

## **A Catering Theory of Earnings Management**

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### **Abstract:**

We propose that earnings management is driven by the prevailing investor demand for earnings surprises. Managers cater to investors by inflating earnings in periods when investors react optimistically to positive earnings surprises relative to negative earnings surprises and report more conservatively when investors react pessimistically to earnings news. Using aggregate market-level data, we find that the propensity to use income-increasing abnormal accruals is higher (lower) in quarters when proxies for investors' response to positive earnings surprises relative to negative earnings surprises is higher (lower). Further analysis suggests that investor sentiment might at least partly account for the relation between abnormal accruals and investors' earnings optimism.

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# A Catering Theory of Earnings Management

## 1.0 Introduction

Extant literature in earnings management proposes different theories for why firms manage earnings. Watts and Zimmerman (1978) argue that managers alter reported accounting numbers to maximize their bonus, avoid tripping debt-covenants written on accounting numbers or to reduce their firm's political visibility. Graham, Harvey and Rajgopal (2005) survey Chief Financial Officers who indicate they manage earnings to maintain or increase the stock price of their firms. A vast literature (see Fields, Lys and Vincent 2001 for references) has validated the Watts and Zimmerman (1978) propositions. However, managerial incentives to manage earnings to address stock price concerns are relatively under-explored. In this paper, we build on the stock price motivation by proposing a hitherto unexamined incentive for why managers manage earnings.

This paper formalizes and tests a conjecture in Baker, Ruback and Wurgler (2006) that catering theory might have a role in explaining earnings management. We argue that, for behavioral or rational reasons, investor demand for stocks that report positive earnings surprises relative to those stocks that report negative earnings surprises is time-varying, which, in turn, causes fluctuations in the magnitude of investors' reaction to positive earnings news relative to negative earnings news. We define periods of greater earnings optimism as quarters when investors place larger relative weights on positive earnings news than on negative earnings news.<sup>1</sup> To increase, or to at least maintain, their current stock price levels, managers cater to investors' appetite for positive earnings surprises by increasing abnormal accruals in quarters when investors react optimistically to earnings news. Additionally, when investors are

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<sup>1</sup> We do not intend the term "optimism" to imply irrationality. This term is merely used to capture instances when investors have a more positive outlook on the future when interpreting earnings, irrespective of whether or not such expectation is justified by fundamentals.

pessimistic about earnings news, managers rely on income-decreasing accruals and report more conservatively, which may be partly due to increased worries about potential litigation related to financial reporting. It is worth noting that this catering hypothesis refers to an aggregate-market-level or macroeconomic level incentive for earnings management, which is in contrast to prior studies that have focused almost exclusively on firm-specific incentives for earnings management.

In our empirical work, we document that the propensity of firms to increase abnormal accruals depends on the optimism in investors' response to earnings surprises. To measure investors' earnings optimism, we rely on the time-series variation in (i) the earnings response coefficient of firms that report positive earnings surprises relative to that of firms reporting negative earnings surprises; and (ii) the average price-earnings ratio of all stocks in the market during a quarter. We then show that the aggregate level of abnormal accruals in the stock market exhibits a robust positive association with one-quarter lagged proxies for the investor's earnings optimism. Thus, managers appear to recognize that investors' response to earnings surprises is time-varying and they cater to such time-varying investor response via abnormal accruals.

Our results on catering incentives of managers are robust to several alternative explanations. As our regressions control for lagged abnormal accruals and several other firm-characteristics, alternative explanations based on time-variation in growth, investment opportunity sets (proxy for agency cost and/or growth prospects), future profitability (proxy for future operating performance), leverage and size (proxy for debt and political visibility type contracting incentives to manage earnings) do not account for our results. This gives us confidence that the aggregate-level catering incentives we propose are empirically distinct from and incremental to the firm-specific incentives traditionally proposed in the literature by Watts

and Zimmerman (1978). Furthermore, our proxies for investors' earnings optimism are not a mechanical reflection of several macro-economic variables such as future inflation, GDP growth, growth in industrial production, growth in labor income or consumption growth.

We probe further to understand where the time-variation in investors' relative response to positive and negative earnings surprises comes from. If the time-variation is at least partly due to investor sentiment, then we would expect investors' earnings optimism to have a larger impact on abnormal accruals of firms that are more susceptible to subjective valuations, as investor preference for earnings surprises will have a larger impact on prices of these stocks.<sup>2</sup> Consistent with this intuition, we find that managers are more likely to cater to investors' earnings optimism via abnormal accruals in smaller firms, younger firms, more volatile firms, less profitable firms and firms without dividends. Moreover, we also find a positive correlation between earnings optimism and the closed-end fund discount, which is commonly interpreted as a proxy for investor sentiment. Based on the weak relationship between earnings optimism proxies and macroeconomic activities and the stronger correlation with proxies for investor sentiment (which admittedly are not definitive or uncontroversial) we conclude that sentiment is at least partly the source for time-variation in earnings optimism that leads to earnings catering.

We make three important contributions to the extant literature. First, we are among the first to document the effect of investors' response to earnings surprises and sentiment on managers' financial reporting decisions. The role of investor sentiment on asset prices is beginning to attract attention (e.g., Baker, Ruback and Wurgler 2006, Baker and Wurgler 2006, Lemmon and Portniaguina (2006), Kumar and Lee 2006, Ljungqvist, Nanda and Singh 2006) and the literature on the impact of such sentiment on corporate decisions is growing (e.g., Baker

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<sup>2</sup> Baker and Wurgler (2007) define investor sentiment "as a belief about future cash flows and investment risks that is not justified by the facts at hand."

and Wurgler 2002 study equity issues; Baker and Wurgler 2004 and Li and Lie 2006 investigate dividend payouts, Gilchrist, Himmelberg and Huberman 2005 and Polk and Sapienza 2006 examine investment, Dong, Hirshleifer, Richardson and Teoh 2006 consider acquisitions).

Second, our unit of analysis is the aggregate market as a whole, not the individual firm. We are among the first to examine whether and how earnings management at the aggregate market level might be a response to market-wide sentiment about stocks that report positive earnings surprises relative to those that report earnings disappointments.

Third, our results question the long held assumption that reported earnings cause stock price changes, but not vice-versa (e.g., Dietrich, Muller and Riedl 2007). Our results show that stock market reaction to earnings releases impacts future earnings through changes in the manager reporting strategy. We find evidence consistent with the hypothesis that managers are aware of the temporal shifts in the importance of earnings surprises to the equity markets and accordingly employ earnings management to cater to time-varying investors' response to earnings surprises.

The remainder of the paper is organized as follows. Section 2 develops the theoretical basis for the manager's catering incentives. Section 3 discusses the data and the main results. Section 4 reports robustness tests, section 5 investigates the source of the earnings optimism and section 6 concludes.

## **2.0 Theoretical Development**

In this section, we develop the catering theory of earnings management, which states that managers cater to investors' earnings optimism by inflating accruals. This theory is built on the following three premises. First, there exists a time-varying investor response to positive earnings surprises relative to negative earnings surprises. This time-variation in investors' response to

earnings surprises can either arise from rational price adjustment, such as from time-variation in firms' investment opportunities, or from time-varying investor sentiment to earnings. Secondly, managers care about the current stock price. Lastly, earnings management is costly. We explore each of these components in greater detail below.

### *2.1 Time-varying investor-response to positive relative to negative earnings news*

Generally speaking, positive earnings news leads to an increase in stock prices while negative earnings news leads to a decrease in stock prices. However, the market reaction to positive and negative earnings surprises is typically not symmetric and most empirical studies find that the magnitude of the earnings response coefficient for positive earnings surprises is larger than that for negative earnings surprises (e.g., Basu (1997), Christophe (2002) and Christensen, Smith and Stuerke (2004)). The difference between earnings response coefficient for positive earnings surprises relative to negative earnings surprises could arise either because of (i) fundamental differences between firms reporting positive earnings surprises and those reporting negative news surprises; and/or (ii) differences caused by investors' preferences for positive or negative earnings surprises in a particular quarter. We discuss each of these possibilities in greater detail in following two sub-sections. Although the upcoming discussions present alternative explanations for the differences in stock price responses to positive and negative surprises, its primary focus is on understanding why these differences vary over time rather than to understand why these differences exists in the first place.

#### *2.1.1 Time-variation in fundamentals*

Firms with positive earnings surprises are more likely than those with negative earnings surprises to have greater growth opportunities and the ability to take advantage of such opportunities via easier access to outside capital. The market reaction to earnings surprises will

depend both on the immediate changes in cash flows as well as the market's perceived impact on the firm's ability to take advantage of growth opportunities. Consistent with this view, Bartov, Givoly and Hayn (2002) find that firms that report positive earnings surprises are associated with improved future operating performance. This view is also supported by the survey evidence in Graham et al. (2005). The CFOs surveyed in Graham et al. (2005) opine that a firm's ability to report positive earnings news is viewed by market participants as a signal of firm quality. Also, investors are more likely to value the liquidation or abandonment option, rather than future earnings prospects when firms report negative earnings surprises (particularly, when the surprise is associated with losses), causing the earnings response coefficients for negative earnings surprises to be muted relative to that for positive earnings surprises (see Hayn, 1995).

As investment and growth opportunities vary over time, the impact of current earnings surprises for future earnings will vary over time, causing investors' relative response to positive and negative earnings surprises to vary over time.

### *2.1.2 Time-variation in investors' sentiment to earnings surprises*

There are several motivations for the existence of sentiment-driven uninformed investors who reward positive earnings surprises relative to negative earnings surprises, above and beyond that dictated by firms' fundamentals. Time-variation in such investor sentiment to positive versus negative earnings surprises could cause time-variation in the relative stock price reactions to positive and negative earnings surprises (Conrad, Cornell and Landsman, 2002). Sentiment changes over time because biases associated with information processing such as the effect of overconfidence (Daniel, Hirshleifer and Subrahmanyam 1998) or representativeness and conservatism (Barberis, Shleifer and Vishny 1998) tend to change over time leading to

differential appetites for traders to speculate. There is some anecdotal evidence that market reactions to earnings announcements are affected by systematic shifts in investor sentiment. For example, Deborah Lohse (1996, p. C1) reports the following in the November 12, 1996 issue of the *Wall Street Journal*:

*Analysts say that stocks that surprise analysts with better-than-expected earnings are often rewarded with a ho-hum increase if any. However, the market is punishing stocks even more than usual for earnings disappointments.*

We now turn to the question of where these uninformed investors come from and why does arbitrage not get rid of them. Uninformed investors might value earnings surprises for at least three reasons. First, certain fund managers have an investment style based on seeking stocks with earnings growth or earnings momentum. These investment styles involve buying stocks that report positive earnings surprises or report increased earnings growth and selling stocks that do not meet an earnings estimate or report decreased earnings growth.<sup>3</sup>

Second, CFOs interviewed by Graham et al. (2005) identify three sources of uninformed investors who cause an asymmetry in response to positive earnings surprises relative to the negative earnings surprises: (i) Young analysts, who lack a sense of history, are prone to overreactions when a firm misses an earnings target. (ii) Fund managers, who are compensated on the basis of how their funds have done relative to peer managers, have incentives to promote “bandwagon” investing and herd in their investment decisions. If one fund starts selling the firm’s stock when the firm misses an earnings target, fund managers at peer firms have incentives to sell to protect their compensation. (iii) Traders, especially at hedge funds, could

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<sup>3</sup> Badrinath and Wahal (2002) document evidence of momentum trading by institutions claiming to follow “growth” strategies.

cause stock price over-reactions following negative earnings news, if the news triggers their automatic sell programs.

Third, inexperienced investors, who are prone to optimism, over-react to good news and under-react to bad news. Such behavioral tendencies potentially increase the relative demand for firms with positive earnings surprises. Smith, Suchanek and Williams (1988) find that in the majority of experiments with inexperienced participants, prices exhibit bubbles relative to the asset's holding value. Typically a small number of trades below the holding value are followed by a more extended period of marked overvaluation and finally a rapid decline in prices to holding value by the end of the experiment. Haruvy, Lahav, and Noussair (2006) find that inexperienced subjects extrapolate recent price movements, exaggerating market reactions to new information. Also, Greenwood and Nagel (2007) find that young inexperienced mutual fund managers exhibit trend-chasing behavior in investment decisions and invest more in technology stocks in the 1990s than their older peers.

