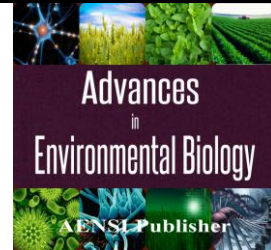




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## On Alternatives Measures of Accruals

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### ABSTRACT

The present study aims to examine the alternative measures of accruals. The sample is composed of 66 firms listed on the Tehran Stock Exchange over a five year period from 2007 to 2011. The samples are selected by using filtering technique. The collected data is examined by univariate and multivariate regressions. The findings reveal that the cash-flow-statement- based accruals have no effect on the return; however, accompanied by other independent variables, these items are found to have more explanatory powers for the return. Furthermore, it is found that the balance sheet accruals impact the modified return. In terms of the two reasons of the difference between the measures, it is found that the cash from operating activities and changes in the accounts receivable have more information content than the other items.

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## INTRODUCTION

As a primary goal, the accounting information seeks to contribute the users in anticipating the future cash flows and predicting the return on investment. The effective factors on the stock returns are proportionately resulting from the financial information prepared by the accounting system. The researchers have been always looking for the factors affecting the stock returns. Sloan found that the hedge portfolio with a long position in low accrual firms generate lower future returns. Two reasons were introduced for this inverse relationship: 1. Lower consistency of the accruals and 2. Improper pricing by the investors. This is generally known as the accruals anomaly [10]. Many subsequent studies have attempted to explore the accrual anomaly or examine whether this result holds in different fields. In most of these studies, the accounting accruals are calculated either by using consecutive changes in the balance sheet item (ACCR\_BS) or by using earnings minus operating cash flows (TACCR\_CF).

### 1. Statement of Problem:

Today, income figure has been highly considered by the investors. The predicted earnings are published extensively. When the earnings are lower than the expected level, the stock prices will decrease. In addition, it seems satisfactory to achieve the earnings higher than the predicted number. High reliance on the earnings increases the quality and accrual accounting have been known as an indicator of the earnings quality. When the accounting earnings are more than the cash inflow, the result is achieved by generating accruals. The stocks of these firms will have lower returns because they are interpreted to be resulted from the managerial manipulations. However, this does not mean that the accruals are not reliable. This is an indicator of the future growth opportunity or appropriate performance. Since these items are more exposed to be manipulated by the managers, it is expected that the market gives lower weights to them [8].

Optimal resource allocation is one of the most significant proceedings of the investment. On one hand, the investors are always looking for achieving the maximum return by using the possessed financial resources. Stock return prediction is one of the most important issues about investment in the capital markets [4].

Accruals are the effective factors of stock returns. This study aims to investigate and calculate the balance sheet accruals and cash-flow-statement-based accruals. The main purpose of this study is to introduce and calculate: 1. Accruals resulted from changes in the balance sheet items, 2. Accruals resulted from the cash flow statement. The other goal is to examine the difference between these two items which are considered as the two measures of accruals. Finally, the impact of this difference on the return is tested.

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### *1.2. Theoretical Bases and Framework:*

The position of a business deals with the reported numbers on the financial statements, including the reported revenue and earnings. The ability of the statements in providing a description about the useful information is essentially significant, because this information impacts the stock price and stock return and further contributes the investors in evaluating firm value [6].

Investment is known as one the significant dimensions of development in the current century and it requires extensive planning. By having a regular plan, the chance to use the existing opportunities enhances. To increase the efficiency of the planning, the ability for the fair and continuous prediction should be improved. The key element of economic decision is the prediction. The investors, creditors, managers and other users rely on the predictions and expectations in their economic decisions. The investors are interested in predicting the perspectives of the future profitability. This prediction depends on the combination of the stable and unstable characteristics of the earnings. The firms with higher stable items in the financial statements have more earnings persistence. The earnings persistence represents the level at which a specific innovation impacts the occurrence on the future earnings. Accruals are among the most important information sources by which the investors could make economic decisions [12].

The present study examines the difference between two widely used measures of accruals and their different impacts on the return. These two items are accruals computed using consecutive changes in the balance sheet items and accruals computed as earnings minus cash flow from operating activities, both from the cash flow statement. The investigations represent that the difference between these two measures is caused by: 1. Four items included in the cash-flow-statement-based accruals, but not included in the balance sheet items; 2. Non-articulation in the accruals of the cash flow statement and other financial statements.

Badertscher et al [2] found that the main reported earnings and the accrual components have the lower prediction ability than the restated numbers. Inversely, this is significant for those firms selecting accrual accounting because of the opportunistic reasons. The sample of this study consists of the restated firms: because this restatement leads we obtain an insight about the direct measure and the specific orientation of the accruals. The findings of this study are mostly consistent with the information hypothesis and have the least consistency with the assumption of effective conservative agreement.

