A Tale of Two Strategies: Cash Flow, Accruals and the Role of Investor Sentiment

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Abstract

This study documents a subtle and counter-intuitive interaction between operating cash flow (CFO) and accruals, and their association with future stock returns. While the two strategies should by construction capture similar anomalies, we find evidence in two large stock markets that they appear distinct, and that returns to these strategies are strongly negatively correlated. We show that the presence and behaviour of financially distressed firms influences asymmetrically the performance of accruals and CFO strategies. Given their highly speculative nature, we find investor sentiment to be an important determinant of the performance of financially distressed firms. Because accruals and CFO based strategies load asymmetrically on financially distressed securities, strategies based on accruals (cash flow) perform particularly well (poorly) during high sentiment periods and particularly poorly (well) during low sentiment periods.

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* The views expressed are the views of Gerard, Guido and Koutsoyannis, only through the period ended 29/04/2009 and do not necessarily reflect the views of State Street Corporation. All material has been obtained from sources believed to be reliable, but its accuracy is not guaranteed.

Introduction

Since Sloan's (1996) seminal paper, much has been done on re-examining the negative relationship between future returns and accruals. However, one area that has until recently received little attention is the relationship between strategies based on the accruals and cash flow components of earnings. Conventional wisdom and prior research (see Dechow, 1994) suggests that the two components are strongly negatively correlated since accruals are seen as a generally accepted mechanism used by reporting firms to smooth out noisy fluctuations in earnings caused by the timing and matching problems of realised cash flow. Hence, it is typically assumed that a strategy based on cash flow from operations (hereafter CFO), whereby high CFO firms are bought and low CFO firms are sold, should be strongly positively correlated and produce similar return patterns to an accruals based strategy that buys low accruals firms and sells high accruals firms.

Recent findings in the literature however cast doubt on these assertions. Desai et al (2004), Yu (2005), Livnat and Santicchia (2006) and Livnat and Lopez-Espinosa (2008) all find that after controlling for cash flow, the negative relationship between accruals and future returns either vanishes or is significantly reduced. One noticeable exception is the study by Chen and Thomas (2006) where abnormal accruals are shown to predict returns even after controlling for cash flow. Barone and Magilke (2006) add to these differences by pointing out that sophisticated and unsophisticated investors price the cash flow and accruals components of earnings differently. Furthermore, in addition to pointing out the varying sensitivity the two trading strategies have to outliers, Kraft et al (2004) document that the composition of firms in the extreme deciles formed by ranking on accruals tends to be markedly different from one based on cash flow rankings. In particular, they show that low cash flow firms tend to be found in both high and low accruals portfolios. This recent evidence suggests that despite the strong negative correlation between accruals and cash flow documented in previous studies, this correlation is far from perfect and substantial differences may exist between strategies that are based on these two items.

It is this possibility and the lack of empirical evidence on the issue that motivates our analysis. In this study, we add to the burgeoning literature on the difference between the accruals and cash flow anomalies by examining their links with investor sentiment for the US and UK stock markets. We firstly document, as in previous studies, a negative

correlation between accruals and cash flow in the cross-section of firms. Despite this, one of the main contributions of this study is that to our knowledge, we find previously undocumented evidence that the performance of a strategy that takes a long (short) position in high (low) cash flow firms is negatively correlated with a strategy that takes a long (short) position in firms that report low (high) accruals. Given that we observe accruals and cash flow to be negatively correlated in the cross-section, these two strategies should however on casual consideration yield returns that are positively correlated. While at first these results appear at odds with such expectations, this study attempts to provide an explanation for this empirical finding that is observed pervasively in both markets. As reported in Kraft et al (2004), we find that a significant proportion of negative cash flow firms exist in both high and low accruals deciles. Although the presence of negative cash flow in the high accruals decile is expected, the presence of a large proportion of negative cash flow firms in the low accruals decile is surprising. In fact, we show that the presence and behaviour of negative cash flow firms which also have negative accruals is a key driver of the asymmetric performance of accruals and CFO based strategies. When these firms perform poorly, the performance of the accruals based strategy is strong and the performance of the cash flow strategy is poor. Conversely, when they perform well, the reverse is true. We find that firms with both negative accruals and negative CFO tend to be small in size, have experienced poor past operating performance, and have particularly high balance sheet risk as evidenced by low Altman's Z scores as well as high default likelihoods. For all these reasons, we refer to these firms as financially distressed securities and demonstrate their central role in characterising the relationship between accruals and cash flow strategies.

In an attempt to better understand the behaviour of financially distressed firms, and in turn, the dynamic properties of accruals and CFO based anomalies, we investigate the relationship between the performance of these firms and investor sentiment. Investment in financially distressed firms is expected to be highly speculative in nature so that investor sentiment should play an important role in explaining their stock market performance (see Baker and Wurgler, 2006). Using readily available proxies of investor sentiment we construct a sentiment index which we find to be strongly associated with the market performance of this group of firms. In particular, we show that when sentiment is high, investors seem too optimistic about the future prospects of financially distressed firms. In contrast, when sentiment is low, investors appear too pessimistic. Because of the

asymmetric loadings of the accruals and CFO based strategies to financially distressed firms we find that strategies based on accruals (cash flow) perform particularly well (poorly) during high sentiment periods and particularly poorly (well) during low sentiment periods. These results for the accruals based strategy along with the previous findings that this strategy has a positive exposure to financially distressed firms cast some serious doubts to the widely held view in the investment community that accruals measure earnings quality and might offer some protection to investors during turbulent times.

The remainder of the paper is organised as follows. Section 2 provides a review of the literature relating to the material considered in this study. Data, variables and research design are discussed in section 3; section 4 reports the results and findings. Finally, section 5 concludes this study.

1. Literature Review

In his seminal paper, Sloan (1996) demonstrates that investors fixate on total income numbers and fail to correctly appreciate the varying degrees of persistence of the cash flow and accruals components of earnings. In particular, accruals are shown to exhibit lower persistence than cash flow and a hedge strategy that buys firms with low accruals and sells firms with high accruals earns significant abnormal returns in the year following portfolio formation. The author attributes the lower persistence of accruals to their greater subjectivity since management has some discretion over their recognition. Nevertheless, the use of accruals is allowed so that earnings better reflect firm performance. This is because accruals can be used to smooth out temporary fluctuations in cash flow. A consequence of this is that the overwhelming empirical evidence shows accruals and cash flow to be strongly negatively correlated (for some US evidence see amongst others Dechow, 1994, Sloan, 1996, Barth et al , 2001; for some recent international evidence see Pincus, Rajgopal and Venkatachalam, 2007 and Leippold and Lohre, 2007). Because of this negative relationship, it is typically assumed that a strategy based on cash flow (buying high and selling low) should be highly positively correlated and produce similar return profiles to one based on accruals.

Recent studies, however, cast doubt on these assumptions. Kraft et al (2004, 2006) show that the findings of positive returns to accruals based trading strategies are sensitive

to the inclusion of extreme performers and vanish once these firms are excluded. However, the reverse is true for a cash flow based strategy and returns are shown to increase once extreme performers are deleted. Furthermore, the authors point out that low operating cash flow firms tend to be associated not only with high accruals but also low accruals firms. They advocate two primary reasons for why this may occur. On the one hand, firms with negative cash flow may be investing in working capital to sustain growth opportunities or experiencing a sudden decline in demand, with both scenarios leading to positive accruals. On the other hand, firms with negative cash flow might be in distress and more likely to liquidate working capital to generate the needed cash, which would lead to low accruals. Interestingly, the authors find that the low cash flow firms in high and low accruals groupings are typically poorly performing and not firms experiencing negative cash flow due to high growth.

Desai et al (2004) find that the predictive power of accruals is subsumed by that of cash flow and conclude that the correlation between cash flow and accruals is sufficient to eliminate accruals as a predictor of future returns. Yu (2005) points out that excluding cash flow from a model linking future returns with accruals creates an omitted variable problem. In line with Desai et al (2004) he also demonstrates that after including cash flow the significant negative relationship between future returns and accruals vanishes.

Livnat and Santicchia (2006) test the accruals anomaly using quarterly data and find similar results to those at the annual frequency. Namely, companies with high (low) quarterly accruals have low (high) abnormal returns in subsequent quarters. In line with the findings above, they also demonstrate that the relation between future returns and cash flow is stronger than that between accruals and future returns. Interestingly, we note that the authors exclude firms with both negative cash flow and negative accruals from their analysis. They do that to magnify the results of the accruals anomaly since they argue these firms are likely to experience greater accruals persistence. Although we do not test explicitly the persistence of the accruals component of firms with negative cash flow and negative accruals, we will show later in this study some evidence that the presence and behaviour of these firms is a key driver of the asymmetric performance of accruals and cash flow based strategies.

In a related study, Livnat and Lopez-Espinosa (2008) find that quarterly accruals are not significantly related to future returns once cash flow is controlled for. They also show industry specific results that are consistent with results for the entire population. They conclude that investors should focus on the cash flow component of earnings rather than accruals. One noticeable exception to these findings is the study by Chen and Thomas (2006) who find that abnormal accruals estimated using a variety of formulations appear to forecast future returns even after controlling for cash flow-to-price.

Barone and Magilke (2006) add to these differences by re-examining the naïve-investor hypothesis in the context of both accruals and cash flow mispricing. As in Sloan (1996), they are able to demonstrate that accruals are significantly negatively related with future returns. However, once they control for the cash flow component of earnings they find that the evidence on accruals disappears. They also show that the degree of investor sophistication is differently related to the pricing of accruals and cash flow. While firms with low levels of institutional ownership (a proxy for investor sophistication) are found to have their accruals correctly priced but their cash flow component of earnings mispriced; firms with high levels of institutional ownership tend to have their cash flow priced accurately but the persistence of their accruals misestimated.

All in all, these results suggest that despite the strong negative correlation between accruals and cash flow reported in previous studies, the two components are not perfectly correlated so that considerable differences may exist between strategies based on accruals and cash flow. It is this possibility and the lack of empirical evidence on this issue that motivates our analysis. Specifically, we intend to add to the expanding literature on the difference between the accruals and cash flow anomalies by investigating explicitly their relationship in two large stock markets, the US and the UK over a substantial period of time exceeding 19 years.

2. Data Sources, Research Design and Descriptive Statistics

2.1 Data Sources and Research Design

The study focuses on exchange listed firms based in the US and the UK equity markets with financial statement and returns data covering the period from June 1989 to August

2008. For US firms, the sample consists of exchange listed companies belonging to the Russell 3000 index which comprises of the 3000 largest and most investible US companies. Similarly, for UK firms, the sample consists of companies belonging to the FTSE All Share index. The use of such well known indices ensures that we do not need to make any unrealistic assumptions regarding the accessibility of the data to investors. Finally, we source financial statement data from the Worldscope database[4] and stock return data from the Factset Price database[5].

We attempt to mitigate several research design issues documented by Kraft et al (2006) that often plague accruals based studies. To avoid a sample selection bias, we base our trading strategies on index listings at the times when our trading strategies would have been implemented. Specifically, at the time of portfolio formation, we consider only those stocks that have been in the index over the previous twelve months and we exclude those stocks that have not yet entered the index. Secondly, to avoid survivorship bias, when a firm delists we assume a delisting return of -100%. We note however that our results are insensitive to either eliminating these securities from our sample or setting their returns to zero. Finally, we tested the robustness of our analysis to the presence of outlying observations in the distribution of stock returns. In particular, we excluded returns in excess of 500% per month. Our results proved to be robust to such outlier removal.

The two variables of interest in our study are accruals and operating cash flow (CFO). We define CFO as the firm's operating cash flow minus the cash portion of extraordinary items. We compute accruals as the difference between net income before extraordinary items and CFO. Collins and Hibrar (2002) point out that the use of balance sheet data can introduce errors in the measurement of accruals due to non-articulation events such as merger and acquisitions. For this reason, we source our variables from the cash flow statement account. We deflate each component by average total assets and truncate outlying observations at the 1% level. Finally, to avoid a look-ahead bias, we assume respectively for the US and the UK a four months lag and a six months lag between the fiscal year-end and the time the annual report is issued.[6, 7, 8]

[4] Thomson Reuters Worldscope via FactSet Research Systems Inc.
[5] FactSet Research Systems Inc.
[6] We tested the robustness of our results to using a balance sheet measure of accruals more in line with previous studies and defined as the change in non-cash working capital. Results using this metric are qualitatively the same to those presented in this paper.

