The differential pricing of cash flows and total accruals

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Abstract

Purpose – Recent studies on the securities market's differential pricing of earnings components indicate that cash flows from operations are valued more highly than extreme total accruals. However, no previous study has examined whether cash flows from operations have a higher valuation than moderate total accruals. Therefore, this study examines the securities market's differential pricing of cash flows from operations and both moderate and extreme total accruals.

Design/methodology/approach – The study's sample is divided into two sub-samples: a moderate total accruals sub-sample; and an extreme total accruals sub-sample. To evaluate whether cash flows have a higher valuation when compared to total accruals, for the entire sample and for each of the two sub-samples, the study examines the statistical significance of the difference between slope coefficients of cash flows and total accruals for regression of returns on both unexpected cash flows from operations and unexpected total accruals.

Findings – Consistent with prior research, results from the entire sample show a differential higher valuation of cash flows when compared to total accruals. Another finding, consistent with recent studies, is that cash flows from operations have a higher valuation when compared to extreme total accruals. However, there is no higher differential valuation of cash flows over moderate total accruals. These findings support the decomposition of earnings into the components of cash flows from operations and total accruals only when total accruals are extreme (rather than moderate).

Practical implications – A possible explanation for these results is that since accruals predict cash flows, total accruals – when moderate (i.e. not extreme) – are priced similarly to cash flows. These results reveal that when total accruals are moderate, earnings are a better proxy for the underlying cash flows (over the entire future horizon, not just the current period) than is cash flows. However, since total accruals are unlikely to persist in a permanent way over the years, these results indicate that the decomposition of earnings into the components of cash flows from operations and total accruals is consistent with the information set used to value equity securities. Therefore, separate disclosure of cash flows is value relevant. In addition, users of financial statements certainly need the cash flows information as an ex-post validation of the prior earnings.

Originality/value – This study's contribution stems from its determination of the preferred level of disaggregation of earnings components (i.e. operating cash flows and total accruals). This is expected to help investors in their attempt to enhance the outcome of their informed investment and credit decisions.

Keywords Stock returns, Differential pricing of earnings components, Cash flows, Moderate total accruals, Extreme total accruals

Paper type Research paper

1. Introduction

Reported numbers can be considered informative if they assist investors in making more informed decisions. When stock prices change in response to reported numbers, it can be presumed that investors' valuation, buying, and selling decisions are influenced by reported numbers. It follows that reported numbers inform their decisions. Earnings can be divided into total accruals and cash flows from operations [1]. Earnings components (i.e. operating cash flows and total accruals) can be considered incrementally informative in relation to total earnings if they assist investors in making decisions that are more informed compared to those made when only the total is known. For example, if investors think that current cash flows are more or less informative when compared to total accruals with respect to their ability to predict future cash flows, then they are likely to be interested in learning about these earnings components and not simply total earnings. Identifying the preferred level of disaggregation regarding the elements of earnings can assist investors in making more

effective investment and lending decisions. With these considerations in mind, the present study seeks to investigate the differential price of earnings components in the securities market.

There are two alternative outcomes for examining the differential pricing of cash flows and total accruals in the securities market. One is that cash flows are valued more highly when compared to total accruals. This outcome supports the decomposition of earnings into the components of total accruals and cash flows from operations, which implies that the separate disclosure of cash flows from operations is value relevant. An alternative outcome is that cash flows from operations and total accruals are valued equivalently. This outcome does not support the decomposition of earnings into total accruals and cash flows from operations, which implies that the separate disclosure of cash flows from operations is not value relevant.

Recent research on the securities market's differential pricing of cash flows and accruals tends to isolate the extreme components of cash flows and earnings from the moderate components. The decision to do so is based on the supposition that extreme earnings and cash flows have limited information content (Ali, 1994; Cheng *et al.*, 1996; Charitou *et al.*, 2001; Cheng and Yang, 2003; Mostafa and Dixon, 2013; Mostafa, 2016). Ali (1994) found that extreme cash flows are less informative than moderate cash flows. Cheng *et al.* (1996) reported that the market places greater weight on cash flows when earnings are extreme when compared to situations when earnings are moderate. Additionally, Cheng and Yang (2003) found that the information content associated with earnings and cash flows decreases when they are extreme and transitory. Moreover, the researchers found that the information content for cash flows increases when they are moderate (not extreme) and the other competing measure (earnings) is transitory and extreme. Mostafa and Dixon (2013) and Mostafa (2016) reported consistent results.