Lobo et al [7] examined the accrual quality and analysts following. They evidences showed that the analysts following increases when the accruals quality decreases. This is consistent with the fact that the services of the financial analysts are more valuable when the accruals provide weaker signals about the future cash flows. In addition, the accrual quality deals with the primary uncertainty in the operating environment which leads to attracting more analysts. It reveals that the low quality accruals provide an opportunity for the analysts to benefit from the generation of the private information.

Ze-To [15] examined whether the market situation is significant for the earnings management behavior and profitability of the accruals strategy. This study discusses about the prior findings: First, the accrual earnings are always positive in different market settings. Second, there is earnings management in both market situations; however, the attempts of the management in the depression periods are less efficient. Third, the present study confirmed the different effects of the accruals in different industries. Finally, this study investigates the relationship between the business cycles and the accruals anomaly. It is also examined whether the accruals misinterpretation could be explained by the predicted return of the macroeconomic models.

Fung and Goodwin [5] explored the maturity of the short-term debts, monitoring and earnings management based on the accruals. One of the research fields is about the fact that the short-term lenders play monitoring roles in the management, especially when there is no doubt in the validity of the firms. By conducting this study, it is found that the short-term debts are positively associated with the accrual based earnings management. This is consistent with the financial distress theory. They also revealed that this relationship is weaker for more valid firms (those with investment degree). This is consistent with the monitoring advantages proposed for the earnings management.

Tang et al [13] investigated the internal relationship between anomalies of the internal transactions and misuse of the accruals. They also examined whether the corporate governance is effective in this relationship. The results showed that the internal employees benefit from the private information for adjusting their transactions and opportunistic modification of the accruals in misleading the stock markets before the planned transactions. More significantly, they found that the misinterpretation of the internal information for the stock trades becomes more serious when the final controller of the firm has a different thought in terms of the cash flow rights. They also indicated that the control and the family ownership result in more managerial ownership. In other words, the findings represented that the two dimensional leadership structure results in the induction of the private information before the disclosure of the financial reports.

Allen et al [1] showed that the accruals include at least two main processes: one process has a positive consecutive correlation and one process with the negative consecutive correlation. The authors also concluded that the accruals related to the processes with negative consecutive correlations are good accruals which predict the volatilities of the working capital. The estimation error of the accruals is the most unstable element of the

revenues. The accruals related to the firm growth are more consistent than the cash flows. Finally, it seems that the mispricing of the accruals results from an error in the estimation of the accruals and firm growth.

Wan [14] investigated whether considering the nonlinearity in the models of the discretionary accruals leads to better performance in terms of identifying earnings management and revenues. The findings of this study are essentially significant because the discretionary accruals play significant roles in many research settings. The ability of this model is found to be more important for separating the discretionary elements from the non-discretionary ones. If the linear discretionary accrual models are not identified well, the conclusions about the earnings management and revenues are misinterpreted. The results revealed that the nonlinearity enhances the performance of most of the linear models. The findings also indicated that a more complicated linear model which uses a performance scale and future growth have better performance than the other simple models.

In a paper titled: Non-linear dynamics in discretionary accruals: An analysis of bank loan-loss provision, Balboa et al [3] reasoned that the specific relationship between accruals and earnings might be nonlinear. They argued that this is likely to be driven by non-linear patterns since both the incentives to manipulate earnings and the practical way to do so depends on the relative size of earnings. Using a sample composed of 15268 US banks in the period 1996-2011, it was found that the bank managers tend to engage in earnings-decreasing strategies when earnings are negative ("big-bath" accounting) and most of the time use regulations as an income smoothing tool when the earnings are positive and significant. This evidence is consistent with the trade-off theory. Ignoring the non-linear patterns of econometric modeling of the accruals might result in misleading the conclusions about the strategies used in earnings management.

#### *Methodology:*

This is an applied study because the findings can be used in making decisions. Furthermore, this is a descriptive-correlation study because it measures the relationship between the variables. This study covers a five year period over the beginning of 2007 to the end of 2011.

#### *1.1. Population and Sample Formation:*

The population is composed of the firms listed on the Tehran Stock Exchange over 2007 to 2011. The samples are selected based on the filtering technique and the following limitations:

- The end of the fiscal years for the selected firms should be consistent with the calendar year.
- The firms should not be classified as the insurance or investment firms or financial intermediaries.
- The required information to compute the variables should be available.
- The selected firms should not have changed their fiscal years from 2007 to 2011.
- There should be no interruption in the stock trades for the selected firms.

Finally, 66 firms are selected based on the above criteria and measures.