2.2 Descriptive Statistics

Table 1A presents summary statistics for our US and UK samples. In addition to looking at accruals and cash flow measures, we present statistics on the following variables: Return on Asset (ROA = Net Income/Average Total Assets); size (the natural logarithm of market capitalization in USD/GBP millions), Book-to-Price ratio (BP), Return on Equity (ROE = Net Income/Book Value of Common Equity), Asset Turnover ratio (TO is Sales/Average Total Assets), Profit Margin (Net Income/Sales) and Altman's Z score. Following Altman (1968), we define the Z score as the composite score of 5 ratios:

$$Z = 1.2 \times WC / TA + 1.4 \times RE / TA + 3.3 \times EBIT / TA + 0.6 \times P / TL + 1.0 \times S / TA \qquad (1)$$

where WC is Working Capital; TA: Total Assets; RE: Retained Earnings; P: Market Value of Equity; EBIT: Earnings Before Interest and Tax; TL: Total Liabilities; and S stands for Sales.

[TABLE 1 ABOUT HERE]

Over the period of our study we show in Table 1A that firms from the Russell 3000 (US) had much lower average profitability than firms from the FTSE All Share (UK). The ROA for US firms is 0.9% while it is equal to 7.3% in the UK. Also, the ROE of US firms is negative and averages -9.5% over the period of the study while it is positive and reaches 7.2% in the UK. Still further, we find the profit margin of US firms (-15.8%) to be much lower than that of their UK counterparts (18.3%). Two other noteworthy characteristics of our US and UK samples are that while both markets have similar levels of CFO (US: 6.0%; UK: 7.4%), the average level of accruals is much lower in the US (-5.1%) than in the UK (0.0%).

Table 2 shows contemporaneous Pearson and Spearman correlations for our variables of interest. As expected, accruals and cash flow are typically positively correlated with

[7] In line with previous accruals studies we tested the robustness of our results to excluding firms from the financial sector. However, doing so does not affect the nature of our findings and we decided to report in this study results based the whole universe of stocks.
[8] Our results are robust to excluding small firms with total assets of less than 10 million USD.

ROA, ROE, TO, Profit Margin and the Altman's Z score. Also, in both countries, we find size to be positively correlated with both accruals and CFO. The correlation between BP and CFO is significantly negative while that with accruals is economically small. Finally, in line with previous studies, we document in both the US and the UK a negative correlation between accruals and CFO. Interestingly, we note that in the US the Pearson correlation between accruals and CFO (-0.084) is markedly less negative than the Spearman correlation (-0.333) suggesting that the tail behaviour of the distributions differs from the rest of the observations. This is particularly noteworthy for our analysis since the accruals and CFO based strategies typically favour the tails of their respective distributions.

[TABLE 2 ABOUT HERE]

3. Discussion of Results

3.1 Exposure Analysis of Accruals and Cash Flow Portfolios

To better understand the pattern and relationship between accruals and CFO, Table 3 provides statistics on the characteristics of decile portfolios formed by ranking firms on the magnitude of their accruals and cash flow. In line with the correlation analysis of Table 2 we show that high accruals deciles (decile 10) are typically associated with lower cash flow (-2.1% for the US and 2.6% for the UK) than low accruals deciles (decile 1) (4.3% for the US and 10.8% for the UK). Similarly, we find that high CFO deciles tend to be associated with lower accruals (-11.1% for the US and -4.6% for the UK) than low CFO deciles (-6.1% for the US and 2.5% for the UK). These differences between the top and bottom deciles are all significant at conventional statistical significance levels.

[TABLE 3 ABOUT HERE]

In Table 4A we present statistics on the performance of strategies based on accruals and cash flow in the US and the UK. The accruals based hedge strategy takes a long position in firms with the lowest accruals (decile 1 portfolio) and takes a short position in firms with the highest accruals (decile 10 portfolio). For the CFO based hedge strategy, a long position is taken in firms with the highest CFO (decile 10 portfolio) and a short position is taken in firms with the lowest CFO (decile 1 portfolio). We assess the

performance of theses strategies based on a raw and an abnormal monthly return basis. To compute the abnormal returns of the accruals and CFO strategies, we characteristic-match each month the firms in these strategies to a portfolio of firms that fall in the same size (market capitalisation), book-to-price and momentum (measured over months [-12; -2]) terciles. The difference between the security return and the equally weighted return of the characteristic-matched portfolio is our measure of abnormal return for that firm (see amongst others Lyon, Barber and Tsai, 1999). In the US, we document a lower abnormal spread return for the accruals based strategy than the one documented by Sloan (1996) in his earlier sample. In his study, Sloan (1996) finds an average annual size adjusted spread return of 10% whereas here the annualised abnormal return falls to 7.6% (0.631% per month). The return of the accruals strategy is slightly lower in the UK falling to 5.9% on an annualised raw basis (0.494% per month) and 6.4% annualised on an abnormal basis (0.536% per month). In this market the raw performance of the CFO based strategy compares favourably to its accruals counterpart (7.8% on an annualised basis or 0.648% per month). This is not true for the US however where we find the CFO strategy to earn an insignificant raw average return (1.8% annualised or 0.152% per month). Interestingly, although the characteristic-matching approach tends to reduce or barely affect the performance of accruals, it significantly improves that of CFO based strategies. In the US, the abnormal performance of the CFO based strategy increases to 8.8% annualised (0.735% per month). In the UK, the abnormal performance of the strategy reaches an impressive 12.7% (1.055% on a monthly basis).

[TABLE 4 ABOUT HERE]

3.2 The Relationship between Accruals Based and Cash Flow Based Trading Strategies

In this section we investigate the contemporaneous relationship between the accruals and CFO hedge strategies over time. If the two firm characteristics, accruals and CFO, are negatively correlated as documented in previous studies as well as in Tables 2 and 3, then a-priori, one would expect the performance of these strategies to be positively correlated. However, casual inspection of Figure 1, where we plot the monthly compounded returns of the accruals and CFO based strategies, reveals some interesting and counter-intuitive patterns in their co-movement. In particular, it is apparent that in both markets over most of the period of our analysis, the two strategy returns display a strong negative correlation.

[FIGURE 1 ABOUT HERE]

The results of Table 5A shed further light on these findings. There, we regress the hedge returns of the accruals based strategy against the hedge returns of the CFO based strategy. We find that the slope coefficient on the CFO based strategy returns estimated over the entire sample is negative and significant in both markets (-0.432 for the US and -0.285 for the UK). Looking at pair-wise Pearson correlations in Table 5A provides similarly striking insights. The correlation between the two strategies is -0.772 for the US market and -0.352 for the UK market. To our knowledge, this is the first time that this negative correlation between accruals and CFO based strategies has been documented. This is counter to conventional wisdom given that prior research suggests that accruals and CFO are negatively correlated. Moreover, even though we find the negative relationship between these strategies to be particularly strong in the US, it is noticeable that the effect is also present in the UK market and serves to demonstrate the robustness of the phenomenon across regions.[9]

[TABLE 5 ABOUT HERE]

To better understand the dynamic behaviour of these relationships we attempt to identify whether there have been any structural breaks in the relationship between accruals and CFO based strategies. We adopt the procedure developed by Bai and Perron (1998, 2003) to determine both the number and location of structural breaks in the regression coefficient of accruals based strategy returns on CFO based strategy returns[10]. The results are presented in Table 5. It is striking to note that the independent structural break analyses performed in the US and the UK markets identify similar break points. In all periods, contrary to conventional wisdom, we find that the correlations between these strategies are either low and statistically insignificant or negative and statistically significant. Between 2000 and 2004 the correlation between accruals and CFO based strategies was at its most negative point in both markets (for the US and UK the correlations were -0.927 and -0.637 respectively). In the US, the correlations prior to 2000 and post 2004 are markedly lower

[9] We tested the robustness of our results to computing the performance of the strategies based on quintiles and terciles rankings and found no material differences with results based on deciles rankings.

[10] For further details, the reader is referred to Bai and Perron (1998, 2003).

(in absolute terms) though still negative and statistically significant (From 1989 to 2000 the correlation was -0.612 and from 2004 to 2008 it was -0.355). In the UK, over these two remaining periods, correlations between the two strategies become positive (from June 1989 to June 1999 the correlation was 0.049; from February 2004 to August 2008 the correlation was 0.104) but not statistically, nor economically different from zero.

3.3 Understanding the Negative Correlation in the Accruals and Cash Flow Trading Strategies

3.3.1 Conditional Correlations and Exposure Analysis

In this section we attempt to identify the source of the negative association between accruals and CFO based strategy returns, and in doing so reconcile this apparently counter intuitive result to the finding that accruals and cash flow strategies are typically negatively correlated.

We begin by examining in Table 6 the conditional correlation of accruals with CFO. To do this, we compute within each accruals and CFO decile the Pearson correlation of accruals with CFO. Across both markets we notice remarkably similar patterns emerging. Ranking on accruals, we find that as expected, high accruals (decile 10) tend to be negatively correlated with CFO (-0.283 for US and -0.207 for the UK). As accruals fall, however, we find that the correlations with CFO become progressively less negative. In the lowest accruals decile for both markets we find that accruals are in fact positively correlated with CFO. For the US market the correlation with CFO in decile 1 of accruals is 0.245 and for the UK it is 0.08. The results of differential behaviour in the tails of the distribution are also quite clear when looking at the CFO deciles. We see that in both markets, the high CFO deciles are negatively correlated with accruals (-0.200 for the US and -0.098 for the UK). As CFO falls, we find the extent of the negative correlation to reduce. In the extreme tails of the distribution, for low CFO firms, we find that the correlation with accruals is no longer negative but in fact markedly positive. In decile 1 CFO, the correlation with accruals is 0.184 in the US and 0.225 for the UK.

[TABLE 6 ABOUT HERE]

The above results are counter-intuitive and at odds with the received wisdom that accruals and cash flow are negatively correlated (see amongst others Dechow, 1994 and Barth et al, 2001). Looking at the extreme deciles more closely, we uncover in Table 7 a U-shaped relationship between the proportion of negative cash flow firms and the level of accruals. In other words, negative cash flow firms appear to populate not only the high accruals decile but also the low accruals one. In the US market, the proportion of negative cash flow firms in the accruals decile 1 is 33.6% which is more than twice that recorded in decile 2 (15.3%). In the UK, the proportion of negative cash flow firms in the accruals decile 1 is 20.4% which again is considerably larger than that recorded in decile 2 (10.3%)[11]. Kraft et al (2004) also find a large proportion of negative cash flow firms in both the high and low accruals deciles. Although the presence of negative cash flow firms in the high accruals decile is expected given the negative correlation between accruals and cash flow; the presence of a large proportion of negative cash flow firms in the low accruals decile is surprising. A similar relationship is found when ranking on CFO. Namely, the proportion of firms with negative accruals is, as expected, high in the high CFO decile, and tends to fall as the level of CFO decreases. However it abruptly, and counter-intuitively, rises as we reach the lowest CFO decile.

In addition to providing an explanation for the positive correlation between CFO and accruals in the lowest deciles, the behaviour of firms simultaneously experiencing negative accruals and negative cash flow might help elucidate the documented negative correlation between the accruals and cash flow strategies. Therefore, we devote the remainder of our analysis to understanding the link between the performance of this group of firms and the asymmetric performance of our accruals and cash flow strategies. We argue that this group of firms do not simply represent a set of few outlying observations but in fact constitutes an important component of the CFO and accruals strategies over the period of our study. In Table 7 we demonstrate that firms reporting both negative accruals and negative CFO represent a significant portion of our sample. For the US market, these firms correspond to almost 10% (9027 firm-year observations) of the entire universe, while for the UK they represent almost 5% (798 firm-year observations) of the entire universe. Moreover, in the US these firms account for 64.1% and 33.6% of the lowest CFO and accruals deciles respectively. In the UK they respectively represent 37.4% and 20.4% of these two deciles.

[11] In both the US and the UK, differences between the proportions of negative CFO firms in deciles 1 and 2 are all significant at less than the 1% significance level.

[TABLE 7 ABOUT HERE]

3.3.2 Characteristics of Firms with Negative Accruals and Negative Cash Flow, and their impact on performance

In Table 1B we present summary statistics for all firms excluding negative accruals and negative CFO firms, whilst in Table 1C we present summary statistics specifically for this group of securities. One would anticipate negative accruals and negative CFO firms to display some common salient characteristics in both markets. Firms with both negative accruals and negative cash flow are likely to be in distress, liquidating working capital to generate the needed cash. They may also be more prone to engage in big bath accounting to clean up their balance sheet so that future periods can show increases in operating performance. In line with our expectations, we find that negative accruals and negative CFO firms have very low Altman Z-scores (a measure of balance sheet risk), are relatively small in size and display a poor operating performance as evidenced by low levels of ROA, ROE, TO and Profit Margin. In Figure 2 we report that firms that report negative accruals and negative CFO firms in a given year, experience particularly poor operating performance in the three years prior to reporting. Furthermore, these firms experience on average improvements in operating performance in the following three years. While it is known that firm earnings mean revert, one could argue that these results may also be related to big bath accounting. It is worth noting however that the operating performance of negative accruals and negative CFO firms remains considerably lower than that of other firms. For all these reasons, we refer to this group of firms as financially distressed securities for the remainder of this analysis. We note that Altman's Z score is an accounting based measure of financial distress and as such could display some mechanical correlation with accruals and CFO. Therefore, to check the robustness of these claims, we also present in Table 1B and C default probabilities based on Merton's (1974) option pricing model (see Vassalou and Xing, 2004 for further details). Like Altman's Z score, we are able to demonstrate that firms with both negative accruals and negative CFO display much higher default probabilities than the rest of our sample.

