accruals associated with future abnormal returns after controlling for the information in net operating cash flows? This question is relevant for professionals and academics because the literature provides inconclusive evidence about the contribution of annual accruals to investment returns once net operating cash flows are controlled for. Professional investors may be interested in finding out whether quarterly accruals or cash flows dominate each other in portfolio selection and assessments of the firms'

² In robustness checks, they mention that their results are weaker for a sub-sample of firms with balance sheet information in the preliminary earnings announcement. They also report that their results do not change when they use abnormal returns cumulated from the preliminary earnings announcement through the next 20 trading days, which presumably include the SEC filing date. They report that their results hold for the first three fiscal quarters but not for the fourth.

future prospects. As a corollary to this question, this study also investigates whether accruals and OCF signals based on quarterly information should use only the most recent quarter or should be used on rolling four-quarter data, and whether portfolios based on these signals should be held for one or four quarters.

2. Is the accruals anomaly stronger in certain industries, and are net operating cash flow overshadowing accruals for portfolio selection in some industries but not in others? Again, practitioners will benefit from evidence that shows the types of industries in which accruals and OCF provide valuable signals for portfolio construction. This information can also be used by academics to better understand the potential causes of the accruals and cash flow anomalies.

To address these questions, we use regressions of abnormal returns from two days after the SEC filing through one day after the subsequent quarters' preliminary earnings announcements on scaled accruals (net operating cash flows) decile ranks. Specifically, we use the following regression equations:

$$\text{BHR}_{t+1} = a_0 + a_1\text{RACC}_t \quad (1)$$

$$\text{BHR}_{t+1} = b_0 + b_1\text{ROCF}_t \quad (2)$$

$$\text{BHR}_{t+1} = c_0 + c_1\text{RACC}_t + c_2\text{ROCF}_t \quad (3)$$

$$\text{BHR}_{t+4} = a_0 + a_1\text{RACC}_t \quad (4)$$

$$\text{BHR}_{t+4} = b_0 + b_1\text{ROCF}_t \quad (5)$$

$$\text{BHR}_{t+4} = c_0 + c_1\text{RACC}_t + c_2\text{ROCF}_t \quad (6)$$

Where BHR_{t+1} is the buy and hold return on a particular stock minus the buy and hold return on a benchmark portfolio with similar risk (size and B/M) characteristics over the period after accruals and cash flows become known to the market (conservatively, two days after the SEC filing date) through one day after the earnings announcement in the subsequent quarter, when market participants can find out if they erred in their interpretation of earnings in the previous quarter. $RACC_t$ is the decile rank of accruals at quarter t (net income minus net operating cash flows, scaled by average total assets during the quarter), scaled by nine (to obtain a scaled rank between zero and one), minus 0.5. Thus, the intercept a_0 measures the average BHR for the sample, and the slope coefficient a_1 measures the BHR on a portfolio that is long the highest decile of accruals and short the bottom decile. Regression (2) is similar to (1), except that the decile rank of net operating cash flows is substituted for accruals. Equation (3) is used to assess the incremental contribution of accruals (net operating cash flows) after controlling for net operating cash flows (accruals). Regressions (4), (5) and (6) are similar to (1)-(3), but use “annual” portfolio holding period, BHR_{t+4} as a dependent variable, i.e., until one day after the earnings announcement of quarter $t+4$. We also repeat these regressions every quarter in our sample period and examine the distribution of the coefficients over all quarters in a manner used by Fama and MacBeth (1973). We then repeat the process for each of the 17 industries identified by Professor Kenneth French in his data library.³

The above analysis has another advantage over annual accruals studies used in prior studies. The prior accruals literature assumed that accruals and OCF information had been available by the end of the third month after fiscal year end, and accumulated returns over the subsequent 12 months. This return window is inferior to a window that begins immediately

³ http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html .

after SEC filings are available and continue through subsequent earnings announcements. Sloan (1996) shows that about 2/3 of the abnormal returns that are earned on accruals for the entire year occur over 12 days surrounding the subsequent four quarterly earnings announcements. Thus, our ability to focus on precise return windows is likely to enhance the significance of the accruals and OCF signals and be of greater relevance for practitioners.

3. Data and Sample Selection

3.1 The Preliminary and Un-restated Compustat Quarterly Data

Data entry into the Compustat databases has been performed in a fairly structured manner over the years. When a firm releases its preliminary earnings announcement, Compustat takes as many line items as possible from the preliminary announcement and enters them into the quarterly database within 2-3 days. The preliminary data in the database are denoted by an update code of 2, until the firm files its Form 10-Q (10-K) with the SEC or releases it to the public, at which point Compustat updates all available information and uses an update code of 3. Unlike the Compustat Annual database, which is maintained as originally reported by the firm (except for restated items), the Compustat Quarterly database is further updated when a firm restates its previously reported quarterly results. For example, if a firm engages in mergers, acquisitions, or divestitures at a particular quarter and restates previously reported quarterly data to reflect these events, Compustat inserts the restated data into the database instead of the previously reported numbers. Similarly, when the annual audit is performed and the firm is required to restate its previously reported quarterly results by its auditor as part of the disclosure contained in Form 10-K, Compustat updates the quarterly database to reflect these restated data.

Charter Oak Investment Systems, Inc. (Charter Oak) has collected the weekly original CD-Rom that Compustat sent to its PC clients, which always contained updated data as of that week. From these weekly updates, Charter Oak has constructed a database that contains three numbers for each firm for each Compustat line item in each quarter. The first number is the preliminary earnings announcement that Compustat inserted into the database when it bore the update code of 2. The second number is the “As First Reported” (AFR) figure when Compustat first changed the update code to 3 for that firm-quarter. The third number is the number that exists in the current version of Compustat, which is what most investors use. The Charter Oak database allows us to use the first-reported information in the SEC filing, so that our quarterly earnings, cash flows and accruals correspond to those reported originally by the firms, which are also available to market participants at the time of the SEC filing. Using the restated Compustat Quarterly database may induce a hindsight bias into our back-tests, since we may have used restated earnings, cash flows or accruals that were not known to market participants on the SEC filing dates.