#### *1.2. Hypotheses Development:*

The following hypotheses are developed to respond to the research questions:

1. Cash-flow-statement-based accruals impact the returns.
2. Operating accruals based on the cash-flow-statement impact the returns.
3. Cash-flow-statement-based accruals and the total of four differential factors impact the returns.
4. Cash-flow-statement-based accruals and four different factors impact the returns.
5. Operating accruals based on the balance sheet impact the return.
6. Operating accruals based on the cash flow statements and total non-articulation items impact the returns.
7. Operating accruals based on the cash flow statement and any of the non-articulation items impact the returns.
8. Cash-flow-statement-based accruals, total four differential factors and total non-articulation items impact the returns.
9. Cash-flow-based-statement-based accruals and their four different factors and any of the non-articulation items impact the return.

#### *Data Collection:*

The required information of the literature review is gathered from the library studies through expert books and journals and papers. To test the hypotheses, the publicly available information in the financial statements of the Tehran listed firms for a five year period from 2007 to 2011 has been collected. The related information is available in some databases such as Rahavard-e-Novin and the official website of the Tehran Stock Exchange. The collected data is entered to EXCEL and the findings about the variables are analyzed in EVEIWS.

#### *Variables and Research Models:*

The independent, dependent and control variables are defined based on the research hypotheses.

#### *The Dependent Variable:*

Following Sloan [11], size-adjusted returns are used to measure future abnormal returns. The size-adjusted return ( $SAR_{im}$ ) is the difference between the firm's buy-and-hold return and the buy-and-hold return on a value weighted portfolio of firms. The size-adjusted return is computed over the 12-month period, beginning from the end of the fiscal year to month  $m$  (Rahmani and Saeidi)[9]:

$$SAR_{im} = \prod (1 + R_{it}) - \prod (1 + R_{st})$$

$R_{st}$ : The weighted return of the firm's size-matched portfolio of the firms

$R_{it}$ : Stock return of firm  $i$

*Firm's size-matched portfolio*: The size-matched portfolios are formed based on the quartiles of the firm's size. It must be mentioned that size is measured by the market values of the sample firms at the end of the fiscal year. The firms are sorted in an ascending order and are divided into three or four equal parts. Each part is a quartile range. The membership in any of the four portfolios is identified by the size of the firm at the end of the fiscal year. The monthly return of each quartile is computed by the following formula (Rahmani and Saeidi,) [9]:

$$R_{st} = \sum_{i=1}^n X_i R_i$$

$X_i$ : The weight of the firm  $i$  in the size-matched portfolio, which is computed by dividing the size of the firm  $i$  to the total market value of the size-matched portfolio.

$R_i$ : Return of firm  $i$ .

To compute the return on the size-matched portfolio, the size-based average return is calculated in long-term and short-term positions. The return on the holding period for any of the positions is defined as the value of the average monthly returns. Finally, the return is adjusted based on a monthly approach. In addition,  $MAR_a$  is defined as the difference in the cumulative returns of either the short-term or long-term positions [9]:

$$MAR_a = MAR_L - MAR_s$$

$$MAR_s = \prod_{t=1}^T \left[ 1 + \left[ \frac{1}{N_{st}} \sum_{i=1}^{N_{st}} ER_{it} \right] \right] - 1$$

$$MAR_L = \prod_{t=1}^T \left[ 1 + \left[ \frac{1}{N_{Lt}} \sum_{i=1}^{N_{Lt}} ER_{it} \right] \right] - 1$$

$$ER_{it} = R_{it} - R_{mt}$$

$R_{it}$ : Firm-specific monthly return

$R_{mt}$ : Monthly return of the quartile size (size-matched portfolio) of the firm

$N_{jt}$ : Number of samples for  $j$  position (long or short-term) for month  $t$

$T$ : Number of the holding period months (12-month)

$MAR_L$ : Cumulative return of the firms in the long-term

$MAR_s$ : Cumulative return of the firms in the short-term

#### Independent Variables:

Fifteen variables are identified as the independent variables of the study:

1. Accruals computed from changes in the balance sheet items (ACCR\_BS)
2. Cash-flow-statement based accruals (TACCR\_CF)
3. Cash-flow-statement based operating accrual (ACCR\_CF)
4. Equity in net earnings/losses (EQU\_GL)
5. Gains/Losses from sales of PPE and investments (PPE\_GL)
6. Other funds from operation (OF)
7. Deferred income tax (DEF\_TAX)
8. The sum of four items of cash-flow-statement based accruals (Four-items)
9. Changes in accounts receivable from statement of cash flow (DIF\_AF)
10. Changes in inventories from statement of cash flows (DIF\_INV)

11. Changes in accounts payable from statement of cash flow (DIF\_AP)
12. Changes in accrued income taxes from the statement of cash flows (DIF\_TP)
13. Net changes in other current assets and liabilities from the statement of cash flows (DIF\_OT)
14. Changes in the depreciation cost (DIF\_DEP)
15. Total non-articulation (Non-articulations)

