

Investors' Expectation of Loss Reversal and Test of Accruals

Mispricing

Jung Hoon Kim*

School of Accounting

College of Business Administration

Florida International University

junghoon.kim@fiu.edu

and

Young Jun Kim

College of Business Administration

Seoul National University

kyjys21@snu.ac.kr

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* Corresponding author.

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Abstract

This study reconciles the findings in recent studies regarding the disappearing mispricing of accruals and sustained mispricing of cash flows. We attribute the contrasting results to the fact that a disproportionate number of firms having both highly negative accruals and highly negative cash flows are simultaneously found in the lowest accruals and cash flows deciles, and their future stock returns are highly negative although their accruals level is low. For these firms, aside from the previously documented performance-related delisting effects, it appears that investors expect large losses to reverse but are, in fact, negatively surprised by the persistence of negative cash flows. Investors' different priors of the future earnings behavior of loss versus profit firms partially explain the contrasting results in prior studies. Our results also suggest that tests of accruals mispricing using asset-deflated accruals may not be desirable when a disproportionate number of firms in the sample have large losses as the effect of loss persistence dominates the effect of accruals reversal. The results of this study are also reconciled to those of prior research including Desai et al. (2004), Dopuch et al. (2010) and Hafzalla et al. (2011).

1. Introduction

Mispricing of accruals (i.e., the negative association between the level of accruals and future stock returns) is one of the most researched areas in accounting since the seminal paper by Sloan (1996). He documents the mispricing of accruals as a way to examine whether investors fixate on earnings (i.e., earnings fixation hypothesis).¹ While the Sloan's (1996) original idea was to test whether investors understand different persistence of the accruals component ("accruals" hereafter) and cash flows component ("cash flows" hereafter) of earnings, most subsequent studies exclusively examine the negative association between the level of accruals and future stock returns, assuming the positive association between the level of cash flows and future stock returns based on the strong negative correlations between accruals and cash flows (Dechow 1994; Sloan 1996). Specifically, these studies test whether significant hedge returns can be earned by buying firms in the lowest accruals decile and selling firms in the highest accruals decile (i.e., accruals anomaly) and earlier studies generally support the mispricing of accruals.

However, several recent studies including Kraft et al. (2006) cast doubt on the mispricing of accruals, pointing out that most of the accruals-based hedge returns arise from the future stock returns of the firms with the highest accruals and there is almost no mispricing in the future stock returns of the firms with the lowest accruals. On the contrary, other recent studies support the mispricing of cash flows. For instance, Beaver et al. (2007) and Teoh and Zhang (2011) show that there is mispricing in the future stock returns of both the firms with the lowest and highest

¹ Other than the earnings fixation, alternative explanations are proposed for the mispricing of accruals including growth anomaly (Fairfield et al. 2003; Zhang 2007), proxy for risk (Khan 2008; Wu et al. 2010) and limit of arbitrage (Mashruwala et al. 2006). Although all these alternative explanations can explain the negative relation between the level of accruals and future stock returns, they do not examine the relation between cash flows and future stock returns.

cash flows. These contrasting results are not consistent with the conventional wisdom based on the strong negative correlations between accruals and cash flows.

Based on the findings of these recent studies, this study investigates the potential reasons for the contrasting results between the tests of accruals mispricing and those of cash flows mispricing, and reconciles the findings of this study to those of prior studies in several different contexts. We first report that the accruals-based hedge returns are not significantly different from zero as in the recent studies such as Kraft et al. (2006) and Hafzalla et al. (2011). We also show that there is almost no mispricing in the lowest accruals decile portfolio, and the lowest accruals decile portfolio has much lower future stock returns than the second lowest accruals decile portfolio. However, we document that the cash flows-based hedge returns are significantly positive and there is mispricing in both extreme cash flows decile portfolios. We document that these contrasting results between the tests of accruals mispricing and those of cash flows mispricing are mainly attributable to the firms having highly negative accruals and highly negative cash flows at the same time. When all firms are independently sorted into the decile portfolios by the level of accruals and cash flows (deflated by total assets), it is noticed that disproportionately too many firms with highly negative accruals and highly negative cash flows are simultaneously found in the lowest accruals decile (i.e., accruals decile 1) and lowest cash flows deciles (i.e. cash flows deciles 1 and 2). Prior studies also note that the firms with low (i.e., negative) cash flows are found in both the lowest (i.e., highly negative) and highest (i.e., highly positive) accruals deciles (Kraft et al. 2004; Gerard et al. 2009; Barone and Magilke 2009). Moreover, their future stock returns are hugely negative although their accruals level is low.

We provide potential reasons for this unexpected behavior of the future stock returns of the firms with highly negative accruals and high negative cash flows that are simultaneously

found in the lowest accruals and lowest cash flows deciles. (1) Around 10% of these firms are delisted due to poor performance. Therefore, the market is hugely negatively surprised regardless of the level of accruals. These firms are poor performers so their forced delistings are somewhat expected. This finding is consistent with Kraft et al. (2006) and Beaver et al. (2007). However, these firms reinforce the mispricing of cash flows as they belong to the lowest cash flows decile. (2) For the remaining firms, the market is negatively surprised by the high persistence of negative cash flows although accruals reverse as investors are more negatively surprised by the persistence of loss rather than positively surprised by the reversal of accruals (Li 2011). Our empirical results also show that the loss firms' accruals and cash flows are, on average, negative, and investors generally react more to (negative) cash flows than accruals for the loss firms. This result indicates that the investors' differential priors concerning the future earnings behavior of the loss firms from the profit firms at least partially explain the contrasting results between the tests of accruals mispricing and those of cash flows mispricing.

The contributions of this study can be summarized in several ways. First, following Kraft et al. (2004), Gerard et al. (2009) and Barone and Magilke (2009), we document that the future stock returns of the firms with highly negative accruals and highly negative cash flows behave in an unexpected way. What makes our study unique is that we focus on these firms to reconcile the contrasting results between the tests of accruals mispricing and those of cash flows mispricing. Second, we advance the potential reasons why the future stock returns of the firms with highly negative accruals and highly negative cash flows, are hugely negative. Aside from the previously documented performance-related delisting effects (Kraft et al. 2006; Beaver et al. 2007), we document that the investors' differential expectation of the future earnings behavior of the loss firms from the profit firms also influence the investors' reaction to the reversal of accruals and

persistence of cash flows in the loss and profit firms, which, in turn, explains the contrasting results between the tests of accruals mispricing and those of cash flows mispricing. Prior studies document that losses are deemed temporary by investors (Li 2011) so they are negatively surprised when the firms continue to report loss in the following period. Therefore, for the loss firms, investors would be much more surprised by the high persistence of (negative) cash flows as they expect the negative cash flows to reverse. This implies that investors are generally more surprised by the high persistence of (negative) cash flows rather than positively surprised by the reversal of accruals for the loss firms. On the contrary, investors expect profits to persist. Therefore, for the profit firms, investors generally more surprised by the reversal of accruals than by the persistence of cash flows. Our finding implies that when the mispricing of accruals and cash flows is tested, the investors' differential priors concerning the future earnings behavior of the loss firms from the profit firms should also be considered. Third, we show that when there are too many small firms with highly negative earnings in the sample, the use of asset-deflated accruals may not be desirable as the effect of loss persistence dominates that of accruals reversal for these firms. We suggest percent accruals (Hafzalla et al. 2011) as a way to effectively test the mispricing of accruals and cash flows by overcoming the effect of loss persistence when there are too many small firms with highly negative earnings because the lowest percent accruals decile does not contain these firms by construction. Fourth, the findings of our study can be reconciled with the results documented in prior studies. We provide the evidence that the finding of Desai et al. (2004) that the effect of accruals is subsumed by that of cash flows in predicting future stock returns, is mainly attributable to the firms having highly negative accruals and highly negative cash flows that are simultaneously found in the lowest accruals and lowest cash flows deciles. We report that cash flows have more predictive power of the future stock returns

for the full sample but accruals become a stronger predictor of the future stock returns when the firms with highly negative accruals and highly negative cash flows are eliminated from the lowest accruals decile. This is expected as cash flows are a dominant predictor of the future stock returns of the firms having highly negative accruals and highly negative cash flows due to the effect of loss persistence. Dopuch et al. (2010) conclude that the mispricing of accruals only exists for the profit firms. However, they do not provide clear reasons for their finding. We show that the effect of loss persistence in the firms with highly negative accruals and highly negative cash flows at least partially explain the finding of Dopuch et al. (2010).

This study is organized as follows. Section 2 summarizes related prior research. Section 3 develops testable hypotheses. Section 4 describes the sample selection procedure. Empirical findings are discussed in Section 5. Section 6 concludes this study.

2. *Prior Research*

Mispricing of accruals was first tested by Sloan (1996) as a way to examine the earnings fixation hypothesis. Using the profit dominated sample, he documents the negative relation between the level of accruals and future stock returns to conclude that investors do not fully understand the different persistence of accruals and cash flows, assuming that there should be similar mispricing in cash flows as accruals and cash flows are highly negatively correlated.^{2 3} Following Sloan (1996), most subsequent studies exclusively examine the negative relation between the level of accruals and future stock returns in various contexts such as earnings fixation (Chan et al. 2006; Richardson et al. 2005; Xie 2001), growth anomaly (Fairfield et al.

² Please refer to the footnote 15 in Sloan (1996).

³ Sloan (1996) relies on operating income after depreciation (Compustat mnemonic: oiadp) as earnings and the mean earnings in all accruals deciles are positive.

2003; Zhang 2007), proxy for risk (Khan 2008; Wu et al. 2010) and limit to arbitrage (Mashruwala et al. 2006). Specifically, these studies test whether significant hedge returns can be earned by buying firms with low accruals and selling firms with high accruals (i.e., accruals anomaly). Although earlier studies generally support the mispricing of accruals, it seems to disappear according to the recent evidences. Kraft et al. (2006) casts doubt on the mispricing of accruals, pointing out that most of the hedge returns arise in the firms with the highest accruals and there is almost no mispricing in the future stock returns of the firms with the lowest accruals when the firms without following year earnings information are not eliminated from the sample (i.e., a look ahead bias is removed). Several other studies also report the similar results (Beaver et al. 2007; Desai et al. 2004; Hafzalla et al. 2011; Houge and Loughran 2000; Kothari et al. 2006; Teoh and Zhang 2011). Moreover, insignificant accruals-based hedge returns are frequently reported in recent studies (Beaver et al. 2007, Dopuch et al. 2010; Hafzalla et al. 2011).⁴

Starting with Desai et al. (2004), recent studies call into question the approach of relying solely on accruals and start to examine whether cash flows and accruals provide different information about the future stock returns and results are mixed. Several studies including Desai et al. (2004), Yu (2005) and Livnat and Lopez-Espinosa (2008) document that the effect of cash flows subsumes that of accruals while Cheng and Thomas (2006) and Gu and Jain (2011) argue that accruals are still related to future stock returns after controlling for cash flows. Moreover, although the mispricing of accruals seems to disappear, the mispricing of cash flows continues to be supported. The cash flows-based hedge returns still arise from the future stock returns of both the highest and lowest cash flows firms (Beaver et al. 2007; Houge and Loughran 2000; Teoh

⁴ Although Dopuch et al. (2010) do not find significant accruals-based hedge returns for the full sample, they do for the profit firms.

and Zhang 2011).