[FIGURE 2 ABOUT HERE]

To assess the impact of financially distressed firms on the performance of accruals and CFO based strategies, in Table 4B we replicate the performance analysis of Table 4A excluding financially distressed firms. Interestingly, we show that excluding these firms from our trading strategies barely affects their average hedge returns. In fact, if anything, their removal tends to enhance the evidence that they earn positive returns. In particular, the unadjusted mean monthly hedge return in the US for the CFO based strategy when excluding financially distressed firms becomes strongly significant (0.567%). The impact of financially distressed firms on the performance of our strategies however is subtle and reveals itself only when looking specifically at their asymmetry. We do so in Table 8 where we examine the conditional performance of accruals and CFO based strategies in periods when financially distressed firms perform well and when they perform poorly. We assess the performance of financially distressed firms in terms of the market adjusted return (above the index return) to an equally weighted portfolio of financially distressed firms. Table 8A presents the decile performance of accruals and CFO based strategies for months when the market adjusted returns to the financially distressed portfolio are negative. Table 8B presents the performance results when the monthly market adjusted returns to the financially distressed portfolio are positive. Several patterns clearly emerge across both the UK and the US markets. As expected given the asymmetric loadings of the two strategies onto negative accruals and negative cash flow firms, we find that in Table 8A when the market adjusted return to financially distressed firms is negative, the performance of the accruals based strategy is relatively poor and that of the CFO based strategy is strong. For the US (UK) the accruals based strategy generates an average monthly abnormal return of -0.556% (-0.044%), whereas the CFO based strategy generates a considerably larger monthly abnormal return of 2.965% (2.365%). Conversely, in Table 8B we find that when the market adjusted return to financially distressed firms is positive the performance of the accruals based strategy is strongly positive, whereas that of the CFO based strategy is strongly negative. For the US (UK) the accruals based strategy generates an average monthly abnormal return of 1.936% (1.221%) per month, whereas the CFO based strategy generates an abnormal return of –1.719% (-0.490%). The differences between the returns of the accruals and CFO strategies in both regimes underline the fact that firms in financial distress are an important driver of their performance. Our finding that the performance of the accruals based strategy is positively correlated with that of financially distressed securities is in line with the findings of Zach (2003), Dechow and Ge (2005), Ng (2005) and Khan (2008) who demonstrate that the accruals based strategy has a risk exposure to

financial distress. However, whether risk, or mispricing, is the explanation for the abnormal performance of the accruals strategy is a source of considerable academic debate. For instance, Hirshleifer et al (2006) argue that the accruals anomaly is not consistent with a rational risk premia explanation.

[TABLE 8 ABOUT HERE]

Finally, to further illustrate the impact of financially distressed securities on the asymmetric performance of the accruals and CFO strategies, we replicate in Table 5B the correlation analysis of Table 5A by excluding financially distressed firms from the construction of the accruals and the CFO hedge returns. The results are striking in that the correlation between the returns of the two strategies becomes markedly less negative in the US (from -0.772 to -0.096) and insignificantly different from zero. For the UK the correlation now becomes positive (from -0.352 to 0.162). Despite being positive in the UK, the correlation and the slope coefficient for the regression of the accruals hedge returns against the CFO hedge returns are still low and these findings remain at odds with those expected by conventional wisdom.

3.4 Accruals, Cash Flow and their Loadings to Fama French Factors

In an attempt to further understand the relationship between accruals and CFO based strategies we assess in this section the risk loadings of these strategies. To do this we run the following regression with the Fama French (1993) and Carhart (1997) risk factors:

$$R_{port,t} = \alpha + \beta\left(R_{Mt} - R_{Ft}\right) + s\,SMB_t + h\,HML_t + u\,UMD_t + \varepsilon_t \qquad (2)$$

The variable R_{port} represents the return to the strategy or portfolio being tested. The variable $R_M - R_F$ is the difference between the value-weighted market return and the risk-free rate. The variable *UMD* represents the return on high-momentum stocks minus the return on low-momentum stocks, where momentum is measured over months [-12, -2].

Following Fama and French (1993), *SMB* is the return on a portfolio of small minus big size stocks, and *HML* is the return to high minus low book-to-price firms.[12]

We run the specification in equation 2 using the following sets of returns as the dependent variable in the regressions: the decile spread return of the accruals (Acc) strategy, the decile spread return of the CFO strategy, the return to a portfolio that longs the accruals strategy and shorts the CFO strategy (Acc - CFO) and the excess return (above the risk free rate) of an equally weighted portfolio of financially distressed securities. The results of the regression analysis are presented in Table 9 for both the US and the UK markets.

[TABLE 9 ABOUT HERE]

As a further testament of the difference between CFO and accruals based strategies we find in Table 9A that the two strategies both load very differently onto the Fama French / Carhart risk factors. The accruals based strategy tends to load negatively on HML (-0.256 for the US and -0.204 for the UK) and positively on SMB (0.383 for the US and 0.245 for the UK), while the CFO strategy loads positively on HML (0.646 for the US and 0.351 for the UK) and negatively on SMB (-0.837 for the US and -0.417 for the UK). The differences in these exposures are significant at conventional significance levels in both markets. Furthermore, we find that for the US, the accruals based strategy loads negatively on UMD (-0.189) while the CFO based strategy loads positively on this risk factor (0.218). Again, the difference in exposure is shown to be statistically significant. In the UK the loadings of these two strategies on UMD are positive but insignificant. However, the CFO strategy loads negatively on the market excess return (-0.185) while the accruals based strategy loads positively on this factor (0.117). The difference in theses loadings is statistically significant.

To establish whether these asymmetric risk loadings alone explain the observed behaviour in strategy returns documented earlier, we plot in Figure 3 the compounded monthly residual returns from the Fama French / Carhart regression and in Table 5C we replicate the correlation analysis presented in Table 5A for residual returns. Despite having

[12] For the US, data on the factor portfolio returns are sourced from Ken French's website and are described there. We adopt the procedure described therein to construct the SMB, HML and UMD portfolios for the UK market, using firms that belong to the FTSE All Share universe. In this market, $R_M - R_F$ represents the return of the FTSE all share index in excess of the one month LIBOR rate.

reverse exposures to some of the Fama French / Carhart risk factors, it is evident that the loadings of the two strategies do not explain away the negative correlation between them. For instance, the correlation between the residual returns of the accruals and CFO based strategies is equal to -0.634 in the US and -0.252 in the UK, both of which are significant at conventional levels. Also, the slope of the regression line of the residual returns of the accruals based strategy against the residual returns of the CFO based strategy continues to be negative and significant, both statistically and economically, in the US and the UK markets (US: -0.993 and UK: -0.291). Another important difference between these two strategies is in terms of their respective alpha. In Table 9A we show that in the US (UK) the alpha for the accruals based strategy is a significant 0.891% (0.656%) per month while the alpha for the CFO strategy is statistically indistinguishable from zero and equal to -0.116 % (0.311%) per month. Therefore, even after controlling for risk exposures we do not find the two strategies to behave symmetrically.

[FIGURE 3 ABOUT HERE]

In Table 9A, the regression analysis for the returns of financially distressed securities demonstrates a considerable negative loading on HML and positive loading on SMB, indicating that the firms in this portfolio are typically small and poor value stocks. Also, in the US we find financially distressed firms to load negatively on UMD suggesting that these securities are past poor stock market performers. Given these findings and our earlier results that accruals load positively on financially distressed securities it is not surprising that we find that after excluding these firms in Table 9B, the factor loadings of accruals and CFO based strategies fall more in line with one another. With the exception of the loading on UMD in the UK, the differences in the loadings of all the other risk factors are substantially reduced in both markets. The differential loading on HML of the accruals and CFO strategies in the US falls in magnitude from -0.902 to -0.111 after excluding financially distressed firms. The difference in the loading on HML even becomes insignificant in the US. Similarly, we find the loading on SMB in that market reduces from 1.220 to 0.592, and the loading on UMD reduces from -0.407 to -0.229. Qualitatively similar patterns are observed in the UK market where the differential loading on HML reduces from -0.555 to -0.174. Moreover, the differential loadings on SMB and the excess market return reduce from 0.662 to 0.271 and from 0.302 to 0.110 respectively.

3.5 Investor Sentiment and the Performance of Accruals and Cash Flow Strategies

In an attempt to better understand the behaviour of financially distressed firms, and in turn the dynamic properties of accruals and CFO based strategies, we investigate in this section the relationship between the performance of these firms and investor sentiment. Investments in financially distressed firms are likely to be highly speculative in nature so that, following Baker and Wurgler (2006), we expect those firms to be particularly sensitive to sentiment. In line with these authors we anticipate that during periods of high investor sentiment the performance of financially distressed firms is good as investors are optimistic about their future prospects. In contrast, during periods of low investor sentiment the performance of these firms might be poor as investors are likely to be pessimistic about the future prospects of financially distressed firms. In turn, because of the asymmetric loadings of the accruals and CFO based strategies to financially distressed firms we would expect the CFO/accruals strategy to do relatively well/poorly during low/high sentiment periods.

[FIGURE 4 ABOUT HERE]

A number of different proxies for investor sentiment have been suggested in prior studies (see Baker and Wurgler, 2006). In this study we focus on IPO market based proxies. The IPO market is often viewed as being particularly sensitive to investor sentiment. We use US IPO data readily available from Jay Ritter's website to construct the sentiment proxy. Three variables are used in this study to construct the sentiment measure; the average monthly first day return, the number of IPOs each month and the percentage of IPOs that price above the midpoint of the original file price range each month. We run a Principal Component Analysis on these three factors and take the first principal component as our measure of investor sentiment. The first principal component explains 52% of the sample variance and loads heavily (approximately 0.67) onto the first day return and the percentage of IPO that price above the midpoint of the original file price range. The loading on the number of IPOs each month is lower (approximately 0.28) which we view as a desirable property for our sentiment signal. This is because prior evidence (see Ibbotson and Jaffe, 1975, Lowry and Schwert, 2002 and Benveniste et al, 2003 amongst others) suggests that IPO volume lags first day return and might therefore be less reactive to sentiment. In Figure 4, we plot the sentiment index along with the excess return (above the risk free rate) of an equally weighted portfolio of financially distressed firms. Visual

inspection suggests some relationship between the performance of these firms and sentiment in both markets.

[TABLE 10 ABOUT HERE]

To assess the impact of sentiment on the performance of our strategies, we rank each month in our sample according to its sentiment index value and take the top tercile as our high sentiment months and the bottom tercile as our low sentiment months. We then assess the performance of the strategies during these two sentiment periods separately. To compute each monthly abnormal return we follow the characteristic-matching approach of previous sections where book-to-price, size and momentum serve as our matching characteristics. Results for this analysis are presented in Table 10. As expected we find investor sentiment to be strongly associated with the abnormal performance of financially distressed firms. Periods of high sentiment are typically associated with some good performance for financially distressed firms (US: 2.094%; UK: 1.954%). In contrast, periods of low investor sentiment are associated with poor performance (US: -2.041%; UK: -1.499%)[13].