The variables are calculated as follows (Shi and Zhang, 2011).

$$ACCR\_BS = [(\Delta CA\_BS - \Delta CASH\_BS) - (\Delta CL\_BS - \Delta STD\_BS) - DEP\_IS]$$

Avass

ACCR\_BS: Accruals computed by the changes in the balance sheet items

ACA\_BS: Changes in total current assets

$\Delta CASH\_BS$ : Changes in cash and short-term investments

$\Delta CL\_BS$ : Changes in total current liabilities

$\Delta STD\_BS$ : Changes in debt in current liabilities

DEP\_IS: Depreciation or amortization from the income statement

Avass: Average total assets

$$TACCR\_CF = \frac{(Earnings - CFO)}{Avass}$$

TACCR\_CF: Accruals from statement of cash flows

Earnings: Operating income

CFO: Net cash flows from operating activities – extraordinary items and discontinued operation

$$ACCR\_CF = \Delta AR\_CF + \Delta INV\_CF - \Delta AP\_CF - \Delta TP\_CF + \Delta OT\_CF - DEP\_CF$$

Avass

ACCR\_CF: Cash-flow-statement operating accruals

$\Delta AR\_CF$ : Changes in accounts receivable from statement of cash flows

$\Delta INV\_CF$ : Changes in inventories from statement of cash flows

$\Delta AP\_CF$ : Changes in accounts payable from statement of cash flows

$\Delta TP\_CF$ : Changes in accrued income taxes from statement of cash flows

$\Delta OT\_CF$ : Net changes in other current assets and liabilities from statement of cash flows

DEP\_CF: Depreciation and amortization from statement of cash flows

Avass: Average total assets

DIF\_AR: Changes in the accounts receivable from cash flow statement- changes in the accounts receivable of two consecutive years

DIF\_INV: Changes in the inventories from cash flow statements – changes in the inventories in the two consecutive years

DIF\_AP: Changes in the accounts payable from cash flow statement- changes in the accounts payable in two consecutive years

DIF\_TP: Changes in the payable income tax from cash flow statement + changes in the payable tax of two consecutive years

DIF\_OT: Changes in the other current assets and liabilities from the cash flow statement – changes in the current assets in the two consecutive years + changes in the current liabilities in the two consecutive years

DIF\_DEP: –Depreciation and amortization costs from cash flow statement + depreciation costs from the income statement.

$$\text{Non\_articulations} = DIF\_AR + DIF\_INV + DIF\_AP + DIF\_TP + DIF\_OT + DIF\_DEP$$

$$\text{Four\_items} = DEF\_TAX + EQU\_GL + PPE\_GL + OF$$

#### Control Variables:

The control variables of the present study are as follows:

*Size*: Firm size is calculated from the natural logarithm of total assets

*Book-to-market*: This ratio is calculated by dividing the book value of the owner's equity to the market value

*Debt to assets ratio*: This ratio is calculated by dividing total debts to total assets.

#### Findings:

##### Descriptive Statistics:

##### Determining a Model for Estimation:

##### Limer Test:

In this test, the null hypothesis describes using least squares of pooling. In other words, rejecting the null hypothesis shows whether to use random or fixed-effect data. The findings of Limer test for any of the regression models are provided in the table below.

**Table 1:** Descriptive Statistics.

Variable Types	Variable	Mean	Median	Maximum	Minimum	Std. Deviation
Depended variable	SAR	0/43	1/34	21/68	-1/67	14/68
Main dependent variables	TACCR-CF	0/32	0/35	0/44	-0/59	0/13
	ACCR-CF	0/44	0/56	0/87	-0/03	7/57
	ACCR-BS	0/48	0/58	0/89	-1/05	7/64
	Four Items	-1/73	-0/62	11/72	-12/67	9/87
	DEF-TAX	0/07	-0/03	0/27	-0/13	2/78
	EQU-GL	-0/65	-0/04	1/89	-0/12	6/06
	PPE-GL	0/97	0/03	2/93	-0/25	8/89
	OF	-4/76	-0/72	1/02	-8/32	13/09
	Non-Articulations	3/78	1/6	20/57	-5/69	12/54
	DIF-AR	0/7	0	13/79	-1/76	5/67
	DIF-IN	0/45	0	12/8	-2/69	3/46
	DIF-AP	-0/68	-0/35	15/17	-6/35	4/67
	DIF-TP	-0/19	0	5/47	-5/38	1/24
DIF-OT	0/6	0/43	15/87	-4/27	9/71	
DIF-DEP	-1/69	-0/21	3/67	-4/57	4/34	
Independent variables (control variables)	Size	13/66	13/46	18/4	10/3	1/54
	MB	1/46	1/11	4/46	1/02	3/69
	Lev	0/54	0/47	0/76	0/1	0/26

