

## A study on relationship between abnormal accruals and future profitability: Evidence from Tehran Stock Exchange

Mohammad Khodaei Valahzaghari<sup>a\*</sup> and Samaneh Refahi Bakhsh<sup>b</sup>

<sup>a</sup>Assist. Prof. & Faculty Member, Department of Accounting, School of Management and Human Sciences, Tehran North Branch, Islamic Azad University (IAU), Tehran, Iran

<sup>b</sup>M.Sc. Student, Department of Accounting, School of Management and Human Sciences, Tehran North Branch, Islamic Azad University (IAU), Tehran, Iran

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### ABSTRACT

This paper presents an empirical investigation to study the relationship between future profitability and abnormal accruals on selected firms from Tehran Stock Exchange (TSE). The study selects 223 firms from TSE market over the period 2007-2011. Using the regression analysis, the study shows there was no meaningful relationship between abnormal earnings and future profitability when the level of significance is five percent. There are also seven sub-hypotheses associated with the proposed study of this paper. The results indicate that while there were no meaningful relationship between firm size, capital expenditure, earnings quality and earning forecasted error on one side and future earnings, the study confirms a significance relationship between ratio of book value to equity as well as market leverage and future earnings.

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## 1. Introduction

During the past few years, there have been tremendous efforts on learning the effects of abnormal accrual on future earnings. Ali et al. (2000) investigated whether the association between accruals and future returns reported by Sloan (1996) was because of fixation by naïve investors on the total amount of reported earnings without any association for the relative magnitude of the accrual and cash flow items. Contrary to the expectations of the naïve investor hypothesis, they reported that the predictive capability of accruals for subsequent annual returns and for quarterly earnings announcement stock returns was not lower for large firms. In addition, they reported that the capability of accruals to forecast future returns would not seem to depend on stock price or transaction volume, measures of transaction costs, also contrary to anticipations of the naïve investor

\*Corresponding author. Tel: +98-912-3443139

E-mail address: m\_khodaei@iaui-nb.ac.ir (M. Khodaei Valahzaghari)

hypothesis. They also concluded that the predictive ability of accruals for subsequent returns did not appear to be because of the inability of market participants to understand value-relevant information.

Barth et al. (2001) proposed a model based on the Dechow et al. (1998) model of the accrual process and investigated the role of accruals in forecasting future cash flows. The model demonstrated that each accrual component would reflect various information associated with future cash flows. They reported that disaggregating accruals into major components—change in accounts receivable, change in inventory, change in accounts payable, amortization, depreciation and other accruals influence predictive capabilities. Each accrual item, including depreciation and amortization, was significant with the predicted sign in predicting future cash flows, incremental to current cash flow. The cash flow and accrual components of current earnings had more predictive capability for future cash flows than several lags of aggregate earnings.

Chan et al. (2001) explored different hypotheses on earnings manipulation, extrapolative biases about future growth, and under-reaction to business conditions to describe accruals' predictive power. They reported that distinctions between the hypotheses were based on evidence from operating performance, the behavior of individual accrual items, and discretionary versus nondiscretionary components of accruals. Dechow (1994) investigated different conditions that accruals were predicted to improve earnings' ability to measure firm performance, as reflected in stock returns. They predicted cash flows to suffer more severely from timing and matching problems, which reduce their ability to reflect firm performance. Dechow and Dichev (2002) proposed a new method of one aspect of the quality of working capital accruals and earnings. They reported that observable firm characteristics could be implemented as instruments for accrual quality and explained that the proposed measure of accrual quality was positively associated with earnings persistence.

Hirshleifer et al. (2009) examined whether the firm-level accrual and cash flow effects extend to the aggregate stock market. On the contrary on previous firm-level findings, aggregate accruals was a strong positive time series predictor of aggregate stock returns, and cash flows was a negative predictor. They also reported that, innovations in accruals were negatively associated with aggregate returns, and innovations in cash flows were positively correlated with returns. These findings recommended that innovations in accruals and cash flows contained information about changes in discount rates, or that firms manage earnings in response to market wide undervaluation. Richardson et al. (2001) extended the analysis in Sloan (1996) to root the source of information in accruals about earnings quality. The results indicated that information in accruals about earnings quality was not limited to the current accruals analyzed by Sloan, but extended to non-current accruals. They also demonstrated that while information in accruals originated exclusively from asset accruals, liability accruals played a useful impact in helping to isolate information in asset accruals about earnings quality. Teoh et al. (1998) explained issuers of initial public offerings (IPOs), which can yield earnings in excess of cash flows by taking positive accruals.

They provided some evidence that issuers with unusually high accruals in the IPO year experience poor stock return performance in the three years thereafter. Xie (2001) examined the market pricing of Jones (1991) model estimated abnormal to see whether stock prices rationally could reflect the one-year-ahead earnings implications of these accruals. They suggested that the overpricing of total accruals that Sloan (1996) documents was due largely to abnormal accruals. Yasuda et al. (2004) investigated the relationship between bank risk and earnings management and reported that shows that bank risk was negatively associated with discretionary accruals, indicating that investors misinterpreted high reported earnings as favorable information about bank financial health.