[FIGURE 5 ABOUT HERE]

In Figure 5 we look at the long-term performance of financially distressed securities conditional on investor sentiment. We do that in two steps as follows. Firstly, we allocate every year in our sample to a sentiment tercile based on each year's average monthly sentiment index value. Years with an average value that falls in the top tercile are taken as our high sentiment years, while years with an average value that falls in the bottom tercile are our low sentiment years. Secondly, we compute the average monthly abnormal (characteristic-matched) performance of financially distressed firms up to three years following the date when the firms are identified as such. If investors are too optimistic about the future prospects of financially distressed firms during high sentiment periods, the performance of these firms should be poor in the long-term as prices eventually revert to their intrinsic values. Similarly, if investors are too pessimistic during low sentiment

[13] We find that the results are robust to a variety of specifications. Using the sentiment index lagged by 1 month results in similar conclusions that are both economically, and statistically significant. Furthermore, given the exposure that the sentiment index has to IPO performance, we examine whether excluding IPO firms within their first trading year has any impact on results. The results are similar and conclusions drawn are unchanged to those presented above.

periods, the prices of financially distressed firms might be too low so that future stock market performance might be strong. The results presented in Figure 5 provide some evidence of such investor behaviour. In both the US and the UK we find that in the year when high sentiment is recorded (year 0) the average monthly abnormal performance of distressed firms is extremely positive (2.65% for US firms and 2.35% for UK firms). In the year following high sentiment years (year 1), the monthly abnormal performance of financially distressed firms begins to markedly deteriorate (0.16% for US firms and 0.20% for UK firms) and becomes significantly negative in the year thereafter (year 2) (US: -0.77%; UK: -1.07%). In the years when low sentiment is recorded, the average monthly abnormal returns is poor in both markets (-0.61% for the US and -0.64% for the UK). In the case of the US market, we document a reversal in performance following low sentiment periods, but it happens sooner than the reversal pattern observed for the high sentiment case; in year 1 the average monthly abnormal return is a significant 0.23%. In year 2, the abnormal performance of US financially distressed firms becomes negative again and significantly so (-0.36%). In the UK no evidence of reversal is found following low sentiment periods. The monthly abnormal performance starts improving in years 1 and 2 but remains negative while insignificantly so (year 2: -0.07%; year 3: -0.28%).

Unsurprisingly, given the asymmetric exposures of accruals and CFO based strategies to financially distressed firms, we find in Table 10 accruals (cash flow) based strategies to perform well (poorly) during high sentiment periods and poorly (well) during low sentiment periods. Moreover, the differences in the abnormal performance of the accruals and CFO based strategies over the two sentiment periods are always statistically significant. The differential abnormal performance between low and high sentiment periods for the accruals based strategy is equal to 1.683% in the US and 1.737% in the UK. For the CFO based strategy the differential performance is equal to -3.762% in the US and -1.935% in the UK. These findings for the accruals based strategy along with the earlier documented evidence that the strategy has a positive exposure to financially distressed firms are clearly at odds with the widely held view in the investment community that the accruals strategy captures earnings quality and as such offers some protection to investors during turbulent times. As expected, removing financially distressed firms considerably reduces the sensitivity of the accruals and CFO based strategies to investor sentiment. The differential performance of the accruals and CFO strategies in high and low sentiment periods is reduced from 5.444% to 1.474% in the US and from 3.672% to 1.842% in the UK. It is

noticeable however, that the exposure of the two strategies to sentiment does not disappear completely. Even after removing these firms, accruals based strategies continue to do better in high investor sentiment periods than low sentiment ones (UK: 1.025%; US: 0.154%) but the difference is now only statistically significant in the UK. Similarly, the CFO strategy still does better in low sentiment periods than in high sentiment months (UK: -0.817%; US: -1.320%).

We are aware of only two other studies that investigate the impact of investor sentiment on the performance of the accruals based strategy (see Ali and Gurun, 2008, Livnat and Petrovits, 2008). Our results are broadly consistent with these studies. In line with our results, Ali and Gurun (2008) find some evidence that the accruals based strategy works better in high than low sentiment periods. Livnat and Petrovits (2008) find that low accruals stocks earn greater positive returns following low sentiment periods than high sentiment periods. These findings are also in line with the reversal pattern in the performance of financially distressed firms documented in Figure 5. However, each of these studies advocates different explanations for their findings. Ali and Gurun (2008) argue that individual investors' limited attention is the root cause of the asymmetric performance of the accruals strategy in high and low sentiment periods. Livnat and Petrovits (2008), to motivate their findings, resort to investor overreaction and the way investors update their beliefs when faced with new information. In this study we argue that much of the asymmetric performance of accruals in high and low sentiment months is due to the exposure of this strategy to financially distressed securities. As such, our analysis is more closely related to that of Baker and Wurgler (2006) who point out that speculative investment in general, and investments in financially distressed securities in particular, tend to be sensitive to investor sentiment.

4. **Conclusion**

In this paper we add to the burgeoning literature on the difference between accruals and cash flow based strategies by conducting an in-depth analysis of the nature of their relationship in the US and UK stock markets. Contrary to conventional wisdom, we are able to demonstrate that accruals and cash flow give rise to trading strategies that are highly and pervasively negatively correlated. We trace back much of the driver of this negative relationship to the asymmetric loadings the two strategies have to financially distressed

firms (firms that experience negative accruals and negative cash flow). When financially distressed firms perform poorly, the performance of the accruals (cash flow) strategy is very strong (poor); when financially distressed firms perform well the reverse is true and accruals under perform relative to cash flow based strategies.

Perhaps unsurprisingly, given the highly speculative nature of investment in those firms, we find investor sentiment to be an important driver of the stock market performance of financially distressed firms. When sentiment is high, investors seem too optimistic about the future prospects of financially distressed firms. When sentiment is low however, investors appear too pessimistic about their prospects. As a result, the accruals (cash flow) strategy that has a positive (negative) exposure to financially distressed securities performs particularly well (poorly) during high sentiment periods and particularly poorly (well) during low sentiment periods. It is worth pointing out that these results for the accruals based strategy are at odds with the notion that such strategies measure earnings quality and as such offer some protection to investors during turbulent times.

In conclusion, we believe that our results have important implications to both academics and practitioners. They address the relationship between cash flow and accruals based strategies from a different perspective than previous studies and as a result make a significant contribution to our understanding of both strategies as well as the dynamics between them. We also contribute to the literature on investor sentiment and provide some valuable insights to practitioners interested in timing the performance of both strategies.

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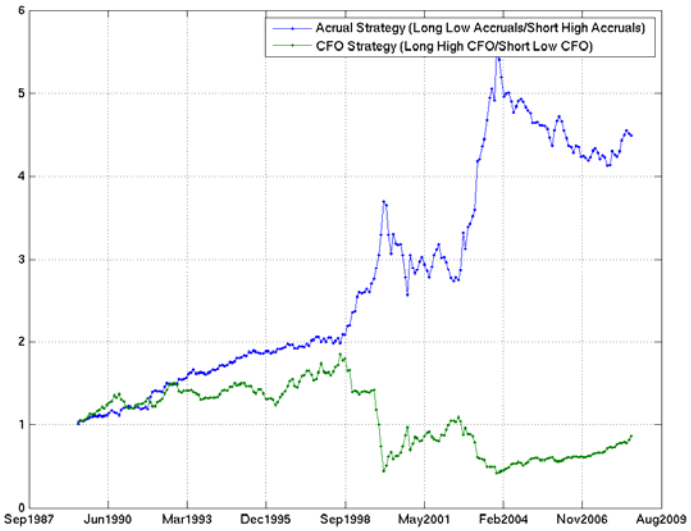
Figure 1: Hedge Returns to Accruals and CFO Strategies

In Figure 1 we plot the cumulative compounded monthly returns of the accruals and cash flow (CFO) based strategies from June 1989 to August 2008 for Russell 3000 firms in the US (Panel A) and FTSE All Share firms in the UK (Panel B). CFO represents the firm's operating cash flow and is defined as operating cash flow minus the cash portion of extraordinary items. We define accruals as the difference between net income before extraordinary items and CFO. All data is sourced from the cash flow statement account. Both CFO and accruals are scaled by the firm's average total assets. To avoid a look ahead bias we lag accounting data by four months in the US and six months in the UK. To compute the monthly return of the accruals (CFO) strategy, we rank firms each month based on their accruals (CFO) for the year and take the difference between the return of an equally weighted portfolio of firms that fall in the bottom (top) decile of the distribution and a similarly formed portfolio return of firms that fall in the top (bottom) decile of the distribution.

Panel A: Russell 3000 (US)



Panel B: FTSE All Share (UK)

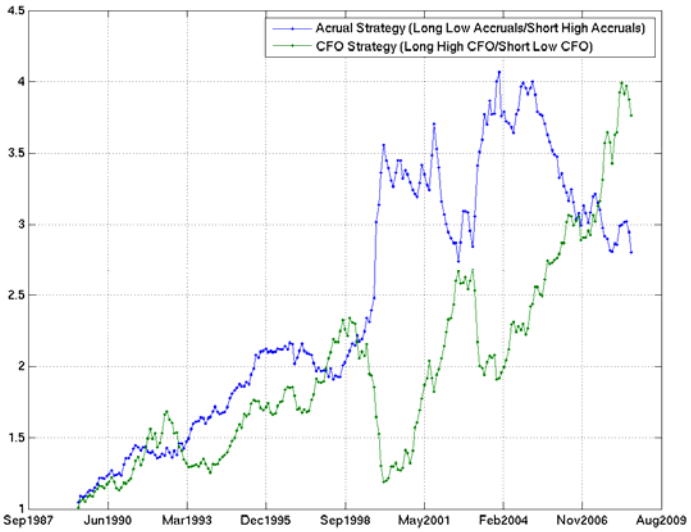
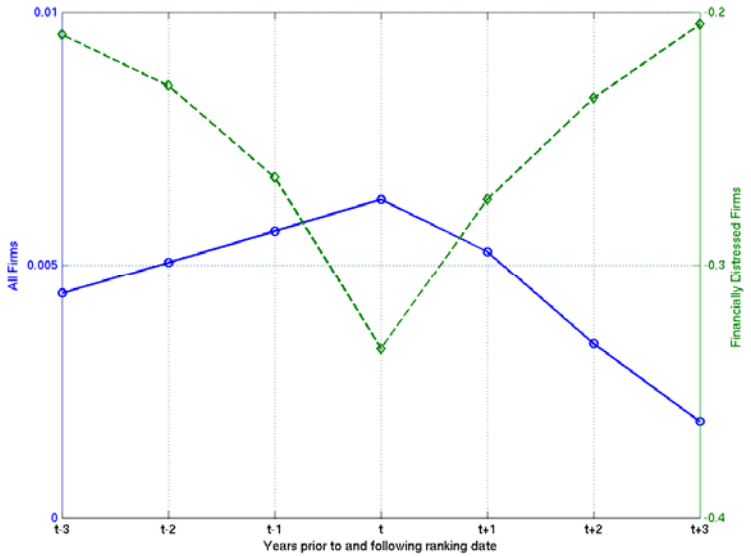


Figure 2: Long-term Operating Performance

In Figure 2 we plot the average Return on Assets (ROA) of firms with both negative accruals and negative CFO (FD) as well as that of non financially distressed securities (Non FD Firms) for the period covering June 1989 to August 2008. Panel A covers firms in the US sample and Panel B covers firms in the UK sample. ROA is defined as net income / average total assets. To avoid a look ahead bias we lag accounting data by four months in the US and six months in the UK. We compute the ROA of each group of firms up to 3 years prior to and following raking date.

Panel A: Russell 3000 (US)



Panel B: FTSE All Share (UK)

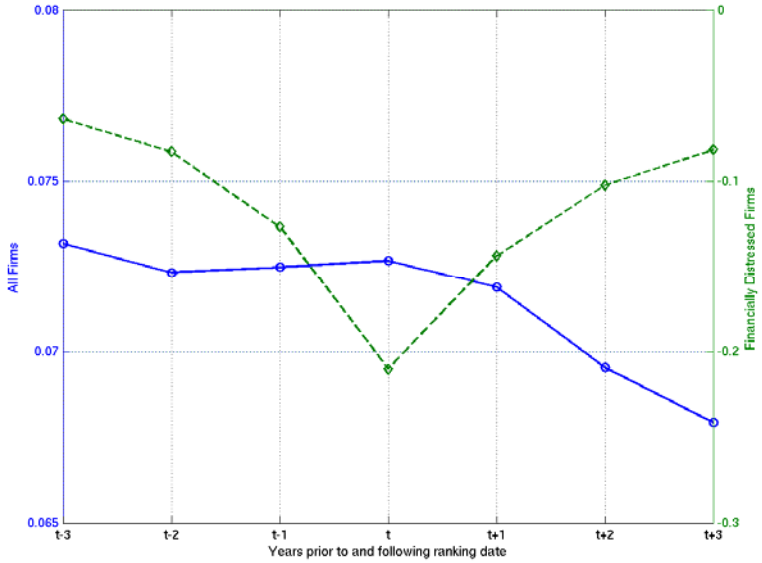
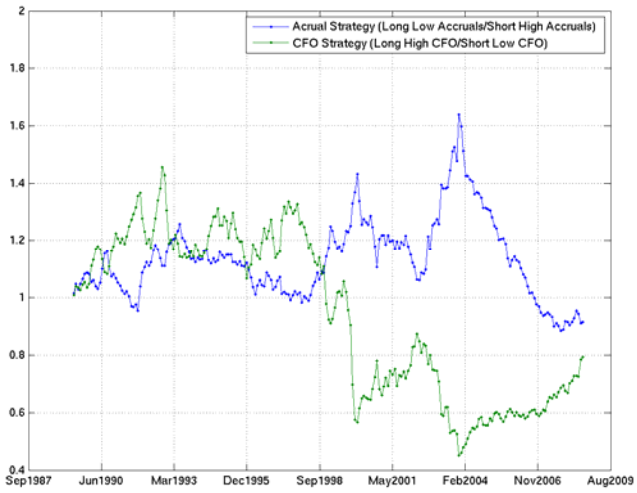


Figure 3: Compounded Residual Returns to Accruals and CFO Strategies

In Figure 3 we plot the compounded monthly residual returns of the accruals and CFO based strategies from June 1989 to August 2008 in the US (Panel A) and the UK (Panel B). Residuals returns are the unexplained components of a monthly regression of the decile spread returns of the accruals and CFO strategies on the Fama French / Carhart risk factors. For the US, data on the risk factors portfolio returns were sourced from Ken French's website and are described there. For the UK, we adopt the procedure described therein to construct the SMB, HML and UMD portfolios from the FTSE All Share universe. The market excess return for the UK is defined as the difference between the return of the FTSE all share index and the one month LIBOR rate.