**Table 2:** Results of Limer Test.

	statistic	Prob.	Result
Model 1	1/12	0/03	Panel data
Model 2	1/13	0/03	Panel data
Model 3	1/03	0/48	Pool data
Model 4	2/18	0/000	Panel data
Model 5	1/1	0/03	Panel data
Model 6	1/12	0/04	Panel data
Model 7	2/25	0/000	Panel data
Model 8	1/09	0/49	Pool data
Model 9	2/21	0/000	Panel data

Since the probability level of Limer F test for all regression models (except for model3 and 8) is lower than 0.05, it is concluded that the null hypothesis of Limer test is rejected and the panel data approach should be used for the estimation. However, the error level of Limer F test for the regression models of 3 and 8 which is higher than 0.05, represents that the null hypothesis is rejected and the ordinary least squares pooling should be used for the estimation.

#### *Hausman Test:*

The Hausman test is one of the essential tests in the panel data approach. This test is said to be the most significant after the Limer F test. The Hausman test evaluates the significance of an estimator. The Hausman test is used to differentiate between fixed effects model and random effects model in panel data. The main assumption in the fixed effect model is that the error term might be correlated with the explanatory variables. However, a constant error term is also assumed to be present. For example, the gender is not going to change over time. Hausman test employs Chi-squared measure and when its probability is higher than 0.05, it is concluded that the random effects model is preferred. Otherwise, the fixed effect model is selected.

Based on this test, rejecting the null hypothesis means that the fixed effect model is preferred. The models related to any of the hypotheses are provided in table 3. It must be mentioned that based on the findings of Limer test, the pool data are preferred for the models of 3 and 8. By doing so, Hausman test is not suitable for these models and there is no result represented in the table below.

**Table 3:** Results of Hausman.

	statistic	Prob.	Result
Model 1	52/81	0/067	Random effects
Model 2	52/67	0/053	Random effects
Model 3	-	-	-
Model 4	65/28	0/000	Fixed effect
Model 5	49/34	0/078	Random effects
Model 6	51/67	0/064	Random effects
Model 7	67/37	0/000	Fixed effect
Model 8	-	-	-
Model 9	69/35	0/000	Fixed effect

*Regression Results:*

*Results of Model 1:*

*The first hypothesis:* cash-flow-statement-based accruals impact the returns.

Table 4 represents the results of testing the above hypothesis. As shown in the table above and based on the Durbin-Watson statistics, it can be concluded that there is no autocorrelation between the errors. Based on the adjusted  $R^2$ , it is found that the independent variables of this model can explain 25 percent of the changes in the dependent variable. The significance level (0.035) and F statistics confirm the significance of the regression model.

**Table 4:** Results of Model 1.

$SAR_{t+1} = b_0 + b_1 (TACCR-CF) + b_2 (Size) + b_3 (MB) + b_4 (Lev)$			
Variable	Coefficient of the variable	t statistic	Sig.
Intercept	0/02	2/79	0/21
TACCR-CF	0/05	0/79	0/63
Size	0/95	1/09	0/29
MB	-0/001	-0/744	0/46
Lev	-0/002	-0/303	0/76
F: 9.89			
Sig: 0.035			
Adjusted $R^2$ : 0.25			
Durbin-Watson: 2.02			

To test the results of the hypotheses, the related coefficients of each variable should be examined in terms of its significance; that is, when the significance level of a coefficient is 0.1, it is concluded that the related hypothesis is confirmed at 90 percent level. Accordingly, the variable coefficient of the cash-flow-statement-based accruals is 0.63 and it shows that the first hypothesis is not confirmed at 90 percent. That is, the cash-flow-statement-based accruals have no impact on the return. It is further found that there is no significant relationship between the control variables and the dependent variable.

*Results of Model 2:*

*The second hypothesis:* Operating accruals based on the cash flow statements impact the returns.

Table 5 represents the results of the above hypothesis. Based on this table and Durbin-Watson statistics (2.019), it is argued that there is no autocorrelation between the errors. The adjusted  $R^2$  of the model shows that the independent variables of the model can explain 25.3 percent of the changes in the dependent variable. The significance level (0.014) and F statistics (10.3) also confirm the significance of the regression model.

**Table 5:** Results of Model 2.

$SAR_{t+1} = b_0 + b_1 (ACCR-CF) + b_2 (Size) + b_3 (MB) + b_4 (Lev)$			
Variable	Coefficient of the variable	t statistics	Sig.
Intercept	0/017	2/64	0/27
ACCR-CF	-0/12	-1/03	0/059
Size	0/97	1/16	0/21
MB	-0/0012	-0/754	0/45
Lev	-0/0011	-0/3	0/76
F statistic: 10.3			
Sig: 0/014			
Adj. $R^2$ : 0/253			
Durbin-Watson: 2.019			

To examine the results of the hypotheses, the coefficients of the variables are tested. As shown in the table above, the coefficient of the operating accruals based on the cash flow statement (-0.12) represents that the second hypothesis is confirmed at the 90 percent of significance. It is concluded that the operating accruals based on the cash flow statements have no impact on the return.