This study attempts to provide the potential reasons for these contrasting results between the tests of accruals mispricing and those of cash flows mispricing. We pay special attention to the fact that the firms with highly negative accruals and highly negative cash flows are simultaneously found in the lowest accruals and cash flows deciles when all firms are independently sorted into the decile portfolios by the level of accruals and cash flows. Although there are numerous studies on the mispricing of accruals, most prior studies do not focus on the effect of the firms having highly negative accruals and highly negative cash flows on the results of the test of the accruals mispricing. Noticeable exceptions include Kraft et al. (2004), Gerard et al. (2009) and Barone and Magilke (2009). In their working paper, Kraft et al. (2004) closely examine the firms with low (i.e., highly negative) cash flows (regardless of the firm's accruals level). They show that those firms exhibit negative future stock returns and attribute their result to the short-sale constraint. The short-sale constraint might be able to explain the negative future stock returns for the firms having highly positive accruals and highly negative cash flows. However, the short-sale constraint cannot explain the negative future stock returns of the firms having highly negative accruals and highly negative cash flows as they are in the long position when sorted on accruals. We attempt to explain the negative future stock returns of these firms from the viewpoint of the investors' differential expectation of the future earnings behavior in the loss firms from the profit firms. Following Kraft et al. (2004) and Kraft et al. (2006), Gerard et al. (2009) document that a large proportion of firms with low (i.e., negative) cash flows are found in both highest and lowest accruals deciles in the U.S. and U.K. markets. They also show that the firms having negative accruals and negative cash flows are fundamentally poor and close to bankruptcy (i.e., financially distressed firms). Although we also examine the firms with

negative accruals and negative cash flows as our main concern, our study is different from theirs in that we investigate those firms as a potential reason for the contrasting results between the tests of accruals mispricing and those of cash flows mispricing.⁵ Motivated by Desai et al. (2004) and Houge and Loughran (2000), Barone and Magilke (2009) examine whether sophisticated investors and naïve investors understand the different persistence of accruals and cash flows. In doing so, they separately examine whether investors understand the hedge returns based on accrual, cash flows and common to both accruals and cash flows. One of their conclusions is that naïve investors do understand accruals being less persistent but do not understand cash flows being more persistent than earnings. However, they do not provide the reasons for this difference. We fill this gap by advancing the potential reasons why the hedge returns based on the accruals do not seem to exist when the hedge returns based on cash flows do exist.

In explaining the potential reasons for the huge negative stock returns of the firms having highly negative accruals and highly negative cash flows, we relate a part of our results to the findings in Kraft et al. (2006) and Beaver et al. (2007). Kraft et al. (2006) show that a look-ahead bias is one of the main causes for mispricing in the lowest accruals decile. They report that the firms that do not have following year earnings information exhibit highly negative future stock returns and Beaver et al. (2007) support the finding of Kraft et al. (2006) by documenting the huge negative stock returns of the firms that do not have following year earnings information are primarily attributable to the effect of the performance-related forced delistings. In addition, we attempt to explain the huge negative future stock returns of these firms from the viewpoint of the investors' differential expectation of the future earnings behavior in the loss firms from the profit firms. Li (2011) shows that investors generally view losses temporary. Therefore, they are

⁵ Please note that, using Russell 3000 firms (i.e., relatively large firms), Gerard et al. (2009) report the significantly positive hedge returns in the U.S. based on accruals.

negatively surprised when the firms continue to report loss in the following period. Applying the findings in Li (2011) to the tests of the accruals mispricing, we show that the investors are generally negatively surprised by the high persistence of (negative) cash flows rather than positively surprised by the reversal of accruals for the loss firms (i.e., the effect of loss persistence dominates that of accruals reversal). Dopuch et al. (2010) investigate the mispricing of accruals separately for the loss and profit firms and conclude that the mispricing of accruals only exists for the profit firms. However, they do not provide the reasons for no mispricing of accruals in the loss firms.⁶ We show that no mispricing of accruals in the loss firms is attributable to the investors' expectation of loss reversal.

3. *Hypotheses Development*

Using the firms listed in NYSE, AMEX and NASDAQ, this study explores the potential reasons for the contrasting results between the tests of accruals mispricing and those of cash flows mispricing. To test hypotheses, we first separately construct the decile portfolios based on the level of accruals and cash flows each year. Note that all financial variables including earnings, accruals and cash flows are deflated by average total assets for most of the tests, following prior studies.

Although earlier studies generally support the mispricing of accruals, recent evidences including Kraft et al. (2006) cast doubt on the mispricing of accruals, pointing out that there is almost no mispricing in the future stock returns of the firms with the lowest accruals. However, the mispricing of cash flows continue to be documented (Beaver et al. 2007; Teoh and Zhang

⁶ Dopuch et al. (2010) conjecture that there is no mispricing of accruals for the loss firms as losses do not persist due to liquidation option and investors rely on the book value to price the loss firms.

2011). As documented by prior studies (Kraft et al. 2004; Kraft et al. 2006; Gerard et al. 2009), disproportionately too many firms with highly negative cash flows tend to be found in the lowest (i.e., highly negative) and highest (i.e., highly positive) accruals deciles at the same time when all firms are sorted on the level of accruals (deflated by total assets). Although it is expected that the firms with highly negative cash flows are found in the highest accruals decile, it is rather unexpected that those firms are found in the lowest accruals decile. The accruals of the firms with highly negative accruals and highly negative cash flows would not provide the relevant information about the future stock returns as the accruals of those firms would not play a relevant matching role to mitigate fluctuation of cash flows over time as the balance sheet perspective dictates (Dechow and Ge 2006). Therefore, testing the mispricing of accruals by comparing the future stock returns of two extreme accruals decile portfolios can be problematic if there are too many firms with highly negative cash flows in the lowest accruals decile. This would be why prior studies document the insignificant hedge returns based on the two extreme accruals decile portfolios, and almost no mispricing in the lowest accruals decile while the mispricing of cash flows is supported. This implies that the hedge returns based on the two extreme accruals decile portfolios become stronger as the number of the firms with highly negative cash flows are reduced from the lowest accruals decile.

Hypothesis 1: The hedge returns based on the two extreme accruals decile portfolios become stronger when the firms with highly negative cash flows are eliminated from the lowest accruals decile.

To seek the potential reasons why the firms having highly negative cash flows that are

found in the lowest accruals decile would be the main cause for the contrasting results between the tests of accruals mispricing and those of cash flows mispricing, we turn our attention to the fundamentals and past operating performance of these firms. Kraft et al. (2004) and Gerard et al. (2009) document that the firms with highly negative accruals and highly negative cash flows have weak fundamentals and have shown poor operating performance. Moreover, Gerard et al. (2009) point out that many of these firms are very close to bankruptcy (i.e., financially distressed firms). Kraft et al. (2004) also document that there are disproportionately too many firms whose following year's financial information is missing in the lowest accruals decile and those firms exhibit huge negative future stock returns. Therefore, we conjecture that some firms with highly negative accruals and highly negative cash flows are delisted due to poor performance and the market is negatively surprised regardless of the level of accruals.^{7 8} This conjecture is consistent with the findings in Beaver et al. (2007). They show that after removing the performance-related delisted firms, the mispricing in the lowest accruals decile gets stronger.

Hypothesis 2: Some firms with highly negative accruals and highly negative cash flows are delisted due to poor performance and the market is negatively surprised regardless of the level of accruals.

Among the firms with highly negative cash flows in the lowest accruals decile, quite a few numbers of firms survive to the next period. For these firms, we posit that investors' differential priors concerning the future earnings behavior of the loss firms from the profit firms explain the contrasting results between the tests of accruals mispricing and those of cash flows

⁷ Please note that, following Kraft et al. (2006), we do not require following year earnings information to exist for our sample.

⁸ We acknowledge that some firms in other categories are also delisted. However, the proportion of the delisted firms in other categories should be much less than the firms with highly negative accruals and highly negative cash flows.

mispricing. Li (2011) documents that losses are deemed temporary by investors. Therefore, they are negatively surprised if the losses are continuously reported in the following period. This leads to the conjecture that for the firms with highly negative cash flows that belong to the lowest accruals decile, investors would be much negatively surprised by the high persistence of (negative) cash flows that explain a large part of the persistence of loss. Hence, for the firms with highly negative accruals and highly negative cash flows, cash flows would be a dominant predictor of the future stock returns.

Hypothesis 3: The firms with highly negative accruals and highly negative cash flows that survive to the next period are expected to exhibit negative future stock returns as investors are negatively surprised by the high persistence of (negative) cash flows

The hypothesis 3 has implications for the findings in the prior research. We first provide the evidence that the finding of Desai et al. (2004) that the effect of accruals is subsumed by that of cash flows in predicting future stock returns, is mainly attributable to the firms with highly negative cash flows that are found in the lowest accruals decile. As hypothesized above, due to the effect of loss persistence, cash flows are a dominant predictor of the future stock returns of these firms. Therefore, when these firms are eliminated, accruals are expected to become a stronger predictor of future stock returns.

Hypothesis 4: When the firms with highly negative accruals and highly negative cash flows are eliminated, accruals become a stronger predictor of future stock returns.

Dopuch et al. (2010) show that the mispricing of accruals only exists for the profit firms. The hypothesis 3 indicates that the firms with highly negative accruals and highly negative cash

flows provide at least a partial reason for their finding as investors generally would not respond to the expected reversal of the accruals for these firms.

Hypothesis 5: The firms with highly negative accruals and highly negative cash flows are the main driver of no mispricing of accruals in loss firms.

4. Sample and Variables

Our sample includes the firms listed on the NYSE, AMEX and NASDAQ between 1990 and 2009. We obtain financial statement data from the Compustat and stock returns data from the CRSP. Following prior studies, financial firms are excluded. Following Kraft et al. (2006), we do not require the following year's earnings to exist for our sample. The data requirements that we impose are (1) common shares (shrcd 10 or 11) (2) total assets (at) are not missing, (3) average total assets (at) are not zero, (4) income before extraordinary items (ib) is not missing, (5) operating income after depreciation (oiadp) is not missing, (6) cash flows from operating activities (oancf) are not missing (7) stock price (prcc_f) and number of shares outstanding (csho) at fiscal year end are not missing and (8) the future stock returns are not missing for the first month of the accumulation period. If the total assets are not missing, we replace the missing values of the following items with zero: total liabilities (lt), current assets (act), cash and short-term investments (che), current liabilities (lct), debt in current liabilities (dlc), investment and advances (ivao), long-term debt (dltt), receivables (rect), inventory (invt), accounts payable (ap) and taxes payable (tp). If the values of the following items are missing, we replace them with zero: special items (spi) and depreciation and amortization (dp). All variables other than future stock returns are winsorized at the top and bottom 1% levels each year. Our final sample

contains 87,240 firm year observations between 1990 and 2009.

The main variables of this study are earnings, accruals and cash flows. Earnings are defined as income before extraordinary items (ib) deflated by average total assets (at). Cash flows are defined as cash flows from operating activities (oancf) deflated by average total assets (at). Accruals are defined as the difference between earnings and cash flows. The detailed definitions of all other variables are provided in table 1. All relevant financial variables are deflated by average total assets other than percent accruals and percent cash flows. Following Hafzalla et al. (2011), percent cash flows are defined as cash flows from operating activities (oancf) deflated by the absolute value of income before extraordinary items (ib) and percent accruals are defined as income before extraordinary items (ib) less cash flows from operating activities (oancf) deflated by the absolute value of income before extraordinary items (ib).⁹ For the percent accruals and percent cash flows, income before extraordinary items (ib) is replaced by 0.0000000001 if it is zero. Raw future stock returns are computed as twelve month buy-and-hold returns, beginning in the fourth month after each fiscal year end. If firms are delisted during the accumulation period and the delisting returns are missing, -30% delisting returns are assigned to the NYSE and AMEX firms and -55% delisting returns are assigned to NASDAQ firms. Following Kraft et al. (2006), we also replace missing returns (i.e., CRSP code “B”) with zero. Size-adjusted future stock returns are computed as the difference between raw future stock returns and respective size-decile future stock returns. The size decile future stock returns are estimated based on the size of NYSE/AMEX/NASDAQ firms provided by CRSP.