3.2 Sample Selection

To reduce the potential bias that may occur by using a sample of quarterly information that became available through SEC filings before the SEC’s EDGAR database and afterwards, this study concentrates on SEC filings that are available through the EDGAR database. Conceptually, information in SEC filings on the SEC EDGAR database is likely available to users at a very low cost immediately after the filing date indicated in the EDGAR database. Prior to EDGAR, information about SEC filings were available from the companies directly or from the SEC library with a lag (see, e.g., Easton and Zmijewski, 1993). Thus, using the SEC EDGAR database only is a more conservative approach. The problem with the SEC EDGAR

database is that it identifies firms according to CIK codes, which are not well-mapped into other databases used in practice and academe such as Compustat or CRSP.

The S&P's Filing Dates Database seeks to fill this void. It contains a match between all companies on the Compustat database (identified by GVKEY) with the CIK identifiers on the SEC EDGAR database. For each 10-K and 10-Q filing on EDGAR, the database includes not only the SEC filing date but also the balance sheet date for the quarter/year, so a perfect match with Compustat information can be made.⁴ The S&P's Filing Dates Database matches all Compustat firms (by GVKEY) to CIK codes on the SEC EDGAR database as they were known on the Compustat database at the time through the Charter Oak Point In Time database, as long as the firm's market value was in excess of \$1 million at quarter-end. Thus, it is useful in constructing a universe of firms that professional investors could have actually been using at the time without a survivorship bias. Current matches of company identifiers with CIK's are typically limited to actively trading companies, or companies that became inactive recently.⁵

For each firm-quarter in the S&P's Filing Dates Database, we obtain the SEC filing date for calendar years 1993-2006. We only use SEC filings made within 55 (100) days for 10-Q (10-K) forms to make sure we exclude delayed filings. We further limit the sample to observations with SEC filing dates for initial 10-Q/10-K filings in the S&P Filing Dates Database which also have a matching GVKEY on Compustat and a matching PERMNO on CRSP, so we can retrieve data from Compustat about these firms and stock return data from CRSP. We further reduce the sample to firms that are listed on NYSE, AMEX or NASDAQ and have a market value and total assets at quarter end, as well as total assets at the end of the

⁴ Because companies may file their 10-Q forms late, the filing date itself cannot be a reliable indication for the specific quarter used in the filing.

⁵ The S&P's Filing Dates Database includes all filing dates for a particular Compustat company, not only 10-Q or 10-K Forms. Among other things, it includes information from 8-K Forms and proxy statements.

prior quarter in excess of \$1 million. We further delete observations if the originally reported income before extraordinary items and discontinued operations (Compustat Quarterly item No. 8) is missing; or the originally reported quarterly net operating cash flow (Compustat Quarterly item No. 108) is missing; if market value at the end of the prior quarter is unavailable; or if total assets (Compustat Quarterly item No. 44) at the end of the prior quarter or at the end of the current quarter are missing.

To reduce the survival bias, we use holding periods of 90 days after the SEC filing date if subsequent quarterly earnings announcements are missing. We use a holding period of 360 days if the quarterly earnings announcement date for quarter $t+4$ is missing. If a security is delisted from an exchange before the end of the holding period, we use the delisting return from CRSP if available, and -100% if the stock is forced to delist by the exchange or if the delisting is due to financial difficulties. After delisting, we assume the proceeds are invested in the benchmark size and B/M portfolio. This is the procedure used by Kraft, et al. (2004). We first calculate the buy and hold return on the security during the holding period; then subtract the buy and hold return on a similar size and B/M benchmark portfolio for the same holding period. The benchmark returns are from Professor Kenneth French's data library, based on classification of the population into six (two size and three B/M) portfolios.⁶ To make sure that our results are not driven by observations with extreme returns as argued by Kraft et al (2004), we delete all extreme 0.5% observations with buy and hold excess returns in any of the two return periods used. This reduces the sample to 186,506 firm-quarters.

Consistent with the accruals literature, we estimate accruals as earnings minus net operating cash flows, and scale by average assets during the quarter. To eliminate the undue influence of extreme observations on our regression tests, earnings, net operating cash flows

⁶ http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

and accruals are winsorized to fall in the range $[-1,+1]$. This procedure keeps all observations, even when some earnings, cash flows, or earnings surprises are extreme.

The firms are sorted, independently, into deciles of OCF and accruals each quarter, or into quintiles for the industry-specific analysis. We then use the scaled decile (quintile) rank as the independent variable in regression equations (1)-(6). Our expectations are that accruals (net operating cash flows) will be negatively (positively) and significantly associated with the subsequent quarter's BHR. We also examine the significance of the coefficients of accruals and net operating cash flows in regression Equation (3) and (6) to see whether each variable provided incremental association with future returns after controlling for the other.

Table 1 provides summary statistics about our sample. As can be seen from the table, there are considerable differences in mean BHR, rolling four-quarter earnings, accruals and net operating cash flows across industries. As is well known (due to the effects of depreciation) the mean annual accruals is negative in every industry, but the mean cash flows is typically positive but is negative and large in Drugs which may be due to inclusion of start-up R&D companies in this industry. The considerable variation in accruals and cash flows across industries suggests that the potential effects of within-industry accruals and net operating cash flows on subsequent returns can vary across industries.