When the results of Cheng and Yang's (2003) US study and Mostafa and Dixon's (2013) and Mostafa's (2016) UK studies are interpreted from an accounting perspective, in terms of the decomposition of earnings components, the market valuation of moderate (not extreme) cash flows from operations [2] is higher than extreme total accruals. However, to date, no studies have examined the securities market's differential pricing of cash flows from operations relative to moderate total accruals. In view of this, and in order to assess the generality of the results of prior studies, this study examines the securities market's differential pricing of earnings components (i.e. cash flows from operations and total accruals) whilst controlling for the extremity of total accruals (i.e. dividing the sample into moderate and extreme total accruals). This study, therefore, assesses whether cash flows from operations have a higher valuation when compared to total accruals whilst controlling for the extremity of total accruals. The purpose of this approach is to determine whether the separate disclosure of cash flows from operations is preferred by investors, regardless of whether total accruals are moderate or extreme.

To control for the extremity of total accruals, the data set is separated into two sub-samples. The first of these sub-samples comprises those with moderate total accruals, whereas the second consists of those with extreme total accruals. Following Ali (1994), Cheng and Yang (2003), and Mostafa and Dixon (2013), the sample is classified for each year into two groups (i.e. moderate and extreme total accruals) in order to distinguish between the two types of accruals. The classification process is based on whether the absolute value of the change in total accruals (Δ total accruals), deflated by the market value of equity at the beginning of year t, lies either above or below the yearly median. Observations falling above and below the median are classified as extreme and moderate, respectively. The securities market's differential pricing of cash flows from operations and total accruals is examined for the entire sample and for each of the two sub-samples. This is performed by examining the statistical significance of the difference between the slope coefficients of cash flows and total

accruals for the regression of returns on both unexpected cash flows from operations and unexpected total accruals.

The results for the entire sample show that cash flows from operations have a higher valuation than total accruals (i.e. both are valued differently). The results for the extreme total accruals sub-sample indicate that cash flows from operations have a higher valuation than extreme total accruals (i.e. both are valued differently). These results are consistent with those of recent studies. However, the results for the moderate total accruals sub-sample indicate that cash flows from operations are not valued more highly when compared to moderate total accruals (i.e. both are valued equivalently). These results imply that the higher market valuation for cash flows from operations over extreme total accruals cannot be extended (or applied) to the higher valuation of cash flows from operations over moderate total accruals.

The study's results indicate that, when total accruals are extreme (and not moderate), cash flows have higher market valuation than total accruals. This means that the decomposition of earnings into the components of total accruals and cash flows from operations is conditioned on the presence of the extremity of total accruals. Overall, these results indicate that cash flows become more important for valuation as total accruals become "extreme". Since total accruals are unlikely to persist in a permanent way over the years, these results can be interpreted as indicating that the separate disclosure of earnings components (i.e. cash flows from operations and total accruals) assist the investor in making more informed decisions than would be the case with total earnings alone.

The next section reviews prior studies and develops a research hypothesis. In turn, Section 3 discusses the research methods, Section 4 defines the study variables and discusses data selection, Section 5 presents the empirical results, and Section 6 concludes the paper.

2. Literature review and research hypothesis

Jennings (1990) stated that: "if the criterion for evaluating the disclosures of income components is association with returns, knowledge of the components of income is preferred by investors only when the components are valued (associated with return) differently from each other. For components that are valued by the market equivalently, disclosure of their sum is sufficient because investors are indifferent to which components contributed more or less to income" (p. 926).

In this study, we partition earnings into two components: cash flows from operations and total accruals. In addition, we examine the securities market's higher pricing of cash flows from operations over total accruals. The results are subject to alternative interpretations: either (i) cash flows may be more informative than total accruals, or (ii) both cash flows and total accruals are equally informative. The first interpretation implies that the separate disclosure of cash flows from operations is value relevant, whereas the second interpretation implies that the separate disclosure of cash flows from operations is not value relevant.

In their US study, Kumar and Krishnan (2008) reported that the coefficients of cash flows from operations and accruals vary with the investment opportunity. Barton et al. (2010) suggested that the superiority of individual performance measures, including cash flows, is context-dependent (i.e. varies from country to country). In the UK, Akbar et al. (2011) demonstrated that cash flows from operations have higher value when compared to both total accruals and current accruals.

Extreme earnings, which are associated with less information content when compared to moderate earnings (Kormendi and Lipe, 1987; Collins and Kothari, 1989), influence the relationship between returns and earnings. As noted by scholars such as Cheng et al. (1996) and Christensen et al. (2005), a range of extreme items in earnings, including losses sustained from restructuring, current and long term accruals (e.g. losses or gains on marketable securities), increases in market value, and single losses and gains from changes in accounting

standards, are elements of earnings with limited value implications. Furthermore, as noted by Kothari (2001), certain managers try to generate extreme losses or gains in earnings due to the fact that debt agreements and compensation contracts are sometimes influenced by earnings. A range of researchers focusing on the USA, including Freeman and Tse (1992), Ali and Zarowin (1992a, b), and Das and Lev (1994), have reported that moderate (permanent) earnings are associated with greater information content when compared to extreme (transitory) earnings. Similar findings have been reported in UK studies (O'Hanlon *et al.*, 1992; Donnelly and Walker, 1995).