5. Empirical Results

⁹ In Hafzalla et al. (2011), net income (ni) is used as a deflator. When we use the net income as a deflator, the results are almost identical.

5.1 Descriptive Statistics

Table 1, panel A presents descriptive statistics of our 87,240 firms. On average, earnings (income before extraordinary items deflated by total assets) are negative (-0.053). It is noticed that accruals are the main driver of the negative earnings as accruals have negative mean (-0.070) and cash flows have positive mean (0.017). The fact that operating income (-0.001) is greater than earnings (-0.053) implies that there is large negative non-recurring accruals and this is confirmed by large negative special items (-0.020).

Table 1, panel B reports descriptive statistics (mean values) for each accruals decile. Overall, the accruals decile 1 (i.e., the lowest accruals decile) exhibits the poorest performance. It has the lowest earnings, accruals and cash flows. Unexpectedly, in accruals decile 1, both accruals and cash flows are negative and this is consistent with the finding in Dechow and Ge (2006) that accruals in accruals decile 1 do not play a relevant matching role to mitigate fluctuation of cash flows. Moreover, the firms in accruals decile 1 are the smallest with respect to the size of assets and net operating assets. This implies that these firms have been poor performers so they have liquidated some of their assets.

5.2 Distribution of firms across accruals and cash flows deciles and correlations between accruals and cash flows

To understand why unexpected findings are reported in accruals decile 1, we sort firms separately based on accruals and cash flows and construct table 2, panel A to show the

distribution of our sample firms across the accruals and cash flows deciles. Note that the upper number in each cell indicates the number of firms in each cell and the lower number of in each cell indicates the proportion of the firms in each cell relative to the total number of firms in our sample. If the conventional wisdom that accruals and cash flows are negatively correlated is applied, we expect more observations in the diagonal cells. The cells with greater than 1.10% are bolded to indicate those cells are more populated than expected (with 10% error allowed). The cells in bold reveal the pattern consistent with this conjecture with one exception. In accruals decile 1, there are disproportionately too many firms found in cash flows deciles 1 and 2 (2.46% and 1.54% respectively).¹⁰ This observation suggests that these firms could be influential in the test of the mispricing of accruals and cash flows. These firms exhibit highly negative earnings as they simultaneously have highly negative accruals and highly negative cash flows. *We will refer to the firms that simultaneously belong to accruals decile 1 and cash flows deciles 1 or 2 as the “firms with highly negative accruals and highly negative cash flows” for the remaining discussions of the empirical tests.*

To closely examine how influential these firms can be in the test of the mispricing of accruals and cash flows, we decompose accruals decile 1 into several cash flows deciles. The results are presented in table 1, panel C. The first column shows the descriptive statistics (mean values) for the “firms with highly negative accruals and highly negative cash flows”. Compared to the fourth (firms that simultaneously belong to accruals decile 1 and cash flows deciles 3 ~ 9) and fifth (firms that simultaneously belong to accruals decile 1 and cash flows deciles 10) columns, the first column reveals that the “firms with highly negative accruals and highly negative cash flows” exhibit much worse operating performance and future stock returns (-11.5%

¹⁰ This observation is consistent with the prior findings that the firms with negative cash flows are found in both highest and lowest accruals deciles (Kraft et al. 2004; Kraft et al. 2006; Gerard et al. 2009).

vs. 3.7% in fourth column and 5.0% in fifth column). This suggests that the test of the accruals mispricing by comparing the future stock returns of accruals decile 1 and accruals decile 10 may be problematic due to these firms. Moreover, the fourth and fifth columns show the expected positive sign for cash flows whereas the first column does not. These imply that the “*firms with highly negative accruals and highly negative cash flows*” do not have characteristics typically expected in accruals decile 1. To corroborate this, we report the correlations between accruals and cash flows in table 2, panel B. Unexpectedly, the overall Pearson correlation between accruals and cash flows is slightly positive but not different from zero while the overall Spearman correlation exhibits the negative correlation (-0.256) as expected. While all other accruals deciles largely exhibit the negative correlations (Pearson -0.288; Spearman -0.392), accruals decile 1 shows the positive correlation (Pearson: 0.266; Spearman 0.249). The bottom two rows of table 2, panel B reveals that the positive correlation between accruals and cash flows in accruals decile 1 is mainly due to the “*firms with highly negative accruals and highly negative cash flows*” (Pearson 0.195; Spearman 0.170). After removing these firms, the correlations become much more negative as expected (Pearson -0.296; Spearman -0.391). In summary, the “*firms with highly negative accruals and highly negative cash flows*” show unexpected characteristics and can be influential in the test of the mispricing of accruals and cash flows.

5.3 Effect of “*firms with highly negative accruals and highly negative cash flows*” on test of mispricing of accruals and cash flows

Table 3, panel A and B report mean one year ahead size-adjusted future stock returns for each accruals and cash flow decile and related hedge returns respectively. The hedge returns of

accruals decile portfolios (cash flows decile portfolios) are computed by subtracting one year ahead size-adjusted future stock returns of accruals decile 10 (cash flows decile 1) from those of accruals decile 1 (cash flows decile 10). Table 3, panel A shows the unexpected -2.2% of one year ahead size-adjusted future stock returns for accruals decile 1. Table 3, panel A also reports that the hedge returns based on accruals are positive but not different from zero (5.3%), which is not consistent with the conventional wisdom but expected from the negative one year ahead size-adjusted future stock returns of accruals decile 1. One interesting point is that if the hedge returns were computed by subtracting one year ahead size-adjusted future stock returns of accrual decile 10 from those of accruals decile 2, significantly positive hedge returns (11.1%) should be generated. Table 3, panel A also unveils the source of the negative one year ahead size-adjusted future stock returns of accruals decile 1. The “*firms with highly negative accruals and highly negative cash flows*” show highly negative one year ahead size-adjusted future stock returns whereas the rest of the firms in accruals decile 1 exhibit positive one year ahead size-adjusted future stock returns. Without the “*firms with highly negative accruals and highly negative cash flows*”, one year ahead size-adjusted future stock returns of accruals decile 1 should be the highest among all accruals decile portfolios, which is consistent with the result in earlier studies. Table 3, panel B reports that the hedge returns based on the cash flows deciles are significantly positive (15.7%) and this is also expected as the “*firms with highly negative accruals and highly negative cash flows*” strengthen the negativity of one year ahead size-adjusted future stock returns of cash flows decile 1. The results in table 3 confirm the contrasting results between the tests of accruals mispricing and those of cash flows mispricing that recent studies document.

To test hypothesis 1, we re-construct the accruals and cash flows decile portfolios after removing the “*firms with highly negative accruals and highly negative cash flows*” and compute

the hedge returns in the same way as in table 3. Results are reported in table 4. Consistent with hypothesis 1, the hedge returns based on two extreme accruals deciles are now significantly positive (12.7%) at 1% level. This confirms the results reported in table 3, panel A that the source of negative one year ahead size-adjusted future stock returns in accruals decile 1 (-2.2%) is the “*firms with highly negative accruals and highly negative cash flows*”. However, the hedge returns based on two extreme cash flows deciles still remain significantly positive (13.5%). It is noticed that the cash flows-based hedge returns and significance level are smaller in table 4, panel B (13.5%) than table 3, panel B (15.7%) as elimination of the “*firms with highly negative accruals and highly negative cash flows*” reduces the negativity of one year ahead size-adjusted future stock returns in cash flows decile 1. In sum, the “*firms with highly negative accruals and highly negative cash flows*” are the main driver of the contrasting results between the tests of accruals mispricing and those of cash flows mispricing.

5.4 Reason for huge negative future stock returns of the “*firms with highly negative accruals and highly negative cash flows*”: Delisting due to poor performance

Next, we explore the potential reasons why the “*firms with highly negative accruals and highly negative cash flows*” exhibit huge negative one year ahead size-adjusted future stock returns. Note that we do not require following year earnings information to exist in our sample following Kraft et al. (2006). As pointed out earlier in this study, the “*firms with highly negative accruals and highly negative cash flows*” are fundamentally poor. Therefore, it is expected that some of these firms are delisted due to poor performance before the next year earnings are announced. Table 5, panel A reports the frequency of firms without following year earnings

information for each cell constructed based on accruals deciles and cash flows deciles. It is noticed that disproportionately too many firms without following year earnings information are found accruals decile 1 (around 16% of total number of firms without following year earnings information). Moreover, the firms without following year earnings information in accruals decile 1 are concentrated in cash flows deciles 1 and 2 (433 firms out of 872 firms). In terms of total number of firms without following year earnings information, cash flows deciles 1 and 2 in accruals decile 1 account for 8.09%, which is disproportionately too large. Table 5, panel B presents the reasons for missing following year earnings information in our sample. Quite a few numbers of firms are delisted due to mergers (CRSP delisting code 200's). The second most significant reason for missing following year earnings information is delistings due to poor performance (CRSP delisting code 400's and 500's) and around 30% of the firms delisted due to poor performance are found in accruals decile 1. Unsurprisingly, many of these firms do belong to the cash flows deciles 1 and 2 (315 firms), which accounts for almost 80% of the firms without following year earnings information that simultaneously belong to accruals decile 1 and cash flows deciles 1 or 2 (433 firms). This result confirms our prediction that some of the "*firms with highly negative accruals and highly negative cash flows*" are delisted due to poor performance. This is also consistent with the finding in Beaver et al. (2007).

The mean one year ahead size-adjusted future stock returns of all 5,352 firms without following year earnings information is -4.8%. Consistent with hypothesis 2, table 5, panel C reveals that one year ahead size-adjusted future stock returns of the firms without following year earnings information that simultaneously belong to accruals decile 1 and cash flows deciles 1 or 2 are hugely negative (-37.7%). The results in table 5 suggest that the huge negative one year ahead size-adjusted future stock returns of the performance-related delistings that simultaneously

belong to accruals decile 1 and cash flows deciles 1 or 2 is one of the causes of the contrasting results between the tests of accruals mispricing and those of cash flows mispricing.

5.5 Reason for huge negative future stock returns of the “*firms with highly negative accruals and highly negative cash flows*”: Investors’ expectation of loss reversal

Table 5, panel C indicates that even if the firms without following year earnings information are removed from accruals decile 1 and cash flows deciles 1 and 2, one year ahead size-adjusted future stock returns of accruals decile 1 are still negative (-0.3%) and much lower than one year ahead size-adjusted future stock returns of accruals decile 1 without the “*firms with highly negative accruals and highly negative cash flows*” (4.8%) reported in table 4, panel A. This leads to the conjecture that there should be difference in one year ahead size-adjusted future stock returns between the firms with following year earnings information that simultaneously belong to accruals decile 1 and cash flows deciles 1 or 2 and the remaining firms with following year earnings information in accruals decile 1. Moreover, the number of firms without following year earnings information that simultaneously belong to accruals decile 1 and cash flows deciles 1 or 2 accounts only for 12% (433 firms out of 3486 firms) of the total number of “*firms with highly negative accruals and highly negative cash flows*”. Therefore, we next turn our attention to the firms with following earnings information that simultaneously belong to accruals decile 1 and cash flows deciles 1 or 2 to explain the negative one year ahead size-adjusted future stock returns (-2.2%) of accruals decile 1 reported in table 3, panel A. Table 6, panel A reports that, on average, one year ahead size-adjusted future stock returns of the firms with following earnings information are close to zero (-0.2%) and one year ahead size-adjusted future stock returns of

accruals decile 1 is also close to zero (0.7%). However, it is noticed that one year ahead size-adjusted future stock returns of the firms with following year earnings information that simultaneously belong to accruals decile 1 and cash flows deciles 1 or 2 are -7.7%. Without these firms, one year ahead size-adjusted future stock returns of accruals decile 1 would be positive (6.2%), which is larger than those of accruals decile 2 (3.6%) reported in table 3, panel A. The results in table 6, panel A imply that the firms with following year earnings information that simultaneously belong to accruals decile 1 and cash flows deciles 1 or 2 still significantly contribute to negative one year ahead size-adjusted future stock returns of accruals decile 1.