Thus, there are several sources of uninformed demand from investors for positive earnings surprises relative to negative earnings surprises. Such uninformed demand could potentially affect stock prices if limits to arbitrage prevent rational arbitrageurs from forcing prices back to fundamentals.<sup>4</sup> Baker and Wurgler (2007) argue that contrarian arbitrageurs could potentially be less effective in periods of high sentiment as they are bound by barriers such as their own risk-aversion or difficulties in finding substitute securities for mispriced stocks and are hence unable to equate the stock prices of firms that report positive and negative earnings surprises. For example, a period of extraordinary investor sentiment pushed the prices of speculative and difficult-to-value technology stocks to high levels in the late 1990s and instead of creating opportunities for contrarian arbitrageurs, the 1990s pushed many of such arbitrageurs

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<sup>4</sup> Shleifer (2000) discusses barriers to arbitrage in great detail.

out of the business as stock prices that were high went higher before the eventual crash. Sometimes, rational arbitrageurs might actually fuel the over-valuation. For example, Brunnermeier and Nagel (2004) find that hedge funds did not exert a correcting force on stock prices during the technology bubble and instead heavily invested in the over-priced technology sector. This occurred even though the hedge funds seemed fully aware of the over-valuation.

Irrespective of the underlying source of differences in investors response to positive and negative earnings surprise stocks (i.e., whether rational or irrational), we define periods in which the investors' response to positive surprises is large relative to their response to negative surprises as periods of "earnings optimism" and those periods with small differential response as periods of "earnings pessimism." In periods of greater earnings optimism, investors place larger relative weights on positive earnings news than on negative earnings news.

## *2.2 Managers' stock price myopia*

Next, we assume that the manager cares both about current stock price and long run fundamental value. In perfect capital markets with fully rational investors, the two objectives of maximizing short run price and long run value are the same since the definition of market efficiency is that stock prices equal fundamental value. However, if the assumption of investor rationality is relaxed, these two objectives become distinct. In this case, we suggest that managers still care about current prices. One factor that might affect managers' preferences for the short-run over the long-term is related to their horizon with their firm. Another factor is that managerial compensation, such as stock options, are tied to share prices. Also, Hirshleifer, Subrahmanyam and Titman (2006) argue that over-priced stocks can increase investment

opportunities for the firm by decreasing their cost of capital, which is yet another reason for managers to focus on increasing current share prices.

### *2.3 Costs of earnings management*

Our last assumption is that earnings management is costly. Although earnings management may benefit firms' or its managers in the short-run, there are several potential costs to earnings management. First, because earnings management can only "borrow" earnings from other periods, earnings inflation leads to lower earnings in future periods, which would result in firms reporting earnings disappointments. Second, if earnings management is unraveled then managers, firm and auditors face loss of reputation. Third, poor reporting quality could increase the firm's cost of capital. Finally, earnings management increases the risk of litigation and the attendant financial losses.

### *2.4 Managers' decision to cater to investors' demand (aversion) for positive (negative) earnings surprises*

Based on the three premises that (i) earnings optimism is time varying; (ii) managers care about current prices; and (iii) earnings management is costly, we conjecture that managers cater to investors' preferences for earnings surprises. In making their decision on whether or not to manage earnings, managers trade-off the short run benefits of catering to the long run costs of earnings management. In periods when investors react optimistically to earnings news, firms inflate earnings as the benefits of sustaining current stock prices in these periods are likely to be greater than the costs of earnings management. Earnings optimism causes stock prices to increase by a larger magnitude per unit of inflated accruals thereby increasing the benefits to

earnings management. Catering in these periods could also occur if managers, like investors, are optimistic about future earnings and hence signal their optimism through higher abnormal accruals. Further, if periods of earnings optimism coincide with periods of high economic growth as some macroeconomic theories suggest, then managers might find it easier to borrow earnings from future periods thereby reducing the costs of earnings management.<sup>5</sup>

In periods when investors react pessimistically to earnings news, we posit that managers report conservatively due to several reasons.<sup>6</sup> First, accrual reversals and conservative reporting are more likely to occur when investors are highly sensitive to negative news (or in periods of low investor sentiment) as managers and auditors are more likely to be wary of being sued for over-reporting earnings in such time periods. Litigation worries increase the costs of inflating earnings and makes upward earnings management less attractive for managers. Second, Bergman and Roychowdhury (2007) find that analysts are less optimistic in low sentiment periods. Managers can meet lower analyst forecasts without recourse to earnings inflation, which, in turn, might allow reversal of past inflated accruals or to “save” accruals for use in future periods. Finally, managers cannot inflate accruals indefinitely and will have to reverse abnormal accruals in some periods. Periods of earnings pessimism might be opportune for such discretionary reversals especially if many firms in the economy concurrently report low earnings.

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<sup>5</sup> A few macroeconomic studies link investor optimism to business cycle growth. For instance, In his book “Prosperity and Depression” published in 1937, Gottfried Haberler emphasizes the role of behavioral biases in generating and amplifying business cycles that draws on a large body of work, including contributions by Taussig (1911), Lavington (1922), Pigou (1929), and Keynes (1936). More recently, Collard (1996) summarizes Pigou’s arguments as follows: “fluctuations (irregular cycles) are driven by variations in the profit expectations of business people. These, in turn, are set off by ‘impulses,’ which may be ‘real,’ ‘psychological’ or ‘monetary’ in nature. Once the initiating impulse has made itself felt, it may be sustained by any or all of the three” (Collard 1996, 913).

<sup>6</sup> However, we do acknowledge that managers might have incentives to possibly inflate accruals even in periods when investors are highly sensitive to negative surprises. But, such income-increasing accruals in periods of low investor sentiment are more likely to be closely scrutinized by auditors and class-action lawyers. Hence, on balance, the litigation related penalties are more likely to create incentives for managers make conservative reporting choices in such periods. Nonetheless, as this is eventually an empirical issue, our analyses explicitly test for the alternative possibility that managers inflate earnings when investors are highly sensitive to negative surprises.

In particular, managers might find it easier to explain away poor performance if other peer firms in the economy also report lower performance.

Note that the catered earnings management, whether in periods of earnings optimism or pessimism, need not necessarily fool the capital market. Stein (1989) and Shivakumar (2000) posit models in which earnings manipulation is the manager's rational response to investors' expectations of earnings management, even though, on average, investors are not fooled by such earnings management. Thus, managers might cater to investors and manage earnings because investors anticipate managers to manage earnings.

### *2.5 Aggregate versus cross-sectional predictions*

The above arguments predict that the propensity to employ discretionary accruals is increasing in the prevailing earnings optimism, which displays variation in time-series. That is, although the discussion underlying the above arguments in section 2 relates mostly to a static model of a firm, we can use time-series variation in earnings optimism to test earnings management related catering incentives at the aggregate market level.

However, we acknowledge that the catering theory of earnings management described above also leads to several interesting cross-sectional predictions. First, managers potentially cater to investors because they want to maintain currently over-valued stock prices. Hence, catering incentives for earnings-management would be higher for over-valued stocks (also see Kothari, Loutskina and Nikolaev 2006). Second, the value-relevance literature (e.g., Collins, Pincus and Xie 1999, Barth Beaver and Landsman 1998) has shown that balance sheet numbers are more important for valuation than income statement numbers for financially distressed firms. Hence, catering incentives for earnings management might be lower for financially distressed firms. Third, certain managers might have more myopic incentives to affect short-run stock

prices as specified in models proposed by Narayanan (1985), Stein (1988), Bebchuk and Stole (1993) and Holmstrom (1999). Such managers might have greater incentives to cater to investor demand for earnings surprises via discretionary accruals. Although we examine some of these cross-sectional predictions later in the paper (stocks more prone to investor sentiment), our primary focus in this paper is to document an association between aggregate market-wide abnormal accruals and aggregate market-wide earnings optimism. We leave the detailed exploration of firm-specific cross-sectional predictions of the catering theory of earnings management to future work.

### **3.0 Methodology, Data and Results**

#### *3.1 Relative stock market response to positive and negative earnings surprise*

Our hypothesis predicts that periods characterized by greater optimism in relation to earnings surprises increase managers' incentives to inflate earnings in order to temporarily avoid stock price drops. In periods characterized by greater pessimism, managers have incentives to decrease earnings by employing discretionary reversals of prior income-increasing accruals or even by taking earnings baths, partly to avoid getting sued for overstating earnings. To test this hypothesis, we use time-variation in two alternative proxies for investors' optimism about earnings and relate these to time-variation in unexpected accruals. Our primary measure of earnings optimism is the difference in earnings response coefficients of firms that report positive and negative earnings surprises. The intuition is that if investors want and value earnings surprises they would make their demand felt via stock price reactions around the earnings announcement. We estimate the difference in the coefficient on a positive quarterly earnings surprise and the negative quarterly earnings surprise (labeled  $ERC^{\text{Pos-Neg}}$  where ERC is the

earnings response coefficient) by regressing, in each quarter, the earnings announcement returns on quarterly earnings surprise.<sup>7</sup>

Although later in the paper, we relate our proxies of earnings optimism to extant non-ERC related proxies for investor sentiment such as closed-end fund discounts and equity share in aggregate issues, our main tests do not rely on investor sentiment proxies because the focus of our paper is on investors' earnings optimism. Note that stock market participants can be optimistic about stock prices although the related stocks report negative earnings surprises, as witnessed during the dot-com boom.

The data for estimating ERC are derived from the quarterly COMPUSTAT and daily CRSP data files for the period 1976 - 2005.<sup>8</sup> Because we require four lags of the dependent variable in our analyses, the reported results are based on 116 quarters of data. We retain in our sample, firms that are non-financial (SIC codes 6000 – 6999 excluded) and have December fiscal year ends. We restrict the sample to December year-end firms to avoid overlapping quarterly observations and to avoid co-mingling observations from different fiscal quarters. We exclude firm years in which a firm was involved in mergers and acquisitions because Hribar and Collins (2002) caution that accruals computed using the balance-sheet method for such firms are prone to measurement error. The return data used in the calculation of ERCs are obtained from CRSP for the period January 1976 to December 2005. We include firms with CRSP share codes 10 and 11, which are listed on the NYSE, AMEX or NASDAQ.

The quarterly earnings surprise variable in the ERC regressions refers to standardized unexpected earnings ( $SUE_{it}$ ) operationalized as unexpected earnings scaled by the standard

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<sup>7</sup> A potential alternative proxy for earnings optimism would be the event window returns around the earnings announcement for positive and negative earnings innovations. Note, however, that such a measure, unlike ERC, ignores the magnitude of the earnings surprise.

<sup>8</sup> The choice of sample period is driven by data availability. The data needed to compute quarterly abnormal accruals are available on COMPUSTAT only from 1976 onwards.

deviation of prior unexpected earnings. For a given firm, unexpected earnings refer to the difference between net income before extraordinary expenses in quarter  $t$  minus net income before extraordinary expenses in quarter  $t-4$ . The standard deviation of unexpected earnings is calculated over the prior eight quarters ( $t-1$  to  $t-8$ ) for the firm. Earnings announcement returns are calculated as the cumulative returns in the three-day period surrounding the earnings announcement, i.e., from day  $-1$  to day  $+1$ , where the firm's earnings announcement takes place on day  $0$ . The ERC regressions are estimated every quarter across all sample firms announcing earnings in that quarter. We have alternatively estimated the aggregate ERC by averaging industry-specific estimates of ERC (in the Fama-French 48-industry classification) and we obtain qualitatively similar results.

Thus, the earnings optimism in quarter  $t$  ( $ERC_t^{\text{Pos-Neg}}$ ) is computed as  $a_1 - a_2$  from the following cross-sectional regression:

$$Ret_{it} = a_0 + a_1 SUE\_POS_{it} + a_2 SUE\_NEG_{it} + e_{it} \quad (1)$$

where  $SUE\_POS_{it}$  is equal to  $SUE_{it}$  when  $SUE_{it}$  is positive and zero otherwise,  $SUE\_NEG_{it}$  is equal to  $SUE_{it}$  when  $SUE_{it}$  is negative and zero otherwise,  $i$  and  $t$  are firm and quarter subscripts. We winsorize the SUEs at the top and bottom 1% of the distribution every quarter.

Our secondary measure of earnings optimism is the aggregate price-earnings ratio in quarter  $t$  ( $AGG\_PE_t$ ) computed as the equally-weighted average price-to-earnings ratios across all firms in the sample for that quarter. An alternate proxy would have been the difference in price-earnings ratios of firms that report positive and negative quarterly earnings surprises. However, a significant portion of our sample firms, especially firms with earnings disappointments, report negative earnings and the price-earnings ratio for firms with negative earnings is undefined. Computing average price-earnings ratios using all our sample firms

enables us to retain firms that report negative earnings because a majority of firms in the sample still report positive earnings. Moreover, we believe that the overall price-earnings ratio captures the value that investors place on a dollar of reported earnings at a point in time. We consider the price-earnings ratio as a secondary and a potentially noisier measure of earnings optimism relative to  $ERC_t^{\text{Pos-Neg}}$  because such ratio is based on the level of earnings, not the earnings surprise itself.