## **2. The proposed model**

The proposed study of this paper examines the relationship between abnormal accruals and future profitability. The main hypothesis of this survey is as follows,

Main hypothesis: There is a meaningful relationship between abnormal accruals and future profitability.

The dependent variable in this survey is the change on return of assets (ROA) in two consecutive periods of  $t$  and  $t+1$  as follows,

$$\Delta ROA = ROA_{it+1} - ROA_{it}. \quad (1)$$

In our survey, abnormal accruals is calculated from the residual of the following relationship,

$$TA_{it}/A_{it-1} = \beta_1(1/A_{it-1}) + \beta_2((\Delta REV_{it} - \Delta REC_{it})/A_{it-1}) + \beta_3(PPE_{it}/A_{it-1}) + \beta_4(ROA_{it-1}) + \varepsilon, \quad (2)$$

where total accrual (TA) is calculated as follows,

$$TA_{it} = (\Delta CA_{it} - \Delta CASH_{it}) - (\Delta DCL_{it} - \Delta STD_{it}) - DEP_{it}, \quad (3)$$

where  $\Delta CA_{it}$  is the change on current assets,  $\Delta CASH_{it}$  is the change on cash,  $\Delta DCL_{it}$  is the change on current liabilities in two consecutive years,  $\Delta STD_{it}$  is the change on long term liabilities,  $DEP_{it}$  is the cost of depreciation of tangible and intangible assets,  $\Delta REV_{it}$  is the change on revenue in two consecutive years,  $\Delta REC_{it}$  is the change on net receivable accounts in two consecutive years,  $PPE_{it}$  is the growth value of equipment,  $ROA_{it-1}$  is the return on assets for  $t-1$  and  $\varepsilon_{it}$  is the residuals.

In addition, there are several control variables used for the proposed study of this paper. In our survey,  $BM_{it}$  is the ratio of book value/market value,  $CapEx_{it}$  is the ratio of net property/ $A_{it-1}$  where  $A$  represents total assets. Size of the firm is calculated by taking natural logarithm of total Assets, quality of earnings is also calculated as the ratio of operating cash flow on net income  $EQ_{it} = OCF/NI$ . Earning forecasted error is calculated as the change on earnings per share (EPS) in two consecutive years as  $EFE_{it} = (EPS_R - EPS_F)/EPS_R$ . Finally, market leverage is calculated as a ratio of  $ML_{it} = Debt/Market Value of Equity$  and book value leverage is measured as the ratio of  $BL_{it} = Debt/Book Value of Equity$ . The proposed study gathered the historical information of 223 firms over the period of 2006-2011, which yields 1115 year-firm data. Table 1 demonstrates some basic information associated with the proposed study of this paper.

**Table 1**  
The summary of basic information

Variable	N	Attribute		Diversity		Distribution		Deviation	
		Mean	Median	Std. dev.	Variance	Skewness	Kurtosis	Skewness	Kurtosis
$\Delta ROA$	1115	-0.0096	-0.0096	0.13111	0.018	-1.20496	22.76405	-11.917	130.020
Abnormal accruals	1113	-0.679	-0.645	0.4878	0.240	-0.38024	5.523500	-4.5616	17.312
$BM_{it}$	1108	0.7460	0.6387	0.9156	0.958	8.67787	158.9924	113.890	894.183
$CapEx_{it}$	1114	0.2151	0.1830	0.1632	0.027	1.272130	5.288187	18.013	16.595
$EQ_{it}$	1115	3.547	0.9911	51.725	2606.04	26.24165	764.6452	364.731	5380.85
$EFE_{it}$	1092	0.10313	0.01661	8.367	69.64	14.46268	416.2140	196.216	2819.73
$ML_{it}$	1108	2.355	1.3647	3.714	13.70	7.74935	109.9584	105.315	725.482
$BL_{it}$	1115	-9.502	1.7705	360.66	126754.5	-32.772	1077.902	-455.191	7586.33
Size	1115	5.76206	5.69788	0.60061	0.358	0.636147	3.872660	8.712	6.109

Next we need to figure out whether we should use fixed effect or random effect as well as pooled or panel method. This could be accomplished based on Chow and Hausman tests summarized in Table 2. The results of Table 2 indicate that we must use fixed effect for regression analysis. In addition, we have investigated the correlation among independent variables and our survey did not indicate any strong relationship correlation among independent variables. Therefore, we could rely on the results of regression analysis.