To explore the source of the negative one year ahead size-adjusted future stock returns of the firms with following year earnings information that simultaneously belong to accruals decile 1 and cash flows deciles 1 or 2, we plot the time-series trend of their earnings, accruals and cash flows in figure 1. Interestingly, although the magnitude of accruals is smaller, the trend of accruals is almost identical to that of earnings for these firms and accruals do reverse in the next period as earnings do although they are still negative. However, the negative cash flows are highly persistent. Prior research indicates that investors generally expect earnings to persist (Sloan 1996). However, other studies document that investors' expectation of the future earnings behavior of the loss firms should be different from the profit firms. Li (2011) documents that investors are negatively surprised by the firms that continue to exhibit loss in the following period as they expect losses to be temporary and reverse. Based on the finding of Li (2011) and figure 1, we can infer that the negative one year ahead size-adjusted future stock returns of the firms with following year earnings information that simultaneously belong to accruals decile 1 and cash flows deciles 1 or 2 (i.e., the firms with highly negative earnings), can be attributable to the high persistence of negative cash flows, insufficient reversal (i.e., still negative) of accruals

or both.

To understand which is a dominant factor of the negative one year ahead size-adjusted future stock returns of these firms, we run the regressions of one year ahead size-adjusted future stock returns on accruals, cash flows and logarithm of the market value.¹¹ The results are reported in the second column of table 6, panel B. When accruals are the only independent variable, the coefficient is even significantly positive at 10% level, which is the opposite of the expected negative sign. This implies that the investors are somewhat negatively surprised by the insufficient reversal of negative accruals for these firms. When cash flows are the only independent variable, the coefficient is significantly positive at 1% level. This suggests that investors are negatively surprised by the high persistence of negative cash flows. The regression where both accruals and cash flows are included as independent variables indicates that investors are much more negatively surprised by the high persistence of negative cash flows than insufficient reversal of accruals, which supports hypothesis 3. The first column of table 6, panel B also indicates that it is attributable to the “*firms with highly negative accruals and highly negative cash flows*” that the effect of cash flows subsumes that of accruals in explaining one year ahead size-adjusted future stock returns when controlled for each other. This is consistent with the findings in Beneish and Vargus (2002) and Desai et al. (2004). However, after these firms are removed, accruals become a dominant predictor when controlled for each other as indicated in the third column of table 6, panel B, which supports hypothesis 4. The results in table 6 indicate that the effect of the loss persistence dominates that of accruals reversal for the “*firms with highly negative accruals and highly negative cash flows*”, which, in turn, causes the contrasting results between the tests of accruals mispricing and those of cash flows mispricing.

¹¹ We introduce the logarithm of the market value to acknowledge the finding that the size-adjusted stock returns may not be fully controlled for the size (Bernard 1987). The results are qualitatively similar without controlling for the market value.

Therefore, it is suggested that when the mispricing of accruals and cash flows is tested, the investors' differential priors concerning the future earnings behavior of the loss firms from the profit firms should be considered. In table 1, panel C, it is noticed that the "*firms with highly negative accruals and highly negative cash flows*" have the smallest assets and the most negative earnings. Hence, the results in table 6 also imply that when there are too many small firms with highly negative earnings in the sample, the test of the mispricing of accruals based on asset-deflated accruals may not be desirable as the effect of loss persistence dominates that of accruals reversal for these firms.^{12 13}

5.6 Effect of the "*firms with highly negative accruals and highly negative cash flows*" on test of mispricing of accruals in profit and loss firms

Dopuch et al. (2010) show that the mispricing of accruals only exists for the profit firms. To examine the source of the differences in the test of the mispricing of accruals between the profit and loss firms reported in Dopuch (2010), we extend the result in the table 6 to the entire profit and loss firms. Table 7, panel A presents the descriptive statistics of earnings, accruals and cash flows for the profit and loss firms. On average, the accruals of the profit firms are negative (-0.028) whereas cash flows of the profit firms are positive (0.103). On average, both accruals and cash flows of the loss firms are negative (-0.142 and -0.124 respectively), and accruals are slightly more negative.

¹² For all of our tests (except for the percent accruals tests), we use the asset-deflated earnings, accruals and cash flows following prior studies. When asset-deflated accruals are used, the small firms with highly negative earnings (i.e. the firms simultaneously having highly negative accruals and highly negative cash flows) tend to concentrate in the lowest accruals decile. Further discussion is provided in 5.7.

¹³ The test of the mispricing of cash flows may result in correct conclusion as the effect of loss persistence reinforces the negativity of one year ahead size-adjusted future stock returns of cash flows decile 1 although the result would be a little exaggerating.

In hypothesis 5, we posit that the “*firms with highly negative accruals and highly negative cash flows*” are the main cause of no mispricing of accruals in the loss firms documented in Dopuch et al. (2010). To test hypothesis 5, we first run the regressions of one-year ahead size-adjusted future stock returns on accruals, cash flows and the market value separately for the profit firms and loss firms, and the results are presented in table 7, panel B. To exclude the effect of the firms without following year earnings information, we run the tests based only on the firms with following year earnings information.¹⁴ For the profit firms, when each of accruals and cash flows is used as an independent variable, each of them independently explains one-year ahead size-adjusted future stock returns. However, when both accruals and cash flows are used as a predictor, accruals become dominant for the profit firms. This results show why earlier studies support the mispricing of accruals for the profit dominated sample (Richardson et al. 2005; Sloan 1996). The hedge returns test based on the profit firms reported in table 7, panel C also support the earlier view that the tests of the mispricing of accruals and cash flows should result in the similar implications.

However, the story goes differently for the loss firms. The accruals of the loss firms do not have explanatory power of one-year ahead size-adjusted future stock returns at conventional level as suggested in table 7, panel B and cash flows are dominant in explaining one-year ahead size-adjusted future stock returns for the loss firms. This is consistent with the finding in Dopuch et al. (2010). Given that the mean cash flows of the loss firms are negative, investors on average are more negatively surprised by the high persistence of negative cash flows for the loss firms. The hedge returns test based on the loss firms reported in table 7, panel C also confirm that accruals do not explain one-year ahead size-adjusted future stock returns for the loss firms whereas the cash flows do. This result corroborates the finding in Li (2011). It is primarily the

¹⁴ Inclusion of firms without following earnings information does not alter the results.

high persistence of negative cash flows of the loss firms that negatively surprises investors when the firms continue to exhibit loss in the following period. The tests for the loss firms also indirectly suggest that the findings of Desai et al. (2004) that the effect of accruals is subsumed by that of cash flows in predicting one year ahead size-adjusted future stock returns, are mainly attributable to the loss firms.

To examine whether the “*firms with highly negative accruals and highly negative cash flows*” is the main cause of the results of Dopuch et al. (2010), we also run the regression of one year ahead size-adjusted future stock returns on accruals, cash flows and the market value for the loss firms excluding the “*firms with highly negative accruals and highly negative cash flows*”, and the results are presented in the third column of table 7, panel B. Differently from the results in the second column of table 7, panel B, when each of accruals and cash flows is used as an independent variable, each of them independently explains one-year ahead size-adjusted future stock returns, which supports hypothesis 5. The hedge returns test reported in the third column of table 7, panel C also confirms this. In sum, the results in table 7 imply that the finding of Dopuch et al. (2010) that there is no mispricing of accruals in the loss firms is mainly attributable to the effect of loss persistence in the “*firms with highly negative accruals and highly negative cash flows*”, and the effect of loss persistence is the highest in the “*firms with highly negative accruals and highly negative cash flows*” among all loss firms.

5.7 Percent accruals

As mentioned above, the results in table 6 imply that when there are too many small firms with highly negative earnings in the sample, the test of the mispricing of accruals based on

asset-deflated accruals could be problematic as the effect of loss persistence dominates that of accruals reversal for these firms. Hafzalla et al. (2011) document that the test based on percent accruals (i.e., accruals divided by the absolute value of net income) support the accruals mispricing when the test based on asset-deflated accruals does not. They attribute their result to the fact that percent accruals more effectively select firms where the difference between sophisticated and naïve forecasts are the most extreme. In addition to their reasoning, we show that the percent accruals work partly because percent accruals decile 1 (i.e., lowest percent accruals decile) does not contain the “*firms with highly negative accruals and highly negative cash flows*” by construction. Table 8, panel A presents the descriptive statistics (mean values) of each percent accruals decile. Consistent with Hafzalla et al. (2011), it is noticed that the characteristics of the firms in each percent accruals decile are much different from those of the firms in corresponding asset-deflated accruals decile reported in table 1, panel B. On average, the firms in both ends of percent accruals deciles exhibit positive earnings while asset-deflated accruals decile 1 reported in table 1, panel B exhibits highly negative earnings. It is also noticed that the firms with highly negative earnings are sorted into the middle percent accruals deciles (percent accruals deciles 5, 6, 7 and 8). This is due to the fact that the absolute value of income before extraordinary items is used as a deflator for percent accruals and percent cash flows, and firms that belong to both ends of percent accruals deciles tend to have very small magnitude of income before extraordinary items. This is why the firms with highly negative earnings are not found in percent accruals decile 1. Moreover, percent cash flows are monotonically decreasing as percent accruals increase. This is in stark contrast to the relation between asset-deflated accruals and asset-deflated cash flows reported in table 1, panel B where it is reported that asset-deflated cash flows in asset-deflated accruals decile 1 is the second lowest. This finding is confirmed in

the correlations between percent accruals and percent cash flows reported in table 8, panel B, and the correlations between asset-deflated accruals and asset-deflated cash flows reported in table 2, panel B. Table 8, panel B shows that percent accruals and percent cash flows are almost perfectly negatively correlated (Pearson -0.985 ; Spearman -0.791). Moreover, percent accruals decile 1 exhibits the more negative correlations (Pearson -0.997 ; Spearman -0.970) while asset-deflated accruals decile 1 displays the positive correlation. The almost perfect negative correlation between percent accruals and percent cash flows hints that there would be almost no firms that simultaneously belong to percent accruals decile 1 and percent cash flows decile 1 (or 2). This conjecture is confirmed in table 8, panel C where all firms are sorted across percent accruals and percent cash flows deciles independently. As expected, there are no firms found in the low percent cash flows deciles in percent accruals decile 1, which is again in stark contrast to table 2, panel A.

Due to the almost perfect negative correlation between percent accruals and percent cash flows, table 8, panel D reports that one year ahead size-adjusted future stock returns of both ends of percent accruals deciles are now significant at conventional level and the hedge returns are significantly positive. Interestingly, these results quite resemble the results of the test based on the profit firms reported in table 7, panel C. This implies that when the mispricing of accruals is tested based on percent accruals, it brings about the similar effect to the test based on the profit firms as the firms with highly negative earnings are sorted into the middle percent accruals deciles by construction.¹⁵ Moreover, as presented in table 8, panel E, the test of the mispricing of

¹⁵ Hafzalla et al. (2011) also show that the hedge returns are significantly positive when all loss firms are sorted into the decile portfolios based on percent accruals. This is also expected from our results as two extreme percent accruals deciles of the loss firms tend not to contain the firms with highly negative earnings by construction. Therefore, the effect of loss persistence is not significant in two extreme percent accruals deciles formed for the loss firms only. This is confirmed from the hedge returns reported in the third column of table 7, panel C where the hedge returns of the loss firms is significantly positive (13.2%) when the “*firms with highly negative accruals and highly negative cash flows*” are eliminated from the sample.

cash flows based on percent cash flows is not affected. In sum, the results in table 8 suggest that percent accruals provide a way to effectively test the mispricing of accruals by overcoming the effect of loss persistence when the asset-deflated accruals decile 1 contains too many small firms with highly negative earnings.