(Insert Table 1 about here)

4. Results

Table 2 shows the regression results of excess Buy and Hold Returns (BHR), from two days after the SEC filings through one day after the subsequent earnings announcement at quarter $t+1$ in Panel A and at quarter $t+4$ in Panel B, on scaled accruals ranks, on scaled cash

flows ranks and on both variables using the entire sample. This Table uses all sample observations, whereas Table 3 reports mean coefficients of the 52 quarterly cross-sectional regressions and their associated t-statistics and significance levels following the approach of Fama and MacBeth (1973). As can be seen from Table 2, the accrual anomaly is present in our sample for one and for four-quarter return windows. The coefficient on the scaled decile rank is -0.022 and -0.068 using quarterly and annual returns respectively, which translates to about 2.2% (6.8%) on the hedge portfolio of long (short) positions in the lowest (highest) accrual decile per quarter. Consistent with prior studies of cash flows, the net operating cash flow variable is significantly and positively associated with quarterly and annual BHR, indicating a mean abnormal quarterly return of about 4.6% for one quarter, or 12.1% for an annual holding period. This indicates that although an accruals signal can earn abnormal returns, the net operating cash flow signal may yield even greater BHR. Interestingly, when we examine the incremental associations of cash flows and accruals as in Equations (3) and (6), the accruals variable obtains a positive and statistically significant value of 0.007, indicating that after using cash flows to sort firms into deciles, the high accruals decile minus the low accruals decile earns an additional 0.7% per quarter. In contrast, after applying the reverse accruals strategy (holding long the decile of high accruals and shorting the decile of low accruals), the net operating cash flow strategy yield an even greater positive return of 5% per quarter. However, Panel B of this table shows that accruals are not relevant after controlling for net operating cash flows when the portfolio is held for one year. These results show the dominance of net operating cash flow over accruals when we use the entire pooled time-series cross-sectional sample.⁷

⁷ In untabulated results, we tested the null hypothesis that the negative scaled accruals coefficient is equal to the scaled OCF coefficient. The null hypothesis is rejected at 5% level in both Panel A and B. We performed this test

(Insert Table 2 about here)

It should be noted that the first row of Table 2 corresponds to the returns on hedge portfolio that holds long positions in the top accruals decile and short positions in the bottom accruals decile (-0.022, or -2.2% per quarter). Although the regression in fact uses all 186,506 observations, a back-tested strategy of a hedge portfolio that uses only the top and bottom decile of securities yields very similar results. The same is true for the second row of the table for OCF, where a simulated OCF strategy would have yielded 4.6% quarterly return on the hedge portfolio of long positions in the top OCF decile and short positions in the bottom OCF decile. However, it is very unlikely that the stocks in the top OCF decile will be completely identical to those in the bottom accruals decile. While OCF and accruals are highly (negatively) correlated, their correlation is less than 100%. Thus, a comparison of the returns on a pure OCF hedge portfolio and an accruals portfolio will be comparing portfolios with potentially different characteristics. To overcome this shortcoming, we compare the results of an accruals and OCF strategies that use **all** observations simultaneously, not because we wish to simulate a combined trading strategy, but because we wish to compare the weights on each anomaly in constructing an optimal portfolio using both anomalies. The weights indicate the relative emphasis placed on each anomaly.

Table 3 provides similar analyses as those in Table 2, except that instead of using the entire sample in our analyses, we run 52 quarterly cross-sectional regressions and examine the distribution of regression coefficients across the 52 quarters in the sample period using the Fama and MacBeth (1973) approach. This table confirms the results of Table 2; the quarterly net operating cash flows signal dominates the quarterly accruals signal for the immediate

for the rest of the tables in the paper. For brevity, we shall only report in further footnotes only cases where we could not reject the null hypothesis.

subsequent quarter and for the four-quarter holding period. These results are in line with Desai, et al. (2004) showing that accruals could be subsumed by net operating cash flows.

(Insert Table 3 about here)

The analyses in Tables 2 and 3 use quarterly accruals and OCF signals that are based on information obtained in quarter t . As is well known, quarterly OCF and accruals may be volatile (and seasonal), whereas rolling four-quarter signals about OCF and accruals may be more stable and more similar to annual accruals. Furthermore, an analysis of rolling four-quarter accruals and OCF by fiscal quarter will enable us to compare our results with those for annual accruals in prior studies and highlight cross-quarter differences.

Table 4 reports the results of using rolling four-quarter accruals and OCF signals for portfolios that are held just for one quarter (from two days after the SEC filing through one day after the earnings announcement of quarter $t+1$). It reports regression results for each fiscal quarter separately. The reason we examine portfolio performance by quarter is that the fourth quarter may be different from other interim quarters. The fourth quarter is reported after the annual audit is conducted and accruals are verified by an independent examiner. Also, firms typically take more transitory charges in the fourth quarter than other quarters. As seen previously, OCF dominates accruals in each of the four fiscal quarters, although accruals alone are valuation relevant, and are incrementally beneficial in fiscal quarters 2-4.⁸ These results are in line with Cheng and Thomas (2006) and Barone and Magilke (2006), who show that accruals matter beyond OCF.

(Insert Table 4 about here)

⁸ The null hypothesis of equal coefficients for OCF and negative accruals cannot be rejected at 5% level for second and third fiscal quarter.

For a better comparison of our results with prior studies we show similar analyses as in Table 4 when the portfolio holding period is through one day after the earnings announcement of quarter $t+4$. Panel D of Table 5 is the closest to the annual accruals prior studies because it uses annual accruals and (almost) one-year holding period. It reports that an accrual-based hedge portfolio generates annual returns of 9.9%, very close to those reported by Sloan (1996). The table shows similar results for rolling four-quarter accruals ending in interim quarters with 9.5%, 8.9% and 8% for the first through third quarters, respectively. However, the table also shows that the OCF-based hedge portfolio generates returns of 12.6%, 11.1% and 13.1% for the first three fiscal quarters. In the fourth quarter, OCF generates only 6%, below the 9.9% generated by accruals. When examining the two signals in the same regression model, both accruals and OCF are statistically significant, but OCF has a larger coefficient than accruals in the first three quarters but a lower coefficient in the fourth. The combined results of Tables 4 and 5 show that OCF is a superior signal than accruals in forming portfolios based on rolling four-quarter information. The only exception occurs in the fourth quarter when the return window is annual. Thus, our study sheds additional light on the prior inconclusive results about whether accruals are incrementally beneficial after the contribution of OCF. Our study shows that they are beneficial when they are based on rolling-four quarter data, but still inferior to the OCF signal.

(Insert Table 5 about here)

Industry Analysis:

Table 6 presents the results of using the rolling four-quarter accruals signal within industries with an annual return window. We estimate Equation (4) each quarter and report the Fama and MacBeth (1973) statistics for all 17 industries. As is clearly seen in the table, the

typical (negative and significant coefficient) accruals anomaly is present in five industries, Cars, Consumer Durables, Machinery, Retail Stores and the remaining “Other” industry, most of which have high numbers of observations. Contrary to expectations, the accruals signal has a positive and statistically significant coefficient in the Drugs, Mines, and Oil industries.