Panel A: Russell 3000 (US)



Panel B: FTSE All Share (UK)

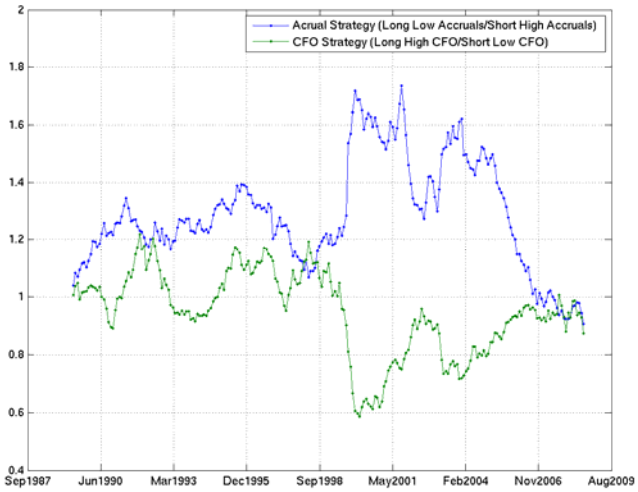
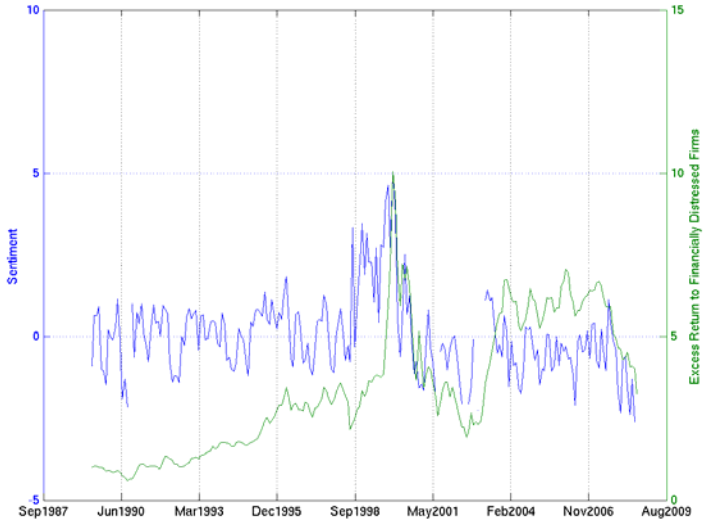


Figure 4: Excess Return to Financially Distressed Firms and Sentiment

In Figure 4 the cumulative compounded monthly excess returns (above the risk free rate) of an equally weighted portfolio of firms reporting negative accruals and negative CFO that year (financially distressed firms) is plotted against our investor sentiment index. Panel A presents the excess returns for financially distressed firms in the Russell 3000 universe, whereas Panel B presents the excess returns for those firms in the FTSE All Share universe. The period covers June 1989 to August 2008. Three measure sourced from Jay Ritter's website are used to compute the investor sentiment index which relate to US IPO data: the average monthly IPO first day return, the number of IPOs each month and the percentage of IPOs that price above the midpoint of the original file price range each month. To compute the sentiment index, we perform a Principal Component Analysis on these three factors and take the first principal component as our measure of investor sentiment. The first principal component explains 52% of the sample variance and loads heavily (approximately 0.67) on the first day return and the percentage of IPO that price above the midpoint of the original file price range. The loading on the number of IPOs each month is somewhat lower (approximately 0.28).

Panel A: Russell 3000 (US)



Panel B: FTSE All Share (UK)

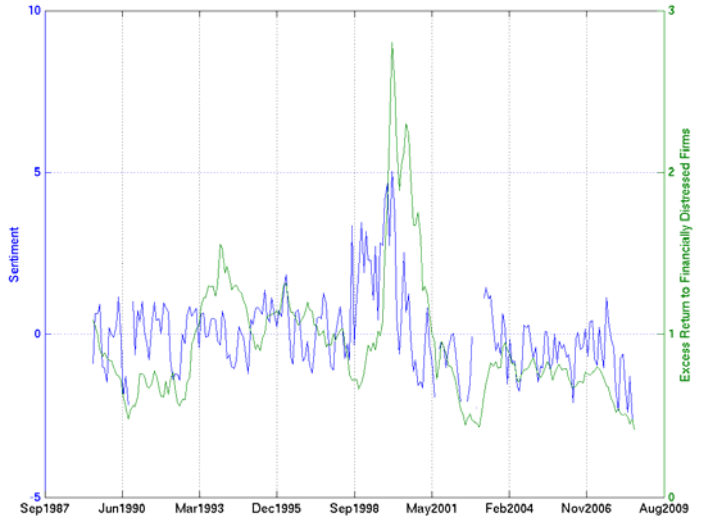
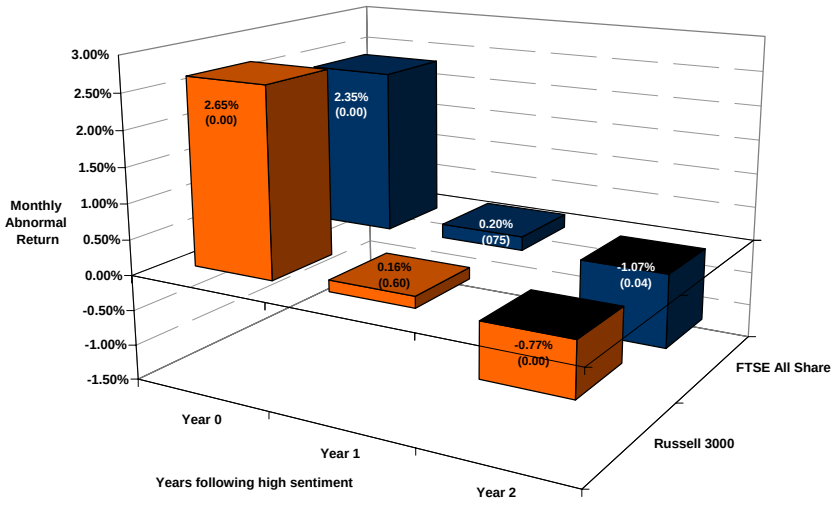


Figure 5: Long-term Performance of Financially Distressed Firms

In Figure 5 we plot the average annual abnormal return of an equally weighted portfolio of firms that report both negative accruals and negative CFO (financially distressed firms) following periods of high investor sentiment (Panel A) and low investor sentiment (Panel B). The period of analysis covers June 1989 to August 2008 for both Russell 3000 and FTSE All share firms. We allocate every year in our sample to a sentiment tercile based on each year's average of monthly sentiment index values. Averages that fall in the top tercile are taken as our high sentiment years, while averages that fall in the bottom tercile are our low sentiment years. To compute the abnormal return of financially distressed securities we match each firm to a portfolio of firms that fall in the same size (market capitalization), book-to-price and momentum (measured over months [-12; -2]) terciles. The difference between the security return and the return of the characteristic-matched portfolio is our abnormal return for that firm. p-values of the average returns are presented in parentheses.

Panel A: returns to financially distressed firms in the years following high sentiment



Panel B: returns to financially distressed firms in the years following low sentiment

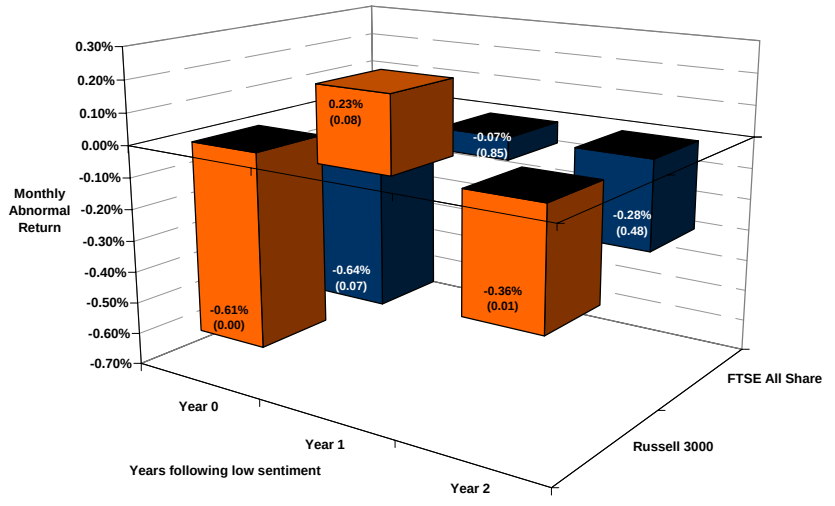


Table 1: Summary Statistics

In Table 1 we present summary statistics for our US and UK samples. The period of analysis covers June 1989 to August 2008. In Panel A we consider all firms in the universe whereas in Panel B we compute descriptive statistics for all firms excluding financially distressed securities (firms that report negative accruals and negative CFO). Descriptive statistics for financially distressed firms only are presented in Panel C. The variables in these tables are defined as follows. CFO is the operating cash flow (minus the cash portion of extraordinary) deflated by average total assets. Cash flow items are sourced from the cash flow statement. Accruals is the difference between net income (before extraordinary items) and CFO deflated by average total assets. ROA is the firm's Return on Asset defined as net income / average total assets. ROE is the firms' Return on Equity defined as net income / average total assets. Size is the natural logarithm of market capitalization in millions USD/GBP. BP is the firms' book value of equity divided by its price. TO is the firm's Asset Turnover ratio defined as sales / average total assets. Profit Margin is net income / sales. Altman's Z score is defined following Altman (1968) as the composite score of 5 ratios:

$$Z = 1.2 \times WC/TA + 1.4 \times RE/TA + 3.3 \times EBIT/TA + 0.6 \times P/TL + 1.0 \times S/TA$$

where WC is Working Capital; TA: Total Assets; RE: Retained Earnings; P: Market Value of Equity; EBIT: Earnings Before Interest and Tax; TL: Total Liabilities; S: Sales. To avoid look ahead bias we lag all accounting data by four months for firm in the US and six months for firms in the UK. In addition to these variables we include in Panels A and B estimates of default likelihood (DP) based on Merton (1974) option pricing model (see Vassalou and Xing, 2004). Asterisked mean values in Panel C indicate that the differences in average values reported for financially distressed firms (Panel C) to their non-distressed counterparts (Panel B) are significant at the 1% level.