6. *Summary and conclusion*

Recent studies provide the contrasting results between the tests of accruals mispricing and those of cash flows mispricing. The mispricing of accruals seems to disappear whereas the mispricing of cash flows still continues to be supported. We attribute the contrasting results to the fact that the future stock returns of the firms simultaneously having highly negative accruals and highly negative cash flows are hugely negative although their accruals level is low. For these firms, aside from the previously documented performance-related delisting effects, investors are negatively surprised by the high persistence of negative cash flows although accruals reverse. This is due to the fact that investors are more negatively surprised by the persistence of loss rather than positively surprised by the reversal of accruals. The findings of this study suggest that investors' differential priors concerning the future earnings behavior of the loss firms from the profit firms should be considered when the mispricing of accruals and cash flows is tested.

We also suggest that when there are too many small firms with highly negative earnings in the sample, the test of the mispricing of accruals based on asset-deflated accruals may not be desirable as the effect of loss persistence dominates that of accruals reversal for these firms. Probably, percent accruals (Hafzalla et al. 2011) provide a way to effectively test the mispricing of accruals and cash flows by overcoming the effect of loss persistence when there are too many

small firms with highly negative earnings.

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Table 1. Descriptive statistics

Panel A. Descriptive statistics for all firms

Variable	N	Mean	Standard Deviation	Q1	Median	Q3
Earnings	87240	-0.053	0.259	-0.069	0.027	0.074
Accruals	87240	-0.070	0.144	-0.111	-0.053	-0.007
Cash Flows	87240	0.017	0.211	-0.021	0.065	0.127
Operating Income	87240	-0.001	0.244	-0.034	0.064	0.124
Working Capital	87240	-0.040	0.112	-0.087	-0.039	0.008
Δ Accounts Receivable	87240	0.018	0.075	-0.009	0.008	0.040
Δ Inventory	87240	0.011	0.057	-0.003	0.000	0.021
- Δ Accounts Payable	87240	-0.010	0.046	-0.022	-0.004	0.008
Special Items	87240	-0.020	0.069	-0.011	0.000	0.000
Special Items (t-1)	83058	-0.017	0.061	-0.009	0.000	0.000
Special Items (t+1)	81888	-0.022	0.075	-0.013	0.000	0.000
Total Assets	87240	1385.35	4422.93	34.994	137.30	656.00
Net Operating Assets	87240	755.22	2381.21	12.105	65.57	365.20
Common Equity	87234	489.39	1559.18	15.002	63.09	263.30
Sales	87240	1222.36	3880.82	28.990	134.64	641.86
Market Value	87240	1421.80	5010.84	33.210	140.67	667.16
Book-to-Market	87234	0.614	0.675	0.251	0.471	0.798
Sales Growth	85831	1.283	0.966	0.978	1.095	1.281

Panel B. Descriptive statistics (Mean values) for accruals decile portfolios

Accruals Decile	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10
N	8713	8727	8727	8725	8723	8730	8725	8727	8727	8716
Earnings	-0.447	-0.116	-0.046	-0.010	0.002	0.009	0.015	0.020	0.020	0.022
Accruals	-0.374	-0.164	-0.112	-0.083	-0.062	-0.044	-0.027	-0.005	0.031	0.141
Cash Flows	-0.075	0.048	0.066	0.074	0.064	0.054	0.042	0.025	-0.009	-0.121
Operating Income	-0.278	-0.054	0.002	0.035	0.045	0.049	0.052	0.054	0.051	0.035
Working Capital	-0.170	-0.110	-0.081	-0.062	-0.048	-0.034	-0.020	-0.002	0.028	0.102
Δ Accounts Receivable	-0.019	-0.004	0.003	0.007	0.010	0.014	0.019	0.028	0.043	0.080
Δ Inventory	-0.018	-0.009	-0.003	0.001	0.004	0.007	0.011	0.018	0.033	0.065
- Δ Accounts Payable	-0.012	-0.010	-0.008	-0.008	-0.007	-0.007	-0.007	-0.009	-0.012	-0.017
Special Items	-0.120	-0.032	-0.017	-0.010	-0.008	-0.006	-0.005	-0.004	-0.003	0.002
Special Items (t-1)	-0.036	-0.023	-0.018	-0.015	-0.013	-0.012	-0.012	-0.011	-0.014	-0.018
Special Items (t+1)	-0.047	-0.028	-0.022	-0.019	-0.017	-0.017	-0.016	-0.018	-0.020	-0.021
Total Assets	358.46	771.67	1194.39	1716.55	2111.44	2241.11	2249.86	1778.89	995.02	433.53
Net Operating Assets	180.12	413.05	641.24	949.15	1185.16	1275.03	1229.82	936.30	514.95	225.92
Common Equity	119.95	285.01	430.11	605.55	733.37	771.29	777.00	631.86	368.83	170.16
Sales	304.20	711.52	1128.44	1570.16	1841.06	1855.75	1854.02	1481.02	989.36	486.00
Market Value	410.78	932.40	1333.15	1801.98	2107.74	2175.16	2134.86	1756.26	1065.91	497.32
Book-to-Market	0.479	0.645	0.634	0.654	0.642	0.651	0.645	0.647	0.617	0.531
Sales Growth	1.427	1.298	1.234	1.212	1.206	1.206	1.210	1.256	1.311	1.475

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Panel C. Descriptive statistics (Mean values) for cash flows decile portfolios in accruals decile 1

Cash Flows Decile	Deciles 1 ~ 2	Deciles 1 ~ 2 with following year earnings information	Deciles 1 ~ 2 without following year earnings information	Decile 3 ~ Decile 9	Decile 10
N	3486	3053	433	3527	1700
Earnings	-0.804	-0.796	-0.860	-0.303	-0.014
Accruals	-0.423	-0.417	-0.462	-0.350	-0.326
Cash Flows	-0.389	-0.386	-0.406	0.058	0.294
Operating Income	-0.597	-0.594	-0.616	-0.124	0.059
Working Capital	-0.159	-0.154	-0.193	-0.167	-0.197
Δ Accounts Receivable	-0.011	-0.009	-0.024	-0.027	-0.021
Δ Inventory	-0.011	-0.010	-0.017	-0.026	-0.016
- Δ Accounts Payable	-0.020	-0.020	-0.022	-0.005	-0.012
Special Items	-0.141	-0.136	-0.176	-0.140	-0.036
Special Items (t-1)	-0.050	-0.049	-0.060	-0.031	-0.019
Special Items (t+1)	-0.063	-0.063	N/A	-0.045	-0.018
Total Assets	69.87	71.91	55.52	579.08	492.50
Net Operating Assets	21.56	21.92	19.04	299.22	258.16
Common Equity	21.38	22.98	10.08	185.01	187.08
Sales	43.05	42.52	46.78	488.17	458.01
Market Value	136.75	146.71	66.51	511.46	763.80
Book-to-Market	0.301	0.294	0.349	0.603	0.588
Sales Growth	1.704	1.737	1.481	1.215	1.336
Size-adjusted Future Stock Returns	-0.115	-0.077	-0.377	0.037	0.050

This table reports descriptive statistics of sample firm years. Panel A reports descriptive statistics of all 87,240 firms between 1990 and 2009. Panel B reports descriptive statistics (mean values) of the variables used in the empirical tests for each accruals decile portfolio. Panel C reports descriptive statistics (mean values) of the variables used in the empirical tests for cash flows deciles that belongs accruals decile 1. Accruals and cash flows decile portfolios are formed annually. Earnings are income before extraordinary items (ib) deflated by average total assets (at). Cash Flows are cash flows from operating activities (oancf) deflated by average total assets (at). Accruals are Earnings less Cash Flows. Operating Income is operating income after depreciation (oiadp) deflated by average total assets (at). Working Capital is change in net current operating assets + change in taxes payable (tp) - depreciation expense (dp) deflated by average total assets. Net current operating assets are current assets (act) – cash and short-term investments (che) – current liabilities (lct) + debt in current liabilities (dlc). Δ Accounts Receivable are current year’s accounts receivable (rect) less previous year’s accounts receivable (rect) deflated by average total assets (at). Δ Inventory is current year’s inventory (invt) less previous year’s inventory (invt) deflated by average total assets (at). Δ Accounts Payable are current year’s accounts payable (ap) less previous year’s accounts payable (ap) deflated by average total assets (at). Special Items are special items (spi) deflated by average total assets (at). Special Items (t-1) are previous year’s Special Items. Special Items (t+1) are next year’s Special Items. Total Assets are undeflated total assets (at). Net Operating Assets are undeflated Net Current Operating Assets plus undeflated Net Non-current Operating Assets. Net Current Operating Assets are total current assets (act) minus cash and short-term investments (che) – total current liabilities (lct) + Short-term debt (dlc). Net Non-current Operating Assets are total assets (at) minus total current assets (act) minus investment and advances (ivao) – total liabilities (lt) + total current liabilities (lct) plus long-term debt (dltt). Common Equity is undeflated common equity (ceq). Sales are undeflated raw sales (sale). Market Value is fiscal year end stock price (prcc_f) times number of shares outstanding (csho). Book-to-Market is Common Equity divided by Market Value. Sales Growth is current year’s sales (sale) divided by previous year’s sales (sale). Size-adjusted future stock returns are computed as the difference between raw future stock returns and respective size-decile future stock returns. Raw future stock returns are computed as twelve month buy-and-hold returns, beginning in the fourth month after each fiscal year end. If firms are delisted during the accumulation period and the delisting returns are missing, -30% delisting returns are assigned to the NYSE and AMEX firms and -55% delisting returns are assigned to NASDAQ firms. We also replace missing returns (i.e., CRSP code “B”) with zero. The size decile future stock returns are estimated based on the size of NYSE/AMEX/NASDAQ firms provided by CRSP.

Table 2. Distribution of firms by accruals and cash flows decile portfolios and correlations between accruals and cash flows

Panel A. Distribution of firms by accruals and cash flows decile portfolios

Cash Flows Decile	Accruals Decile										Total
	1 (Lowest)	2	3	4	5	6	7	8	9	10 (Highest)	
1 (Lowest)	2144 2.46%	996 1.14%	710 0.81%	502 0.58%	452 0.52%	440 0.50%	455 0.52%	490 0.56%	647 0.74%	1877 2.15%	8713
2	1342 1.54%	810 0.93%	605 0.69%	453 0.52%	413 0.47%	435 0.50%	466 0.53%	584 0.67%	970 1.11%	2649 3.04%	8727
3	887 1.02%	611 0.70%	491 0.56%	424 0.49%	449 0.51%	449 0.51%	605 0.69%	977 1.12%	2004 2.30%	1830 2.10%	8727
4	590 0.68%	568 0.65%	453 0.52%	498 0.57%	522 0.60%	682 0.78%	1043 1.20%	1711 1.96%	1822 2.09%	836 0.96%	8725
5	423 0.48%	433 0.50%	486 0.56%	513 0.59%	802 0.92%	1197 1.37%	1675 1.92%	1604 1.84%	1124 1.29%	466 0.53%	8723
6	402 0.46%	424 0.49%	514 0.59%	790 0.91%	1256 1.44%	1744 2.00%	1501 1.72%	1109 1.27%	691 0.79%	299 0.34%	8730
7	346 0.40%	508 0.58%	746 0.86%	1307 1.50%	1608 1.84%	1425 1.63%	1158 1.33%	873 1.00%	535 0.61%	219 0.25%	8725
8	378 0.43%	688 0.79%	1314 1.51%	1669 1.91%	1415 1.62%	1129 1.29%	872 1.00%	654 0.75%	410 0.47%	198 0.23%	8727
9	501 0.57%	1293 1.48%	1843 2.11%	1611 1.85%	1178 1.35%	800 0.92%	607 0.70%	443 0.51%	290 0.33%	161 0.18%	8727
10 (Highest)	1700 1.95%	2396 2.75%	1565 1.79%	958 1.10%	628 0.72%	429 0.49%	343 0.39%	282 0.32%	234 0.27%	181 0.21%	8716
Total	8713	8727	8727	8725	8723	8730	8725	8727	8727	8716	87240

Panel B. Correlations between accruals and cash flows

	Pearson	Spearman	
All Firms	0.004	-0.256	***
Accruals Decile 1	0.266 ***	0.249	***
Accruals Deciles 2 ~ 10	-0.288 ***	-0.392	***
Cash Flows Decile 1	0.176 ***	0.153	***
Cash Flow Deciles 2~10	-0.219 ***	-0.358	***
Accruals Decile 1 and Cash Flows Deciles 1 ~ 2	0.195 ***	0.170	***
All Firms Excluding Accruals Decile 1 and Cash Flows Deciles 1 ~ 2	-0.296 ***	-0.391	***

*, **, *** denotes significance at 10%, 5% and 1% level respectively.