Kean and Wells (2007) addressed the presence of systematic disparities in persistence across the identified earnings components, and they concluded that such disparities existed. The researchers suggested that this reinforces the division of earnings into specific components, as well as their independent assessment in the context of financial statement analysis. Doukakis (2010) investigated the extent to which the use of the International Financial Reporting Standards (IFRS) influenced earnings persistence and certain earnings components. The findings indicate that IFRS reporting and measurement guidelines do not appear to enhance persistence of earnings and earnings components with respect to the level of profitability in later years. Furthermore, the researcher noted that the findings can be linked to the fair value orientation of IFRS, as other studies have noted. In Hee's (2011) study, the researcher examined the persistence of restated earnings in relation to earnings that were reported initially. The results indicate that the restated component of earnings is incrementally persistent in relation to the initially reported earnings. Furthermore, it was noted that the incremental persistence, despite being reduced, remained substantial following the enactment of the Sarbanes-Oxley Act.

Amir *et al.* (2013) advanced a novel measure of sustainable earnings based on deviations from normal profit margins. The researchers noted that, although certain sustainable earnings measures seek to delineate transitory components using a line-by-line approach, their novel measure utilizes a vertical section to identify the transitory component from every line item. The researchers demonstrated that their measure showed a positive association to earnings persistence, a greater ability to predict earnings and a more potent market response to unanticipated earnings. Additionally, Wang (2014) investigated the degree to which investors' evaluation of earnings persistence is informed by the phenomenon of earnings smoothing. Once he had controlled for time-series persistence, the researcher reported that investors' evaluation of earnings persistence was related in a negative way to the rate of income smoothing. This indicates that investors have a clear understanding of the fact that the high persistence of smoothed earnings is not real, and thus discount the real persistence of smoothed earnings when responding to financial disclosures.

Ali (1994) found that the market places greater weight on moderate cash flows than on extreme cash flows, and Pfeiffer *et al.* (1998) replicated this research. The researchers reported the same results as those of Ali (1994), either by using component expectations from a random-walk model or from a model that incorporates the historical auto- and cross-correlation structure in the components. Cheng *et al.* (1996) found that cash flows are valued more in the stock market when there are extreme earnings than when moderate earnings are reported. Cheng and Yang (2003) found that the effect of extreme earnings leads to higher incremental information content only for moderate cash flows and not for extreme cash flows. In the UK, as with Cheng and Yang (2003), Mostafa and Dixon (2013) reported higher incremental information content for moderate (not extreme) cash flows from operations when earnings are extreme.

When the results of Cheng and Yang's (2003) US study and Mostafa and Dixon's (2013) UK study are interpreted from an accounting perspective, in terms of the decomposition of earnings components, moderate cash flows from operations and extreme total accruals are

valued (associated with returns) differently. This implies that "investors will respond differently to unexpected earnings depending on whether it is due to unexpected moderate cash flows or unexpected extreme total accruals and, therefore, would prefer that these components be disclosed separately" (Jennings, 1990).

To date, no studies have examined whether cash flows from operations and moderate total accruals are valued (associated with returns) differently. In view of this, and in order to assess the generality of the results reported by Cheng and Yang (2003) and Mostafa and Dixon (2013), this study examines whether cash flows have a higher valuation than total accruals, whilst controlling for the extremity of total accruals (i.e. dividing the sample into moderate and extreme total accruals). The purpose of this approach is to determine whether the separate disclosure of cash flows from operations and both moderate and extreme total accruals is preferred by investors. To control for the extremity of total accruals, the present study's sample is divided into two sub-samples: a moderate total accruals sub-sample; and an extreme total accruals sub-sample.

Earnings are decomposed into cash flows from operations and total accruals. The study distinguishes between moderate versus extreme total accruals, i.e. moderate versus extreme earnings. The moderate total accruals sub-sample includes cash flows from operations component of earnings and moderate total accruals component when earnings are moderate. The extreme total accruals sub-sample includes cash flows from operations component of earnings and extreme total accruals component when earnings are extreme. Consistent with the above studies that the extreme component has less information content than the moderate one, this study argues that cash flows from operations and extreme total accruals are valued (associated with returns) differently from each other. In other words, cash flows have a higher valuation than extreme total accruals. Hence, for a given amount of extreme earnings, the stock market responds more favorably and much more sharply to cash flows from operations than extreme total accruals. Thus, investors prefer to observe both cash flows from operations and extreme total accruals separately when earnings are extreme. On the other hand, cash flows from operations and moderate total accruals are valued (associated with returns) equivalently. Hence, for a given amount of moderate earnings, the stock market responds equivalently to cash flows from operations and moderate total accruals. Thus, investors do not prefer to observe cash flows from operations and moderate total accruals separately when earnings are moderate. This is because the two components are being valued equivalently and do not represent independent signals for the investor.