**Table 2**

The summary of the results of Chaw and Husman tests

Objective	Chaw			Husman		
	F-value	Sig.	Result	Chi-Square	Error level	Result
Panel	0.867744	0.9016	Equal intercept			
Pool	17.79501	0	Intercept not equal	43.93108	0	Fixed effect

### 3. The results

In this section, we present details of our investigation on testing the relationship between dependent and independent variables. Table 3 shows details of our findings,

**Table 3**

The summary of regression analysis

Symbol	Variable	Coefficient	Standard error	t-student	Sig.
C	Intercept	0.037647	0.039658	0.949279	0.3427
AB	Abnormal accruals	-0.00311	0.009994	-0.31151	0.7555
BM	Debt/Market Value of Equity	-0.00982	0.004864	-2.01948	0.0437
Cap	Capital expenditure	0.029804	0.029554	1.008453	0.3135
EQ	Quality of profitability	-2.52E-05	7.87E-05	-0.31994	0.7491
EFE	change on earnings per share	0.000243	0.000486	0.501382	0.6162
ML	Market leverage	0.00276	0.001212	2.276551	0.023
BL	Book value leverage	1.08E-05	1.09E-05	0.985715	0.3245
Size	Size	-0.00951	0.006662	-1.42761	0.1537

Durbin-Watson=1.95 F-value = 2.91

We now process the main hypothesis as well as other sub-hypothesis of the survey.

#### 3.1. The main hypothesis

The main hypothesis of this survey considers whether there is any relationship between abnormal accrual and future profitability as follows,

$$\begin{cases} H_0 : \beta_{ROA,AB} = 0 \\ H_1 : \beta_{ROA,AB} \neq 0 \end{cases}$$

As we can observe from the results of Table 3, the relationship between ROA and AB is not meaningful when the level of significance is five percent. Therefore, the main hypothesis of the survey is not confirmed.

##### 3.1.1. The relationship between firm size and future profitability

The first sub-hypothesis of this survey investigates the relationship between firm size and future profitability as follows,

$$\begin{cases} H_0 : \beta_{ROA,Size} = 0 \\ H_1 : \beta_{ROA,Size} \neq 0 \end{cases}$$

As we can observe from the results of Table 3, the relationship between ROA and size is not meaningful when the level of significance is five percent. Therefore, the first sub-hypothesis of the survey is not confirmed.

##### 3.1.2. The relationship between ratio of book value to equity and future profitability

The second sub-hypothesis of this survey investigates the relationship between ratio of book value to equity and future profitability as follows,

$$\begin{cases} H_0 : \beta_{ROA, BM} = 0 \\ H_1 : \beta_{ROA, BM} \neq 0 \end{cases}$$

As we can observe from the results of Table 3, the relationship between ROA and ratio of book value to equity is meaningful when the level of significance is five percent. Therefore, the second sub-hypothesis of the survey is confirmed.

### 3.1.3. *The relationship between capital expenditure and future profitability*

The third sub-hypothesis of this survey investigates the relationship between capital expenditure and future profitability as follows,

$$\begin{cases} H_0 : \beta_{ROA, Cap} = 0 \\ H_1 : \beta_{ROA, Cap} \neq 0 \end{cases}$$

As we can observe from the results of Table 3, the relationship between ROA and capital expenditure is not meaningful when the level of significance is five percent. Therefore, the third sub-hypothesis of the survey is not confirmed.

### 3.1.4. *The relationship between earnings quality and future profitability*

The fourth sub-hypothesis of this survey investigates the relationship between earning quality and future profitability as follows,

$$\begin{cases} H_0 : \beta_{ROA, Eq} = 0 \\ H_1 : \beta_{ROA, Eq} \neq 0 \end{cases}$$

As we can observe from the results of Table 3, the relationship between ROA and earnings quality is not meaningful when the level of significance is five percent. Therefore, the fourth sub-hypothesis of the survey is not confirmed.

### 3.1.5. *The relationship between earning forecasted error and future profitability*

The fifth sub-hypothesis of this survey investigates the relationship between earning forecasted error and future profitability as follows,

$$\begin{cases} H_0 : \beta_{ROA, EFE} = 0 \\ H_1 : \beta_{ROA, EFE} \neq 0 \end{cases}$$

As we can observe from the results of Table 3, the relationship between ROA and earning forecasted error is not meaningful when the level of significance is five percent. Therefore, the fifth sub-hypothesis of the survey is not confirmed.

### 3.1.6. *The relationship between market leverage and future profitability*

The sixth sub-hypothesis of this survey investigates the relationship between market leverage and future profitability as follows,

$$\begin{cases} H_0 : \beta_{ROA, ML} = 0 \\ H_1 : \beta_{ROA, ML} \neq 0 \end{cases}$$

As we can observe from the results of Table 3, the relationship between ROA and market leverage is meaningful when the level of significance is five percent. Therefore, the sixth sub-hypothesis of the survey is confirmed.

### 3.1.7. The relationship between book value leverage and future profitability

The seventh sub-hypothesis of this survey investigates the relationship between book value leverage and future profitability as follows,

$$\begin{cases} H_0 : \beta_{ROA, BL} = 0 \\ H_1 : \beta_{ROA, BL} \neq 0 \end{cases}$$

As we can observe from the results of Table 3, the relationship between ROA and book value leverage is not meaningful when the level of significance is five percent. Therefore, the last sub-hypothesis of the survey is not confirmed.

## 4. Conclusion

In this paper, we have presented an empirical investigation to study the relationship between abnormal accrual and future earnings for selected firms listed on Tehran Stock Exchange. The results indicated that while there were no meaningful relationship between firm size, capital expenditure, earnings quality and earning forecasted error on one side and future earnings, the study confirmed a significance relationship between ratio of book value to equity as well as market leverage and future earnings.

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