Panel A reports the distribution of firm years across accruals decile portfolios and cash flows decile portfolios for all 87,240 firms between 1990 and 2009. Accruals decile portfolios and cash flows decile portfolios are independently annually formed. The upper number in each cell indicates the number of firms in each cell. The lower number of in each cell indicates the proportion of the firms in each cell relative to the total number of firms in our sample. Panel B reports Pearson and Spearman correlations between accruals and cash flows for all sample firms, accruals decile 1, accruals decile 2 ~ 10, cash flows decile 1, cash flows decile 2 ~ 10, firms that belong to accruals decile 1 and cash flows decile 1 or 2 at the same time and all firms excluding firm years that belong to accruals decile 1 and cash flows decile 1 or 2 at the same time. Accruals and cash flows decile portfolios are independently annually formed. Accruals are Earnings less Cash Flows. Earnings are income before extraordinary items (ib) deflated by average total assets (at). Cash Flows are cash flows from operating activities (oancf) deflated by average total assets (at).

Table 3. Future stock returns for accruals and cash flows decile portfolios**Panel A. One year ahead size-adjusted future stock returns for accruals decile portfolios**

Accruals Decile		One Year Ahead Size-adjusted Future Stock Returns	P-value
1 (Lowest)		-0.022	0.6074
2		0.036	0.3382
3		0.033	0.1581
4		0.015	0.2049
5		0.001	0.9079
6		0.013	0.2075
7		0.006	0.4742
8		-0.021	0.0415
9		-0.030	0.0463
10 (Highest)		-0.075	0.0009
Hedge Returns (Decile 1 – Decile 10)		0.053	0.2461
Accruals Decile 1	Cash Flows Deciles 1 ~ 2	-0.115	0.0416
	Cash Flows Deciles 3 ~ 9	0.037	0.4324
	Cash Flows Decile 10	0.050	0.1116

P-values are based on two-tailed Fama-MacBeth t-statistics computed over 20 years.

Panel B. One year ahead size-adjusted future stock returns for cash flows decile portfolios

Cash Flows Decile		One Year Ahead Size-adjusted Future Stock Returns	P-value
1 (Lowest)		-0.117	0.0354
2		-0.052	0.1850
3		-0.030	0.2028
4		-0.006	0.7897
5		0.004	0.7916
6		0.034	0.0033
7		0.036	0.0020
8		0.033	0.0066
9		0.015	0.1649
10 (Highest)		0.040	0.0062
Hedge Returns (Decile 10 – Decile 1)		0.157	0.0075

P-values are based on two-tailed Fama-MacBeth t-statistics computed over 20 years.

Table 3 exhibits tests based on one year ahead size-adjusted future stock returns for accruals and cash flows decile portfolios. Panel A reports one year ahead size-adjusted future stock returns for accruals decile portfolios and related hedge returns. Panel B reports one year ahead size-adjusted future stock returns for cash flows decile portfolios and related hedge returns. Hedge returns are computed by subtracting the future stock returns of accruals decile 10 (cash flows decile 1) from accruals decile 1 (cash flows decile 10). Size-adjusted future stock returns are computed as the difference between raw future stock returns and respective size-decile future stock returns. Raw future stock returns are computed as twelve month buy-and-hold returns, beginning in the fourth month after each fiscal year end. If firms are delisted during the accumulation period and the delisting returns are missing, -30% delisting returns are assigned to the NYSE and AMEX firms and -55% delisting returns are assigned to NASDAQ firms. We also replace missing returns (i.e., CRSP code “B”) with zero. The size decile future stock returns are estimated based on the size of NYSE/AMEX/NASDAQ firms provided by CRSP. Accruals and cash flows decile portfolios are formed annually. Accruals are Earnings less Cash Flows. Earnings are income before extraordinary items (ib) deflated by average total assets (at). Cash Flows are cash flows from operating activities (oancf) deflated by average total assets (at). Log(MV) is logarithm of Market Value. Market Value is fiscal year end stock price (prcc_f) times number of shares outstanding (csho).

Table 4. Future stock returns for re-constructed accruals and cash flows decile portfolios after firms that belong to accruals decile 1 and cash flows deciles 1 ~ 2 are removed

Panel A. One year ahead size-adjusted future stock returns for re-constructed accruals decile portfolios

Re-constructed Accruals Decile	One Year Ahead Size-adjusted Future Stock Returns	P-value
1 (Lowest)	0.048	0.2578
2	0.030	0.3392
3	0.025	0.2055
4	0.014	0.1527
5	0.008	0.4660
6	0.010	0.3177
7	-0.001	0.8722
8	-0.017	0.1101
9	-0.031	0.0613
10 (Highest)	-0.079	0.0005
Hedge Returns (Decile 1 – Decile 10)	0.127	0.0091

P-values are based on two-tailed Fama-MacBeth t-statistics computed over 20 years.

Panel B. One year ahead size-adjusted future stock returns for re-constructed cash flows decile portfolios

Re-constructed Cash Flows Decile	One Year Ahead Size-adjusted Future Stock Returns	P-value
1 (Lowest)	-0.095	0.0778
2	-0.042	0.2162
3	-0.027	0.1760
4	0.000	0.9899
5	0.015	0.2740
6	0.032	0.0159
7	0.033	0.0027
8	0.035	0.0034
9	0.015	0.1530
10 (Highest)	0.040	0.0077
Hedge Returns (Decile 10 – Decile 1)	0.135	0.0177

P-values are based on two-tailed Fama-MacBeth t-statistics computed over 20 years.

Table 4 exhibits tests based on one year ahead size-adjusted future stock returns for accruals and cash flows decile portfolios after the firms years that belong to accruals decile 1 and cash flows deciles 1 ~ 2 are removed from table 3. Panel A reports one year ahead size-adjusted future stock returns for re-constructed accruals decile portfolios and related hedge returns. Panel B reports one year ahead size-adjusted future stock returns for re-constructed cash flows decile portfolios and related hedge returns. Hedge returns are computed by subtracting the future stock returns of accruals decile 10 (cash flows decile 1) from accruals decile 1 (cash flows decile 10). Table 4 is created based on 83,754 firms after 3,486 firms that simultaneously belong to accruals decile 1 and cash flows deciles 1 ~ 2 are removed. Size-adjusted future stock returns are computed as the difference between raw future stock returns and respective size-decile future stock returns. Raw future stock returns are computed as twelve month buy-and-hold returns, beginning in the fourth month after each fiscal year end. If firms are delisted during the accumulation period and the delisting returns are missing, -30% delisting returns are assigned to the NYSE and AMEX firms and -55% delisting returns are assigned to NASDAQ firms. We also replace missing returns (i.e., CRSP code “B”) with zero. The size decile future stock returns are estimated based on the size of NYSE/AMEX/NASDAQ firms provided by CRSP. Accruals and cash flows decile portfolios are formed annually. Accruals are Earnings less Cash Flows.

Earnings are income before extraordinary items (ib) deflated by average total assets (at). Cash Flows are cash flows from operating activities (oancf) deflated by average total assets (at). Log(MV) is logarithm of Market Value. Market Value is fiscal year end stock price (prcc_f) times number of shares outstanding (csho).

Table 5. Distribution and future stock returns of firms without following year earnings information

Panel A. Distribution of firms without following year earnings information

Cash Flows Decile	Accruals Decile										Total
	1 (Lowest)	2	3	4	5	6	7	8	9	10 (Highest)	
1 (Lowest)	270 5.04%	102	63	38	33	40	30	24	56	167	823
2	163 3.05%	87	56	34	35	31	29	53	67	154	
3	99	61	36	35	28	37	45	61	127	90	619
4	1.85%	1.14%	0.67%	0.65%	0.52%	0.69%	0.84%	1.14%	2.37%	1.68%	
5	58	58	28	38	35	42	57	90	106	36	548
6	1.08%	1.08%	0.52%	0.71%	0.65%	0.78%	1.07%	1.68%	1.98%	0.67%	
7	45	34	39	31	48	67	78	80	57	20	499
8	0.84%	0.64%	0.73%	0.58%	0.90%	1.25%	1.46%	1.49%	1.07%	0.37%	
9	36	35	33	48	74	78	71	48	31	8	462
10 (Highest)	0.67%	0.65%	0.62%	0.90%	1.38%	1.46%	1.33%	0.90%	0.58%	0.15%	
Total	16	35	36	67	76	74	56	40	23	8	431
	0.30%	0.65%	0.67%	1.25%	1.42%	1.38%	1.05%	0.75%	0.43%	0.15%	
	34	37	63	85	58	57	35	29	19	12	429
	0.64%	0.69%	1.18%	1.59%	1.08%	1.07%	0.65%	0.54%	0.36%	0.22%	
	47	74	112	59	44	33	25	15	11	7	427
	0.88%	1.38%	2.09%	1.10%	0.82%	0.62%	0.47%	0.28%	0.21%	0.13%	
	104	116	65	35	30	15	10	13	8	9	405
	1.94%	2.17%	1.21%	0.65%	0.56%	0.28%	0.19%	0.24%	0.15%	0.17%	
Total	872	639	531	470	461	474	436	453	505	511	5352

Panel B. Reasons for missing following year earnings information

Reason for Missing Following Year Earnings Information	Number of Firms
Delisted for Mergers (CRSP delisting code 200's)	3648
Delisted for Exchanges (CRSP delisting code 300's)	11
Delisted for Poor Performance (CRSP delisting code 400's and 500's)	1602
Other Data Requirements	91
Delisted for Poor Performance (CRSP delisting code 400's and 500's) in accruals decile 1	514
Delisted for Poor Performance (CRSP delisting code 400's and 500's) in accruals decile 1 and cash flows deciles 1 ~ 2	315

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Panel C. One year ahead size-adjusted future stock returns of firms without following year earnings information

	N	Mean One Year Ahead Size-adjusted Future Stock Returns	P-value
All firms without following year earnings information	5352	-0.048	0.1325
Firms without following year earnings information in accruals decile 1	872	-0.273	< 0.0001
Firms without following year earnings information that belong to accruals decile 1 and cash flows deciles 1 ~ 2	433	-0.377	< 0.0001
Firms without following year earnings information that belong to accruals decile 1 and cash flows deciles 3 ~ 10	439	-0.171	0.0082
All firms in accruals decile 1 except for firms without following year earnings information that belong to accruals decile 1 and cash flows decile 1 ~ 2	8280	-0.003	0.9403

P-values are based on two-tailed Fama-MacBeth t-statistics computed over 20 years.