Based on the above discussion and consistent with recent research, we test the research hypothesis given below. This research hypothesis is tested for the entire sample and for each of the two sub-samples.

H. Cash flows from operations have a higher market valuation when compared to total accruals.

3. Research method

This study examines the securities market's differential pricing of earnings components (i.e. cash flows from operations and total accruals) whilst controlling for the extremity of total accruals. To control for the extremity of total accruals, following the US study of Cheng and Yang (2003) and the UK study of Mostafa and Dixon (2013), the entire sample is partitioned for each year into two sub-samples based on the extremity of total accruals: (1) moderate total accruals sub-sample and (2) extreme total accruals sub-sample. The process is based on whether the absolute value of the change in total accruals lies above or below the yearly median. Firms falling below and above the median are classified as moderate and extreme, respectively.

To test the hypothesis stated in Section 2, we examine the securities market's differential pricing of cash flows from operations against total accruals for the entire sample and for each of the two sub-samples. This is achieved using the pooled regression model given below. The model estimates the relationship between stock returns and the level and change of earnings components (i.e. cash flows from operations and total accruals).

$$R_{it} = \alpha_{0t} + \alpha_{1t}\Delta CF_{it} + \alpha_{2t}\Delta TA_{it} + \alpha_{3t}CF_{it} + \alpha_{4t}TA_{it} + \varepsilon_{it}$$

In the model, R_{it} represents the annual market adjusted returns for firm i in year t, accumulated from the fifth month of fiscal year t to the fourth month of fiscal year $t + 1$; ΔCF_{it} represents the change in cash flows from operations and CF_{it} is the level of cash flows from operations for firm i in year t; ΔTA_{it} is the change in total accruals, and TA_{it} is the level of total accruals for firm i in year t. The change and level of cash flows and total accruals are deflated by the market value of equity at the beginning of the fiscal year, as recommended by Christie (1987). This mitigates potential problems that may arise in terms of heteroskedasticity.

The sum $(\alpha_1+\alpha_3)$ combines the estimated coefficients of the change and level of cash flows from operations; $(\alpha_2+\alpha_4)$ combines the estimated coefficients of the change and level of total accruals. In the case of the entire sample, these coefficients represent estimates of the response coefficients of cash flows and total accruals, respectively. In the case of the moderate total accruals sub-sample, these coefficients represent estimates of the response coefficients of cash flows and total accruals, respectively, for firms with predominantly moderate total accruals. In the case of extreme total accruals sub-sample, these coefficients represent estimates of the response coefficients of cash flows and total accruals, respectively, for firms with predominantly extreme total accruals.

Using the above model, two types of tests can be performed: the first type is related to the issue of whether the earnings components (i.e. cash flows from operations and total accruals) have incremental information content beyond each other; while the second type is related to an evaluation of the separate disclosures of earnings components (i.e. the securities market's differential pricing of earnings components).

Specifically, to examine the incremental information content of earnings components, the following two tests can be performed (in the form of the null hypotheses):

(1) Test of sum $(\alpha_1+\alpha_3) = 0$: Determines whether cash flows have incremental information content beyond total accruals.

(2) Test of sum $(\alpha_2+\alpha_4) = 0$: Determines whether total accruals have incremental information content beyond cash flows (i.e. whether total accruals are an informative component of earnings).

Thus, to examine whether cash flows and total accruals have incremental information content beyond each other, we examine the statistical significance of the sum of the two slope coefficients (i.e. on the level and change of cash flows and total accruals). These two tests are performed for the entire sample and for each of the two subsamples. A positive and significant value of $(\alpha_1+\alpha_3)$ means that cash flows have incremental information content beyond that contained in total accruals. A positive and significant value of $(\alpha_2+\alpha_4)$ means that total accruals have incremental information content beyond that contained in cash flows.

To evaluate the separate disclosures of earnings components (i.e. the securities market's differential pricing of cash flows and total accruals), the following test can be performed (in the form of the null hypotheses):

(1) Test of sum $(\alpha_1+\alpha_3)$ = sum $(\alpha_2+\alpha_4)$; Determines whether cash flows have a higher valuation than total accruals.