*Results of Model (3):*

*The third hypothesis:* Cash-flow-statement-based accruals and the total of four differential factors impact the returns.

Table 6 represents the results of the above hypothesis. As shown in this table, the independent variables of the model can explain 25.7 percent of the changes in the dependent variable. The related significance level (0.000) and F statistics (10.28) confirm the significance of the regression model.

**Table 6:** Results of Model 3.

$SAR_{t+1} = b_0 + b_1(TACCR-CF) + b_2(Four-Items) + b_3(Size) + b_4(MB) + b_5(Lev)$			
Variable	Coefficient of the variable	t statistics	Sig.
Intercept	0/018	2/7	0/29
TACCR-CF	-0/16	-0/79	0/035
Four Items	0/34	1/71	0/01
Size	0/79	1/18	0/19
MB	-0/001	-0/743	0/41
Lev	-0/0013	-0/29	0/78
F statistics: 10.28			
Sig: 0.000			
Adj. R2: 0.257			
Durbin-Watson: 2.021			

As mentioned before, the coefficients of the cash-flow-statement based accruals (-0.16 at 0.035 level) and total four-items (0.34 at 0.01 level) confirm the third hypothesis at the 95 percent level of significance. That is, the cash-flow-statement based accruals and four differential items have significant impacts on the return.

#### Results of Model 4:

*The fourth hypothesis:* Cash-flow-statement-based accruals and four different factors impact the returns.

Table 7 represents the results of the above hypothesis. The adjusted  $R^2$  of the model shows that the independent variables of this model can explain 29.2 percent of the changes in the dependent variables. The significance level (0.000) and F statistics (10.21) confirm that the regression model is significant.

**Table 7:** Results of Model 4.

$SAR_{t+1} = b_0 + b_1(TACCR-CF) + b_2(DEF-TAX) + b_3(EQU-GL) + b_4(PPE-GL) + b_5(OF) + b_6(Size) + b_7(MB) + b_8(Lev)$			
Variable	Coefficient of the variable	t statistics	Sig.
Intercept	0/017	2/79	0/13
TACCR-CF	-0/14	-0/79	0/033
DEF-TAX	-0/063	-0/36	0/72
EQU-GL	0/46	2/92	0/26
PPE-GL	0/37	0/01	0/3
OF	0/14	0/81	0/02
Size	0/88	1/01	0/2
MB	-0/0099	-0/704	0/35
Lev	-0/001	-0/36	0/79
F statistics: 10.21			
Sig: 0.000			
Adj. R2: 1.292			
Durbin-Watson: 1.99			

shown in the table above, the coefficient of the accruals based on the cash flow statement and one of the four different items (-0.14 at 0.033 level) and (0.14 of 0.02), respectively. As a result, the fourth hypothesis is confirmed at the 95 percent level of significance. Finally, these items are confirmed to have significant impacts on the return.

#### Results of Model 5:

*The fifth hypothesis:* Operating accruals based on the balance sheet impact the return.

Table 8 represents the findings about the above hypothesis. Durbin-Watson statistic (1.9) confirms that there is no autocorrelation. Based on the adjusted  $R^2$  of the model, it is concluded that the independent variables of this model can explain 26.1 percent of the changes in the dependent variable. The significance level (0.000) and F statistics (10.04) confirm the significance of the regression model.

As shown in the table above, the coefficient of the operating accruals based on the balance sheet (-0.27 at 0.02 level) show that the fifth hypothesis is confirmed at the 95 percent level of significance. It can be concluded that the accruals based on the balance sheet have significant impacts on the returns.

#### Results of Model 6:

*The sixth hypothesis:* Operating accruals based on the cash flow statements and total non-articulation items impact the returns.



**Table 8:** Results of Model 5.

$SAR_{t+1} = b_0 + b_1 (ACCR-BS) + b_2 (Size) + b_3 (MB) + b_4 (Lev)$			
Variable	Coefficients of the variable	t statistics	Sig.
Intercept	0/026	2/68	0/86
ACCR-BS	-0/27	-0/39	0/02
Size	0/89	1/1	0/34
MB	-0/0098	-0/7	0/45
Lev	-0/0099	-0/3	0/76
F statistics:10.04			
Sig : 0.000			
Adj. R2 :0.261			
Durbin-Watson:1.21			

The results of this model are shown in table 9. The Durbin-Watson statistic shows that the errors are not autocorrelated. Based on the adjusted  $R^2$  of the model, it is argued that the independent variables of the model can explain 26.7 percent of the changes in the dependent variable. The significance level (0.03) and F statistics (11.2) confirm the significance of the regression model.

