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Accrual Reversals, Earnings and Stock Returns

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ABSTRACT

In this study, a comprehensive examination of accrual reversal, and its effect on earnings and Stock Returns, for several items of accepted companies in Tehran Stock Exchange, has been done. This study aims to recognize the distinguished features of these accrual components by decomposing and discovering their relation with the mentioned items in adjacent years. To achieve that, the information of 83 companies during the time period of 1383-1391 has been reviewed. The selective approach for the hypothesis testing is of correlational and retrospective kind. The results show that accruals, arising from persistent growth in companies, consist of a process with a positive serial correlation which indicates that the anticipated future benefits of accruals, resulting from the growth take place and accruals, arising from temporary fluctuations in working capital, good accruals, and accrual estimation error involves a process with a negative serial correlation. And eventually, the effect of reversed trend of accruals on Earnings and Stock Returns has been investigated.

KEYWORD

accruals quality, earnings quality, estimation error, persistency, profitability, Stock Returns

INTRODUCTION

Our paper has implications for research that associates accrual reversals with opportunistic earnings management (Defond and Park, 2001[9], Allen et al, 2009[3], Baber et al, 2011[5]; Dechow, et al, 2012[7]). In this paper, we decompose accruals into good accruals that correctly anticipate future benefits and accrual estimation errors. Since estimation errors should neither persist nor predict future benefits, they should result in lower earnings persistence. accrual reversals are an important focus of our study and current accruals are typically expected to reverse within the next year. good accruals correctly anticipate future benefits, while accrual estimation errors do not.

RESEARCH OBJECTIVES

The key idea underlying this research is that 'errors' in accruals must ultimately reverse. Subsequent accrual reversals, however, are not a distinguishing feature of errors in accruals. In fact, all accruals must ultimately reverse. The unique characteristic of errors in accruals is that the estimated future benefits represented by the accruals are not subsequently realized. (Allen et al, 2013)[4]. Accruals represent managers' forecasts of future benefits and reverse when either (i) the anticipated future benefits are realized or (ii) new evidence indicates that the anticipated future benefits are unlikely to be realized. Accordingly, we decompose accruals into (i) accruals that correctly anticipate future benefits and (ii) accrual estimation errors. We refer to the former category as 'good accruals' and the latter category as 'accrual estimation error'. Accrual estimation errors reduce the accrual earnings. Accordingly, The higher estimation errors are, the lower the quality of accruals and earnings would be. Furthermore, the larger size of accruals indicates more estimates and more probability of estimation errors, which leads to lower accruals and earnings quality. (Dastgir & rastgar, 1389)[1].

According to what we mentioned before, the main question is that whether the reversal trend of accruals affects earnings and stock returns or not?

LITERATURE REVIEW

Noravesh et al (1385)[2] have studied Accrual quality with emphasis on the role of accrual estimation errors. The earned results show that the upper level of accruals causes decrease in earnings and accrual quality. Thus, further accruals mean lower quality and less profitability. Dechow, Kothari and Watts (1998)[8] provide the first comprehensive examination of the time-series properties of accruals. The study concludes that sales growth is positively serially correlated implying that a similar level of positive serial

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correlation should be observed in accruals. One of the earliest such studies is Defond and Park (2001)[9], which follows Jones (1991) in modeling 'normal' working capital accruals as a linear function of the change in sales. The authors hypothesize that the residual 'abnormal' accruals will subsequently reverse. Consistent with their hypothesis, Defond and Park find that earnings response coefficients and analyst forecast revisions are smaller when earnings are attributable to abnormal accruals. Their study, however, does not provide any direct evidence on the reversal of abnormal accruals.

Moehrl (2002)[11] is one of the first studies to directly examine accrual reversals. An results is that the reversals correctly anticipate future cash outflows associated with restructuring programs. Baber, Kang and Li (2011)[5] also provide evidence on abnormal accrual reversals by examining autocorrelations in abnormal accruals. results is that the reversals correctly anticipate future cash outflows associated with temporary fluctuations in working capital and are correctly incorporated in analysts' earnings forecasts.