(Insert Table 6 about here)

Table 7 replicates Table 6, except that firms are sorted into quintiles each quarter according to their rolling four-quarter net operating cash flows. The picture emerging from the table is very clear-cut; the net operating cash flow signal is positively and significantly associated with subsequent annual returns in all industries except Transportation. Thus, unlike accruals, OCF is a robust signal across industries. Table 8 presents evidence about the incremental associations of cash flow and accruals in all 17 industries according to Equation (6). The evidence in this table indicates that the cash flow signal is incrementally and significantly associated with subsequent abnormal returns in 13 industries, even after controlling for the accruals signal. In contrast, while the accruals signal is incrementally and significantly associated with subsequent returns after controlling for cash flows for six industries (Banks, Drugs, Mines, Oil, Textiles and Utilities), the association is positive and not negative as is expected from the accruals literature. Even in those industries where accruals in isolation yielded significantly negative subsequent returns in Table 6, accruals do not contribute incrementally to OCF. Thus, the industry results tend to support the superiority of OCF over accruals as a signal for predicting future performance.

(Insert Table 7 and 8 about here)

Sensitivity Analysis:

1. We use the entire sample without eliminating the 0.5% of extreme returns on each side.
The main tenor of our results remains the same.
2. We exclude from our sample observations where net operating cash flows was disclosed in the preliminary earnings announcement. The main results of our study continue to hold.
3. We exclude observations where current accruals can be estimated from the preliminary earnings announcement, i.e., when accounts receivable, inventories, and accounts payable are disclosed in the preliminary earnings announcement. The main results remain very similar to those reported above.
4. We examine whether firms sorted into extreme deciles based on OCF and accruals have differential ratios of book to market values of equity. The results do not indicate any such differences, so accruals and OCF are not merely picking up differences that may be attributed to value-glamour.

5. Summary and Conclusions

This study investigates two main issues using quarterly information on the breakdown of earnings into cash flows and accruals. The first is whether the cash flow and accruals signals can be used by investors to construct portfolios that will earn future abnormal returns after controlling for the information in the other signal. Specifically, we test whether sorting of firms into long (short) positions based on high (low) cash flows and low (high) accruals signals are equivalent in terms of future abnormal returns, or whether one signal dominates the other. As a corollary of this issue, we also investigate whether it is preferable to use OCF and accruals

signals based on the most recent quarter or based on rolling four-quarter signals, whether the signals are effective for just one quarter or for the subsequent four quarters, and whether the signals' effectiveness depends on the specific fiscal quarter. The second issue in this study is whether cash flows and accruals are signals that can be used to predict future subsequent abnormal returns within all industries, or whether they are limited to only a few industries.

Our overall results suggest that net operating cash flows are superior to accruals in their association with subsequent abnormal returns. Consistent with Desai et al. (2004), we find that quarterly accruals are not significantly associated with subsequent quarter returns after controlling for OCF. However, consistent with Cheng and Thomas (2006) and Barone and Magilke (2006), we find that rolling four-quarter accruals are significantly associated with subsequent returns even after controlling for the effects of OCF. We also find that accruals seem to dominate OCF using rolling-four quarter information and a portfolio holding period which spans the subsequent four quarters, but only for the fourth fiscal quarter; in all other fiscal quarters OCF dominates accruals.

Our within-industry analysis shows that OCF alone is a significant signal for subsequent returns within all industries except one, i.e., that it is a good predictor of better and worse companies within an industry. In contrast, accrual is not a significant within-industry signal for most industries. When both signals are used together within an industry, accrual is never significant whereas OCF remains significant in 13 of 17 industries. This is further evidence that OCF dominates accruals.

Our study has implication for practitioners and academics. It shows that, generally, OCF is a superior signal to accruals in terms of its association with future returns. It shows that to maximize the utility of the accrual signal, investors and analysts should focus on rolling

four-quarter accruals rather than on accruals in the current quarter. We find that accruals are more significantly associated with subsequent returns in the fourth fiscal quarter. Finally, whereas OCF can be used to rank companies within an industry, accruals is not as powerful and is strictly inferior to OCF in all industries. Thus, investors who do not wish to take industry bets but are taking bets within an industry, or analysts who are interested in ranking firms within an industry are likely to find OCF a more appealing signal. Our study also sheds additional light on the debate whether accruals are subsumed by OCF or comprise an incremental signal. We show that the answer to this question depends on the length of the window over which accruals and OCF are estimated (one quarter versus four quarters), on the length of the portfolio holding period (one quarter versus one year), and on the specific fiscal quarter (interim versus fourth quarter).

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Table 1. Summary Statistics on Rolling Four-Quarter Accruals and Cash-Flows

Industry	N	Buy & Hold Return	Earnings	Accruals	Cash-Flows
Banks, Insurance & Financials	21,771	0.0261	0.0332	-0.0254	0.0585
Cars	2,526	-0.0517	0.0361	-0.0358	0.0719
Chemicals	3,386	-0.0258	0.0211	-0.0459	0.0670
Construction	6,381	0.0082	0.0394	-0.0187	0.0581
Consumer Durables	5,445	-0.0485	0.0066	-0.0493	0.0560
Drugs, Soap, Perfumes & Tobacco	7,328	0.0531	-0.1520	-0.0596	-0.0924
Fabricated Products	1,657	-0.0099	-0.0324	-0.1073	0.0749
Food	5,484	0.0036	0.0407	-0.0386	0.0792
Machinery & Business Equipment	27,394	0.0318	-0.0248	-0.0535	0.0287
Mines	1,435	0.0190	-0.0231	-0.0802	0.0570
Oil	6,646	0.1218	0.0171	-0.1150	0.1322
Other	65,575	0.0139	-0.0787	-0.0804	0.0017
Retail Stores	11,963	0.0081	0.0278	-0.0639	0.0916
Steel	2,823	-0.0041	0.0315	-0.0416	0.0731
Textiles, Apparel & Footwear	3,933	-0.0367	0.0378	-0.0319	0.0698
Transportation	6,278	0.0217	0.0368	-0.0573	0.0940
Utilities	881	0.0563	0.0293	-0.0448	0.0741
All	180,906	0.0181	-0.0260	-0.0610	0.0350