The P/E ratio is defined as the ratio of end of quarter price (COMPUSTAT data item 14, all data items in the text refer to COMPUSTAT quarterly tapes unless explicitly specified otherwise) divided by EPS excluding extraordinary items (data 19). The sample exclusion restrictions related to the ERC computation apply to the P/E ratio calculations as well (non-financial firms and firms with December fiscal year ends, not involved in merger and acquisitions). Individual firm P/E ratios are then averaged across the whole market for each quarter  $t$  to form  $AGG\_PE_t$ . Individual P/E ratios are winsorized across all quarters at the top and bottom 1% of the distribution. Note that the winsorization of extreme P/E ratios ought to address concerns that P/E ratios are likely inflated when EPS is close to zero.

While both these measures of investors' earnings optimism could vary over time for reasons other than earnings optimism (viz., time-variation in firm characteristics), we later report results from several checks that support the interpretation of these variables as proxies for earnings optimism. The proxies for earnings optimism, and in particular, the one based on the price-earnings ratio, are potentially affected by a wide variety of firm characteristics such as profitability, size, investment opportunity sets and cost of capital. In robustness tests discussed later in the paper, we control for these firm characteristics to ensure that managers' incentives to

cater to investors' demand for earnings surprises via abnormal accruals is not affected by such omitted firm characteristics.

Descriptive data related to the annual averages of the  $ERC_t^{Pos-Neg}$  and price-earnings ratios ( $AGG\_PE_t$ ) are listed in Table 1 and depicted in Figure 1. Note that  $ERC_t^{Pos-Neg}$  is negative in only four of the 30 years of data presented. This pattern is consistent with prior work (Basu 1997, Christophe 2002 and Christensen, Smith and Stuerke 2004), which finds that ERC for positive surprises exceeds ERC for negative surprises. Furthermore, the magnitude of the ERC differences varies a lot over time. The range covers a minimum of  $-0.003$  in 1979 to a maximum of  $0.0074$  in 1983. The mean and median difference is  $0.002$  and  $0.003$  respectively. Figure 1 shows that three out of the four negative differences in ERC are concentrated in the early part of the sample. It is important to emphasize that we do not care as much about the absolute magnitude of the individual ERCs related to positive and negative SUEs. Our hypothesis is that time-varying investor demand for positive surprises relative to negative surprises gives rise to earnings management related catering incentives for managers. Hence, we are more interested in the time-series variation of the difference between ERCs for positive and negative surprises.

The average price-earnings ratios also display considerable variation over time ranging from a minimum of  $27.83$  in 2000 to  $52.33$  in 1993. The average and the median price-earnings ratios are  $39$  and  $40.054$  respectively. The untabulated correlation based on the quarterly observations of  $ERC_t^{Pos-Neg}$  and  $AGG\_PE_t$  is  $0.47$  suggesting that the two proxies capture a common factor and both can potentially be used in regressions as proxies for investor demand for earnings surprises.

The general pattern of earnings optimism in Figure 1 lines up fairly well with the anecdotal accounts of bubbles and crashes described in Baker and Wurgler (2006), although as

noted earlier, stock price over or under-valuation could arise even in the absence of earnings optimism or pessimism. The early 1970s are often regarded as a low-sentiment period. The first half of the 1980s was characterized by the high-tech and bio-tech booms. By 1987, market optimism faded away with investors increasing their demand for low-multiple stocks. Finally, the mid to late 1990s were characterized by the internet and technology bubble that ended in 2000. Figure 1 shows that, consistent with the dot-com crash, price-earnings ratios fall to 27.83 in 2000 and start recovering thereafter in the subsequent years.

### *3.2 Predicting future abnormal accruals*

To empirically examine the catering theory, we regress signed abnormal accruals, which is the commonly used proxy for earnings management, on the lagged measures of earnings optimism proxies. The sample for the estimation of the abnormal accruals is subject to the same restrictions as that for the ERCs regressions: non-financial firms (SIC codes 6000 – 6999 excluded) with December fiscal year ends that have not been involved in mergers or acquisitions.

Abnormal accruals for firm  $i$  and quarter  $t$  ( $ABN\_ACC_{it}$ ) are measured by subtracting “normal” accruals from total accruals. Total accruals represent the difference between income before extra-ordinary items reported in the cash flow statement [EBEI (CF) (data 76)] and net cash flow from operating activities (NCF, data 106).<sup>9</sup> Accruals are estimated from changes in consecutive balance sheet items whenever NCF is unavailable. That is, we compute total accruals as the change in current assets ( $\Delta CA$ , data item 40) minus the change in cash and short-term investments ( $\Delta Cash$ , data 36) minus the change in current liabilities ( $\Delta CL$ , data 49) other

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<sup>9</sup> Quarterly data items 76 and 106 are reported cumulatively in COMPUSTAT (i.e. data 76 for quarter 2 includes income for quarter 1 plus income for quarter 2), because of which the figures for quarters 2 to 4 are obtained as changes from the previous quarter.

than the change in the current portion of long-term debt ( $\Delta STD$ , data 45) minus depreciation and amortization (DEPN, data 5).

We compute “normal” accruals ( $E(ACC_{it})$ ) for firm  $i$  and quarter  $t$ , using the following three alternative models that are popular in the earnings management literature:

Jones (1991) model:

$$E(ACC_{it}) = \alpha_0 [1/TA_{it}] + \alpha_1 [(\Delta REV_{it}/TA_{it}) + \alpha_2[PPE_{it}/TA_{it}]] \quad (2)$$

Dechow and Dichev (2002) (DD) model:

$$E(ACC_{it}) = \alpha_0 [1/TA_{it}] + \alpha_1 [(\Delta REV_{it}/TA_{it}) + \alpha_2[PPE_{it}/TA_{it}] + \alpha_3 [CFO_{it}/TA_{it}] + \alpha_4 [CFO_{it-1}/TA_{it}] + \alpha_5 [CFO_{it+1}/TA_{it}]] \quad (3)$$

Dechow, Kothari and Watts (1998) (CFO) model:

$$E(ACC_{it}) = \alpha_0 [1/TA_{it}] + \alpha_1 [(\Delta REV_{it}/TA_{it}) + \alpha_2[PPE_{it}/TA_{it}] + \alpha_3 [CFO_{it}/TA_{it}]] \quad (4)$$

where  $\Delta REV_{it}$  is change in revenues,  $PPE_{it}$  is the property, plant and equipment,  $CFO_{it}$  is the cash from operations and  $TA_{it}$  is the average total assets in quarter  $t$  for firm  $i$ . Cash from operations is obtained from the cash flow statement (data106) whenever possible and is otherwise, calculated as income before extra-ordinary items (data 8) minus total accruals estimated from balance sheet figures.

The parameters for computing “normal” accruals for firm  $i$  and quarter  $t$  are estimated from quarterly cross-sectional regressions of the above accruals models. The regressions are estimated separately for each quarter and each industry in the 48 Fama and French (1997) industry classifications, with at least 15 observations. To avoid the accrual model parameters from mechanically soaking up aggregate-level abnormal accruals, we use prediction errors based

on the model parameters in quarter t-1 to compute abnormal accruals in quarter t.<sup>10</sup> All variables are winsorized at the top and bottom 1% level of the distribution for each industry and quarter.

We test the main hypothesis of the paper using a time-series regression of aggregate abnormal accruals ( $ABACC_t$ ) on lagged proxies for earnings optimism. For this purpose, we compute aggregate abnormal accruals as the median abnormal accruals across sample firms in each quarter. The results based on mean abnormal accruals are qualitatively similar to those reported.

### 3.3 Time series relation

In this section, we correlate aggregate abnormal accruals in a quarter with the overall stock market response to earnings surprise by estimating the following time-series regression:

$$ABACC_t = \lambda_0 + \lambda_1 ERN\_OPT_{t-1} + \sum_{j=1}^4 \lambda_{2j} ABACC_{t-j} + \lambda_3 Qtr4_t + u_t \quad (5)$$

where,  $ERN\_OPT_{t-1}$  is the proxy for earnings optimism estimated in quarter t-1. The proxy is either  $ERC_{t-1}^{Pos-Neg}$  or  $AGG\_PE_{t-1}$ .  $QTR4_t$  is a dummy variable that takes the value 1 if quarter t corresponds to the fourth quarter and 0 otherwise. All the other variables are as defined earlier. The main coefficient of interest is  $\lambda_1$ . If managers cater to investor demand for earnings surprises by inflating accruals, then we expect  $\lambda_1$  to be positive. To control for potential serial correlation in aggregate abnormal accruals ( $ABACC_t$ ), we introduce four lagged versions of the dependent variable in the model. Note that the introduction of lagged  $ABACC$  terms in equation (5) is akin to looking for whether a change in abnormal accruals is related to the earnings optimism proxies. The inclusion of lagged  $ABACC$  also minimizes the risk of the dependent

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<sup>10</sup> Using model parameters from four quarters ago rather than from the previous quarter could account for potential seasonality in normal accruals. However, we use the previous quarter's parameters to use the most recent data for estimating abnormal accruals. In any case, our regressions include up to four lags of abnormal accruals as control variables and such lagged terms ought to account for seasonality in accruals.

variable mechanically capturing aggregated firm-characteristics, such as growth or profitability.<sup>11</sup> We also include a dummy for the fourth quarter as the abnormal accruals in this quarter are potentially distinct from those related to the first three quarters.<sup>12</sup>

Table 2 presents the results of estimating equation (5). Panels A, B and C report results based on abnormal accruals estimated from the Jones model, DD model and the CFO models respectively. We first focus on results based on  $ERC_t^{\text{Pos-Neg}}$  as a proxy for earnings optimism. The results in column (2) of Panel A indicate that the coefficient on the lagged  $ERC^{\text{Pos-Neg}}$  is positive and significant, which is consistent with our hypothesis that managers cater to investor demand for earnings surprises. The coefficient of 0.707 in this regression implies that when  $ERC_{t-1}^{\text{Pos-Neg}}$  increases from the 1<sup>st</sup> to the 3<sup>rd</sup> quartile, the aggregate abnormal accruals in the following quarter increases by 0.5% of total assets. This magnitude is economically significant and at the same time plausible, given that the costs of manipulating earnings likely increase non-linearly with the magnitude of earnings management.

The dummy for the fourth quarter is significantly negative, suggesting that abnormal accruals are more conservative in quarters whose financial statements are audited. The statistical significance of lagged  $ERC_{t-1}^{\text{Pos-Neg}}$  is robust to the introduction of the four lagged abnormal accrual terms in column (4). Considering that we estimate time-series regressions with four lagged terms of the dependent variable, the high adjusted r-squared of 88.5%, reported in column (3) seems reasonable.

Panels B and C report results using abnormal accruals estimated from either the Dechow-Dichev model or from the CFO model. The results in these panels are qualitatively similar to

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<sup>11</sup> The results are much stronger than those reported, when lagged abnormal accruals are not included in the regressions.

<sup>12</sup> We included dummies for each quarter in a year and obtain qualitatively similar results. Generally, we find little difference in the variables across the first three quarters.

those obtained for abnormal accruals from the Jones model. In fact, the t-statistics on lagged  $ERC_{t-1}^{Pos-Neg}$  are significantly positive across all the six regressions in Panels A to C at the 5% level of significance or lower (the lowest t-statistic is 1.99).

Turning to the second proxy of investor demand for earnings surprises,  $AGG\_PE_{t-1}$ , we find a positive and statistically significant coefficient on the lagged  $AGG\_PE_{t-1}$  in column (6) in all the Panels A to C. The coefficient (multiplied by 100) of 0.018 implies that when  $AGG\_PE_{t-1}$  increases from the 1<sup>st</sup> to the 3<sup>rd</sup> quartile, aggregate abnormal accruals increase by 0.3% of total assets. The significantly positive coefficient on  $AGG\_PE_{t-1}$  continues to hold when the four lagged abnormal accrual terms are introduced in the regressions (in column 8) with the exception of abnormal accruals estimated from Jones model (i.e., panel A). Looking across the three panels A to C, the coefficient on lagged  $AGG\_PE_{t-1}$  in column (8) is positive and significant at the 10% level or lower in five out of the six regressions. These results are consistent with the catering theory's predictions. That is, firms are more likely to rely on abnormal income-increasing accruals when earnings optimism is larger. In the remainder of the paper, we present results based only on the Dechow, Kothari and Watts (1998) model for accruals, as the results based on the other models are qualitatively similar to those reported.