Hence, to test the research hypothesis (i.e. whether cash flows have a higher valuation when compared to total accruals), we examine the statistical significance of the difference between the sum of the two slope coefficients on the level and change of cash flows, and the sum of the two slope coefficients on the level and change of total accruals. This test is performed for the entire sample and for each of the two subsamples. A positive and significant value means that cash flows are valued more highly when compared to total accruals, meaning that the separate disclosure of cash flows from operations and total accruals is value relevant. This represents the main test of interest in this study.

4. Variables and data selection
The definition of variables in the present study is consistent with the literature. Definitions for these variables are given below [3]:

(1) Cash flows: Net cash flows from operating activities (WorldScope item WC 04860) [4]. This item represents the net cash receipts and disbursements resulting from the operations of the company.

(2) Earnings: Income before extraordinary items and dividends (Worldscope item WC 01551). This item represents income before extraordinary items and preferred and common dividends, but after operating and nonoperating income and expenses, reserves, income taxes, minority interest and equity in earnings.

(3) Total accruals: Earnings minus cash flows from operations.

(4) Market-adjusted return: We use a long window (12 months) to calculate market-adjusted returns, ending 4 months after the fiscal year-end. The assumption is made that UK-listed firms must release their financial statements within 4 months of the fiscal year-end (i.e. a 4-month lag period). The annual market-adjusted return equals the firm's annual return minus the annual Financial Times All Share Index (FTALLSH) return, and both are measured over the 12-month period. This period begins on the fifth month of each fiscal year-end [5].

(5) Market value of equity: The market closing price-year end multiplied by the number of common shares outstanding (Worldscope item WC 08001).

Data for this study were obtained using DataStream. The sample consists of the 2017 list of all firms quoted on London Stock Exchange and from the 2017 list of all dead firms in DataStream database. The study period ranges from 2010 to 2017. The initial sample consists of 5,448 firms (1,340 surviving firms and 4,108 dead firms). The following criteria were used to select the sample: (i) firms should have accounting data or a return index for at least one year over the period of the study; (ii) firms in the financial sector are excluded; and (iii) firms must not have changed their financial year-end during the period 2010 to 2017. Table 1 presents the sample selection procedures.

After applying these criteria, the resulting sample consisted of 1,902 British firms in each year, with a total of 13,314 firm-year observations over the period from 2011 to 2017. It should be noted that 2010 is "lost" due to the first differencing of cash flows from operations and total accruals. Missing observations (6,124 firm-year observations) and outliers (384 firm-year observations) were eliminated, where outliers rose higher than and lower than 99% and 1% of the changes in the variables' distribution, respectively. The final study sample was constituted of 6,806 firm year observations for a sample of 1,622 British firms over a 7-year period from 2011 to 2017.

After dividing the total sample into two sub-samples (corresponding to the description given in Section 3), the sample size for each sub-sample was as follows: (i) 3,402 firm year

observations for the sub-sample of moderate total accruals; (ii) 3,404 firm year observations for the sub-sample of extreme total accruals.

5. Results [6, 7]

5.1 Stock returns and earnings components for the entire sample

Table 2 presents the results regarding the relationship between stock returns and earnings components (i.e. cash flows from operations and total accruals) for the entire sample. The sum of the coefficients for the level and change in cash flows ($\alpha_1 + \alpha_3$) is 1.218 (t = 6.743), which is significant and positive at the 1% level. The sum of the coefficients for the level and change in total accruals ($\alpha_2 + \alpha_4$) is 0.699 (t = 11.311), which is significant and positive at the 1% level. These results suggest that both cash flows from operations and total accruals have incremental information content beyond each other.

Table 2 also shows the difference between the sum of the two slope coefficients on the level and change of cash flows, [($\alpha_1 + \alpha_3$); (1.218)], and the sum of the two slope coefficients on the level and change of total accruals, [($\alpha_2 + \alpha_4$); (0.699)], [1.218 - 0.699], which is 0.519 (t = 3.602). This value is significant and positive at the 1% level, thereby indicating that cash flows are valued more highly when compared to total accruals (i.e. both are valued differently). Hence, the separate disclosure of cash flows from operations and total accruals is value relevant.