Panel A: Summary Statistics: All Firms

Panel A1: US (Russell 3000)

	N	Mean	Stdev	Quartile 1	Median	Quartile 3
ROA	92,988	0.009	0.181	0.002	0.043	0.088
Accruals	92,709	-0.051	0.109	-0.088	-0.041	0.000
CFO	92,988	0.060	0.145	0.022	0.078	0.132
Size (Ln Mcap)	79,763	5.772	2.269	4.688	5.900	7.174
BP	57,081	0.650	0.700	0.263	0.466	0.784
ROE	59,927	-0.095	1.046	-0.009	0.039	0.073
TO	91,958	1.088	0.749	0.530	0.980	1.459
PM	92,325	-0.158	1.361	0.003	0.044	0.095
Z	43,750	2.921	3.005	1.634	2.859	4.418

Panel A2: UK (FTSE All Share)

	N	Mean	Stdev	Quartile 1	Median	Quartile 3
ROA	18,143	0.073	0.116	0.029	0.076	0.131
Accruals	18,093	0.000	0.081	-0.032	0.006	0.034
CFO	18,143	0.074	0.103	0.016	0.071	0.129
Size (Ln Mcap)	15,420	5.527	1.482	4.474	5.316	6.395
BP	13,234	0.683	0.592	0.287	0.527	0.950
ROE	13,589	0.072	0.155	0.038	0.080	0.124
TO	18,037	1.057	0.873	0.296	0.983	1.536
PM	18,066	0.183	1.006	0.043	0.098	0.204
Z	9,282	3.565	1.995	2.320	3.331	4.630

Table 1: Summary Statistics (continued)

Panel B: Summary Statistics: Excluding Financially Distressed Firms

Panel B1: US (Russell 3000)

	N	Mean	Stdev	Quartile 1	Median	Quartile 3
ROA	84,018	0.045	0.125	0.016	0.050	0.094
Accruals	83,682	-0.040	0.096	-0.080	-0.037	0.006
CFO	83,961	0.086	0.111	0.042	0.087	0.138
Size (Ln Mcap)	73,000	5.878	2.279	4.814	6.009	7.280
BP	51,483	0.633	0.638	0.271	0.469	0.774
ROE	53,421	-0.015	0.736	0.014	0.046	0.079
TO	83,945	1.128	0.747	0.582	1.020	1.494
PM	84,322	-0.006	0.834	0.016	0.051	0.102
Z	39,256	3.241	2.609	1.857	3.011	4.538
DP	43,488	0.083	0.148	0.001	0.022	0.099

Panel B2: UK (FTSE All Share)

	N	Mean	Stdev	Quartile 1	Median	Quartile 3
ROA	17,366	0.086	0.096	0.035	0.080	0.134
Accruals	17,295	0.005	0.078	-0.027	0.008	0.037
CFO	17,345	0.082	0.094	0.022	0.075	0.132
Size (Ln Mcap)	14,948	5.567	1.469	4.505	5.348	6.439
BP	12,793	0.676	0.573	0.289	0.527	0.946
ROE	13,149	0.083	0.120	0.042	0.082	0.125
TO	17,293	1.074	0.877	0.317	1.002	1.552
PM	17,393	0.224	0.964	0.049	0.102	0.215
Z	8,981	3.637	1.912	2.384	3.368	4.661
DP	10,871	0.063	0.113	0.002	0.018	0.072

Panel C: Summary Statistics: Financially Distressed Firms

Panel C1: US (Russell 3000)

	N	Mean	Stdev	Quartile 1	Median	Quartile 3
ROA	8,970	-0.328*	0.257	-0.451	-0.263	-0.133
Accruals	9,027	-0.148*	0.157	-0.195	-0.096	-0.042
CFO	9,027	-0.183*	0.188	-0.266	-0.116	-0.042
Size (Ln Mcap)	6,763	4.631*	1.807	3.601	4.810	5.801
BP	5,598	0.806*	1.106	0.189	0.427	0.941
ROE	6,506	-0.756*	2.270	-0.510	-0.175	-0.068
TO	8,013	0.668*	0.632	0.190	0.488	0.960
PM	8,003	-1.752*	3.356	-1.588	-0.545	-0.183
Z	4,494	0.126*	4.443	-1.607	0.567	2.487
DP	4,726	0.215*	0.273	0.006	0.088	0.340

Panel C2: UK (FTSE All Share)

	N	Mean	Stdev	Quartile 1	Median	Quartile 3
ROA	777	-0.209*	0.154	-0.315	-0.182	-0.082
Accruals	798	-0.099*	0.094	-0.134	-0.076	-0.031
CFO	798	-0.116*	0.114	-0.182	-0.080	-0.022
Size (Ln Mcap)	472	4.233*	1.300	3.433	4.290	5.158
BP	441	0.873*	0.981	0.231	0.553	1.203
ROE	440	-0.273*	0.441	-0.304	-0.130	-0.044
TO	744	0.671*	0.675	0.124	0.442	1.083
PM	673	-0.890*	1.405	-1.063	-0.310	-0.110
Z	301	1.404*	2.959	-0.295	1.482	3.111
DP	331	0.160*	0.231	0.001	0.038	0.239

Table 2: Contemporaneous Pearson Correlations (below diagonal) and Spearman Correlations (above diagonal)

In Table 2 we present pair-wise correlations for the variables in Table 1A for our US (Panel A) and UK (Panel B) samples. Pearson Correlations are shown below and Spearman Correlations above. The period covers June 1989 to August 2008.

Panel A:US

	ROA	Acc	CFO	Size	BP	ROE	TO	PM	Z
ROA		0.358	0.621	0.362	-0.257	0.732	0.324	0.822	0.570
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Acc	0.508		-0.333	0.105	0.018	0.397	0.039	0.354	0.188
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO	0.731	-0.084		0.313	-0.223	0.413	0.288	0.495	0.409
	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Size	0.352	0.172	0.314		-0.358	0.270	-0.093	0.412	0.207
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
BP	-0.136	-0.060	-0.127	-0.380		0.154	-0.083	-0.193	-0.311
	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
ROE	0.360	0.307	0.191	0.243	-0.277		0.204	0.682	0.274
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
TO	0.234	0.063	0.232	-0.089	-0.056	0.061		-0.087	0.435
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)
PM	0.510	0.202	0.423	0.159	-0.038	0.193	0.172		0.383
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)
Z	0.549	0.273	0.457	0.294	-0.232	0.255	0.318	0.249	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	

Panel B:UK

	ROA	Acc	CFO	Size	BP	ROE	TO	PM	Z
ROA		0.337	0.658	0.191	-0.511	0.567	0.456	0.331	0.623
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Acc	0.454		-0.309	0.024	0.009	0.275	-0.019	0.361	0.215
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CFO	0.656	-0.220		0.187	-0.492	0.314	0.470	0.067	0.433
	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Size	0.214	0.061	0.198		-0.250	0.077	-0.014	0.174	0.019
	(0.000)	(0.006)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
BP	-0.313	-0.022	-0.329	-0.273		0.075	-0.500	0.161	-0.455
	(0.000)	(0.314)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
ROE	0.554	0.380	0.271	0.149	-0.067		0.283	0.152	-0.065
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
TO	0.306	0.016	0.344	-0.038	-0.357	0.117		-0.524	0.473
	(0.000)	(0.042)	(0.000)	(0.096)	(0.000)	(0.000)		(0.000)	(0.000)
PM	0.291	0.296	0.060	0.054	0.097	0.249	-0.151		0.195
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		(0.000)
Z	0.547	0.241	0.416	0.047	-0.375	0.189	0.407	0.192	

Table 3: Firm Characteristic Summary Statistics by Accruals and CFO Portfolios

In Table 3 we present firm characteristic summary statistics for each of the decile portfolios sorted by accruals and CFO. The firm characteristics considered are those presented in Table 1A. Summary statistics are given for US sample firms and UK sample firms. The period of analysis covers June 1989 to August 2008. Firm-year observations are ranked based on the magnitude of accruals or CFO and assigned to one of the decile portfolios. Within each decile, the equally weighted firm characteristic averages are then computed. Panel A reports the average characteristics of decile portfolios ranked by accruals, whereas Panel B reports characteristics of decile portfolios ranked on CFO. CFO is operating cash flow (minus the cash portion of extraordinary). Cash flow items are sourced from the cash flow statement. Accruals is the difference between net income (before extraordinary items) and CFO. All variables are deflated by average total assets.

Panel A: Rankings by Accruals Deciles

Panel A1: US

	Decile											
	1	2	3	4	5	6	7	8	9	10	10-1	p-value
Accruals	-0.273	-0.125	-0.088	-0.066	-0.049	-0.034	-0.018	0.000	0.029	0.117	0.389	0.000
ROA	-0.215	-0.022	0.014	0.026	0.031	0.036	0.042	0.051	0.064	0.079	0.294	0.000
CFO	0.043	0.105	0.102	0.093	0.082	0.071	0.062	0.052	0.038	-0.021	-0.064	0.000
Size	4.892	5.753	6.065	6.308	6.418	6.506	6.390	6.276	6.092	5.646	0.754	0.000
BP	0.751	0.651	0.644	0.645	0.627	0.636	0.637	0.647	0.639	0.615	-0.136	0.000
ROE	-0.737	-0.155	-0.052	-0.010	0.014	0.017	0.033	0.046	0.051	0.042	0.778	0.000
TO	1.045	1.126	1.121	1.089	1.025	0.967	1.020	1.063	1.160	1.293	0.248	0.000
PM	-0.807	-0.259	-0.137	-0.084	-0.065	-0.040	-0.021	-0.010	0.034	0.003	0.810	0.000
Z	1.016	2.894	3.177	3.160	3.087	3.173	3.254	3.369	3.452	3.548	2.532	0.000
DP	0.199	0.107	0.082	0.075	0.069	0.070	0.070	0.079	0.082	0.104	-0.095	0.000

Panel A2: UK

	Decile											
	1	2	3	4	5	6	7	8	9	10	10-1	p-value
Accruals	-0.159	-0.063	-0.032	-0.013	0.001	0.010	0.020	0.035	0.062	0.143	0.302	0.000
ROA	-0.040	0.048	0.072	0.081	0.065	0.061	0.080	0.099	0.121	0.153	0.193	0.000
CFO	0.108	0.111	0.107	0.094	0.064	0.051	0.061	0.067	0.065	0.026	-0.082	0.000
Size	4.864	5.402	5.674	5.780	5.659	5.555	5.613	5.513	5.415	5.267	0.402	0.000
BP	0.683	0.644	0.623	0.629	0.748	0.859	0.769	0.678	0.576	0.594	-0.089	0.058
ROE	-0.081	0.050	0.073	0.094	0.077	0.068	0.082	0.104	0.112	0.131	0.213	0.000
TO	1.128	1.198	1.208	1.174	0.807	0.625	0.790	1.041	1.262	1.319	0.191	0.000
PM	-0.243	-0.016	0.046	0.092	0.161	0.357	0.324	0.234	0.192	0.710	0.953	0.000
Z	2.783	3.338	3.471	3.341	3.357	3.425	3.604	3.836	4.198	4.500	1.717	0.000
DP	0.106	0.071	0.064	0.060	0.057	0.053	0.054	0.057	0.066	0.071	-0.035	0.000

Panel B: Rankings by CFO Deciles

Panel B1: US

	Decile											
	1	2	3	4	5	6	7	8	9	10	10-1	p-value
CFO	-0.263	-0.028	0.022	0.048	0.068	0.087	0.107	0.132	0.168	0.257	0.519	0.000
ROA	-0.305	-0.046	0.004	0.021	0.033	0.044	0.057	0.069	0.089	0.134	0.439	0.000
Accruals	-0.061	-0.013	-0.017	-0.026	-0.035	-0.041	-0.049	-0.062	-0.077	-0.111	-0.051	0.000
Size	4.572	5.094	5.705	6.142	6.374	6.464	6.497	6.544	6.542	6.497	1.925	0.000
BP	0.720	0.876	0.869	0.763	0.703	0.649	0.584	0.539	0.456	0.353	-0.367	0.000
ROE	-0.658	-0.271	-0.084	-0.025	0.007	0.024	0.042	0.042	0.037	0.044	0.701	0.000
TO	0.752	1.002	0.931	0.960	0.991	1.091	1.164	1.233	1.308	1.409	0.657	0.000
PM	-1.783	-0.264	0.001	0.036	0.056	0.058	0.062	0.068	0.083	0.110	1.893	0.000
Z	-0.026	2.195	2.449	2.615	2.748	3.031	3.394	3.772	4.408	4.957	4.983	0.000
DP	0.202	0.171	0.132	0.096	0.079	0.067	0.060	0.051	0.037	0.040	-0.162	0.000

Panel B2: UK

	Decile											
	1	2	3	4	5	6	7	8	9	10	10-1	p-value
CFO	-0.112	-0.002	0.016	0.035	0.059	0.082	0.104	0.130	0.166	0.258	0.370	0.000
ROA	-0.068	0.024	0.040	0.050	0.065	0.084	0.099	0.116	0.142	0.192	0.260	0.000
Accruals	0.025	0.025	0.024	0.015	0.006	0.003	-0.004	-0.012	-0.022	-0.046	-0.071	0.000
Size	4.503	4.971	5.398	5.301	5.596	5.817	5.849	5.838	5.668	5.600	1.097	0.000
BP	0.832	1.074	1.011	0.922	0.749	0.635	0.527	0.458	0.406	0.300	-0.532	0.000
ROE	-0.076	0.038	0.064	0.077	0.091	0.093	0.100	0.104	0.100	0.095	0.171	0.000
TO	0.902	0.435	0.420	0.751	1.042	1.212	1.317	1.371	1.461	1.589	0.687	0.000
PM	-0.319	0.456	0.645	0.326	0.153	0.109	0.130	0.107	0.124	0.166	0.486	0.000
Z	2.300	2.754	2.725	2.715	2.807	3.199	3.541	3.928	4.508	5.154	2.854	0.000
DP	0.134	0.084	0.066	0.087	0.077	0.065	0.055	0.048	0.039	0.031	-0.103	0.000

Table 4: Returns to Accruals and CFO Portfolios

In Table 4 we present the average monthly raw and abnormal returns of the accruals and CFO based strategies from June 1989 to August 2008 in the US and the UK. In Panel A we include all firms in our universes, whereas in Panel B we exclude firms with both negative accruals and negative CFO (financially distressed securities) from the construction of the accruals and CFO based portfolios. Each month, firms are ranked based on their level of accruals (CFO) for the year and allocated to a decile portfolio. Within each decile, the monthly equally weighted portfolio return is computed over the sample period. To compute the abnormal return of each decile portfolio we match each security to a portfolio of firms that fall in the same size (market capitalization), book-to-price and momentum (measured over months [-12; -2]) terciles. The difference between the security return and the return of the characteristic-matched portfolio represents the abnormal return for that firm. Hedge for accruals (CFO) ranked deciles represents the return generated by taking a long (short) position in decile 1 firms and a short (long) position in decile 10 firms. All returns are expressed in percentage terms.