### *3.4 Robustness tests*

The results reported in Table 2 are robust to several sensitivity tests in the estimation of the earnings response coefficients. The results from these tests are tabulated in Table 3:

(i) *Combining ERC Pos and ERC Neg*: The combined earnings optimism proxy  $ERC_{t-1}^{Pos-Neg}$  nets out the individual effects of  $ERC^{Pos}$  and  $ERC^{Neg}$  because we care about the market's response to positive earnings surprises relative to negative earnings surprises. However, it

might be informative to assess whether the positive relation between ABACC and  $ERC_{t-1}^{Pos-Neg}$  is driven specifically by the ERC related to the positive or negative surprise. Moreover, as discussed in section 2.4, in a period of earnings pessimism caused by large ERCs to negative earnings surprises, managers may want to report income-increasing accruals (to avoid the stock price penalty imposed by the high negative ERC), as opposed to the reporting income-decreasing accruals, as implied by the catering theory. Results reported in column I of Table 3 suggest that when equation (2) is estimated after substituting individual terms for positive and negative ERC instead of the combined  $ERC_{t-1}^{Pos-Neg}$ , the coefficient on  $ERC_{t-1}^{Pos}$  is 0.174 (t-statistic = 2.98) and the coefficient on  $ERC_{t-1}^{Neg}$  is -0.14 (t-statistic = -2.02). These results suggest that firms rely on income-decreasing accruals in periods of earnings pessimism consistent with litigation concerns driving managers to report more conservatively in such quarters. Moreover, the coefficients on positive and negative earnings surprises are statistically indistinguishable from each other (p-value = 0.71), eliminating the need to include separately the ERC on positive and negative earnings surprises.

(ii) *Analyst forecasts*: Note that we do not rely on analysts' forecasts to measure earnings expectations because analysts' forecasts are available on IBES only from mid-1980s and this restriction reduces the sample size in our time-series tests (the number of usable quarters reduces to 88 in column II of Table 3). Further, analysts follow larger firms and the reliance on analysts' forecasts will introduce a selection bias in the ERC estimates. Also, unlike market expectations, analysts' forecasts tend to be biased which can potentially lower the power of the tests. On the other hand, time-series measures of earnings expectations, on which SUE is based, are noisy. In column II of Table 3, we find that the positive relation between one-quarter ahead abnormal accruals and  $ERC^{Pos-Neg}$  holds even after defining

earnings surprise as actual earnings per share minus the IBES analyst consensus earnings forecast per share right before the earnings announcement, although not surprisingly, the t-statistics are reduced (t-statistic on  $ERC^{Pos-Neg} = 1.70$ ).

*(iii) Loss firms:* Earnings response coefficients may be potentially attenuated towards zero for firms that report losses (Hayn 1995). To assess whether the earnings optimism proxy  $ERC_{t-1}^{Pos-Neg}$  is affected by the inclusion of firm-quarters where losses are reported, we restrict the sample to only firms that report profits and repeat the analyses. The results tabulated in column III are qualitatively insensitive to this specification change.

*(iv) Magnitude of the earnings surprise:* The relation between earnings announcement returns and SUEs is known to be non-linear at extreme earnings surprises (Freeman and Tse 1992) although equation (1) assumes that such relation is linear. To address this concern, we re-estimate equation (2) after deleting the extreme 10% of the SUE distribution on the positive and negative sides and find the reported results to be qualitatively unchanged (see column IV). On a related note, prior work shows that firm size is related to stock returns around the earnings announcement (Ball and Kothari 1991). However, the introduction of firm size, measured as the log of market capitalization of the firm at the end of the fiscal quarter, in equation (1) does not materially change any of the reported inferences (see column V).

#### **4.0 Alternate Explanations**

In this section, we investigate whether the catering result documented in the previous section can be explained by other confounding factors. We discuss the various potential confounding factors and then present empirical results that attempt to control for these factors.

##### *4.1 Time trend*

We investigate whether our results simply capture a common time trend. We include a trend (the calendar year) alongside the earnings optimism proxies.

#### *4.2 Time varying firm characteristics*

We explore whether other economic stories could potentially account for our results.

##### *4.21 Investment opportunities*

One potential explanation is that the relationship we document in Table 2 could merely reflect time variation in investment opportunities. That is, firms with negative earnings surprises might have smaller investment opportunities relative to firms with positive earnings surprises and, as discussed before in section 2.1, investors might categorize firms that report positive (negative) surprises as firms with higher (lower) growth aspirations. To investigate whether the time-varying growth aspirations story can account for our results, we control for the level of investment opportunity sets and examine whether earnings optimism has incremental explanatory power. Our empirical proxy for investment opportunities is the average market-to-book ratio of the firms in the sample. The market-to-book ratio has the added advantage of being interpreted as a proxy for time-varying agency problems which may be potentially associated with greater earnings management.

##### *4.22 Leverage, size and future operating performance*

Next, we investigate whether the catering incentives have explanatory power beyond the traditional debt covenant, political visibility and bonus motivations to manage earnings, which are proposed by Watts and Zimmerman (1978). We do not explicitly test for the bonus hypothesis because obtaining data on bonus plans in a machine-readable format for a large sample of firms is difficult. We rely instead on average return on assets (ROA) measured for the

same quarter across the sample firms as a proxy for managers' incentives to manage earnings and hence maximize the present value of their bonuses.

To rule out the potential confounding explanations related to the debt-covenant and political visibility hypotheses, we employ the average debt-to-equity ratio and the average market value of firms in the sample as control variables. Our objective is to assess whether the earnings optimism has residual explanatory power to explain abnormal accruals after accounting for these debt-to-equity ratio and size proxies for the debt-covenant and the political visibility hypotheses (see Fields et al. 2001).

To further examine the Bartov, Givoly and Hayn (2002) explanation that firms that meet or beat earnings benchmarks are associated with superior future operating performance, we include improvement in future operating performance, measured as the average of the change in one-year ahead return on assets (ROA) for all firms in the sample.

#### *4.3 Results*

Results reported in Table 4 indicate that the positive association between average abnormal accruals and our proxies for earnings optimism (namely  $ERC_t^{Pos-Neg}$  and  $AGG\_PE_t$ ) is robust to the introduction of a time-trend variable and several proxies for time-varying characteristics such as the average market-to-book ratio, average leverage, average size, average ROA and average improvement in annual ROA. These results suggest that time-based variation in growth or investment opportunity sets or contracting variables is unlikely to account for the association between abnormal accruals and investor demand for earnings surprises.

One could argue that, in the above analysis, the sample-wide averages of proxies of contracting variables such as market-to-book ignore within sample variation in such variables. Hence, we extend the accrual model in equation (2) by including market-to-book ratio, market

value of equity, debt to equity ratio and return on assets, all computed at the firm-quarter level, as additional explanatory variables. These variables are included in the accrual model to capture the effects of growth, profitability, size and leverage on abnormal accruals. The resultant abnormal accruals, stripped of the effects of these contracting variables, continue to exhibit a robust positive association with our proxies for earnings optimism.

## 5.0 Source of Earnings Optimism

### 5.1 Macroeconomic factors

One simple explanation for the predictive ability of earnings optimism proxies for abnormal accruals is that the earnings optimism proxies merely capture macro-economic factors, such as inflation or anticipated macroeconomic growth, with which aggregate-level abnormal accruals are also correlated. To investigate this hypothesis, we regress several macro-economic variables such as (i) quarter-ahead inflation; (ii) quarter-ahead industrial production growth; (iii) quarter-ahead real consumption growth; (iv) quarter-ahead real labor income growth; (v) quarter-ahead growth in GDP; (vi) quarter-ahead growth in real GDP; and (vii) year-ahead increase in average ROA across firms on our proxies for investor demand for earnings surprises, namely  $ERC_{t-1}^{\text{Pos-Neg}}$  and  $AGG\_PE_{t-1}$ .<sup>13</sup>

Results related to these seven macro-economic variables are reported in Table 5. Panels A to Panel F report results from regressing each macroeconomic variable on the proxies for earnings optimism. The regressions include up to 4 lags of the dependent variable to control for the serial correlation in the dependent variable. The coefficients on both proxies for earnings optimism are statistically insignificant in almost all the regressions. The only exceptions to this are the regressions involving industrial production growth on  $AGG\_PE_{t-1}$  in Panel B and growth

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<sup>13</sup> The data for all macroeconomic activities, other than labor income, are drawn from the FRED database provided by Federal Reserve Bank of St. Louis. Data on labor income is from DataStream.

in real gross domestic product in Panel F. But even in these two regressions, the coefficients on proxies for earnings optimism acquire different signs. While  $AGG\_PE_{t-1}$  is positively correlated with future industrial production growth, the earnings optimism proxies are negatively correlated with growth in real gross domestic product. These inconsistent signs make it difficult to draw any unambiguous conclusions on the relation between earnings optimism proxies and economic growth. Moreover, there is no evidence that either of our proxies for investor demand for surprises is robustly associated with any of the other measures of economic activity, namely, quarter-ahead inflation, real consumption growth, real labor income growth and growth in GDP.<sup>14</sup> No significant relations are observed (in untabulated analysis) when economic activities are measured over the next year, rather than over the next quarter. A combined reading of these patterns suggests that the time-based variation observed in our proxies is unlikely to be driven by systematic macroeconomic forces.

As an additional test of whether the predictive ability of earnings optimism for future abnormal accruals is attributable to the macroeconomic information in earnings optimism, we re-estimate Equation (5) after controlling for lagged macro economic activities in the regression. The results, reported in Table 6, indicate that none of the macroeconomic activities are significantly related to future abnormal accruals. However, the inclusion of these many insignificant macro variables in the regression, as expected, merely reduces the t-statistics but does not eliminate the statistical significance of the coefficients on the earnings optimism proxies. In particular, the minimum t-statistic on our primary proxy of earnings optimism is  $ERC_{t-1}^{Pos-Neg}$  is 2.70 and on the secondary proxy,  $AGG\_PE_{t-1}$ , is 1.24 (p-value = 0.11, one-tailed). More important, these coefficients remain positive and similar in magnitude to that documented

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<sup>14</sup> When lags of the dependent variable are not included in the regressions, the proxies for earnings optimism are significantly negatively related to future inflation and future real GDP growth. The results from all other regressions are qualitatively similar to those reported.

in Panel C of Table 2. Similar inferences obtain when we include contemporaneous macroeconomic activities instead of their lagged values. These results confirm that the relation between abnormal accruals and lagged earnings optimism proxies are not attributable to omitted aggregate growth or other macroeconomic activities.

## *5.2 Investor sentiment*

One possibility is that the catering incentives arise due to fluctuations in investor sentiment over time. As investor sentiment is unlikely to vary dramatically from one quarter to the next, we expect our proxies for earnings optimism to be auto-correlated for at least a few future periods if these proxies capture investor sentiment to earnings. Hence, we initially examine the persistence in the proxies for investor demand for earnings surprises by estimating an AR(4) regression of  $ERC_t^{\text{Pos-Neg}}$  and of  $AGG\_PE_t$ . We find that for both proxies, the coefficients on the first two lags are positive, although in regression related to  $AGG\_PE_t$ , only the first coefficient is statistically significant at the 5% significance level. This suggests that earnings optimism, as measured by our proxies, tend to persist for at least the next one to two quarters.

To further investigate the possibility of sentiment causing time-variation in earnings optimism, we present correlations between proxies for earnings optimism and those for investor sentiment considered by Baker and Wurgler (2006) and others (Lee Shleifer and Thaler 1991, Qiu and Welch 2006). The proxies for investor sentiment are the Michigan consumer sentiment index, average value-weighted closed-end fund discount, NYSE share turnover and the equity share in new issues.<sup>15</sup> For each calendar quarter, the proxies for investor sentiment are computed

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<sup>15</sup> We examine some of the commonly used proxies for investor sentiment in the literature, although we do acknowledge that the proxies themselves or their link to asset prices remain controversial. Some interpret these proxies as capturing irrationality (see Lee, Shleifer and Thaler, 1991), while others suggest rational roles for these

by averaging the monthly investor sentiment proxies in Glushkov (2006).<sup>16</sup> To examine the relation between our proxies of earnings optimism and the proxies for investor sentiment, we regress the earnings optimism proxies on contemporaneous proxies for investor sentiment.

The results reported in Table 7 suggest that  $ERC_t^{\text{Pos-Neg}}$  is strongly related to the average closed end fund discount (t-statistic on closed-end fund discount,  $CEFD_t = 4.47$  in column 2 of Panel A). Panel B reports the results from regression of  $AGG\_PE_t$  and here too, we find a significant t-statistic on closed-end fund discount (t-statisc on  $CEFD_t = 4.03$  in column 2). We also run a horserace between proxies for investor sentiment and macroeconomic activities by including all of these variables in the regression. We consider inflation, industrial production growth and real GDP growth for macroeconomic activities, since the results in Table 5 indicate no significant relation with any of the other macroeconomic variables in that regression and including all macroeconomic variables could lead to multi-collinearity concerns.<sup>17</sup> The results, reported in columns (5) and (6) of Panel A, indicate that  $ERC^{\text{POS-NEG}}$  is unrelated to any of the macroeconomic variables and continues to be significantly associated with the closed-end fund discount. In regressions of  $AGG\_PE_t$  also, the coefficient on closed-end fund discount continues to be statistically significant. Further, as noted in Table 5,  $AGG\_PE_t$  is positively associated with contemporaneous industrial production growth.