METHODS OF RESEARCH

spss and Eviews econometric softwares have been used in our analysis. Presented study method is of correlational and retrospective kind and In terms of target, is regarded as practical and empirical research of accounting. This research benefits from the model proposed by Dechow and Dichev (2002)[6] which is Explained below.

MODIFIED DECHOW AND DICHEV MODEL

We decompose accruals into 'good accruals' and 'accrual estimation error' using the model proposed by Dechow and Dichev (2002)[6] as modified by Bushman et al. (2011). This model, which we refer to as the MDD model, takes the following form:

$$ACC_t = \alpha_0 + \underbrace{\alpha_1 SGR_t + \alpha_2 EMPGR_t}_{MDDGROWT_t} + \underbrace{\alpha_3 CF_{t-1} + \alpha_4 CF_t + \alpha_5 CF_{t+1}}_{MDDMATCH_t} + \underbrace{\varepsilon_t}_{MDDERROR_t}$$

MDDGOOD_t

where:

$$SGR_t = (Sales_t - Sales_{t-1}) / Sales_{t-1}$$

$$EMPGR_t = (Employees_t - Employees_{t-1}) / Employees_{t-1}$$

This model incorporates the two drivers of good accruals that we described in section 2.2. First, the contemporaneous sales growth and employee growth variables capture accruals related to growth in the working capital base required to support changes in the firm's scale of operations (MDDGROWTH).

Second, the lagged, contemporaneous and lead cash flow variables capture accruals related to temporary fluctuations in a firm's working capital requirements (MDDMATCH).

MDDGROWTH and MDDMATCH combine to model good accruals (MDDGOOD). The origination and reversal of accrual estimation error are captured in the error term (MDDERROR).

OPERATIONAL DEFINITION OF RESEARCH TERMS AND EXPRESSIONS

GOOD ACCRUALS

Good Accruals are The fitted value from the Dechow and Dichev (2002) [6] modified model which is computed by the summation of sale and personnel growth and temporary fluctuations in working capital. (Allen et al, 2009)[3].

ACCRUAL REVERSALS

Accruals have increased during the financial period of companies and after one or less than one year will decline. (Allen et al, 2009)[3].

THE STATISTICAL POPULATION AND SAMPLE

The statistical population of this study includes all the accepted companies in Tehran Stock Exchange. Our sample consists of 83 companies for a period of nine years started from 1383 to 1391.

RESEARCH HYPOTHESES

First Hypothesis: Accruals consist a positively serially correlated process representing persistence in firm growth.

Second Hypothesis: Accruals consist a negatively serially correlated process representing temporary fluctuations in working capital.

Third Hypothesis: Good Accruals consist a negatively serially correlated process.

Fourth Hypothesis: accrual estimation error consist a negatively serially correlated process.

Fifth Hypothesis: The negative relation between accruals and future stock returns is attributable to accrual estimation error.

Sixth Hypothesis: accruals and future stock returns are related negatively.

Seventh Hypothesis: The lower persistence of the accrual component of earnings is negatively related to accrual estimation error.

MODEL TO TEST HYPOTHESES

MODEL TO TEST THE HYPOTHESIS OF A FOUR

$$(1) ACC_t = \alpha_0 + \underbrace{\alpha_1 SGR_t + \alpha_2 EMPGR_t}_{MDDGROWTH_t} + \underbrace{\alpha_3 CF_{t-1} + \alpha_4 CF_t + \alpha_5 CF_{t+1}}_{MDDMATCH_t} + \underbrace{\varepsilon_t}_{MDDERROR_t}$$

MDDGOOD_t

Accruals (ACC) = Change in current assets (ACT) – change in cash (CHE) – change in current liabilities (LCT) + change in debt in current liabilities (DLC), SGR=Year-over-year percentage change in sales. (EMPGR)=Year-over-year percentage change in employees. Cash Flows (CF) = Income (OIBDP) minus accruals scaled by average total assets.

Model to test the hypothesis of five:

$$RET_{t+1} = \alpha_0 + \alpha_1 CF_t + \alpha_2 MDDGOOD_t + \alpha_3 MDDERROR_t + \alpha_4 BM_t + \alpha_5 SIZE_t + \alpha_6 MOM_6 + \varepsilon_t$$

Book to Market (BM) = Book value of common equity at the end of the prior fiscal year scaled by market value of equity at the end of the prior fiscal year, SIZE = Natural log of market value of equity in the month prior to the compounding of RET_{t+1} , (MOM6) = 6 month compound return for the six months preceding RET_{t+1} .