Notes:

1. The table is based on all sample observations (firm-quarters) that are listed on NYSE AMEX and Nasdaq during Q1/1993-Q4/2006 where earnings (Compustat Quarterly Data Item 8) and net operating cash flows (Compustat Quarterly Data Item 108) are available for the last four quarters and the market value of equity and total assets (Compustat Quarterly Data Item 44) at quarter-end and assets at prior quarter exceed \$1 million. Extreme return observations (top and bottom 0.5%) are deleted.
2. N is the number of observations (firm-quarters).
3. Buy & Hold Return (BHR) is the abnormal buy and hold return on a stock, cumulated from two days after the SEC filing date for quarter t through one day after the preliminary earnings announcement for next quarter. The abnormal return is the raw return over the period minus the return on a benchmark portfolio with the same size-B/M portfolio (six portfolios), as provided by Professor French.
4. Earnings (quarterly) are scaled by average total assets during the quarter and winsorized to fall in the range [-1,+1].
5. Net Operating Cash Flows (quarterly) are scaled by average total assets during the quarter and winsorized to fall in the range [-1,+1].
6. Accruals are defined as quarterly earnings minus quarterly net operating cash flows, scaled by average total assets over the quarter and winsorized to fall in the range [-1,+1].
7. Rolling Four-Quarter Cash Flows and Accruals are computed as the sum of the current quarter plus the last three quarters.
8. The industry classification is based on 17 Industry Portfolios of Professor French.

Table 2. Regressions of Returns on Scaled Accrual Ranks and Scaled Cash Flows Ranks

Panel A: Returns at Quarter t+1								
Dependent Variable	N	Intercept	p-value	SCALED ACCRUAL		SCALED CASH-FLOWS		R ² (%)
				Coef.	p-value	Coef.	p-value	
BHR -Filing at t Through next Quarter t+1	186,506	-0.001	0.015	-0.022	0.000			0.08
BHR -Filing at t Through next Quarter t+1	186,506	-0.002	0.000			0.046	0.000	0.37
BHR -Filing at t Through next Quarter t+1	186,506	-0.002	0.000	0.007	0.000	0.050	0.000	0.37

Panel B: Returns at Quarter t+4								
Dependent Variable	N	Intercept	p-value	SCALED ACCRUAL		SCALED CASH-FLOWS		R ² (%)
				Coef.	p-value	Coef.	p-value	
BHR -Filing at t Through next Quarter t+4	186,506	0.014	0.000	-0.068	0.000			0.12
BHR -Filing at t Through next Quarter t+4	186,506	0.012	0.000			0.121	0.000	0.38
BHR -Filing at t Through next Quarter t+4	186,506	0.012	0.000	0.004	0.509	0.123	0.000	0.38

Notes:

1. The table is based on all sample observations (firm-quarters) that are listed on NYSE AMEX and Nasdaq during Q1/1993-Q4/2006 where earnings (Compustat Quarterly Data Item 8) and net operating cash flows (Compustat Quarterly Data Item 108) are available for the last four quarters and the market value of equity and total assets (Compustat Quarterly Data Item 44) at quarter-end and assets at prior quarter exceed \$1 million. Extreme return observations (top and bottom 0.5%) are deleted.
2. BHR is the abnormal buy and hold return on a stock, cumulated from two days after the SEC filing date for quarter t through one day after the preliminary earnings announcement for next quarter in Panel A and for quarter t+4 in Panel B. The abnormal return is the raw return over the period minus the return on a benchmark portfolio with the same size-B/M portfolio (six portfolios), as provided by Professor French.
3. Accruals are defined as quarterly earnings minus quarterly net operating cash flows, scaled by average total assets over the quarter. Firms are sorted into accrual (cash flows) deciles each quarter, are assigned the decile rank divided by 9 minus 0.5. Thus, accrual (cash flows) deciles rank ranges between -0.5 to 0.5. The intercept measures the average BHR in the sample, and the slope coefficient the difference in BHR between the highest and lowest accrual (cash flow) deciles.

Table 3. Fama-MacBeth Regressions of Returns on Scaled Accrual Ranks and Scaled Cash Flows Ranks

Panel A: Returns at Quarter t+1								
Dependent Variable	Quarters	Intercept	p-value	SCALED ACCRUAL		SCALED CASH-FLOWS		R ² (%)
				Coef.	p-value	Coef.	p-value	
BHR -Filing at t Through next Quarter t+1	52	-0.001	0.769	-0.010	0.422			1.19
BHR -Filing at t Through next Quarter t+1	52	0.002	0.619			0.034	0.001	2.55
BHR -Filing at t Through next Quarter t+1	52	-0.001	0.714	0.016	0.398	0.041	0.004	4.34

Panel B: Returns at Quarter t+4								
Dependent Variable	Quarters	Intercept	p-value	SCALED ACCRUAL		SCALED CASH-FLOWS		R ² (%)
				Coef.	p-value	Coef.	p-value	
BHR -Filing at t Through next Quarter t+4	52	0.012	0.220	-0.052	0.005			1.26
BHR -Filing at t Through next Quarter t+4	52	0.014	0.168			0.099	0.000	2.90
BHR -Filing at t Through next Quarter t+4	52	0.010	0.325	0.004	0.909	0.097	0.024	4.98

Notes:

1. The table is based on all sample observations (firm-quarters) that are listed on NYSE AMEX and Nasdaq during Q1/1993-Q4/2006 where earnings (Compustat Quarterly Data Item 8) and net operating cash flows (Compustat Quarterly Data Item 108) are available for the last four quarters and the market value of equity and total assets (Compustat Quarterly Data Item 44) at quarter-end and assets at prior quarter exceed \$1 million. Extreme return observations (top and bottom 0.5%) are deleted.
2. This table reports quarterly mean values of 52 quarterly cross-sectional regressions, similar to Fama-MacBeth (1973), as well as their associated significance levels.
3. BHR is the abnormal buy and hold return on a stock, cumulated from two days after the SEC filing date for quarter t through one day after the preliminary earnings announcement for next quarter in Panel A and for quarter t+4 in Panel B. The abnormal return is the raw return over the period minus the return on a benchmark portfolio with the same size-B/M portfolio (six portfolios), as provided by Professor French.
4. Accruals are defined as quarterly earnings minus quarterly net operating cash flows, scaled by average total assets over the quarter. Firms are sorted into accrual (cash flows) deciles each quarter, are assigned the decile rank divided by 9 minus 0.5. Thus, accrual (cash flows) deciles rank ranges between -0.5 to 0.5. The intercept measures the average BHR in the sample, and the slope coefficient the difference in BHR between the highest and lowest accrual (cash flow) deciles.