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proxies in asset prices. For e.g., Lemmon and Portniaguina (2006) suggest that Michigan Consumer Index may impact asset prices through their ability to rationally forecast business cycles. Berk and Stanton (2006) argue that closed-end fund discounts represent management fees charged by the funds.

<sup>16</sup> We thank Denys Glushkov for making this data available to us. This data is available up to June 2003 for equity share of aggregate new issues and up to December 2003 for all other variables.

<sup>17</sup> We have estimated the regressions after including all macroeconomic variables considered in Table 5 and the qualitative results are unchanged. When all macroeconomic variables are included, the coefficient (multiplied by 100) on closed-end fund discounts is 0.02 (t-statistic=2.45) in regression of  $ERC^{\text{POS-NEG}}$  and 0.39 (t-statistic=2.37) in regression of  $AGG\_PE_t$ . The qualitative results are also unaffected by the inclusion of four lags of the dependent variable in the regression.

The regressions in Table 7 indicate a strong association between the proxies for earnings optimism and contemporaneous closed-end fund discounts, while no consistent relation is observed between these proxies and contemporaneous macroeconomic activities. Prior literature generally interprets the closed-end fund discount as the effect of investor sentiment. For instance, Zweig (1973), Lee, Shleifer and Thaler (1991), Pontiff (1996) and Neal and Wheatly (1998), among others, argue that the closed-end-fund discount is driven by investor sentiment, as these funds tend to be held disproportionately by less-sophisticated retail investors, with the discount increasing when retail investors are more bearish. This interpretation of the inter-temporal variation in closed-end funds discount and the finding that closed-end fund discounts are significantly related to earnings optimism suggest that the source of earnings optimism might at least partly be attributable to investor sentiment.

Since our proxies for earnings optimism are highly correlated with closed-end fund discount, we examine whether the predictive ability of  $ERC_t^{POS-NEG}$  and  $AGG\_PE_t$  documented in earlier tables is due to these variables proxying for closed-end fund discounts. As in equation (5), we regress abnormal accruals on one-quarter lagged closed-end-fund discount and some control variables. The control variables are four lags of the abnormal accruals, a dummy for fourth quarter and lagged macroeconomic variables.<sup>18</sup> The macroeconomic variables included in the regression are quarterly inflation, quarterly growth in industrial production growth and quarterly growth in real gross domestic product. The results are insensitive to including other macroeconomic control variables such as year-ahead inflation, industrial production growth and growth in real gross domestic product.

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<sup>18</sup> That qualitative results are insensitive to including contemporaneous macroeconomic variables instead of their lagged values.

Table 8 reports the results from this analysis. Irrespective of the control variables included in the regression, closed-end fund discounts acquire a significantly positive coefficient. That is, when closed-end fund discounts are smaller (i.e., when investors are more optimistic), the quarter-ahead abnormal accruals are significantly larger. To the extent that closed-end fund discount captures investor sentiment, this is consistent with our earlier results that managers cater to investors' optimism about earnings via abnormal accruals. When the proxies for earnings optimism are included along with closed-end fund discount in columns (7) and (8), the coefficient on closed end fund discount loses significance, suggesting that its predictive ability is attributable to its correlation with proxies for earnings optimism.

Next, we investigate whether catering incentives are relatively stronger in firms whose stocks are more vulnerable to changes in investor sentiment. To do so, in each quarter, we sort stocks into high or low sentiment groups based on a variety of firm characteristics identified by Baker and Wurgler (2006) as related to investor sentiment. All firm characteristics for sorting stocks are measured in the same quarter as proxy for earnings optimism, i.e.,  $ERC_{t-1}^{Pos-Neg}$  or  $AGG\_PE_{t-1}$ . If the above documented predictability of abnormal accruals is driven by earnings optimism rather than by underlying fundamentals, we expect future abnormal accruals to be more sensitive to earnings optimism proxies for stocks in the high sentiment group relative to stocks in the low sentiment group. We test this prediction using a regression of the difference in median abnormal accruals of high sentiment stocks and median abnormal accruals of low sentiment stocks in quarter  $t$  ( $ABACC\_DIFF_t$ ) on proxies for earnings optimism in quarter  $t-1$ . As before, the regressions include a dummy variable to control for fourth-quarter abnormal accruals and up to four lags of the dependent variable.

As mentioned, we follow Baker and Wurgler (2006) to identify stocks that are more vulnerable to changes in investor sentiment and accordingly classify firms into high or low sentiment groups based on the following alternative firm characteristics<sup>19</sup>:

- (a) Return volatility: Firms with return volatility above (below) the median volatility across all stocks in the quarter are classified as high (low) sentiment stocks. Return volatility is measured as the volatility of daily stock returns in a quarter.
- (b) Firm Size: Stocks with market capitalization below (above) the median market capitalization across all sample firms in the quarter are classified as high (low) sentiment stocks. Market capitalization is computed as the number of shares outstanding times the closing price at the end of the quarter (i.e., COMPUSTAT data 61 times data 14).
- (c) Firms reporting losses: Stocks with negative (positive) earnings in the quarter are classified as high (low) sentiment stocks.
- (d) Non-dividend payers: Stocks with no dividend payments (with dividend payments) are classified as high (low) sentiment stocks.
- (e) Age: Stocks whose age is below (above) the median age across all sample firms in the quarter are classified as high (low) sentiment stocks. Age is measured as the number of days since a firm first appeared on the CRSP dataset.

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<sup>19</sup> In addition to the characteristics considered here, Baker and Wurgler (2006) suggest that financially distressed stocks and high growth stocks are more likely to be influenced by investor sentiment. However, we do not consider these characteristics here, as earnings are known to be less important for valuation of these firms (Barth, Beaver and Landsman, 1998), which lowers managerial incentives to engage in earnings management. Thus, a priori it is not clear that earnings management should necessarily be greater in these firms, even if investor sentiment is a key driver of earnings optimism.

Thus, the regression we estimate is:

$$ABACC\_DIFF_t = \alpha_0 + \alpha_1 ERN\_OPT_{t-1} + \sum_{j=1}^4 \alpha_{2j} ABACC\_DIFF_{t-j} + \alpha_3 QTR_t + v_t \quad (6)$$

Results related to the estimation of equation (6) for the five sub-groups of firms described above are reported in Table 9, with each panel reporting the regression estimates for each of the firm-characteristics.<sup>20</sup> It is worth noting that the coefficient on both proxies of earnings optimism proxies are positive in all of the 10 regressions across the panels A to E, although we acknowledge that the various firm characteristics are not entirely independent of one other. The coefficients on earnings optimism proxies are statistically significant at the 10% level in seven out of the ten regressions.

The statistical significance of the results is strongest in Panel A, where firms with high return volatility proxy for firms with greater vulnerability to investor sentiment. The coefficient on  $ERC_{t-1}^{Pos-Neg}$  is 0.18 (t-statistic=2.80) and that on  $AGG\_PE_{t-1}$  is 0.009 (t-statistic=2.37). The coefficient on  $ERC_{t-1}^{Pos-Neg}$  is also statistically significant at the 10% level or better in all the other regressions. The coefficient on our secondary proxy,  $AGG\_PE_{t-1}$ , is statistically significant for stocks sorted on return volatility (panel A) and on market capitalization (panel B). As noted earlier, the weaker results for  $AGG\_PE_{t-1}$  are not unexpected given its focus on earnings levels as opposed to earnings surprises. Overall, the cross-sectional analysis provides support that managers' desire to cater to investor demand for earnings *surprises* is stronger in firms whose stock prices are more likely to be driven by investor sentiment.

## 6.0 Conclusions

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<sup>20</sup> The qualitative results are unchanged when macroeconomic variables are additionally included in the regressions as control variables.

We argue that managers cater to investor demand for earnings surprises by increasing abnormal accruals in periods when investors react optimistically to positive earnings surprises relative to negative earnings surprises and report more conservatively when investors react pessimistically to earnings news.

In our empirical analyses, we show that overall market-wide abnormal accruals in a quarter are associated robustly with two proxies for investor demand for positive earnings surprises relative to their demand for negative earnings surprises. After considering several alternative explanations such as a time trend, time-varying firm characteristics such as growth, investment opportunity sets, profitability, contracting variables and so on, we conclude that managerial catering is a robust interpretation of our empirical evidence. These results suggest that investors value earnings surprises differently at different points of time and managers recognize and cater to such shifts in investor attitude.

When we probe the source of the investor demand closely, we find little relation between our proxies for earnings optimism and macro-economic variables such as inflation, GDP growth, industrial production growth and labor income growth. We find stronger evidence of a relation between earnings optimism and proxies for investor sentiment. In particular, closed-end mutual fund discount is positively correlated with our proxies for earnings optimism. Moreover, managers' tendency to cater to investor demand for earnings surprises appears to be more pronounced in stocks whose pricing is more prone to investor sentiment (such as volatile firms, smaller and non-dividend paying firms). We conclude that investor sentiment might at least partly explain the time-variation in earnings optimism.

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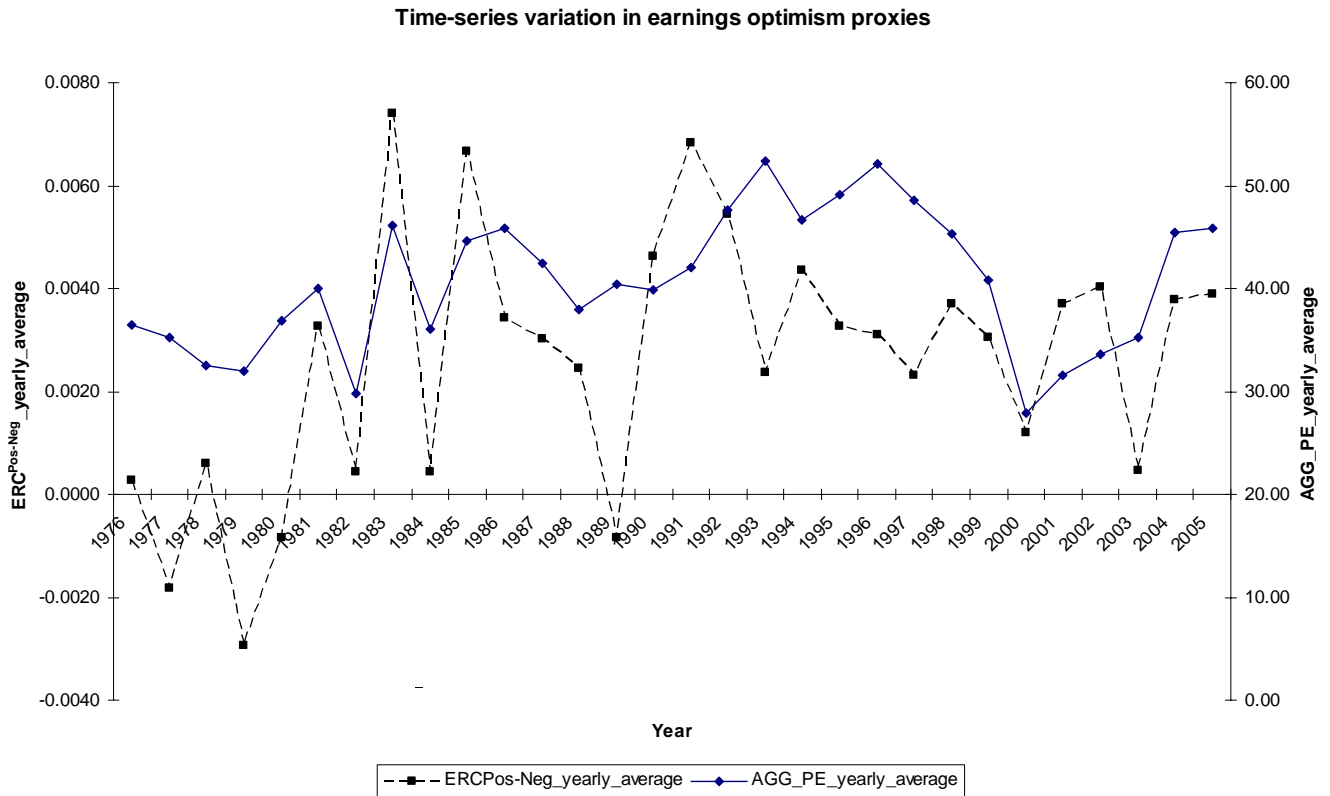


Fig. 1. Presents a time-series plot of the yearly average of proxies for earnings optimism, namely  $ERC^{Pos-Neg}$  and of  $AGG\_PE$ .  $ERC_t^{Pos-Neg}$  is estimated for each quarter  $t$ , from a cross-sectional regression of 3-day earnings announcement returns on standardized unexpected earnings ( $SUE_{it}$ ), which is a proxy for firms' earnings surprises.  $SUE_{it}$  for firm  $i$  and quarter  $t$  is defined as  $(E_{it} - E_{it-4}) / \sigma_{it}$ , where  $E_{it}$  is the earnings announced in quarter  $t$  and  $\sigma_{it}$  is the standard deviation of  $(E_{it} - E_{it-4})$  over the prior eight quarters. The aggregate price-earnings ratio ( $AGG\_PE$ ) is computed as the equally-weighted average price-to-earnings ratios across all firms in the sample during a quarter. For each firm, the price to earnings is computed as the end-of-quarter stock price (Compustat data 14) divided by earnings before extra-ordinary items (Compustat data 19) announced in quarter  $t$ . The quarterly proxies for earnings optimism are averaged across quarters in each calendar year to obtain the yearly averages. The sample consists of non-financial firms that have not been involved in mergers and acquisitions and have a December fiscal year end. The sample begins from the first quarter of 1976 and ends with the last quarter of 2005.