Model to test the hypothesis of six:

$$RET_{t+1} = \alpha_0 + \alpha_1 CF_t + \alpha_2 ACC_t + \alpha_3 BM_t + \alpha_4 SIZE_t + \alpha_5 MOM_6 + \varepsilon_t$$

Model to test the hypothesis of seven:

$$OE_{t+1} = \alpha_0 + \alpha_1 CF_t + \alpha_2 MDDGOOD_t + \alpha_3 MDDERROR_t + \varepsilon_t$$

oe = Income (OIBDP) scaled by average total assets.

HYPOTHESES TESTING

To test the hypotheses from first to fourth, the following model was fitted using OLS and variable coefficients were calculated. The MDD model after fitting in monetary case comes as following form in which the coefficients of the variables were calculated.

Tab.1. Panel Least Squares

Dependent Variable: ACC				
Prob	t-Statistic	Std. Error	Coefficient	Variable
0.00	7.10	0.01	0.09	SGR
0.05	-0.12	0.02	0.00	EMPR
0.00	-11.30	0.03	-0.36	CFt-1
0.00	-6.28	0.05	-0.29	CFt
0.01	2.70	0.02	0.06	CFt+1
0.00	8.27	0.01	0.06	C
Hannan-Quinn criter.		-2.00	R-squared	0.50
Durbin-Watson stat		1.55	Adjusted R-squared	0.49
Prob(F-statistic)		0.00	F-statistic	146.27

We also use the column of variable coefficients to calculate the new variables. The results of these calculations can be found in the data file. After calculating the coefficients of variables and using the above model which will be explained in detail, Accruals resulting from growth, accruals arising from temporary fluctuations in working capital, good accruals and estimation error of accruals were calculated.

$$\text{Accruals arising from growth (MDDGROWTH)} = \alpha_0 + \alpha_1 SGR_t + \alpha_2 EMPGR_t$$

$$\text{Accruals process representing temporary fluctuations in working capital calculated (MDDMATCH)} = \alpha_3 CF_{t-1} + \alpha_4 CF_t + \alpha_5 CF_{t+1}$$

$$\text{GOOD Accruals (MDDGOOD)} = \text{MDDGROWTH} + \text{MDDMATCH}$$

accrual estimation error (MDDERROR) = The residual from the Dechow and Dichev (2002) model of accruals as modified by Bushman et al. (2011).

After taking the above steps, the new variables (accruals resulting from growth, resulting from temporary fluctuations in working capital and good accruals, and estimation error of accruals) were obtained equal to the number of sample observations (746). And in the next step, after applying the descriptive statistics test they were used in inferential statistics.

In this study In order to examine the relations between each component of accruals estimated at time T and accruals of prior time intervals, Pearson's correlation statistical test was used.

First Hypothesis: Accruals consist a positively serially correlated process, representing persistence in firm growth.

H0: Accruals don't include a positively serially correlated process representing persistence in firm growth.

H1: Accruals consist a positively serially correlated process representing persistence in firm growth.

We divide the first hypothesis test of accruals, arising from growth and calculated from the MDD model into two parts: accruals resulting from growth at time t and accruals arising from growth at time t-1, and then we use Pearson correlation coefficient for calculation. Since correlation coefficient is calculated from a one-year lag variable, in fact it can be regarded as the serial autocorrelation coefficient which is mentioned in the table below.

Tab.2. AUTOCORRELATIONS

MDDGROWTH	Pearson Correlation	Sig(2-tailed)
	0.23	0.00

According to the above table, with attention to significance level obtained from the serial correlation coefficient test which was equal to 0.000 and the value of this coefficient which was equal to 0.23, we can conclude that the zero hypothesis is rejected, in other words, accruals include a process with positive serial correlation arising from persistence in firm growth.

Second Hypothesis: Accruals consist a negatively serially correlated process representing temporary fluctuations in working capital.