These findings are consistent with recent US and UK studies that have examined the incremental information content of cash flows from operations and earnings (Cheng *et al.*, 1996; Cheng and Yang, 2003; Mostafa and Dixon, 2013; Mostafa, 2016). Therefore, the

	Number of firms
Initial sample	5,448
Less	
(i). Firms with accounting or share prices data missing over all the period 2010-2017	(2,479)
(ii). Financial firms	(798)
(iii). Firms that changed their financial year-ends in the period 2010-2017	(269)
Sample size before excluding firms with insufficient data to calculate the study variables	*1,902*

Table 1.
Sample size over the period 2010–2017 before excluding firms that have insufficient data to calculate the study variables

Model of changes in and levels of cash flows from operations and total accruals
$R_{it} = \alpha_{0t} + \alpha_{1t}\Delta CF_{it} + \alpha_{2t}\Delta TA_{it} + \alpha_{3t}CF_{it} + \alpha_{4t}TA_{it} + \varepsilon_{it}$
Coefficients (*t*-statistics and *P*-values)

	α_0	α_1	α_2	α_3	α_4	Sum of ($\alpha_1+\alpha_3$)	Sum of ($\alpha_2+\alpha_4$)	Adj. R^2
Pooled cross-sectional time-series regression with market adjusted returns								
Coefficient	−0.195	0.221	0.301	0.997	0.398	1.218	0.699	0.1080
T stat.	−4.193	2.324	5.303	3.805	8.793	6.743	11.311	
P value	0.0000	0.0202	0.0000	0.0001	0.0000	0.0000	0.0000	
Test of sum ($\alpha_1+\alpha_3$) = sum ($\alpha_2+\alpha_4$); *t* = 3.602, *p* = 0.0003								

Note(s): R_{it} is the annual market adjusted returns of Firm i in Year t measured over the fifth month of Year t to the fourth month of Year $t+1$; ΔCF_{it} (CF_{it}) is the change (level) in cash flows from operations and ΔTA_{it} (TA_{it}) is the change (level) in total accruals for Firm i in Year t. These variables are deflated by the market value of equity at the beginning of Year t; The sample size is 6,806 of firm year observations for a sample of 1,622 British firms over a seven-year period from 2011 to 2017; ($\alpha_1+\alpha_3$) combines the estimated coefficients of the change and level of cash flows from operations; ($\alpha_2+\alpha_4$) combines the estimated coefficients of the change and level of total accruals; the White cross-section method is employed to control for the potential effects of heteroskedasticity and autocorrelation in the errors; T stat. is the *t* statistic along with the two-tailed *P* value of the corresponding estimation

Table 2.
Pooled sample results for the relation of stock returns to changes and levels of earnings components for the entire sample

research hypothesis, which stated that cash flows from operations have a higher market valuation when compared to total accruals, is confirmed.

5.2 Stock returns and earnings components for the moderate total accruals sub-sample
Table 3 presents the results regarding the relationship between stock returns and earnings components (i.e. cash flows from operations and total accruals) for the moderate total accruals sub-sample. The sum of the coefficients for the level and change in cash flows $(\alpha_1+\alpha_3)$ is 2.202 (t = 4.792), which is significant and positive at the 1% level. The sum of the coefficients for the level and change in moderate total accruals $(\alpha_2+\alpha_4)$ is 2.159 (t = 3.490), which is significant and positive at the 1% level. These results suggest that both cash flows from operations and moderate total accruals have incremental information content beyond each other.

Table 3 also shows the difference between the sum of the two slope coefficients on the level and change of cash flows, $[(\alpha_1+\alpha_3); (2.202)]$, and the sum of the two slope coefficients on the level and change of moderate total accruals, $[(\alpha_2+\alpha_4); (2.159)]$, [2.202 - 2.159], which is 0.043 (t = 0.100). The value is not statistically significant at any conventional level. This result suggests that cash flows are not valued more highly when compared to moderate total accruals (i.e. both are valued equivalently). Hence, the separate disclosure of cash flows from operations and moderate total accruals is not value relevant.

On the basis of these results, the research hypothesis, which stated that cash flows from operations have a higher market valuation when compared to moderate total accruals, is rejected. A possible explanation for these results is that since accruals predict cash flows, total accruals – when moderate (i.e. not extreme) – are priced similarly to cash flows. As indicated before, prior studies have not examined the securities market's differential pricing of cash flows from operations and moderate total accruals.

Model of changes in and levels of cash flows from operations and moderate total accruals
$R_{it} = \alpha_{0t} + \alpha_{1t}\Delta CF_{it} + \alpha_{2t}\Delta TA_{it} + \alpha_{3t}CF_{it} + \alpha_{4t}TA_{it} + \varepsilon_{it}$
Coefficients (*t*-statistics and *P*-values)

	α_0	α_1	α_2	α_3	α_4	Sum of $(\alpha_1+\alpha_3)$	Sum of $(\alpha_2+\alpha_4)$	Adj. R^2
Pooled cross-sectional time-series regression with market adjusted returns								
Coefficient	−0.230	0.738	1.389	1.464	0.770	2.202	2.159	0.0922
T-stat	−3.921	2.075	2.759	3.151	4.469	4.792	3.490	
P-value	0.0001	0.0381	0.0058	0.0016	0.0000	0.0000	0.0005	
Test of sum $(\alpha_1+\alpha_3)$ = sum $(\alpha_2+\alpha_4)$; t = 0.100, p = 0.9205								