**Table 1: Investors' Demand for Earnings Surprises 1976-2004**

This table presents the yearly average of  $ERC_t^{Pos-Neg}$  and  $AGG\_PE_t$ .  $ERC_t^{Pos-Neg}$  is estimated for each quarter  $t$ , from a cross-sectional regression of 3-day earnings announcement returns on standardized unexpected earnings ( $SUE_{it}$ ), which is a proxy for firms' earnings surprises.  $SUE_{it}$  for firm  $i$  and quarter  $t$  is defined as  $(E_{it} - E_{it-4})/\sigma_{it}$ , where  $E_{it}$  is the earnings announced in quarter  $t$  and  $\sigma_{it}$  is the standard deviation of  $(E_{it} - E_{it-4})$  over the prior eight quarters. The aggregate price-earnings ratio ( $AGG\_PE_t$ ) is computed as the equally-weighted average price-to-earnings ratios across all firms in the sample during a quarter. For each firm, the price to earnings is computed as the end-of-quarter stock price (Compustat data 14) divided by earnings before extra-ordinary items (Compustat data 19) announced in quarter  $t$ . The quarterly proxies for earnings optimism are averaged across quarters in each calendar year to obtain the yearly averages. The sample consists of non-financial firms that have not been involved in mergers and acquisitions and have a December fiscal year end. The sample begins from the first quarter of 1976 and ends with the last quarter of 2005.

Year	yearly_avg $ERC_t^{Pos-Neg}$	yearly_Agg $PE_t$
1976	0.0003	36.47
1977	-0.0018	35.25
1978	0.0006	32.46
1979	-0.0030	31.97
1980	-0.0008	36.91
1981	0.0033	40.05
1982	0.0004	29.76
1983	0.0074	46.10
1984	0.0004	36.10
1985	0.0067	44.60
1986	0.0034	45.82
1987	0.0030	42.46
1988	0.0024	37.91
1989	-0.0008	40.46
1990	0.0046	39.89
1991	0.0068	42.09
1992	0.0054	47.67
1993	0.0024	52.33
1994	0.0043	46.72
1995	0.0033	49.11
1996	0.0031	52.17
1997	0.0023	48.60
1998	0.0037	45.29
1999	0.0030	40.78
2000	0.0012	27.83
2001	0.0037	31.53
2002	0.0040	33.59
2003	0.0005	35.21
2004	0.0038	45.38
2005	0.0039	45.85

**Table 2: Abnormal Accruals and Investor Demand for Earnings Surprises**

The table reports the estimates from the following regression of aggregate abnormal accruals ( $ABACC_t$ ) in quarter  $t$  on lagged  $ERC_{t-1}^{Pos-Neg}$  or lagged  $AGG\_PE_{t-1}$ .

$$ABACC_t = \lambda_0 + \lambda_1 ERN\_OPT_{t-1} + \sum_{j=1}^4 \lambda_{2j} ABACC_{t-j} + \lambda_3 Qtr4_t + u_t$$

$ERN\_OPT_{t-1}$  is the proxy for earnings optimism estimated in quarter  $t-1$ . It is either  $ERC_{t-1}^{Pos-Neg}$  or  $AGG\_PE_{t-1}$ .  $QTR4_t$  is a dummy variable that takes value 1 for the fourth quarter and zero for all other quarters. Abnormal accruals for firm  $i$  in quarter  $t$  are computed as the difference between the total accruals for the firm in quarter  $t$  and the normal accruals obtained from one of the following models:

Jones model:  $E(ACC_{it}) = \alpha_0 [1/TA_{it}] + \alpha_1 [(\Delta REV_{it}/TA_{it}) + \alpha_2[PPE_t/TA_{it}]$

CFO model:  $E(ACC_{it}) = \alpha_0 [1/TA_{it}] + \alpha_1 [(\Delta REV_{it}/TA_{it}) + \alpha_2[PPE_t/TA_{it}] + \alpha_3[CFO_{it}/TA_{it}]$

DD model:  $E(ACC_{it}) = \alpha_0 [1/TA_{it}] + \alpha_1 [(\Delta REV_{it}/TA_{it}) + \alpha_2[PPE_{it}/TA_{it}] + \alpha_3[CFO_{it}/TA_{it}] + \alpha_4[CFO_{it-1}/TA_t] + \alpha_5[CFO_{it+1}/TA_t]$

where  $TA_{it}$  is the average total assets in quarter  $t$ ,  $\Delta REV_{it}$  is the change in revenues in quarter  $t$ ,  $PPE$  is the property, plant and equipment at end of quarter  $t$  and  $CFO_{it}$  is the cash from operations in quarter  $t$ . The parameters,  $\alpha_0$  to  $\alpha_5$  are estimated separately for each of the Fama and French (1997) industry classifications with at least 15 observations, from a regression of accruals on above variables in quarter  $t-1$ . The aggregate abnormal accruals ( $ABACC_t$ ) for quarter  $t$  is the median abnormal accruals across all sample firms in quarter  $t$ . Panel A reports results for the Jones model, Panel B for the DD model and Panel C for the CFO model. The estimation of quarterly proxies for earnings optimism, namely  $ERC_{t-1}^{Pos-Neg}$  and  $AGG\_PE_{t-1}$ , is described in Table 1.

*Panel A: Jones model accruals*

Variable	Regression with $ERC_{t-1}^{Pos-Neg}$				Regression with $AGG\_PE_{t-1}$			
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$ERC_{t-1}^{Pos-Neg}$	0.707	4.50	0.202	2.89				
$AGG\_PE_{t-1} (*100)$					0.018	2.02	0.003	0.93
$ABACC_{t-1}$			-0.158	-3.03			-0.167	-3.10
$ABACC_{t-2}$			-0.084	-1.96			-0.089	-1.98
$ABACC_{t-3}$			0.222	2.43			0.186	1.98
$ABACC_{t-4}$			0.709	12.58			0.738	12.87
$QTR4_t$	-0.008	-5.58	-0.007	-3.39	-0.008	-4.73	-0.006	-2.88
INTERCEPT	0.002	1.83	0.002	2.59	-0.004	-1.00	0.001	0.39
No_of_obs	116		116		116		116	
Adj_R_Sq_%	33.5		88.5		24.3		87.7	
F_stat_pvalue	0.00		0.00		0.00		0.00	

**Table 2: Abnormal Accruals and Investor Demand for Earnings Surprises (Cont'd)**

<i>Panel B: DD model accruals</i>									
Variable	Regression with ERC <sub>t-1</sub> <sup>Pos-Neg</sup>				Regression with AGG PE <sub>t-1</sub>				
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
ERC <sub>t-1</sub> <sup>Pos-Neg</sup>	0.225	3.48	0.097	1.99					
AGG_PE <sub>t-1</sub> (*100)					0.009	2.73	0.003	2.18	
ABACC <sub>t-1</sub>			-0.019	-0.26			-0.057	-0.76	
ABACC <sub>t-2</sub>			-0.017	-0.24			-0.036	-0.51	
ABACC <sub>t-3</sub>			0.180	1.81			0.124	1.23	
ABACC <sub>t-4</sub>			0.691	7.78			0.703	7.78	
QTR <sub>t</sub>	-0.004	-6.33	-0.002	-2.91	-0.004	-5.28	-0.002	-2.40	
INTERCEPT	0.002	6.13	0.000	0.92	-0.001	-0.75	0.000	-0.35	
No_of_obs	116		116		116		116		
Adj_R_Sq_%	33.5		66.3		30.9		65.5		
F_stat_pvalue	0.00		0.00		0.00		0.00		

<i>Panel C: CFO model accruals</i>									
Variable	Regression with ERC <sub>t-1</sub> <sup>Pos-Neg</sup>				Regression with AGG PE <sub>t-1</sub>				
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
ERC <sub>t-1</sub> <sup>Pos-Neg</sup>	0.477	5.77	0.160	3.71					
AGG_PE <sub>t-1</sub> (*100)					0.015	3.12	0.005	1.93	
ABACC <sub>t-1</sub>			-0.106	-2.33			-0.118	-2.42	
ABACC <sub>t-2</sub>			-0.038	-0.93			-0.048	-1.09	
ABACC <sub>t-3</sub>			0.064	0.99			0.021	0.31	
ABACC <sub>t-4</sub>			0.785	14.90			0.822	15.21	
QTR <sub>t</sub>	-0.005	-6.54	-0.002	-2.45	-0.005	-5.17	-0.001	-1.51	
INTERCEPT	0.004	7.74	0.001	2.21	-0.001	-0.62	0.000	-0.44	
No_of_obs	116		116		116		116		
Adj_R_Sq_%	43.0		86.9		32.1		85.7		
F_stat_pvalue	0.00		0.00		0.00		0.00		

**Table 3: Robustness Tests**

The table reports results from robustness checks for the following regression of aggregate abnormal accruals ( $ABACC_t$ ) in quarter  $t$  on lagged  $ERC_{t-1}^{Pos-Neg}$  or lagged  $AGG\_PE_{t-1}$ .

$$ABACC_t = \lambda_0 + \lambda_1 ERC_{t-1}^{POS-NEG} + \sum_{j=1}^4 \lambda_{2j} ABACC_{t-j} + \lambda_3 Qtr4_t + u_t$$

$ERC_{t-1}^{POS-NEG}$  is the difference in earnings response coefficient to positive and to negative earnings surprises that are announced in quarter  $t-1$ . The estimation of earnings response coefficients and abnormal accruals are described in Table 1 and Table 4 respectively.  $QTR4_t$  is a dummy variable that takes value 1 for the fourth quarter and zero for all other quarters. Regression I allows the coefficient on  $ERC^{POS}$  to differ from the coefficient on  $ERC^{NEG}$ . Regression II is based on earnings response coefficients estimated using analysts surprise, rather than SUE, in the estimation of earnings response coefficients. Analysts' earnings surprise is computed as the difference between actual earnings per share (EPS) and the average of the latest analysts forecast prior to the earnings announcement. Regression III uses only a sample of firms reporting profits. Regression IV is estimated after deleting the extreme 10% of SUE on either side in the ERC estimation. Regression V uses earnings response coefficients estimated after controlling for firm-size (measured as logarithm of market capitalization).

Variable	Coefficient on $ERC^{POS}$ and $ERC^{NEG}$ allowed to differ		Earnings surprise for ERC estimation is based on analysts forecast		Sample includes only profit firms		Extreme 10% of SUE on either side deleted		ERC regression controls for size	
	I		II		III		IV		V	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
$ERC^{POS-NEG}$			0.043	1.70	0.075	1.97	0.125	3.51	0.156	3.64
$ERC^{POS}$	0.174	2.98								
$ERC^{NEG}$	-0.140	-2.02								
$ABACC_{t-1}$	-0.108	-2.35	-0.215	-3.04	-0.065	-1.48	-0.107	-2.33	-0.104	-2.29
$ABACC_{t-2}$	-0.041	-0.98	-0.114	-1.82	-0.012	-0.32	-0.037	-0.90	-0.037	-0.90
$ABACC_{t-3}$	0.063	0.97	0.129	1.25	0.062	0.92	0.045	0.70	0.067	1.04
$ABACC_{t-4}$	0.787	14.79	0.749	10.19	0.853	17.32	0.799	15.39	0.790	15.07
$QTR4_t$	-0.002	-2.42	-0.004	-2.86	-0.002	-1.79	-0.002	-2.11	-0.002	-2.50
INTERCEPT	0.001	1.15	0.003	2.52	0.001	2.22	0.001	2.35	0.001	2.10
No_of_obs	116		88		116		116		116	
Adj_R_Sq_%	86.79		88.97		84.59		86.74		86.84	
F_stat_pvalue	0.00		0.00		0.00		0.00		0.00	

**Table 4: Abnormal Accruals and Investor Demand for Earnings Surprises with Control Variables**

This table presents estimates from regression of aggregate abnormal accruals in quarter t ( $ABACC_t$ ) on lagged proxies for earnings optimism, namely,  $ERC_{t-1}^{Pos-Neg}$  and  $AGG\_PE_{t-1}$  after controlling for a variety of firm characteristics. These firm characteristics are measured at the aggregate level as averages of the firm-characteristics in quarter t-1 across sample firms in that quarter. The characteristics controlled for are: SIZE, measured as log of market value of equity plus book value of debt, MB, market to book ratio of equity, LEV, Leverage measured as debt to equity ratio, where debt is measured as long term debt plus debt in current liabilities. This regression also includes a time-trend, LN\_YEAR, which is measured as the natural logarithm of the YEAR corresponding to the ERC estimation quarter. ROA is the return on assets in quarter t and  $\Delta ROA$  is the 4-quarter-ahead change in ROA, i.e, ROA in quarter t+4 minus the ROA in quarter t. The computation of  $ABACC_t$ ,  $ERC_{t-1}^{Pos-Neg}$  and  $AGG\_PE_{t-1}$  are described in Table 2.