Table 5 reports the distribution and one year ahead size-adjusted future stock returns of firms without following year earnings information. Panel A reports the distribution of firms without following year earnings information across accruals deciles and cash flows deciles. The upper number in each cell indicates the number of firms in each cell. The lower number of in each cell indicates the proportion of the firms in each cell relative to the total number of firms without following year earnings information. Panel B reports the reasons for missing following year earnings information. Panel C reports the mean values of one year ahead size-adjusted future stock returns of firms without following year earnings information. Table 5 is created based on 5,352 firms without following year earnings information. Size-adjusted future stock returns are computed as the difference between raw future stock returns and respective size-decile future stock returns. Raw future stock returns are computed as twelve month buy-and-hold returns, beginning in the fourth month after each fiscal year end. If firms are delisted during the accumulation period and the delisting returns are missing, -30% delisting returns are assigned to the NYSE and AMEX firms and -55% delisting returns are assigned to NASDAQ firms. We also replace missing returns (i.e., CRSP code “B”) with zero. The size decile future stock returns are estimated based on the size of NYSE/AMEX/NASDAQ firms provided by CRSP. Accruals and cash flows decile portfolios are formed annually. Accruals are Earnings less Cash Flows. Earnings are income before extraordinary items (ib) deflated by average total assets (at). Cash Flows are cash flows from operating activities (oancf) deflated by average total assets (at). Log(MV) is logarithm of Market Value. Market Value is fiscal year end stock price (prcc_f) times number of shares outstanding (csho).

Table 6. Analyses of firms with following year earnings information

Panel A. One year ahead size-adjusted future stock returns of firms with following year earnings information

	N	Mean One Year Ahead Size-adjusted Future Stock Returns	P-value
All firms with following year earnings information	81888	-0.002	0.7687
Firms with following year earnings information that belong to accruals decile 1	7841	0.007	0.8813
Firms with following year earnings information that belong to accruals decile 1 and cash flows deciles 1 ~ 2	3053	-0.077	0.1992
Firms with following year earnings information that belong to accruals decile 1 and cash flows decile 3 ~ 10	4788	0.062	0.1138
All firms with following year earnings information except for firms with following year earnings information that belong to accruals decile 1 and cash flows decile 1 ~ 2	78835	0.003	0.6581

P-values are based on two-tailed Fama-MacBeth t-statistics computed over 20 years.

Panel B. Regression of one year ahead size-adjusted future stock returns on accruals and cash flows for firm years with following year earnings information

Model 1: Size – adjusted Future Stock Returns_{t+1} = $\alpha + \beta$ Accruals_t + δ Log(MV) + ϵ

Model 2: Size – adjusted Future Stock Returns_{t+1} = $\alpha + \gamma$ Cash Flows_t + δ Log(MV) + ϵ

Model 3: Size – adjusted Future Stock Returns_{t+1} = $\alpha + \beta$ Accruals_t + γ Cash Flows_t + δ Log(MV) + ϵ

	All Firms			Accruals Decile 1 and Cash Flows Deciles 1 ~ 2			All Firms Except For Firms in Accruals Decile 1 and Cash Flows Deciles 1 ~ 2		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
α	0.012 (0.46)	0.055* (2.06)	0.038 (1.62)	0.205* (1.75)	0.170* (1.85)	0.278** (2.27)	0.013 (0.50)	0.052* (1.93)	0.028 (1.21)
β	-0.125 (-1.53)		-0.116 (-1.41)	0.337* (2.07)		0.264 (1.59)	-0.286*** (-3.64)		-0.213* (-1.87)
γ		0.207** (2.46)	0.194** (2.25)		0.251*** (3.74)	0.232*** (3.55)		0.192** (2.11)	0.140 (1.29)
δ	-0.005 (-1.55)	-0.012*** (-3.80)	-0.011*** (-3.33)	-0.044** (-2.21)	-0.048** (-2.32)	-0.047** (-2.35)	-0.006* (-1.76)	-0.011*** (-3.46)	-0.009** (-2.69)
Adjusted R ²	0.48%	1.59%	1.82%	0.80%	0.63%	0.82%	0.52%	1.43%	1.75%
N	81888	81888	81888	3053	3053	3053	78835	78835	78835

*, **, *** denotes significance at 10%, 5% and 1% level respectively.

t-values are in parenthesis and computed based on two-tailed Fama-MacBeth regressions over 20 years.

Table 6 reports analyses of firm years with following year earnings information. Panel A reports mean one year ahead size-adjusted future stock returns for firms with following year earnings information. Panel B reports the regression of one year ahead size-adjusted future stock returns on accruals and cash flows for firms with following year earnings information. Table 6 is created based on 81,888 firms after 5,352 firms without following year earnings information are removed. Size-adjusted future stock returns are computed as the difference between raw future stock returns and respective size-decile future stock returns. Raw future stock returns are computed as twelve month buy-and-hold returns, beginning in the fourth month after each fiscal year end. If firms are delisted during the accumulation period and the delisting returns are missing, -30% delisting returns are assigned to the NYSE and AMEX firms and -55% delisting returns are assigned to NASDAQ firms. We also replace missing returns (i.e., CRSP code “B”) with zero. The size decile future stock returns are estimated based on the size of NYSE/AMEX/NASDAQ firms provided by CRSP. Accruals and cash flows decile portfolios are formed annually. Accruals are Earnings less Cash Flows. Earnings are income before extraordinary items (ib) deflated by average

total assets (at). Cash Flows are cash flows from operating activities (oancf) deflated by average total assets (at). Log(MV) is logarithm of Market Value. Market Value is fiscal year end stock price (prcc_f) times number of shares outstanding (csho).

Table 7. Investors' reaction to accruals and cash flows in profit and loss firms

Panel A. Descriptive statistics of profit and loss firms

	Profit Firms		Loss Firms		Loss Firms Except For Firms in Accruals Decile 1 and Cash Flows Deciles 1 ~ 2	
	Mean	Median	Mean	Median	Mean	Median
Earnings	0.075	0.059	-0.266	-0.146	-0.205	-0.118
Accruals	-0.028	-0.038	-0.142	-0.101	-0.106	-0.087
Cash Flows	0.103	0.099	-0.124	-0.037	-0.094	-0.016

Panel B. Regression of one year ahead size-adjusted future stock returns on accruals and cash flows for profit and loss firms

Model 1: Size – adjusted Future Stock Returns_{t+1} = $\alpha + \beta \text{Accruals}_t + \delta \text{Log}(MV) + \varepsilon$

Model 2: Size – adjusted Future Stock Returns_{t+1} = $\alpha + \gamma \text{Cash Flows}_t + \delta \text{Log}(MV) + \varepsilon$

Model 3: Size – adjusted Future Stock Returns_{t+1} = $\alpha + \beta \text{Accruals}_t + \gamma \text{Cash Flows}_t + \delta \text{Log}(MV) + \varepsilon$

	Profit Firms			Loss Firms			Loss Firms Except For Firms in Accruals Decile 1 and Cash Flows Deciles 1 ~ 2		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
α	-0.005 (-0.18)	-0.017 (-0.61)	-0.008 (-0.29)	0.070 (1.44)	0.126** (2.52)	0.120** (2.54)	0.065 (1.30)	0.122** (2.39)	0.098* (2.08)
β	-0.373*** (-5.64)		-0.311*** (-2.94)	-0.048 (-0.73)		-0.013 (-0.19)	-0.254*** (-3.44)		-0.131 (-1.07)
γ		0.270*** (3.75)	0.067 (0.60)		0.230*** (3.35)	0.221*** (3.03)		0.205** (2.62)	0.160 (1.51)
δ	-0.001 (-0.33)	-0.002 (-0.52)	-0.001 (-0.41)	-0.022*** (-3.25)	-0.026*** (-3.73)	-0.026*** (-3.72)	-0.023*** (-3.24)	-0.025*** (-3.49)	-0.024*** (-3.38)
Adjusted R ²	0.74%	0.62%	0.91%	0.51%	1.60%	1.77%	0.65%	1.62%	1.87%
N	52481	52481	52481	29407	29407	29407	26354	26354	26354

*, **, *** denotes significance at 10%, 5% and 1% level respectively.

t-values are in parenthesis and computed based on two-tailed Fama-MacBeth regressions over 20 years.

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Panel C. One year ahead size-adjusted future stock returns of accruals and cash flows decile portfolios for profit and loss firms

	Accruals for Profit Firms	Cash Flows for Profit Firms	Accruals for Loss Firms	Cash Flows for Loss Firms	Accruals for Loss Firms Except For Firms in Accruals Decile 1 and Cash Flows Deciles 1 ~ 2	Cash Flows for Loss Firms Except For Firms in Accruals Decile 1 and Cash Flows Deciles 1 ~ 2
1	0.041 (0.0187)	-0.080 (0.0011)	-0.050 (0.3146)	-0.112 (0.0953)	0.067 (0.1711)	-0.074 (0.3189)
2	0.023 (0.0539)	-0.025 (0.0995)	0.030 (0.5826)	-0.068 (0.2050)	0.039 (0.4512)	-0.070 (0.2083)
3	0.018 (0.1932)	-0.008 (0.6263)	0.056 (0.4256)	-0.064 (0.2650)	0.053 (0.4416)	-0.044 (0.4294)
4	0.016 (0.2175)	0.003 (0.7643)	0.013 (0.8005)	-0.015 (0.7676)	0.017 (0.7557)	-0.017 (0.6912)
5	0.014 (0.4468)	0.014 (0.4648)	0.049 (0.3917)	-0.025 (0.5984)	0.031 (0.4497)	0.012 (0.7938)
6	0.014 (0.3017)	0.007 (0.4827)	0.011 (0.7300)	0.009 (0.8342)	0.020 (0.5082)	-0.015 (0.6992)
7	-0.011 (0.4870)	0.009 (0.3403)	-0.034 (0.2385)	0.014 (0.7345)	-0.068 (0.0134)	0.015 (0.7488)
8	-0.018 (0.2190)	0.005 (0.6738)	-0.028 (0.3067)	0.015 (0.6357)	-0.008 (0.7955)	0.014 (0.6445)
9	-0.034 (0.0361)	0.028 (0.0205)	-0.036 (0.1988)	0.099 (0.0194)	-0.061 (0.0561)	0.129 (0.0055)
10	-0.078 (0.0006)	0.031 (0.0427)	-0.076 (0.1151)	0.080 (0.0242)	-0.065 (0.2076)	0.074 (0.0285)
Hedge Return	0.119 (< 0.0001)	0.111 (0.0001)	0.026 (0.6978)	0.192 (0.0193)	0.132 (0.0618)	0.148 (0.0716)

P-values are in parenthesis and based on Fama-MacBeth t-statistics computed over 20 years.

Table 7 reports analyses of the profit firms, loss firms and loss firms except for firms in accruals decile 1 and cash flows deciles 1 ~ 2. Panel A reports descriptive statistics of earnings, accruals and cash flows for the profit firms, loss firms and loss firms except for firms in accruals decile 1 and cash flows deciles 1 ~ 2. Panel B reports the regression of one year ahead size-adjusted future stock returns on accruals and cash flows for the profit firms, loss firms and loss firms except for firms in accruals decile 1 and cash flows deciles 1 ~ 2. Panel C reports one year ahead size-adjusted future stock returns across accruals and cash flows decile portfolios and related hedge returns for the profit firms, loss firms and loss firms except for firms in accruals decile 1 and cash flows deciles 1 ~ 2. Table 7 is created based on 81,888 firms after 5,352 firms without following year earnings information are removed. Hedge returns are computed by subtracting the future stock returns of accruals decile 10 (cash flows decile 1) from accruals decile 1 (cash flows decile 10). Size-adjusted future stock returns are computed as the difference between raw future stock returns and respective size-decile future stock returns. Raw future stock returns are computed as twelve month buy-and-hold returns, beginning in the fourth month after each fiscal year end. If firms are delisted during the accumulation period and the delisting returns are missing, -30% delisting returns are assigned to the NYSE and AMEX firms and -55% delisting returns are assigned to NASDAQ firms. We also replace missing returns (i.e., CRSP code "B") with zero. The size decile future stock returns are estimated based on the size of NYSE/AMEX/NASDAQ firms provided by CRSP. Accruals and cash flows decile portfolios are formed annually separately for profit and loss firms. Accruals are Earnings less Cash Flows. Earnings are income before extraordinary items (ib) deflated by average total assets (at). Cash Flows are cash flows from operating activities (oanfcf) deflated by average total assets (at). Log(MV) is logarithm of Market Value. Market Value is fiscal year end stock price (prcc_f) times number of shares outstanding (csho).