Panel A: All Firms

Panel A1:US

	Accruals Deciles				CFO Deciles			
	Raw		Risk Adjusted		Raw		Risk Adjusted	
Decile	Returns	p value	Returns	p value	Returns	p value	Returns	p value
1	1.545	0.003	0.334	0.065	1.203	0.058	-0.238	0.378
2	1.209	0.003	0.170	0.089	0.785	0.104	-0.287	0.057
3	0.974	0.004	0.067	0.381	0.742	0.040	-0.275	0.001
4	0.988	0.001	0.085	0.213	0.872	0.006	-0.164	0.033
5	0.904	0.002	0.043	0.622	0.857	0.003	-0.068	0.374
6	0.877	0.002	0.020	0.802	0.914	0.001	0.047	0.596
7	0.847	0.003	0.007	0.939	0.966	0.000	0.133	0.160
8	0.825	0.005	-0.124	0.120	0.958	0.001	0.139	0.135
9	0.767	0.019	-0.301	0.001	1.123	0.000	0.244	0.016
10	0.834	0.027	-0.297	0.003	1.355	0.000	0.496	0.000
Hedge	0.711	0.002	0.631	0.004	0.152	0.712	0.735	0.026

Panel A2: UK

	Accruals Deciles				CFO Deciles			
	Raw		Risk Adjusted		Raw		Risk Adjusted	
Decile	Returns	p value	Returns	p value	Returns	p value	Returns	p value
1	0.866	0.047	0.275	0.076	0.257	0.572	-0.537	0.003
2	0.425	0.216	-0.111	0.296	0.425	0.243	-0.090	0.485
3	0.606	0.064	0.140	0.087	0.580	0.078	-0.001	0.986
4	0.287	0.369	0.021	0.798	0.199	0.524	-0.238	0.005
5	0.443	0.155	0.066	0.391	0.217	0.488	-0.171	0.050
6	0.469	0.120	0.068	0.380	0.365	0.243	-0.025	0.779
7	0.491	0.107	-0.037	0.601	0.371	0.232	0.014	0.875
8	0.195	0.528	-0.183	0.043	0.548	0.070	0.182	0.036
9	0.375	0.226	0.014	0.875	0.722	0.019	0.248	0.002
10	0.372	0.293	-0.262	0.011	0.905	0.005	0.518	0.000
Hedge	0.494	0.016	0.536	0.004	0.648	0.010	1.055	0.000

Panel B:All Firms excluding Financially Distressed

Panel B1:US

	Accruals Deciles				CFO Deciles			
	Raw		Risk Adjusted		Raw		Risk Adjusted	
Decile	Returns	p value	Returns	p value	Returns	p value	Returns	p value
1	1.430	0.001	0.317	0.005	0.801	0.080	-0.395	0.003
2	1.225	0.000	0.302	0.000	0.783	0.026	-0.272	0.002
3	0.931	0.001	0.082	0.367	0.787	0.013	-0.172	0.023
4	0.970	0.000	0.113	0.215	0.905	0.002	-0.052	0.527
5	0.910	0.001	0.043	0.668	0.876	0.002	-0.037	0.673
6	0.922	0.001	0.107	0.233	0.976	0.000	0.095	0.340
7	0.776	0.003	-0.039	0.684	0.922	0.001	0.161	0.085
8	0.742	0.013	-0.225	0.009	0.969	0.001	0.150	0.139
9	0.799	0.016	-0.248	0.010	1.135	0.000	0.238	0.019
10	0.840	0.029	-0.276	0.011	1.368	0.000	0.498	0.000
Hedge	0.590	0.000	0.594	0.000	0.567	0.009	0.893	0.000

Panel B2: UK

	Accruals Deciles				CFO Deciles			
	Raw		Risk Adjusted		Raw		Risk Adjusted	
Decile	Returns	p value	Returns	p value	Returns	p value	Returns	p value
1	0.806	0.035	0.297	0.017	0.366	0.341	-0.412	0.002
2	0.472	0.152	-0.048	0.634	0.344	0.314	-0.108	0.268
3	0.521	0.100	0.112	0.198	0.553	0.085	-0.055	0.459
4	0.396	0.204	0.115	0.136	0.053	0.866	-0.305	0.001
5	0.446	0.149	0.004	0.963	0.352	0.258	-0.021	0.822
6	0.540	0.077	0.133	0.069	0.320	0.304	-0.024	0.794
7	0.394	0.178	-0.096	0.197	0.419	0.173	0.044	0.638
8	0.227	0.471	-0.153	0.100	0.580	0.059	0.175	0.062
9	0.348	0.268	0.022	0.800	0.707	0.022	0.254	0.002
10	0.385	0.277	-0.290	0.005	0.922	0.005	0.544	0.000
Hedge	0.421	0.012	0.587	0.000	0.556	0.001	0.957	0.000

Table 5: The Relationship between Accruals and Cash Flow, Full Sample and Structural Break Analysis

In Table 5 we investigate the relationship between the accruals and CFO strategies in the US and the UK for the period covering June 1989 to August 2008. We assess the relationship between the two strategies in terms of their Pearson correlation as well as in terms of the slope coefficient of a regression of the accruals strategy returns (deciles spread returns) against the CFO strategy returns. In Panel A we include all firms, whereas in Panel B we exclude financially distressed securities (firms with both negative accruals and negative CFO) from the computation of the hedge returns for the accruals and CFO strategies. In Panel C we perform the analysis using the residual returns of accruals and CFO based strategies. Residuals returns are the unexplained components of a monthly regression of the decile spread returns of the accruals and CFO strategies on the Fama French / Carhart risk factor portfolios (SMB, HML and UMD). For the US, data on the risk factors portfolio returns were sourced from Ken French's website and are described therein. For the UK we adopt the procedure described therein to construct the SMB, HML and UMD portfolios from firms belonging to the FTSE All Share universe. Furthermore, in the UK, the market excess return is the difference between the return of the FTSE all share index and the one month LIBOR rate. In addition to the full period analysis, we adopt the procedure developed by Bai and Perron (1998, 2003) and report in Panel A the results of a structural break analysis to determine both the number and location of structural breaks in the regression coefficient of accrual hedge returns on CFO hedge returns.

Panel A: All Firms

	Panel A1: US				Panel A2: UK			
		Regimes Implied by estimated structural breaks				Regimes Implied by estimated structural breaks		
	Full Period	Jun 89 - Jan 00	Feb 00 - Feb 04	Mar 04 - Aug 08	Full Period	Jun 89 - Jun 99	Jul 99 - Jan 04	Feb 04 - Aug 08
constant	0.776	0.800	0.800	0.800	0.679	0.495	0.495	0.495
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.007)	(0.007)	(0.007)
CFO Return	-0.432	-0.270	-0.590	-0.329	-0.285	0.051	-0.555	-0.054
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.542)	(0.000)	(0.634)
Correlation	-0.772	-0.612	-0.927	-0.355	-0.352	0.049	-0.637	0.104
	(0.000)	(0.000)	(0.000)	(0.009)	(0.000)	(0.594)	(0.000)	(0.461)

Panel B: Regression Analysis excluding Financially Distressed Firms

	US	UK
constant	0.622	0.334
	(0.000)	(0.048)
CFO Return	-0.056	0.157
	(0.146)	(0.014)
Correlation	-0.096	0.162
	(0.146)	(0.014)

Panel C: Regression Analysis using Residual Returns

US	UK
0.000	0.000
(1.000)	(1.000)
-0.993	-0.291
(0.000)	(0.000)
-0.634	-0.252
(0.000)	(0.000)

Table 6: Conditional Correlation of Accruals with CFO

In Table 6 we present the conditional Pearson correlation of accruals with CFO. We allocate all firm-year observations to a decile portfolio based on the magnitude of their accruals or CFO and then compute within each decile the correlation between CFO and accruals. The period covers June 1989 to August 2008. Conditional decile correlations for the US are presented in Panel A, and for the UK in Panel B.

Panel A: US

	Accruals Deciles		CFO Deciles	
Decile	Correlation	p value	Correlation	p value
1	0.245	0.000	0.184	0.000
2	0.022	0.034	0.016	0.126
3	-0.010	0.326	-0.045	0.000
4	-0.022	0.036	-0.034	0.001
5	-0.029	0.006	-0.034	0.001
6	-0.034	0.001	-0.041	0.000
7	-0.040	0.000	-0.048	0.000
8	-0.040	0.000	-0.048	0.000
9	-0.057	0.000	-0.097	0.000
10	-0.283	0.000	-0.200	0.000

Panel B: UK

	Accruals Deciles		CFO Deciles	
Decile	Correlation	p value	Correlation	p value
1	0.080	0.001	0.225	0.000
2	0.000	0.997	-0.022	0.362
3	-0.020	0.392	-0.036	0.124
4	-0.061	0.010	-0.026	0.272
5	-0.177	0.000	-0.042	0.073
6	0.034	0.145	-0.003	0.911
7	0.059	0.012	-0.044	0.060
8	-0.006	0.795	-0.001	0.952
9	-0.027	0.258	-0.097	0.000
10	-0.207	0.000	-0.098	0.000

Table 7: Proportion of Negative Accruals and Negative CFO Firms by Accruals or CFO Decile

In Table 7 we present the proportion of firms with negative accruals and negative CFO that falls within each accruals or CFO decile. The period covers June 1989 to August 2008. US firms are presented in Panel A and UK firms in Panel B. We allocate all firm-year observations to a decile portfolio based on the magnitude of their accruals or CFO. Within each decile we measure the total proportion of firms that (a) reported negative accruals, (b) reported negative CFO and (c) reported both negative accruals and negative CFO.

Panel A: US

	CFO Deciles			Accruals Deciles		
	Proportion of			Proportion of		
Decile	Negative Accruals Firms	Negative CFO Firms	Negative Accruals and Negative	Negative CFO Firms	Negative Accruals Firms	Negative Accruals and Negative
1	0.641	1.000	0.641	0.336	1.000	0.336
2	0.433	0.892	0.387	0.153	1.000	0.153
3	0.548	0.000	0.000	0.106	1.000	0.106
4	0.711	0.000	0.000	0.087	1.000	0.087
5	0.792	0.000	0.000	0.081	1.000	0.081
6	0.822	0.000	0.000	0.086	1.000	0.086
7	0.850	0.000	0.000	0.099	1.000	0.099
8	0.875	0.000	0.000	0.127	0.488	0.052
9	0.899	0.000	0.000	0.223	0.000	0.000
10	0.898	0.000	0.000	0.539	0.000	0.000

Panel B: UK

	CFO Deciles			Accruals Deciles		
	Proportion of			Proportion of		
Decile	Negative Accruals Firms	Negative CFO Firms	Negative Accruals and Negative	Negative CFO Firms	Negative Accruals Firms	Negative Accruals and Negative
1	0.374	1.000	0.374	0.204	1.000	0.204
2	0.158	0.548	0.098	0.103	1.000	0.103
3	0.160	0.000	0.000	0.065	1.000	0.065
4	0.258	0.000	0.000	0.055	1.000	0.055
5	0.429	0.000	0.000	0.121	0.340	0.029
6	0.461	0.000	0.000	0.103	0.000	0.000
7	0.533	0.000	0.000	0.128	0.000	0.000
8	0.591	0.000	0.000	0.116	0.000	0.000
9	0.651	0.000	0.000	0.197	0.000	0.000
10	0.688	0.000	0.000	0.402	0.000	0.000

Table 8: Accruals and Cash Flow Returns Conditional on the Performance of Financially Distressed Securities

In Table 8 we present the average monthly raw and abnormal returns of accruals and CFO based strategies conditional on whether the sign of the market adjusted performance of financially distressed firms is positive (in Panel A) or negative (in Panel B) for US and UK firms. The period covers from June 1989 to August 2008. The market adjusted return of financially distressed securities is computed as the difference between the monthly return to an equally weighted portfolio of firms with both negative accruals and negative CFO that year and the return of the market index. Each month, firms are ranked based on their level of accruals (CFO) for the year and allocated to a decile portfolio. Within each decile, the monthly equally weighted portfolio return is computed over the sample period. To compute the abnormal return of each decile portfolio we match each security to a portfolio of firms that fall in the same size (market capitalization), book-to-price and momentum (measured over months [-12; -2]) terciles. The difference between the security return and the return of the characteristic-matched portfolio represents the abnormal return for that firm. Hedge for accruals (CFO) ranked deciles represents the return generated by taking a long (short) position in decile 1 firms and a short (long) position in decile 10 firms. All returns are expressed in percentage terms.