We divide the second hypothesis test of accruals, process representing temporary fluctuations in working capital calculated from the MDD model into two parts: accruals process representing temporary fluctuations in working capital at time t accruals, process representing temporary fluctuations in working capital at time t-1, and then we use Pearson correlation coefficient for calculation.

Since correlation coefficient is calculated from a one-year lag variable, in fact it can be regarded as the serial autocorrelation coefficient which is mentioned in the table below.

Tab.3.Autocorrelations

MDDMATCH	Pearson Correlation	Sig(2-tailed)
	-0.17	0.00

According to the above table, with attention to significance level obtained from the serial correlation coefficient test which was equal to 0.000 and the value of this coefficient which was equal to -0.17, so the above hypothesis is confirmed.

Third Hypothesis: Good Accruals consist a negatively serially correlated process.

We divide the third hypothesis test of good accruals calculated from the MDD model into two parts: good accruals at time t accruals, good accruals at time t-1, and then we use Pearson correlation coefficient for calculation. Since correlation coefficient is calculated from a one-year lag variable, in fact it can be regarded as the serial autocorrelation coefficient which is mentioned in the table below.

Tab.4.Autocorrelations

MDDGOOD	Pearson Correlation	Sig(2-tailed)
	-0.11	0.00

According to the above table, with attention to significance level obtained from the serial correlation coefficient test which was equal to 0.000 and the value of this coefficient which was equal to -0.11, so the above hypothesis is confirmed.

Fourth Hypothesis: accrual estimation error consist a negatively serially correlated process.

We divide the third hypothesis test of accruals, accrual estimation error calculated from the MDD model into two parts: accrual estimation error at time t accruals, accrual estimation error at time t-1, and then we use Pearson correlation coefficient for calculation. Since correlation coefficient is calculated from a one-year lag variable, in fact it can be regarded as the serial autocorrelation coefficient which is mentioned in the table below.

Tab.5.Autocorrelations

MDDERROR	Pearson Correlation	Sig(2-tailed)
	-0.15	0.00

According to the above table, with attention to significance level obtained from the serial correlation coefficient test which was equal to 0.000 and the value of this coefficient which was equal to -0.15, so the above hypothesis is confirmed

Fifth Hypothesis: The negative relation between accruals and future stock returns is attributable to accrual estimation error.

To do this hypothesis, the following regression model is used.

$$RET_{t+1} = \alpha_0 + \alpha_1 CF_t + \alpha_2 MDDGOOD_t + \alpha_3 MDDERROR_t + \alpha_4 BM_t + \alpha_5 SIZE_t + \alpha_6 MOM6_t + \epsilon_t$$

The results of the F test statistic denote the use of fusion data method instead of panel data method.

Tab.6.Panel Least Squares

Dependent Variable: RET				
Prob	t-Statistic	Std.Error	Coefficient	Variable
0.20	1.28	0.10	0.13	C
0.47	0.72	0.11	0.08	CF
0.01	2.45	0.13	0.31	MDDGOOD
0.69	0.39	0.13	0.05	MDDERROR
0.04	-2.04	0.05	-0.10	BM
0.82	0.22	0.007	0.001	SIZE
0	15.15	0.03	0.43	MOM6
Hannan-Quinn criter.		0.32	R-squared	0.29
Durbin-Watson stat		1.99	Adjusted R-squared	0.29
Prob(F-statistic)		0	F-statistic	43.06

Therefore, in this part, the fifth hypothesis was tested by using regression in monetary case.

1.The coefficient of R-squares which is obtained from fitting the model between the dependent and independent variables in the table above is 29 percent. This means that 29 percent of alterations in dependent variable can be explained by significant independent variables and these alterations are almost explained in a desirable level.

2.The obtained value for Durbin-Watson statistic in the above table is equal to 1.99. Since the value of this parameter is in the interval of 1.5 to 2.5, errors of model are not correlated. In other words the errors have not correlation with each other.

3.This hypothesis can be verified, provided that the MDDERROR coefficient is negative. The value obtained from fitting the above model for the overhead variable is equal to -0.05 with the significance level of 0.69, so the above hypothesis is not confirmed.

Sixth Hypothesis: accruals and future stock returns are related negatively.