	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$ERC_{t-1}^{Pos-Neg}$	0.437	4.95	0.161	3.96					0.400	3.99	0.121	2.58
$AGG\_PE_{t-1} (*100)$					0.015	3.14	0.008	3.38	0.004	0.80	0.004	1.68
$LEV_{t-1} (*100)$	0.009	0.45	0.012	1.25			0.011	1.13	0.009	0.44	0.013	1.34
$MB_{t-1} (*100)$	-0.005	-0.45	-0.013	-2.65			-0.013	-2.54	-0.004	-0.39	-0.013	-2.69
$SIZE_{t-1}$	-0.024	-0.18	-0.073	-1.20			-0.157	-2.58	-0.049	-0.35	-0.103	-1.64
$ROA_{t-1} (*100)$	-0.056	-0.46	0.047	0.85			0.014	0.24	-0.078	-0.62	0.030	0.53
$\Delta ROA_{t+1}$	0.001	0.71	0.000	0.03			0.000	-0.43	0.000	0.50	0.000	-0.26
$LN(YEAR)_{t-1}$	0.153	1.50	0.144	2.26			0.206	3.20	0.141	1.38	0.166	2.57
$ABACC_{t-1}$			-0.145	-2.67			-0.200	-3.52			-0.171	-3.05
$ABACC_{t-2}$			-0.093	-1.91			-0.145	-2.86			-0.118	-2.33
$ABACC_{t-3}$			-0.022	-0.33			-0.118	-1.64			-0.070	-0.96
$ABACC_{t-4}$			0.764	12.86			0.746	12.00			0.741	12.26
$QTR4_{t-1}$	-0.005	-5.97	-0.001	-1.91	-0.005	-5.00	-0.001	-0.68	-0.005	-5.40	-0.001	-1.25
INTERCEPT	-1.154	-1.50	-1.088	-2.26	-0.001	-0.62	-1.554	-3.19	-1.070	-1.38	-1.251	-2.57
No_of_obs	112		112		112		112		112		112	
Adj_R_Sq_%	42.7		89.2		31.8		88.7		42.5		89.4	
F_stat pvalue	0.00		0.00		0.00		0.00		0.00		0.00	

**Table 5: Investor Demand for Earnings Surprises and Macro Economic Variables**

This table reports results from a regression of macroeconomic activities on lagged proxies for earnings optimism,  $ERC_{t-1}^{Pos-Neg}$  and  $AGG\_PE_{t-1}$ . The macroeconomic activities considered in the regression are: growth in industrial production in quarter t ( $IPG_t$ ); growth in real consumption in quarter t ( $RCG_t$ ); growth in real labor income in quarter t ( $RLIG_t$ ); inflation measured as the growth in seasonally adjusted consumer price index in quarter t ( $INF_t$ ); growth in nominal gross domestic product in quarter t ( $GDPG_t$ ); and growth in real gross domestic product in quarter t ( $RGDPG_t$ ). The regressions include upto four quarters of the dependent variable and a dummy for the fourth quarter as control variables. The computation of the earnings optimism proxies is described in notes to Table 2.

*Panel A: Macroeconomic variable: Inflation ( $INF_t$ )*

Variable	Coeff.		t-value		Coeff.		t-value	
	(1)	(2)	(3)	(4)	(5)	(6)	(5)	(6)
$ERC_{t-1}^{Pos-Neg}$	-17.767	-1.12			-23.462	-1.39		
$AGG\_PE_{t-1}$			0.004	0.48	0.009	0.94		
$INF_{t-1}$	0.205	2.05	0.215	2.14	0.212	2.11		
$INF_{t-2}$	0.130	1.49	0.162	1.85	0.141	1.60		
$INF_{t-3}$	0.092	1.03	0.107	1.18	0.104	1.15		
$INF_{t-4}$	0.387	4.05	0.384	4.00	0.382	3.99		
$QTR4_t$	0.379	2.17	0.437	2.35	0.437	2.36		
INTERCEPT	0.131	0.91	-0.153	-0.37	-0.241	-0.57		
No_of_obs	116		116		116			
Adj_R_Sq_%	48.30		47.81		48.25			
F_stat_pvalue	0.00		0.00		0.00			

*Panel B: Macroeconomic variable: Industrial production growth ( $IPG_t$ )*

Variable	Coeff.		t-value		Coeff.		t-value	
	(1)	(2)	(3)	(4)	(5)	(6)	(5)	(6)
$ERC_{t-1}^{Pos-Neg}$	34.611	1.11			-11.401	-0.34		
$AGG\_PE_{t-1}$			0.055	3.33	0.058	3.13		
$IPG_{t-1}$	0.295	3.09	0.209	2.19	0.207	2.15		
$IPG_{t-2}$	-0.019	-0.19	-0.050	-0.52	-0.049	-0.51		
$IPG_{t-3}$	0.177	1.74	0.171	1.76	0.171	1.74		
$IPG_{t-4}$	-0.073	-0.73	-0.065	-0.70	-0.071	-0.74		
$QTR4_t$	-0.093	-0.32	0.273	0.90	0.277	0.91		
INTERCEPT	0.334	1.70	-1.827	-2.61	-1.906	-2.58		
No_of_obs	116		116		116			
Adj_R_Sq_%	8.58		16.09		15.41			
F_stat_pvalue	0.01		0.00		0.00			

**Table 5: Investor Demand for Earnings Surprises and Macro Economic Variables (Cont'd)**

*Panel C: Macroeconomic variable: Real consumption growth (RCG<sub>t</sub>)*

Variable	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)	(5)	(6)
ERC <sub>t-1</sub> <sup>Pos-Neg</sup>	3.438	0.29			0.235	0.02
AGG_PE <sub>t-1</sub>			0.004	0.64	0.004	0.56
RCG <sub>t-1</sub>	0.173	1.81	0.165	1.71	0.165	1.70
RCG <sub>t-2</sub>	0.082	0.89	0.078	0.84	0.078	0.84
RCG <sub>t-3</sub>	0.079	0.87	0.080	0.87	0.080	0.87
RCG <sub>t-4</sub>	0.029	0.31	0.029	0.31	0.029	0.31
QTR4 <sub>t</sub>	-0.211	-1.81	-0.185	-1.48	-0.185	-1.47
INTERCEPT	0.520	4.00	0.368	1.31	0.370	1.25
No_of_obs	116		116		116	
Adj_R_Sq_%	3.28		3.56		2.67	
F_stat pvalue	0.14		0.13		0.19	

*Panel D: Macroeconomic variable: Real labor income growth (RLIG<sub>t</sub>)*

Variable	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)	(5)	(6)
ERC <sub>t-1</sub> <sup>Pos-Neg</sup>	19.665	0.59			3.350	0.09
AGG_PE <sub>t-1</sub>			0.020	1.20	0.019	1.04
RLIG <sub>t-1</sub>	-0.198	-2.13	-0.211	-2.35	-0.209	-2.23
RLIG <sub>t-2</sub>	0.151	1.68	0.154	1.72	0.154	1.71
RLIG <sub>t-3</sub>	0.122	1.34	0.128	1.42	0.128	1.41
RLIG <sub>t-4</sub>	0.404	4.38	0.413	4.54	0.415	4.47
QTR4 <sub>t</sub>	-0.069	-0.23	0.061	0.19	0.060	0.18
INTERCEPT	0.783	2.13	-0.016	-0.02	-0.002	0.00
No_of_obs	116		116		116	
Adj_R_Sq_%	21.64		22.42		21.70	
F_stat pvalue	0.00		0.00		0.00	

**Table 5: Investor Demand for Earnings Surprises and Macro Economic Variables (Cont'd)**

<i>Panel E: Macroeconomic variable: Growth in gross domestic product (GDPG<sub>t</sub>)</i>						
Variable	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)	(5)	(6)
ERC <sub>t-1</sub> <sup>Pos-Neg</sup>	-5.918	-0.31			-7.153	-0.34
AGG_PE <sub>t-1</sub>			0.000	0.00	0.002	0.14
GDPG <sub>t-1</sub>	0.317	3.32	0.319	3.34	0.316	3.27
GDPG <sub>t-2</sub>	0.168	1.68	0.168	1.67	0.168	1.67
GDPG <sub>t-3</sub>	0.028	0.28	0.031	0.31	0.029	0.28
GDPG <sub>t-4</sub>	0.077	0.80	0.082	0.84	0.079	0.80
QTR4 <sub>t</sub>	-0.006	-0.03	0.002	0.01	0.004	0.02
INTERCEPT	0.683	2.89	0.648	1.28	0.618	1.20
No_of_obs	116		116		116	
Adj_R_Sq_%	18.30		18.22		17.56	
F_stat pvalue	0.00		0.00		0.00	

<i>Panel F: Macroeconomic variable: Growth in real gross domestic product (RGDPG<sub>t</sub>)</i>						
Variable	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)	(5)	(6)
ERC <sub>t-1</sub> <sup>Pos-Neg</sup>	-12.100	-2.39			-10.003	-1.81
AGG_PE <sub>t-1</sub>			-0.005	-1.81	-0.003	-0.96
RGDPG <sub>t-1</sub>	0.542	6.28	0.527	6.06	0.541	6.25
RGDPG <sub>t-2</sub>	0.169	1.71	0.218	2.25	0.175	1.76
RGDPG <sub>t-3</sub>	0.144	1.46	0.162	1.64	0.141	1.43
RGDPG <sub>t-4</sub>	0.063	0.68	0.013	0.14	0.053	0.56
QTR4 <sub>t</sub>	0.162	3.31	0.156	3.00	0.147	2.85
INTERCEPT	0.051	1.11	0.214	1.64	0.170	1.29
No_of_obs	116		116		116	
Adj_R_Sq_%	86.85		86.56		86.84	
F_stat pvalue	0.00		0.00		0.00	

**Table 6: Abnormal Accruals and Investor Demand for Earnings Surprises with Macroeconomic Control Variables**

This table presents estimates from regression of aggregate abnormal accruals in quarter t ( $ABACC_t$ ) on lagged proxies for earnings optimism, namely,  $ERC_{t-1}^{Pos-Neg}$  and  $AGG\_PE_{t-1}$  after controlling for a variety of macroeconomic activities. The macroeconomic activities considered in the regression are: growth in industrial production in quarter t-1 ( $IPG_{t-1}$ ); growth in real consumption in quarter t ( $RCG_{t-1}$ ); growth in real labor income in quarter t ( $RLIG_{t-1}$ ); inflation measured as the growth in seasonally adjusted consumer price index in quarter t-1 ( $INF_{t-1}$ ); and growth in real gross domestic product in quarter t ( $RGDPG_{t-1}$ ). The computation of  $ABACC_t$ ,  $ERC_{t-1}^{Pos-Neg}$  and  $AGG\_PE_{t-1}$  is described in Table 2.