Note(s): R_{it} is the annual market adjusted returns of Firm i in Year t measured over the fifth month of Year t to the fourth month of Year $t+1$; ΔCF_{it} (CF_{it}) is the change (level) in cash flows from operations and ΔTA_{it} (TA_{it}) is the change (level) in total accruals for Firm i in Year t. These variables are deflated by the market value of equity at the beginning of Year t; $(\alpha_1+\alpha_3)$ combines the estimated coefficients of the change and level of cash flows from operations for firms with predominantly moderate total accruals; $(\alpha_2+\alpha_4)$ combines the estimated coefficients of the change and level of total accruals for firms with predominantly moderate total accruals; the White cross-section method is employed to control for the potential effects of heteroskedasticity and autocorrelation in the errors; T stat. is the t statistic along with the two-tailed P value of the corresponding estimation; the entire sample for each year has been divided into two subsamples based on persistence of total accruals: moderate total accruals subsample and extreme total accruals subsample. For each year, the absolute values of changes in total accruals were ranked; observations below the cross-sectional median were classified as moderate total accruals and otherwise as extreme total accruals. The sample in the above table represents observations of the subsample of moderate total accruals. It consists of 3,402 firm year observations over a seven-year period from 2011 to 2107. This sample examines the securities market's differential pricing of earnings components (cash flows and total accruals) for firms with predominantly moderate total accruals

Table 3.
Pooled sample results for the relation of stock returns to changes and levels of earnings components for the subsample of moderate total accruals

5.3 Stock returns and earnings components for the extreme total accruals sub-sample
Table 4 presents the results regarding the relationship between stock returns and earnings
components (i.e. cash flows from operations and total accruals) for the extreme total accruals
sub-sample. The sum of the coefficients for the level and change in cash flows $(\alpha_1 + \alpha_3)$ is 1.061
(t = 7.212), which is significant and positive at the 1% level. The sum of the coefficients for the
level and change in extreme total accruals $(\alpha_2 + \alpha_4)$ is 0.660 (t = 13.306), which is significant
and positive at the 1% level. These results suggest that both cash flows from operations and
extreme total accruals have incremental information content beyond each other.

Table 4 also shows the difference between the sum of the two slope coefficients on the level
and change of cash flows, $[(\alpha_1 + \alpha_3); (1.061)]$, and the sum of the two slope coefficients on the
level and change of extreme total accruals, $[(\alpha_2 + \alpha_4); (0.660)]$, [1.061 - 0.660], which is 0.401
(t = 3.493). The value is significant and positive at the 1% level. This result suggests that
cash flows are valued more highly when compared to extreme total accruals (i.e. both are
valued differently). Hence, the separate disclosure of cash flows from operations and extreme
total accruals is value relevant.

These findings are consistent with recent US and UK studies that have examined the effect
of extreme earnings on the incremental information content of cash flows from operations
and earnings (Cheng *et al.*, 1996; Cheng and Yang, 2003; Mostafa and Dixon, 2013; Mostafa,
2016). Therefore, the research hypothesis, which stated that cash flows from operations have
a higher market valuation when compared to extreme total accruals, is confirmed.

6. Summary and conclusions
This study has demonstrated that the two components of earnings, namely cash flows from
operations and total accruals, are informative in different ways (i.e. each has incremental
information content beyond the other, irrespective of whether total accruals are moderate or

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Model of changes in and levels of cash flows from operations and extreme total accruals
$R_{it} = \alpha_{0t} + \alpha_{1t}\Delta CF_{it} + \alpha_{2t}\Delta TA_{it} + \alpha_{3t}CF_{it} + \alpha_{4t}TA_{it} + \varepsilon_{it}$
Coefficients (*t*-statistics and *P*-values)

	α_0	α_1	α_2	α_3	α_4	Sum of $(\alpha_1 + \alpha_3)$	Sum of $(\alpha_2 + \alpha_4)$	Adj. R^2
Pooled cross-sectional time-series regression with market adjusted returns								
Coefficient	−0.173	0.187	0.269	0.874	0.391	1.061	0.660	0.1383
T-stat	−3.980	2.565	5.405	4.162	8.652	7.212	13.306	
P-value	0.0001	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	
Test of sum $(\alpha_1 + \alpha_3)$ = sum $(\alpha_2 + \alpha_4)$; $t = 3.493$, $p = 0.0005$								