**Table 9:** Results of Model 6.

$SAR_{t+1} = b_0 + b_1 (ACCR-CF) + b_2 (Non-Articulations) + b_3 (Size) + b_4 (MB) + b_5 (Lev)$			
Variable	Coefficient of the variable	t statistics	Sig.
Intercept	0/026	2/6	0/85
ACCR-CF	-0/14	-1/03	0/04
Non-Articulations	0/008	1/92	0/67
Size	0/98	1/27	0/25
MB	-0/001	-0/73	0/4
Lev	-0/0098	-0/31	0/7
F statistics:11.2			
Sig: 0.03			
Adj. R <sup>2</sup> : 0.267			
Durbin-Watson:1.98			

The table above shows that the variable coefficients of the operating accruals based on the cash flow statement and total non-articulation are (-0.14 at 0.04 level) and (0.008 at 0.68), respectively. It can be concluded that the sixth hypothesis is relatively confirmed at the 95 percent. As a result, the operating accruals based on the cash flow statement have significant impact on the return; however, it is found that the total non-articulation items have no significant impact on the dependent variable.

#### Results of Model 7:

*The seventh hypothesis:* Operating accruals based on the cash flow statement and any of the non-articulation items impact the returns.

Table 10 represents the results of the above hypothesis. Based on the Durbin-Watson statistics (2.01), it is concluded that there is no autocorrelation between the errors. Furthermore, the adjusted  $R^2$  of the model shows that the independent variables of the model can explain 34.4 percent of the changes in the dependent variable. The significance level (0.000) and F statistics (12.02) confirm the significance of the model.

The above table shows that the coefficients of the operating accruals based on the cash flow statement and one of the non-articulation components (DIF\_AR) are (-0.16 at 0.042 level) and (0.156 at 0.03 level) are significant. As a result, it is concluded that the seventh hypothesis is partially confirmed at the 95 percent level of significance. It is then concluded that the operating accruals based on the cash flow statement has significant impact on the return; however, it is found that only one of the non-articulation components (DIF\_AR) have significant impact on the dependent variable.

#### Results of Model 8:

*The eighth hypothesis:* Cash-flow-statement-based accruals, total four differential factors and total non-articulation items impact the returns.

Table 11 represents the results of the above hypothesis. Based on the provided information and Durbin-Watson statistics (2.018), it is found that there is no autocorrelation between the errors. The adjusted  $R^2$  of the model indicates that the independent variables can explain 33.8 percent of the changes in the dependent variable. The related significance level (0.001) and F statistics (11.56) confirm the significance of the regression model.

The above table represents that the variable coefficients of the cash-flow-statement based accruals, four different factors and total non-articulation items are (-0.23 at 0.02 level) and (0.213 at 0.001 level) and (0.01 at 0.57 level), respectively. As a result, it is interpreted that the eighth hypothesis is partially confirmed at the 95 percent. That is, the cash-flow-statement based accruals and the four differential factors have significant impacts

on the return. However, the total non-articulation is found to have no significant impact on the dependent variable.

**Table 10** Results of Model 7.

$SAR_{t+1} = b_0 + b_1 (ACCR-CF) + b_2 (DIF-AR) + b_3 (DIF-IN) + b_4 (DIF-AP) + b_5 (DIF-TP) + b_6 (DIF-OT) + b_7 (DIF-DEP) + b_8 (Size) + b_9 (MB) + b_{10} (Lev)$			
Variable	Coefficient of the variable	t statistics	Sig.
Intercept	0/03	2/84	0/28
ACCR-CF	-0/16	-1/03	0/042
DIF-AR	0/156	0/31	0/03
DIF-IN	0/067	6/47	0/73
DIF-AP	0/087	4/43	0/56
DIF-TP	-0/85	-2/2	0/23
DIF-OT	-0/006	-0/76	0/76
DIF-DEP	0/37	-0/2	0/11
Size	0/9	1/01	0/23
MB	-0/0012	-0/78	0/48
Lev	-0/001	-0/3	0/79
F statistic: 12.02			
Sig : 0.000			
Adj. R <sup>2</sup> :0.343			
Durbin-Watson:2.01			

**Table 11:** Results of Model 8.

$SAR_{t+1} = b_0 + b_1 (TACCR-CF) + b_2 (Four-Items) + b_3 (Non-Articulations) + b_4 (Size) + b_5 (MB) + b_6 (Lev)$			
Variable	Coefficient of the variable	t statistic	Sig.
Intercept	0/024	2/86	0/67
TACCR-CF	-0/23	-0/65	0/02
Four Items	0/213	1/71	0/001
Non-Articulations	0/01	1/92	0/57
Size	0/92	1/32	0/21
MB	-0/0099	-0/71	0/41
Lev	-0/001	-0/32	0/75
F statistics: 11.56			
Sig: 0.001			
Adj R2: 0.338			
Durbin-Watson: 2.018			

*Results of Model 9:*

*The ninth hypothesis:* Cash-flow-based-statement-based accruals and their four different factors and any of the non-articulation items impact the return.