	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$ERC_{t-1}^{Pos-Neg}$	0.132	2.87	0.129	2.70				
$AGG\_PE_{t-1}$ (*100)					0.004	1.29	0.004	1.24
$INF_{t-1}$ (*100)	-0.007	-0.21	0.003	0.08	-0.017	-0.51	-0.002	-0.07
$IPG_{t-1}$ (*100)	0.014	1.18	0.010	0.75	0.012	0.93	0.010	0.70
$RGDPG_{t-1}$ (*100)	-0.001	-1.13	-0.001	-1.14	-0.001	-1.44	-0.001	-1.41
$RCG_{t-1}$ (*100)			0.000	1.05			0.000	1.17
$RLIG_{t-1}$ (*100)			0.000	-0.20			0.000	-0.85
$ABACC_{t-1}$	-0.176	-3.01	-0.174	-2.96	-0.207	-3.48	-0.201	-3.36
$ABACC_{t-2}$	-0.108	-1.96	-0.105	-1.90	-0.138	-2.48	-0.133	-2.37
$ABACC_{t-3}$	-0.005	-0.07	-0.002	-0.03	-0.060	-0.79	-0.056	-0.74
$ABACC_{t-4}$	0.743	12.71	0.746	12.69	0.761	12.64	0.764	12.65
$QTR4_{t-1}$	-0.002	-2.42	-0.002	-2.38	-0.002	-1.75	-0.001	-1.64
INTERCEPT	0.003	2.61	0.002	2.15	0.002	1.59	0.002	1.30
No_of_obs	116		116		116		116	
Adj_R_Sq_%	87.02		86.91		86.23		86.20	
F_stat_pvalue	0.00		0.00		0.00		0.00	

**Table 7: Investor Demand for Earnings Surprises and Investor Sentiment Proxies**

This table presents results from regression of earnings optimism proxies on contemporaneous proxies for investor sentiment and macroeconomic activities. The proxies for earnings optimism are  $ERC_t^{Pos-Neg}$  and  $AGG\_PE_t$ . The computations of these are described in Table 2. The investor sentiment proxies are computed as the average in each calendar quarter of the monthly investment proxies in Glushkov (2006). The investor sentiment proxies considered are MICHINDEX, University of Michigan Consumer Sentiment Index,  $CWFD\_VW$ , value-weighted closed end fund discount, EQSHARE, equity share of aggregate new issues, and NYSEDTURN, detrended NYSE turnover. The macroeconomic activities considered in the regression are: growth in industrial production in quarter t ( $IPG_t$ ); inflation measured as the growth in seasonally adjusted consumer price index in quarter t ( $INF_t$ ); and growth in real gross domestic product in quarter t ( $RDGPG_t$ ). All coefficients in Panel A are multiplied by 100.

**Panel A: Regression of  $ERC^{Pos-Neg}$** 

	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)	(5)	(6)
CEFD <sub>t</sub>	0.031	4.54	0.031	4.65	0.025	2.68
MICHINDEX <sub>t</sub>	0.001	0.26	0.000	0.12	-0.002	-0.38
EQSHARE <sub>t</sub>	0.359	0.93	0.382	1.01	0.595	1.35
NYSEDTURN <sub>t</sub>	0.037	0.11	0.072	0.21	0.146	0.41
INF <sub>t</sub>					0.029	0.36
IPG <sub>t</sub>					-0.007	-0.23
RDGPG <sub>t</sub>					-0.165	-1.09
QTR4 <sub>t</sub>			-0.211	-2.40	-0.207	-2.03
INTERCEPT	0.398	1.08	0.487	1.35	0.708	1.42
No_of_obs	110		110		110	
Adj_R_Sq_%	15.33		18.99		17.68	
F_stat pvalue	0.00		0.00		0.00	

**Panel B: Regression of  $AGG\_PE_t$** 

	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)	(5)	(6)
CEFD <sub>t</sub>	0.498	3.77	0.501	4.11	0.393	2.44
MICHINDEX <sub>t</sub>	0.112	1.63	0.096	1.51	-0.082	-0.95
EQSHARE <sub>t</sub>	10.414	1.38	11.166	1.60	5.831	0.76
NYSEDTURN <sub>t</sub>	-2.472	-0.36	-1.296	-0.20	-1.172	-0.19
INF <sub>t</sub>					-0.224	-0.16
IPG <sub>t</sub>					1.811	3.23
RDGPG <sub>t</sub>					-2.649	-0.99
QTR4 <sub>t</sub>			-7.112	-4.39	-7.941	-4.43
INTERCEPT	33.275	4.66	36.285	5.47	53.532	6.11
No_of_obs	110		110		110	
Adj_R_Sq_%	14.73		27.38		32.91	
F_stat pvalue	0.00		0.00		0.00	

**Table 8: Abnormal Accruals and Investor Sentiment**

The table reports the estimates from the following regression of aggregate abnormal accruals ( $ABACC_t$ ) in quarter  $t$  on lagged closed-end fund discount ( $CEFD_{t-1}$ ) and lagged proxies for earnings optimism ( $ERC\_OPT_{t-1}$ ).

$$ABACC_t = \beta_0 + \beta_1 CEFD_{t-1} + \beta_2 ERN\_OPT_{t-1} + \sum_{j=1}^4 \beta_{3j} ABACC_{t-j} + \beta_4 Qtr\ 4_t + \beta_5 INF_{t-1} + \beta_6 IPG_{t-1} + \beta_7 RGDPG_{t-1} + u_t$$

$CEFD_{t-1}$  is the average value-weighted closed-end fund discount in quarter  $t-1$ . The proxies for earnings optimism are  $ERC_t^{Pos-Neg}$  and  $AGG\_PE_t$ . The computation of  $ABACC_t$ ,  $ERC_{t-1}^{Pos-Neg}$  and  $AGG\_PE_{t-1}$  is described in Table 2.  $QTR4_t$  is a dummy variable that takes value 1 for the fourth quarter and zero for all other quarters.  $INF_{t-1}$ ,  $IPG_{t-1}$  and  $RGDPG_{t-1}$  are inflation, industrial production growth and growth in real gross domestic product respectively in quarter  $t-1$ .

Variable	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$CEFD_{t-1}$ (*100)	0.018	2.39	0.009	3.03	0.007	1.92	0.004	1.10
$ERC_{t-1}^{Pos-Neg}$							0.120	2.62
$AGG\_PE_{t-1}$ (*100)							-0.001	-0.28
$INF_{t-1}$ (*100)					-0.063	-1.89	-0.058	-1.78
$IPG_{t-1}$ (*100)					0.025	2.22	0.024	2.05
$RGDPG_{t-1}$ (*100)					0.012	0.21	0.028	0.48
$ABACC_{t-1}$			-0.129	-2.67	-0.182	-3.12	-0.154	-2.65
$ABACC_{t-2}$			-0.056	-1.29	-0.114	-2.10	-0.085	-1.57
$ABACC_{t-3}$			0.022	0.36	-0.031	-0.45	0.015	0.21
$ABACC_{t-4}$			0.848	15.70	0.822	13.64	0.800	13.41
$QTR4_t$			-0.001	-1.86	-0.002	-2.26	-0.002	-2.51
INTERCEPT	0.005	6.31	0.002	3.36	0.003	3.34	0.003	1.95
No_of_obs	108		108		108		108	
Adj_R_Sq_%	4.2		88.5		89.2		89.7	
F_stat_pvalue	0.02		0.00		0.00		0.00	

**Table 9: Abnormal Accruals and Investor Demand for Earnings Surprises in Stocks Prone to Investor Sentiment**

This table presents the results from regressions of differences in median discretionary accruals from CFO model in quarter t between high sentiment stocks and low sentiment stocks ( $ABACC\_DIFF_t$ ) on earnings optimism proxies in quarter t-1, i.e.,  $ERC_{t-1}^{Pos-Neg}$  and  $AGG\_PE_{t-1}$ .

$$ABACC\_DIFF_t = \alpha_0 + \alpha_1 ERN\_OPT_{t-1} + \sum_{j=1}^4 \alpha_{2j} ABACC\_DIFF_{t-j} + \alpha_3 QTR4_t + v_t$$

Stocks are sorted into high sentiment and low sentiment groups based on a variety of firm characteristics, computed as of quarter t-1. Panel A classifies stocks with return volatility above (below) the median return volatility across all sample firms in a quarter as high (low) sentiment stocks. Return volatility is measured as the volatility of daily stock returns in quarter t-1. Panel B classifies stocks with market capitalization below (above) the median market capitalization across all sample firms in a quarter as high (low) sentiment stocks. Panel C classifies stocks with negative (positive) earnings as high (low) sentiment stocks. Panel D classifies stocks with no dividend payments (with dividend payments) as high (low) sentiment stocks. Panel E classifies stocks whose age is below (above) median age across all sample firms in a quarter as high (low) sentiment stocks. Age is measured as the number of days since a firm's first appearance in CRSP dataset. The dependent variable,  $ABACC\_DIFF_{t+1}$ , in the regression is the median discretionary accruals across firms in the high sentiment group less the median discretionary accruals across firms in the low sentiment group. The regressions include four lags of the dependent variable and a fourth-quarter (qtr4) dummy as control variables.

*Panel A: Sorting variable for high and low sentiment groups is stock return volatility*

	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)
$ERC_{t-1}^{Pos-Neg}$	0.180	2.80		
$AGG\_PE_{t-1} (*100)$			0.009	2.37
$ABACC\_DIFF_{t-1}$	0.024	0.27	-0.011	-0.12
$ABACC\_DIFF_{t-2}$	0.310	3.63	0.284	3.31
$ABACC\_DIFF_{t-3}$	0.114	1.05	0.052	0.47
$ABACC\_DIFF_{t-4}$	0.409	4.34	0.437	4.69
$QTR4_t$	-0.001	-1.25	0.000	-0.35
INTERCEPT	0.000	-1.06	-0.004	-2.28
No_of_obs	116		116	
Adj_R_Sq_%	58.05		57.24	
F_stat_pvalue	0.00		0.00	

*Panel B: Sorting variable for high and low sentiment groups is market capitalization*

Variable	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)
$ERC_{t-1}^{Pos-Neg}$	0.115	2.33		
$AGG\_PE_{t-1} (*100)$			0.006	2.11
$ABACC\_DIFF_{t-1}$	0.124	1.43	0.068	0.79
$ABACC\_DIFF_{t-2}$	0.143	1.69	0.139	1.64
$ABACC\_DIFF_{t-3}$	0.008	0.09	-0.032	-0.35
$ABACC\_DIFF_{t-4}$	0.330	3.56	0.315	3.33
$QTR4_t$	-0.001	-1.72	-0.001	-1.01
INTERCEPT	0.000	-0.87	-0.002	-2.00
No_of_obs	116		116	
Adj_R_Sq_%	23.57		22.92	
F_stat_pvalue	0.00		0.00	

**Table 9: Abnormal Accruals and Investor Demand for Earnings Surprises in Stocks Prone to Investor Sentiment (Cont'd)**

*Panel C: Sorting variable for high and low sentiment groups is profitability*

Variable	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)
ERC <sub>t-1</sub> <sup>Pos-Neg</sup>	0.128	1.68		
AGG_PE <sub>t-1</sub> (*100)			0.001	0.16
ABACC_DIFF <sub>t-1</sub>	0.025	0.35	-0.001	-0.01
ABACC_DIFF <sub>t-2</sub>	0.222	3.06	0.230	3.12
ABACC_DIFF <sub>t-3</sub>	0.274	3.10	0.278	3.07
ABACC_DIFF <sub>t-4</sub>	0.422	4.22	0.443	4.38
QTR4 <sub>t</sub>	-0.004	-3.64	-0.004	-3.50
INTERCEPT	0.000	0.24	0.001	0.21
No_of_obs	116		116	
Adj_R_Sq_%	53.09		51.88	
F_stat_pvalue	0.00		0.00	

*Panel D: Sorting variable for high and low sentiment groups is dividend payer*

Variable	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)
ERC <sub>t-1</sub> <sup>Pos-Neg</sup>	0.157	3.47		
AGG_PE <sub>t-1</sub> (*100)			0.002	0.88
ABACC_DIFF <sub>t-1</sub>	0.001	0.01	-0.040	-0.54
ABACC_DIFF <sub>t-2</sub>	0.146	2.12	0.146	2.02
ABACC_DIFF <sub>t-3</sub>	0.137	1.79	0.118	1.42
ABACC_DIFF <sub>t-4</sub>	0.493	6.52	0.546	6.87
QTR4 <sub>t</sub>	-0.001	-2.38	-0.001	-1.87
INTERCEPT	0.000	-1.09	-0.001	-0.71
No_of_obs	116		116	
Adj_R_Sq_%	57.99		53.68	
F_stat_pvalue	0.00		0.00	

*Panel E: Sorting variable for high and low sentiment groups is age*

Variable	Coeff.	t-value	Coeff.	t-value
	(1)	(2)	(3)	(4)
ERC <sub>t-1</sub> <sup>Pos-Neg</sup>	0.072	1.98		
AGG_PE <sub>t-1</sub> (*100)			0.002	0.90
ABACC_DIFF <sub>t-1</sub>	0.148	1.68	0.126	1.41
ABACC_DIFF <sub>t-2</sub>	0.344	4.17	0.342	4.11
ABACC_DIFF <sub>t-3</sub>	0.071	0.72	0.067	0.68
ABACC_DIFF <sub>t-4</sub>	0.356	4.09	0.366	4.16
QTR4 <sub>t</sub>	-0.001	-1.61	-0.001	-1.40
INTERCEPT	0.000	-0.46	-0.001	-0.78
No_of_obs	116		116	
Adj_R_Sq_%	66.08		65.35	
F_stat_pvalue	0.00		0.00	