Table 4. Regressions of Next Quarter Returns on Scaled Rolling Four-Quarter Ranks by Fiscal Quarter

		SCALED ACCRUAL				SCALED CASH-FLOWS			
Panel A: First Fiscal Quarter									
Dependent Variable	N	Intercept	p-value	Coef.	p-value	Coef.	p-value	R ² (%)	
BHR -Filing at t Through next Quarter t+1	46,125	-0.002	0.051	-0.015	0.000			0.04	
BHR -Filing at t Through next Quarter t+1	46,125	-0.003	0.004			0.049	0.000	0.42	
BHR -Filing at t Through next Quarter t+1	46,125	-0.003	0.004	0.001	0.791	0.050	0.000	0.42	
Panel B: Second Fiscal Quarter									
Dependent Variable	N	Intercept	p-value	Coef.	p-value	Coef.	p-value	R ² (%)	
BHR -Filing at t Through next Quarter t+1	46,677	-0.010	0.000	-0.032	0.000			0.18	
BHR -Filing at t Through next Quarter t+1	46,677	-0.011	0.000			0.037	0.000	0.24	
BHR -Filing at t Through next Quarter t+1	46,677	-0.011	0.000	-0.022	0.000	0.029	0.000	0.31	
Panel C: Third Fiscal Quarter									
Dependent Variable	N	Intercept	p-value	Coef.	p-value	Coef.	p-value	R ² (%)	
BHR -Filing at t Through next Quarter t+1	46,083	0.000	0.723	-0.031	0.000			0.13	
BHR -Filing at t Through next Quarter t+1	46,083	-0.000	0.724			0.034	0.000	0.16	
BHR -Filing at t Through next Quarter t+1	46,083	-0.000	0.953	-0.022	0.000	0.026	0.000	0.22	
Panel D: Fourth Fiscal Quarter									
Dependent Variable	N	Intercept	p-value	Coef.	p-value	Coef.	p-value	R ² (%)	
BHR -Filing at t Through next Quarter t+1	42,345	0.012	0.000	-0.016	0.000			0.07	
BHR -Filing at t Through next Quarter t+1	42,345	0.011	0.000			0.026	0.000	0.19	
BHR -Filing at t Through next Quarter t+1	42,345	0.011	0.000	-0.008	0.008	0.023	0.000	0.21	

Notes:

1. The table is based on all sample observations (firm-quarters) that are listed on NYSE AMEX and Nasdaq during Q1/1993-Q4/2006 where earnings (Compustat Quarterly Data Item 8) and net operating cash flows (Compustat Quarterly Data Item 108) are available for the last four quarters and the market value of equity and total assets (Compustat Quarterly Data Item 44) at quarter-end and assets at prior quarter exceed \$1 million. Extreme return observations (top and bottom 0.5%) are deleted.
2. BHR is the abnormal buy and hold return on a stock, cumulated from two days after the SEC filing date for quarter t through one day after the preliminary earnings announcement for next quarter. The abnormal return is the raw return over the period minus the return on a benchmark portfolio with the same size-B/M portfolio (six portfolios), as provided by Professor French.
3. Panel A, B, C and D show the results running the regression for the first, second, third and fourth fiscal quarter respectively.
4. Accruals are defined as quarterly earnings minus quarterly net operating cash flows, scaled by average total assets over the quarter. Rolling Four-Quarter Cash Flows and Accruals are computed as the sum of the current quarter plus the last three quarters.
5. Firms are sorted into accrual (cash flows) deciles each quarter, are assigned the decile rank divided by 9 minus 0.5. Thus, accrual (cash flows) deciles rank ranges between -0.5 to 0.5. The intercept measures the average BHR in the sample, and the slope coefficient the difference in BHR between the highest and lowest accrual (cash flow) deciles.

Table 5. Regressions of Returns at Quarter t+4 on Scaled Rolling Four-Quarter Ranks by Fiscal Quarter

		SCALED ACCRUAL				SCALED CASH-FLOWS			
Panel A: First Fiscal Quarter									
Dependent Variable	N	Intercept	p-value	Coef.	p-value	Coef.	p-value	R ² (%)	
BHR -Filing at t Through next Quarter t+4	46,125	0.013	0.000	-0.095	0.000			0.23	
BHR -Filing at t Through next Quarter t+4	46,125	0.010	0.000			0.126	0.000	0.41	
BHR -Filing at t Through next Quarter t+4	46,125	0.011	0.000	-0.060	0.000	0.106	0.000	0.49	
Panel B: Second Fiscal Quarter									
Dependent Variable	N	Intercept	p-value	Coef.	p-value	Coef.	p-value	R ² (%)	
BHR -Filing at t Through next Quarter t+4	46,677	0.016	0.000	-0.089	0.000			0.21	
BHR -Filing at t Through next Quarter t+4	46,677	0.013	0.000			0.111	0.000	0.32	
BHR -Filing at t Through next Quarter t+4	46,677	0.014	0.000	-0.059	0.000	0.091	0.000	0.40	
Panel C: Third Fiscal Quarter									
Dependent Variable	N	Intercept	p-value	Coef.	p-value	Coef.	p-value	R ² (%)	
BHR -Filing at t Through next Quarter t+4	46,083	0.016	0.000	-0.080	0.000			0.17	
BHR -Filing at t Through next Quarter t+4	46,083	0.013	0.000			0.131	0.000	0.46	
BHR -Filing at t Through next Quarter t+4	46,083	0.014	0.000	-0.039	0.000	0.118	0.000	0.49	
Panel D: Fourth Fiscal Quarter									
Dependent Variable	N	Intercept	p-value	Coef.	p-value	Coef.	p-value	R ² (%)	
BHR -Filing at t Through next Quarter t+4	42,345	0.030	0.000	-0.099	0.000			0.23	
BHR -Filing at t Through next Quarter t+4	42,345	0.028	0.000			0.060	0.000	0.09	
BHR -Filing at t Through next Quarter t+4	42,345	0.030	0.000	-0.088	0.000	0.031	0.003	0.25	