Table 12 represents the results of the above hypothesis. Based on the findings and Durbin-Watson statistic (2.02), it can be argued that there is no autocorrelation between the errors. The results about the adjusted R<sup>2</sup> indicate that the independent variables can explain 39.5 percent of the changes in the dependent variable. In addition, the significance level (0.000) and F statistics (10.04) confirm the significance of the regression model.

As shown in the table above, the coefficients of the cash-flow-statement based accruals and one of the four items (OF) and of the non-articulation (DIF\_AR) are (-0.12 at 0.001 level), (0.24 at 0.023 level) and (0.41 at 0.03 level), respectively. As a result, the ninth hypothesis is relatively confirmed at 95 percent; that is, the cash-flow-statement based accruals have significant impact on the returns. However, it is found that only OF and DIF\_AR have significant impact on the dependent variable.

*Conclusion:*

The results of the hypotheses are represented below:

1. The results of the first hypothesis reveal that the cash-flow-statement based accruals are not the only items that affect the return.
2. The findings of the second hypothesis indicated that there is a significant negative relationship between operating accruals based on the cash flow statement and returns.
3. In terms of the third hypothesis, it is found that there is a significant negative association between cash-flow-statement based accruals and the sum of four differential factors between two measures of accruals and return. Further, the results showed that the four-items and return are positively associated.

4. Based on the findings of the fourth hypothesis, it is concluded that there is a significant negative relationship between cash-flow-statement based accruals and returns. It is also found that OF is the only component that is positively associated with the return.
5. The results of the fifth hypothesis confirm that there is a significant negative association between operating accruals based on balance sheet and the return.
6. Based on the results of the sixth hypothesis, it is found that the operating accruals based on cash flows and the return are negatively associated. However, no significant relationship is found for the total non-articulations and returns.
7. Testing the seventh hypothesis indicates that there is a significant negative association between operating accruals based on the cash flow statement and return. However, changes in the accounts receivable are the only component that is positively associated with the return.
8. The results of the eighth hypotheses reveal that there is a negative relationship between cash-flow-statement based accruals and returns. The relationship between the sum of the four-items and return is found to be positive and significant; while, this relationship is not confirmed for the total non-articulations and returns.
9. Based on the results, it is found that the cash-flow-statement based accruals and return are negatively associated. In addition, the findings represented that the other funds (OF) and changes in accounts receivable are the only components that are positively associated with the return.

**Table 12:** Results of Model 9.

$SAR_{t+1} = b_0 + b_1(TACCR-CF) + b_2(DEF-TAX) + b_3(EQU-GL) + b_4(PPE-GL) + b_5(OF) + b_6(DIF-AR) + b_7(DIF-IN) + b_8(DIF-AP) + b_9(DIF-TP) + b_{10}(DIF-OT) + b_{11}(DIF-DEP) + b_{12}(Size) + b_{13}(MB) + b_{14}(Lev)$			
Variable	Variable coefficient	t statistics	Sig.
Intercept	0/017	2/79	0/24
TACCR-CF	-0/12	-0/79	1/001
DEF-TAX	-0/065	-0/36	0/68
EQU-GL	0/78	2/92	0/21
PPE-GL	0/35	0/01	0/17
OF	0/24	0/81	0/023
DIF-AR	0/41	0/31	0/03
DIF-IN	0/04	6/47	0/79
DIF-AP	0/023	0/34	0/67
DIF-TP	-0/78	-0/14	0/34
DIF-OT	-0/004	-0/98	0/89
DIF-DEP	0/23	0/56	0/16
Size	0/99	1/11	0/27
MB	-0/0098	-0/71	0/39
Lev	-0/001	-0/39	0/68
F statistics:10.04			
Sig: 0.000			
Adj. R2: 0.395			
Durbin-Watson:2.21			

*Suggestions:*

The following suggestions are provided:

1. The investors propose that the more inflated operating accruals will indicate the more profitability in the future. This is the subjective perception of the investors; therefore, the managers and the related enterprises are suggested to have better mental-subjective operations and they are also offered to create more attractive and realistic opportunities for the investments.
2. In terms of the effect of the other operating funds on the return, the directors and economic entities are suggested to pay special attention to the other subsidiary operating accruals and also disclose the details completely.
3. The present study used size-adjusted return, but the future studies are suggested to consider market returns.

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