To do this hypothesis, the following regression model is used.

$$RET_{t+1} = \alpha_0 + \alpha_1 CF_t + \alpha_2 ACC_t + \alpha_3 BM_t + \alpha_4 SIZE_t + \alpha_5 MOM6_t + \epsilon_t$$

The results of the F test statistic denote the use of fusion data method instead of panel data method.

Tab.7.Panel Least Squares

Dependent Variable: RET				
Prob	t-Statistic	Std.Error	Coefficient	Variable
0.00	-3.98	0.16	-0.66	CF0
0.01	-2.79	0.18	-0.50	ACC
0.64	-0.47	0.02	-0.01	BM
0.00	5.11	0.02	0.12	SIZE
0.00	10.87	0.00	0.00	MOM
0.00	-4.16	0.18	-0.77	C
Hannan-Quinn criter.		1.08	R-squared	0.21
Durbin-Watson stat		2.21	Adjusted R-squared	0.21
Prob(F-statistic)		0.00	F-statistic	39.86

1.The coefficient of R-squares which is obtained from fitting the model between the dependent and independent variables in the table above is 21 percent. This means that 21 percent of alterations in dependent variable can be explained by significant independent variables and these alterations are almost explained in a desirable level.

2.The obtained value for Durbin-Watson statistic in the above table is equal to 2.21. Since the value of this parameter is in the interval of 1.5 to 2.5, errors of model are not correlated. In other words the errors have not correlation with each other.

3.This hypothesis can be verified, provided that the ACC coefficient is negative. The value obtained from fitting the above model for the overhead variable is equal to -0.50 with the significance level of 0.01, so the above hypothesis is confirmed.

Seventh Hypothesis: The lower persistence of the accrual component of earnings is negatively related to accrual estimation error.

To do this hypothesis, the following regression model is used.

$$OE_{t+1} = \alpha_0 + \alpha_1 CF_t + \alpha_2 MDDGOOD_t + \alpha_3 MDDERROR_t + \varepsilon_t$$

Tab.8.Panel Least Squares

Dependent Variable: OE				
Prob	t-Statistic	Std.Error	Coefficient	Variable
0.00	54.63	0.01	0.40	CF
0.00	20.08	0.00	0.00	MDDGOOD
0.00	78.84	0.01	0.94	MDDERROR
0.00	9.41	0.00	0.04	C
Hannan-Quinn criter.		-4.24	R-squared	0.96
Durbin-Watson stat		1.52	Adjusted R-squared	0.96
Prob(F-statistic)		0.00	F-statistic	188.78

1.The coefficient of R-squares which is obtained from

fitting the model between the dependent and independent variables in the table above is 96 percent. This means that 96 percent of alterations in dependent variable can be explained by significant independent variables and these alterations are almost explained in a desirable level.

2.The obtained value for Durbin-Watson statistic in the above table is equal to 1.52. Since the value of this parameter is in the interval of 1.5 to 2.5, errors of model are not correlated. In other words the errors have not correlation with each other.

3.This hypothesis can be verified, provided that the $\alpha_3 < \alpha_1, \alpha_3 < \alpha_2$. so the above hypothesis is not confirmed.

CONCLUSION

According to obtained results in this research, accruals arising from growth, include a process by a positive serial correlation. In other words, these sections of accruals are capable of being correctly predicted by Corporate managers and they proved to be true. Obtained results in this research are consistent to the results of research of (Allen et al, 2009; D. Chow, Kothari and Watts, 1998).The accruals resulting from temporary fluctuations in working capital (MDDMATCH) and Good accruals and the accrual estimation error consist of a negative serial correlation. In other words, when these parts of accruals obey a reversal trend, they wouldn't be able to ascertain the anticipated interests of managers.

Fifth, sixth and seventh hypotheses examines how each accrual component relates to earnings and future stock returns. According to the obtained results, there is no significant relation between accrual estimation error and future stock returns. On the contrary, the sixth hypothesis implies increasing accruals does not lead to higher earnings persistence. And the accrual estimation error may yield anticipated stock returns in the future.

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توجه: آشنایی با پایگاه های اطلاعات علمی بین المللی و ترند های جستجو

کارگاه آنلاین آشنایی با پایگاه های اطلاعات علمی بین المللی و ترند های جستجو