Notes:

1. The table is based on all sample observations (firm-quarters) that are listed on NYSE AMEX and Nasdaq during Q1/1993-Q4/2006 where earnings (Compustat Quarterly Data Item 8) and net operating cash flows (Compustat Quarterly Data Item 108) are available for the last four quarters and the market value of equity and total assets (Compustat Quarterly Data Item 44) at quarter-end and assets at prior quarter exceed \$1 million. Extreme return observations (top and bottom 0.5%) are deleted.
2. BHR is the abnormal buy and hold return on a stock, cumulated from two days after the SEC filing date for quarter t through one day after the preliminary earnings announcement for quarter t+4. The abnormal return is the raw return over the period minus the return on a benchmark portfolio with the same size-B/M portfolio (six portfolios), as provided by Professor French.
3. Panel A, B, C and D show the results running the regression for the first, second, third and fourth fiscal quarter respectively.
4. Accruals are defined as quarterly earnings minus quarterly net operating cash flows, scaled by average total assets over the quarter. Rolling Four-Quarter Cash Flows and Accruals are computed as the sum of the current quarter plus the last three quarters.
5. Firms are sorted into accrual (cash flows) deciles each quarter, are assigned the decile rank divided by 9 minus 0.5. Thus, accrual (cash flows) deciles rank ranges between -0.5 to 0.5. The intercept measures the average BHR in the sample, and the slope coefficient the difference in BHR between the highest and lowest accrual (cash flow) deciles.

Table 6. Regressions of Returns at Quarter t+4 on Scaled Rolling Four-Quarter Accrual Ranks by Industry

Industry	N	SCALED ACCRUALS				
		Intercept	p-value	Coef.	p-value	R ² (%)
Banks, Insurance & Financials	434	0.271	0.005	-0.028	0.442	0.64%
Cars	51	-0.258	0.002	-0.077	0.034	2.63%
Chemicals	67	-0.110	0.095	-0.005	0.953	5.12%
Construction	129	0.029	0.692	0.036	0.365	2.32%
Consumer Durables	110	-0.152	0.007	-0.109	0.005	2.08%
Drugs, Soap, Perfumes & Tob.	146	0.136	0.035	0.074	0.037	1.73%
Fabricated Products	33	0.026	0.527	-0.043	0.305	6.47%
Food	111	0.027	0.724	-0.034	0.343	1.76%
Machinery & Business Equip.	536	0.008	0.958	-0.199	0.001	5.08%
Mines	28	-0.108	0.227	0.132	0.005	6.88%
Oil	135	0.264	0.099	0.121	0.002	1.73%
Other	1,260	0.027	0.826	-0.137	0.008	0.48%
Retail Stores	229	-0.013	0.888	-0.188	0.000	5.10%
Steel	55	-0.063	0.425	-0.025	0.500	4.86%
Textiles, Apparel & Footwear	78	-0.111	0.128	-0.023	0.501	1.71%
Transportation	125	0.113	0.082	0.053	0.149	1.57%
Utilities	17	0.183	0.012	0.003	0.953	11.51%

Notes:

1. The table is based on all sample observations (firm-quarters) that are listed on NYSE AMEX and Nasdaq during Q1/1993-Q4/2006 where earnings (Compustat Quarterly Data Item 8) and net operating cash flows (Compustat Quarterly Data Item 108) are available for the last four quarters and the market value of equity and total assets (Compustat Quarterly Data Item 44) at quarter-end and assets at prior quarter exceed \$1 million. Extreme return observations (top and bottom 0.5%) are deleted.
2. This table reports quarterly mean values of 52 quarterly cross-sectional regressions, similar to Fama-MacBeth (1973), as well as their associated significance levels.
3. N is the mean number of observations per quarter.
4. BHR is the dependent variable in the regression, BHR is the abnormal buy and hold return on a stock, cumulated from two days after the SEC filing date for quarter t through one day after the preliminary earnings announcement for quarter t+4. The abnormal return is the raw return over the period minus the return on a benchmark portfolio with the same size-B/M portfolio (six portfolios), as provided by Professor French.
5. Accruals are defined as quarterly earnings minus quarterly net operating cash flows, scaled by average total assets over the quarter. Rolling Four-Quarter Cash Flows and Accruals are computed as the sum of the current quarter plus the last three quarters.
6. Firms are sorted into accrual quintiles each quarter within an industry, are assigned the quintile rank divided by 4 minus 0.5. Thus, accrual quintiles rank ranges between -0.5 to 0.5. The intercept measures the average BHR in the sample, and the slope coefficient the difference in BHR between the highest and lowest accrual quintiles.