Note(s): R_{it} is the annual market adjusted returns of Firm *i* in Year *t* measured over the fifth month of Year *t* to
the fourth month of Year *t*+1; ΔCF_{it} (CF_{it}) is the change (level) in cash flows from operations and ΔTA_{it} (TA_{it}) is
the change (level) in total accruals for Firm *i* in Year *t*. These variables are deflated by the market value of equity
at the beginning of Year *t*; $(\alpha_1 + \alpha_3)$ combines the estimated coefficients of the change and level of cash flows
from operations for firms with predominantly extreme total accruals; $(\alpha_2 + \alpha_4)$ combines the estimated
coefficients of the change and level of total accruals for firms with predominantly extreme total accruals; the
White cross-section method is employed to control for the potential effects of heteroskedasticity and
autocorrelation in the errors; T stat is the t statistic along with the two-tailed P value of the corresponding
estimation; the entire sample for each year has been divided into two subsamples based on persistence of total
accruals: moderate total accruals subsample and extreme total accruals subsample. For each year, the absolute
values of changes in total accruals were ranked; observations below the cross-sectional median were classified
as moderate total accruals and otherwise as extreme total accruals. The sample in the above table represents
observations of subsample of extreme total accruals. It consists of 3,404 firm year observations over a seven-
year period from 2011 to 2017. This sample examines the securities market's differential pricing of earnings
components (cash flows and total accruals) for firms with predominantly extreme total accruals

Table 4.
Pooled sample results
for the relation of stock
returns to changes and
levels of earnings
components for the
subsample of extreme
total accruals

extreme). The implication of this is that when the components are included, this increases the degree to which earnings are informative.

However, the main issue is whether cash flows and total accruals are associated with returns differently, which would have implications for investor preferences to observe these components separately or whether their sum (i.e. earnings) is sufficient. Regarding this issue, consistent with prior studies, we find that cash flows have a higher valuation than total accruals. After controlling for the extremity of total accruals, the results of this study indicate that cash flows have a higher valuation when compared to extreme (rather than moderate) total accruals. One way to account for this finding is that, since accruals predict cash flows, total accruals – when moderate (i.e. not extreme) – are priced similarly to cash flows. These results reveal that when total accruals are moderate, earnings are a better proxy for the underlying cash flows (over the entire future horizon, not just the current period) than is cash flows. However, this study's findings reveal that cash flows become more important for valuation as total accruals become "extreme". Since total accruals are unlikely to persist in a permanent way over the years, these results can be interpreted as indicating that the separate disclosure of earnings components is value relevant, irrespective of whether total accruals are moderate or extreme. In addition, we certainly need the cash flows information as an ex-post validation of the prior earnings.

Notes

1. Total accruals can be further divided into current accruals and noncurrent accruals. Hence, earnings can be decomposed into cash flows from operations, current accruals and noncurrent accruals. In this study, we focus on examining the securities market's differential pricing of two earnings components: cash flows from operations and total accruals.

2. These studies controlled for the extremity of earnings and cash flows as well (i.e. they distinguished between moderate earnings versus extreme earnings and moderate cash flows versus extreme cash flows). Cheng and Yang (2003) argued that, without controlling for the extremity of cash flows, the studies may fail to identify higher valuations for cash flows over total accruals.

3. The definitions of these variables were decided upon according to the Worldscope items. The Worldscope company's account system was adopted by DataStream in April 2003 as a replacement for the DataStream company's accounts' data.

4. A Worldscope item is notated as follows: (WC + Number).

5. The DataStream Return Index (RI) for each firm's share and for the FTALLSH is used to compute the returns rather than the share price. This is because it is adjusted for dividends and capital actions (e.g. share repurchases and share splits).

6. For robustness checks, annual raw returns were employed as a dependent variable. The empirical results are identical to those derived from the use of market adjusted returns as a dependent variable.

7. For robustness checks to the results of this study, following the US study of Cheng and Yang (2003) and the UK study of Mostafa and Dixon (2013), an alternative method for controlling the extremity of total accruals was employed. The whole sample is divided for each year into two subsamples: moderate total accruals subsample and extreme total accruals subsample. The ratios of total accruals to market value of equity at the end of Year t are used to determine moderate and extreme total accruals. In each year, we rank firms into ten groups by their ending-of-year total accruals' market value of equity ratios (TA_{it}/MV_{it}) with an approximately equal number of firms per group. We classify firms in the middle six groups (Groups 3–8) as moderate total accruals and firms in the remaining four groups as extreme total accruals. The regression results of the study model were then generated (i.e. $R_{it} = \alpha_{0t} + \alpha_{1t}\Delta CF_{it} + \alpha_{2t}\Delta TA_{it} + \alpha_{3t}CF_{it} + \alpha_{4t}TA_{it} + \varepsilon_{it}$) for the entire sample and for each of the two subsamples. The results have not changed and were identical to those derived from using the absolute value of the change in total accruals scaled by beginning price for identifying moderate and extreme total accruals, as reported in Section 5 (the results section).

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