Panel A: Portfolio Returns at times when Finanically Distressed Firms underperform

Panel A1: US

	Accruals Deciles				CFO Deciles			
	Raw		Risk Adjusted		Raw		Risk Adjusted	
Decile	Returns	p value	Returns	p value	Returns	p value	Returns	p value
1	-2.780	0.000	-0.956	0.000	-4.184	0.000	-2.272	0.000
2	-1.864	0.000	-0.145	0.238	-3.081	0.000	-1.105	0.000
3	-1.374	0.002	0.136	0.148	-1.909	0.000	-0.224	0.030
4	-0.999	0.011	0.389	0.000	-1.230	0.003	0.086	0.411
5	-0.950	0.015	0.270	0.013	-0.935	0.014	0.321	0.000
6	-0.982	0.010	0.246	0.032	-0.648	0.086	0.493	0.000
7	-0.977	0.010	0.456	0.000	-0.617	0.100	0.599	0.000
8	-1.151	0.004	0.213	0.040	-0.622	0.104	0.651	0.000
9	-1.467	0.001	-0.135	0.217	-0.646	0.106	0.726	0.000
10	-1.966	0.000	-0.400	0.002	-0.832	0.059	0.693	0.000
Hedge	-0.813	0.000	-0.556	0.014	3.352	0.000	2.965	0.000

Panel A2: UK

	Accruals Deciles				CFO Deciles			
	Raw		Risk Adjusted		Raw		Risk Adjusted	
Decile	Returns	p value	Returns	p value	Returns	p value	Returns	p value
1	-1.900	0.000	-0.376	0.027	-3.127	0.000	-1.564	0.000
2	-1.557	0.000	-0.242	0.088	-1.417	0.002	-0.340	0.021
3	-0.977	0.013	0.051	0.622	-0.901	0.028	0.036	0.731
4	-1.183	0.003	0.026	0.807	-1.116	0.005	-0.123	0.232
5	-0.900	0.023	0.144	0.165	-1.341	0.001	-0.217	0.054
6	-0.717	0.075	0.258	0.014	-0.802	0.042	0.187	0.114
7	-0.784	0.046	0.147	0.109	-0.803	0.040	0.226	0.044
8	-1.073	0.005	-0.049	0.655	-0.729	0.060	0.281	0.013
9	-1.144	0.002	0.191	0.120	-0.744	0.042	0.343	0.001
10	-1.532	0.001	-0.332	0.021	-0.655	0.080	0.801	0.000
Hedge	-0.368	0.082	-0.044	0.855	2.472	0.000	2.365	0.000

Panel B: Portfolio Returns at times when Finanically Distressed Firms outperform

Panel B1: US

	Accruals Deciles				CFO Deciles			
	Raw		Risk Adjusted		Raw		Risk Adjusted	
Decile	Returns	p value	Returns	p value	Returns	p value	Returns	p value
1	6.302	0.000	1.752	0.000	7.129	0.000	1.999	0.000
2	4.591	0.000	0.516	0.001	5.038	0.000	0.614	0.004
3	3.556	0.000	-0.008	0.947	3.659	0.000	-0.331	0.018
4	3.172	0.000	-0.250	0.016	3.184	0.000	-0.439	0.000
5	2.944	0.000	-0.208	0.128	2.828	0.000	-0.496	0.000
6	2.921	0.000	-0.229	0.038	2.633	0.000	-0.443	0.001
7	2.852	0.000	-0.487	0.001	2.707	0.000	-0.379	0.010
8	2.999	0.000	-0.495	0.000	2.695	0.000	-0.424	0.001
9	3.224	0.000	-0.485	0.001	3.067	0.000	-0.286	0.056
10	3.915	0.000	-0.184	0.254	3.760	0.000	0.281	0.102
Hedge	2.387	0.000	1.936	0.000	-3.368	0.000	-1.719	0.001

Panel B2: UK

	Accruals Deciles				CFO Deciles			
	Raw		Risk Adjusted		Raw		Risk Adjusted	
Decile	Returns	p value	Returns	p value	Returns	p value	Returns	p value
1	4.126	0.000	1.042	0.000	4.247	0.000	0.675	0.008
2	2.763	0.000	0.043	0.788	2.597	0.000	0.206	0.348
3	2.472	0.000	0.246	0.061	2.327	0.000	-0.046	0.695
4	2.021	0.000	0.015	0.907	1.751	0.000	-0.373	0.007
5	2.028	0.000	-0.027	0.817	2.054	0.000	-0.117	0.391
6	1.866	0.000	-0.157	0.163	1.742	0.000	-0.274	0.036
7	1.993	0.000	-0.255	0.020	1.756	0.000	-0.236	0.080
8	1.690	0.001	-0.341	0.022	2.054	0.000	0.066	0.626
9	2.167	0.000	-0.195	0.131	2.451	0.000	0.137	0.243
10	2.617	0.000	-0.179	0.227	2.745	0.000	0.185	0.188
Hedge	1.510	0.000	1.221	0.000	-1.502	0.000	-0.490	0.124

Table 9: Accruals, Cash Flow and links to Fama French Factors

In Table 9 we present the results of regression analyses of portfolio returns on the Fama French / Carhart risk factors for the US and UK markets. The period covers June 1989 to August 2008. In Panel A we include all firms in our universes, whereas in Panel B we exclude firms with both negative accruals and negative CFO (financially distressed securities) from the construction of the accruals and CFO based portfolios. Three portfolio returns are used as the dependent variable in the regressions: the decile spread returns of the accruals (Acc) strategy, the decile spread returns of the CFO strategy and the excess return (above the risk free rate) of an equally weighted portfolio of financially distressed securities. For the US, data on the risk factors portfolio returns are sourced from Ken French's website and are described there. For the UK, we adopt the procedure described therein to construct the SMB, HML and UMD portfolios from the FTSE All Share universe. We compute the UK market excess return as the difference between the return of the FTSE all share index and the one month LIBOR rate. Returns are expressed in percentage terms.

Panel A: All Firms

	Panel A1:US				Panel A2: UK			
	Dependent variable				Dependent variable			
	Acc	CFO	Acc-CFO	Distressed	Acc	CFO	Acc-CFO	Distressed
alpha	0.891	-0.116	1.007	0.725	0.656	0.311	0.344	0.940
	(0.000)	(0.708)	(0.029)	(0.021)	(0.001)	(0.179)	(0.314)	(0.011)
HML	-0.256	0.646	-0.902	-0.380	-0.204	0.351	-0.555	-1.125
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
SMB	0.383	-0.837	1.220	1.431	0.245	-0.417	0.662	1.410
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Mk-Rf	0.065	-0.094	0.159	1.151	0.117	-0.185	0.302	1.220
	(0.221)	(0.259)	(0.200)	(0.000)	(0.018)	(0.001)	(0.000)	(0.000)
UMD	-0.189	0.218	-0.407	-0.411	0.006	0.070	-0.064	0.097
	(0.000)	(0.001)	(0.000)	(0.000)	(0.899)	(0.175)	(0.398)	(0.228)
R-squared	35.68%	50.66%	49.73%	79.02%	9.60%	20.72%	22.18%	61.06%

Panel B: Excluding Financially Distressed Firms

	Panel B1: US			Panel B2: UK		
	Dependent variable			Dependent variable		
	Acc	CFO	Acc-CFO	Acc	CFO	Acc-CFO
alpha	0.608	0.432	0.176	0.514	0.376	0.138
	(0.000)	(0.021)	(0.421)	(0.003)	(0.026)	(0.508)
HML	0.057	0.168	-0.111	-0.035	0.139	-0.174
	(0.226)	(0.014)	(0.166)	(0.405)	(0.001)	(0.001)
SMB	0.163	-0.429	0.592	0.108	-0.163	0.271
	(0.000)	(0.000)	(0.000)	(0.059)	(0.004)	(0.000)
Mk-Rf	0.007	-0.034	0.041	-0.003	-0.113	0.110
	(0.848)	(0.497)	(0.489)	(0.939)	(0.006)	(0.032)
UMD	-0.066	0.163	-0.229	-0.085	0.075	-0.160
	(0.015)	(0.000)	(0.000)	(0.024)	(0.044)	(0.001)
R-squared	9.43%	34.82%	38.31%	4.56%	11.78%	16.38%

Table 10: Accruals and Cash Flow Returns Conditional on Investor Sentiment

In Table 10, we present the average monthly abnormal returns of portfolios of interest conditional on investor sentiment for both US and UK markets. The period of analysis covers from June 1989 to August 2008. In panel A we include all firms in our universes, whereas in Panel B we exclude firms with both negative accruals and negative CFO (financially distressed securities) from the construction of the accruals and CFO based portfolios. We present abnormal returns for three different portfolios: the decile spread returns of Accruals and CFO strategies, as well as that of an equally weighted portfolio of financially distressed securities. To compute the abnormal return of each decile portfolio we match each security to a portfolio of firms that fall in the same size (market capitalization), book-to-price and momentum (measured over months [-12; -2]) terciles. The difference between the security return and the return of the characteristic-matched portfolio represents the abnormal return for that firm. Three measure sourced from Jay Ritter's website are used to compute the investor sentiment index which relate to US IPO data: the average monthly first day return, the number of IPOs each month and the percentage of IPOs that price above the midpoint of the original file price range each month. To compute the sentiment index, we perform a Principal Component Analysis on these three factors and take the first principal component as our measure of investor sentiment. The first principal component explains 52% of the sample variance and loads heavily (approximately 0.67) on the first day return and the percentage of IPO that price above the midpoint of the original file price range. The loading on the number of IPOs each month is somewhat lower (approximately 0.28). Each month is allocated to a sentiment tercile based on its sentiment index value. Months with values that fall in the top tercile are taken as our high sentiment months while months with values that fall in the bottom tercile are our low sentiment months. *N* represents the number of months used to compute the monthly return averages. All returns are expressed in percentage terms.

Panel A: Portfolio Performance including all firms

	Panel A1: US				Panel A2: UK			
Strategy	All Periods	Low Sentiment	High Sentiment	High - Low	All Periods	Low Sentiment	High Sentiment	High - Low
Accruals Hedge	0.631	0.339	2.021	1.683	0.536	-0.244	1.493	1.737
	(0.004)	(0.414)	(0.000)	(0.004)	(0.004)	(0.435)	(0.000)	(0.000)
CFO Hedge	0.735	2.452	-1.310	-3.762	1.055	1.877	-0.058	-1.935
	(0.026)	(0.000)	(0.132)	(0.000)	(0.000)	(0.000)	(0.898)	(0.004)
Accruals - CFO	-0.104	-2.114	3.331	5.444	-0.518	-2.121	1.551	3.672
	(0.820)	(0.008)	(0.003)	(0.000)	(0.090)	(0.000)	(0.011)	(0.000)
Financially Distressed	-0.291	-2.041	2.094	4.136	-0.391	-1.499	1.954	3.453
	(0.334)	(0.000)	(0.003)	(0.000)	(0.405)	(0.053)	(0.060)	(0.004)
N	231	67	67		231	67	67	

Panel B: Portfolio Performance excluding Financially Distressed Firms

	Panel B1: US				Panel B2: UK			
Strategy	All Periods	Low Sentiment	High Sentiment	High - Low	All Periods	Low Sentiment	High Sentiment	High - Low
Accruals Hedge	0.594	0.830	0.984	0.154	0.587	0.044	1.069	1.025
	(0.000)	(0.004)	(0.013)	(0.748)	(0.000)	(0.880)	(0.000)	(0.021)
CFO Hedge	0.893	1.655	0.335	-1.320	0.957	1.449	0.632	-0.817
	(0.000)	(0.000)	(0.520)	(0.019)	(0.000)	(0.000)	(0.043)	(0.067)
Accruals - CFO	-0.299	-0.825	0.649	1.474	-0.370	-1.405	0.437	1.842
	(0.124)	(0.017)	(0.153)	(0.012)	(0.052)	(0.000)	(0.169)	(0.000)
N	231	67	67		231	67	67	