Table 7. Regressions of Returns at Quarter t+4 on Scaled Rolling Four-Quarter Cash Flow Ranks by Industry

Industry	N	SCALED CASH-FLOWS				
		Intercept	p-value	Coef.	p-value	R ² (%)
Banks, Insurance & Financials	434	0.272	0.005	0.269	0.000	1.04%
Cars	51	-0.275	0.001	0.374	0.000	6.58%
Chemicals	67	-0.116	0.075	0.162	0.001	6.48%
Construction	129	0.030	0.682	0.160	0.000	1.44%
Consumer Durables	110	-0.160	0.006	0.289	0.000	2.99%
Drugs, Soap, Perfumes & Tob.	146	0.130	0.049	0.181	0.004	5.13%
Fabricated Products	33	0.027	0.500	0.132	0.000	5.33%
Food	111	0.029	0.704	0.225	0.000	2.13%
Machinery & Business Equip.	536	0.001	0.993	0.452	0.000	5.98%
Mines	28	-0.104	0.242	0.234	0.000	7.54%
Oil	135	0.267	0.094	0.206	0.000	1.94%
Other	1,260	0.023	0.848	0.482	0.000	3.06%
Retail Stores	229	-0.014	0.878	0.357	0.000	5.80%
Steel	55	-0.061	0.446	0.111	0.005	5.34%
Textiles, Apparel & Footwear	78	-0.114	0.119	0.337	0.000	2.96%
Transportation	125	0.114	0.081	0.091	0.054	2.91%
Utilities	17	0.172	0.018	0.151	0.001	12.35%

Notes:

1. The table is based on all sample observations (firm-quarters) that are listed on NYSE AMEX and Nasdaq during Q1/1993-Q4/2006 where earnings (Compustat Quarterly Data Item 8) and net operating cash flows (Compustat Quarterly Data Item 108) are available for the last four quarters and the market value of equity and total assets (Compustat Quarterly Data Item 44) at quarter-end and assets at prior quarter exceed \$1 million. Extreme return observations (top and bottom 0.5%) are deleted.
2. This table reports quarterly mean values of 52 quarterly cross-sectional regressions, similar to Fama-MacBeth (1973), as well as their associated significance levels.
3. N is the mean observations per quarter.
4. BHR is the dependent variable in the regression, BHR is the abnormal buy and hold return on a stock, cumulated from two days after the SEC filing date for quarter t through one day after the preliminary earnings announcement for quarter t+4. The abnormal return is the raw return over the period minus the return on a benchmark portfolio with the same size-B/M portfolio (six portfolios), as provided by Professor French.
5. Accruals are defined as quarterly earnings minus quarterly net operating cash flows, scaled by average total assets over the quarter. Rolling Four-Quarter Cash Flows and Accruals are computed as the sum of the current quarter plus the last three quarters.
6. Firms are sorted into cash flows quintiles each quarter within an industry, are assigned the quintile rank divided by 4 minus 0.5. Thus, cash flows quintiles rank ranges between -0.5 to 0.5. The intercept measures the average BHR in the sample, and the slope coefficient the difference in BHR between the highest and lowest cash flows quintiles.

Table 8. Regressions of Returns at Quarter t+4 on Scaled Rolling Four-Quarter Ranks by Industry

Industry	N	SCALED ACCRUALS				SCALED CASH-FLOWS			R ² (%)	H0
		Intercept	p-value	Coef.	p-value	Coef.	p-value			
Banks, Insurance & Financials	434	0.272	0.005	0.094	0.002	0.251	0.000	1.45%	0.000	
Cars	51	-0.276	0.001	0.067	0.058	0.330	0.000	9.09%	0.000	
Chemicals	67	-0.107	0.104	-0.003	0.927	0.102	0.016	9.28%	0.182	
Construction	129	0.029	0.695	0.075	0.101	0.138	0.001	4.01%	0.008	
Consumer Durables	110	-0.159	0.006	-0.016	0.699	0.215	0.000	4.78%	0.012	
Drugs, Soap, Perfumes & Tob.	146	0.089	0.285	0.122	0.010	0.135	0.083	7.26%	0.002	
Fabricated Products	33	0.030	0.475	-0.078	0.107	0.040	0.372	11.27%	0.660	
Food	111	0.026	0.732	0.041	0.304	0.173	0.000	3.89%	0.006	
Machinery & Business Equip.	536	0.004	0.976	-0.081	0.231	0.379	0.000	7.25%	0.039	
Mines	28	-0.115	0.212	0.175	0.000	0.248	0.000	14.05%	0.000	
Oil	135	0.264	0.099	0.211	0.000	0.282	0.000	4.25%	0.000	
Other	1,260	0.025	0.838	-0.067	0.276	0.440	0.002	3.87%	0.046	
Retail Stores	229	-0.014	0.884	-0.054	0.195	0.262	0.000	6.98%	0.013	
Steel	55	-0.059	0.465	0.007	0.852	0.077	0.056	7.86%	0.243	
Textiles, Apparel & Footwear	78	-0.116	0.115	0.107	0.005	0.317	0.000	5.03%	0.000	
Transportation	125	0.113	0.082	0.036	0.356	0.066	0.185	4.52%	0.209	
Utilities	17	0.175	0.016	0.102	0.010	0.140	0.001	17.44%	0.001	

Notes:

1. The table is based on all sample observations (firm-quarters) that are listed on NYSE AMEX and Nasdaq during Q1/1993-Q4/2006 where earnings (Compustat Quarterly Data Item 8) and net operating cash flows (Compustat Quarterly Data Item 108) are available for the last four quarters and the market value of equity and total assets (Compustat Quarterly Data Item 44) at quarter-end and assets at prior quarter exceed \$1 million. Extreme return observations (top and bottom 0.5%) are deleted.
2. This table reports quarterly mean values of 52 quarterly cross-sectional regressions, similar to Fama-MacBeth (1973), as well as their associated significance levels.
3. N is the mean observations per quarter.
4. BHR is the dependent variable in the regression, BHR is the abnormal buy and hold return on a stock, cumulated from two days after the SEC filing date for quarter t through one day after the preliminary earnings announcement for quarter t+4. The abnormal return is the raw return over the period minus the return on a benchmark portfolio with the same size-B/M portfolio (six portfolios), as provided by Professor French.
5. Accruals are defined as quarterly earnings minus quarterly net operating cash flows, scaled by average total assets over the quarter. Rolling Four-Quarter Cash Flows and Accruals are computed as the sum of the current quarter plus the last three quarters.
6. Firms are sorted into accrual and cash flows quintiles each quarter in an industry, are assigned the quintile rank divided by 4 minus 0.5. Thus, accrual and cash flows quintiles rank ranges between -0.5 to 0.5. The intercept measures the average BHR in the sample, and the slope coefficient the difference in BHR between the highest and lowest accrual (cash flow) quintiles.
7. The last column, called "H0", reports the p-values testing as null hypothesis that negative scaled accruals coefficients are equal than positive scaled cash-flows coefficients.