Table 8. Percent accruals

Panel A. Descriptive statistics (Mean values) for percent accruals decile portfolios

Percent Accruals Decile	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10
N	8713	8727	8727	8725	8723	8730	8725	8727	8727	8716
Earnings	0.003	0.004	-0.014	-0.064	-0.106	-0.120	-0.151	-0.116	-0.006	0.040
Accruals	-0.120	-0.115	-0.122	-0.143	-0.147	-0.118	-0.076	-0.021	0.045	0.118
Cash Flows	0.120	0.118	0.109	0.084	0.043	-0.005	-0.077	-0.090	-0.045	-0.087
Percent Accruals	-12.935	-2.817	-1.634	-1.122	-0.791	-0.526	-0.292	-0.045	0.396	2.860
Percent Cash Flows	13.183	3.111	1.883	1.300	0.931	0.690	0.389	0.250	0.077	-2.275

Panel B. Correlations between percent accruals and percent cash flows

	Pearson	Spearman
All Firm Years	-0.985 ***	-0.791 ***
Percent Accruals decile 1	-0.997 ***	-0.970 ***
Percent Accruals decile 2 ~ 10	-0.871 ***	-0.714 ***
Percent Cash Flows decile 1	-0.961 ***	-0.936 ***
Percent Cash Flow decile 2~10	-0.985 ***	-0.739 ***

*, **, *** denotes significance at 10%, 5% and 1% level respectively.

Panel C. Distribution of firms by percent accruals and percent cash flows decile portfolios

Percent Cash Flows Decile	Percent Accruals Decile										Total
	1 (Lowest)	2	3	4	5	6	7	8	9	10 (Highest)	
1 (Lowest)	0	0	0	0	0	0	0	1571	2298	4844	8713
	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.80%	2.63%	5.55%	
2	0	0	0	0	137	1833	3820	1897	0	1040	8727
	0.00%	0.00%	0.00%	0.00%	0.16%	2.10%	4.38%	2.17%	0.00%	1.19%	
3	0	0	147	1349	3248	1816	120	0	426	1621	8727
	0.00%	0.00%	0.17%	1.55%	3.72%	2.08%	0.14%	0.00%	0.49%	1.86%	
4	0	51	1582	2155	367	0	0	0	3460	1109	8724
	0.00%	0.06%	1.81%	2.47%	0.42%	0.00%	0.00%	0.00%	3.97%	1.27%	
5	0	393	1300	81	0	0	427	4010	2411	102	8724
	0.00%	0.45%	1.49%	0.09%	0.00%	0.00%	0.49%	4.60%	2.76%	0.12%	
6	0	685	236	0	0	2308	4120	1249	132	0	8730
	0.00%	0.79%	0.27%	0.00%	0.00%	2.65%	4.72%	1.43%	0.15%	0.00%	
7	0	763	10	369	4572	2773	238	0	0	0	8725
	0.00%	0.87%	0.01%	0.42%	5.24%	3.18%	0.27%	0.00%	0.00%	0.00%	
8	14	797	2746	4771	399	0	0	0	0	0	8727
	0.02%	0.91%	3.15%	5.47%	0.46%	0.00%	0.00%	0.00%	0.00%	0.00%	
9	889	5132	2706	0	0	0	0	0	0	0	8727
	1.02%	5.88%	3.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
10 (Highest)	7810	906	0	0	0	0	0	0	0	0	8716
	8.95%	1.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Total	8713	8727	8727	8725	8723	8730	8725	8727	8727	8716	87240

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Panel D. One year ahead size-adjusted future stock returns for percent accruals decile portfolios

Percent Accruals Decile	One Year Ahead Size-adjusted Future Stock Returns	P-value
1 (Lowest)	0.037	0.0257
2	0.059	0.0013
3	0.024	0.1288
4	0.017	0.3433
5	0.009	0.6594
6	-0.014	0.5537
7	-0.021	0.3826
8	-0.044	0.0466
9	-0.044	0.0533
10 (Highest)	-0.067	0.0017
Hedge Returns (Decile 1 – Decile 10)	0.104	0.0001

P-values are based on two-tailed Fama-MacBeth t-statistics computed over 20 years.

Panel E. One year ahead size-adjusted future stock returns for percent cash flows decile portfolios

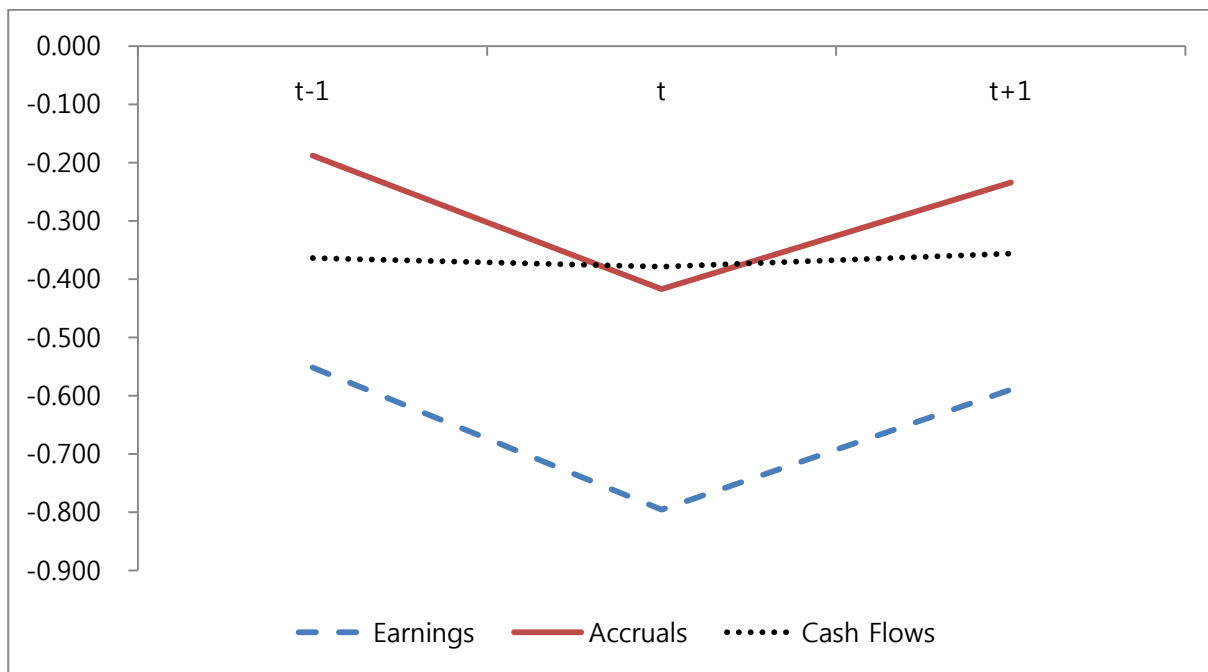
Percent Cash Flows Decile	One Year Ahead Size-adjusted Future Stock Returns	P-value
1 (Lowest)	-0.090	0.0133
2	-0.082	0.0704
3	-0.006	0.8940
4	0.002	0.9470
5	-0.002	0.8262
6	0.016	0.0665
7	0.012	0.2995
8	0.027	0.0389
9	0.044	0.0008
10 (Highest)	0.037	0.0344
Hedge Returns (Decile 10 – Decile 1)	0.127	0.0018

P-values are based on two-tailed Fama-MacBeth t-statistics computed over 20 years.

Table 8 reports analyses based on percent accruals. Panel A reports descriptive statistics (mean values) of all 87,240 firms between 1990 and 2009 for percent accruals deciles. Panel B reports Pearson and Spearman correlations between percent accruals and percent cash flows for all firms, percent accruals decile 1, percent accruals deciles 2 ~ 10, percent cash flows decile 1 and percent cash flows deciles 2 ~ 10. Panel C reports the distribution of firms across percent accruals decile portfolios and percent cash flows decile portfolios. Percent accruals decile portfolios and percent cash flows decile portfolios are independently annually formed. The upper number in each cell indicates the number of firms in each cell. The lower number of in each cell indicates the proportion of the firms in each cell relative to the total number of firms in our sample. Panel D reports one year ahead size-adjusted future stock returns for percent accruals decile portfolios and related hedge returns. Panel E reports one year ahead size-adjusted future stock returns for percent cash flows decile portfolios and related hedge returns. Hedge returns are computed by subtracting the future stock returns of percent accruals decile 10 (percent cash flows decile 1) from percent accruals decile 1 (percent cash flows decile 10). Accruals and cash flows decile portfolios are formed annually. Panel F reports regression of one year ahead size-adjusted future stock returns on accruals, percent accruals, cash flows and percent cash flows. Percent accruals and percent cash flows decile portfolios are formed annually. Earnings are income before extraordinary items (ib) deflated by average total assets (at). Cash Flows are cash flows from operating activities (oancf) deflated by average total assets (at). Accruals are Earnings less Cash Flows. Percent Cash Flows are cash flows from operating activities (oancf) deflated by the absolute value of income before extraordinary item (ib). If income before extraordinary items (ib) is zero, it is replaced by 0.0000000001. Percent Accruals are income before extraordinary items (ib) less cash flows from operating activities (oancf) deflated by the absolute value of income before extraordinary item (ib). If income before extraordinary items (ib) is zero, it is

replaced by 0.000000001. Operating Income is operating income after depreciation (oiadp) deflated by average total assets (at). Working Capital is change in net current operating assets + change in taxes payable (tp) - depreciation expense (dp) deflated by average total assets. Net current operating assets are current assets (act) - cash and short-term investments (che) - current liabilities (lct) + debt in current liabilities (dlc). Size-adjusted future stock returns are computed as the difference between raw future stock returns and respective size-decile future stock returns. Raw future stock returns are computed as twelve month buy-and-hold returns, beginning in the fourth month after each fiscal year end. If firms are delisted during the accumulation period and the delisting returns are missing, -30% delisting returns are assigned to the NYSE and AMEX firms and -55% delisting returns are assigned to NASDAQ firms. We also replace missing returns (i.e., CRSP code "B") with zero. The size decile future stock returns are estimated based on the size of NYSE/AMEX/NASDAQ firms provided by CRSP. Log(MV) is logarithm of Market Value. Market Value is fiscal year end stock price (prcc_f) times number of shares outstanding (csho).

Figure 1. Event time plots for earnings, accruals and cash flows for firms that simultaneously belong to accruals decile 1 and cash flows decile 1 ~ 2



Time	Earnings	Accruals	Cash Flows
t-1	-0.552	-0.188	-0.364
t	-0.796	-0.417	-0.379
t+1	-0.590	-0.234	-0.356

Figure 1 exhibits the event time plot between t-1 and t+1 for earnings, accruals and cash flow for firm years with following year earnings information that simultaneously belong to accruals decile 1 and cash flows decile1 ~ 2. Accruals are Earnings less Cash Flows. Earnings are income before extraordinary items (ib) deflated by average total assets (at). Cash Flows are cash flows from operating activities (oancf) deflated by average total assets (at).