Original Article

A Survey on Relationship between Accounting Profit Growth Rate and Forecasted Accounting Profit And Stock Abnormal Return In Tehran Stock Exchange

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ABSTRACT

This study express relationship between accounting profit and abnormal return (lower or greater than market return). For this purpose, it was investigated significant relationship between accounting profit growth rate and abnormal return and also between forecasted accounting profit and abnormal return in 110 accepted firms in Tehran stock exchange. It was tested regression assumption and then wasused panel data and Fixed effect method. The results showed that there is a meaningful and direct relationship between forecasted accounting profit and share abnormal return and also between accounting profit growth rate and share abnormal return.
***Keywords**: accounting profit, accounting profit growth rate, forecasted accounting profit, abnormal return.*

INTRODUCTION

In different accounting studies information content of accounting items on investment return has been tested. But accounting profit is a key and basic variable in investment decision by the decision makers and often has a increasing information content than other variables. (Noravesh, 1383). If profit and loss has explanatory role in share abnormal return, it will be included dividend information content. So this survey is going to test and explain profit explanatory ability in stock abnormal return. For this purpose, we test the relationship between accounting profit and stock abnormal return in Tehran stock exchange. This paper is organized as follows: section 2presents theoretical framework and designs the hypotheses. Section 3 conducts methodology and analysis the data. Finally section 4 offers conclusion and study limitations.

Theoretical and empirical literature

Investors always seek for a return more than the expected rate of return. One of the factors that can fluctuate the stock return to the expected rate of return is the profit and loss information. If the profit news has been issued as good news can increase stock price and take a positive abnormal return, and if the profit news has been issued as a bad news, can take a negative abnormal return. The most famous research about the relationship between profit and abnormal return is the Ball& Brown 1968, that has been era and contrive for other studies and is going until now. They showed that there is a meaningful relationship between profit and abnormal return. Suwanna (2012) investigated the reaction of stock price to profit announcement in 40 days (20 days before announcement and 20 days after announcement) in Thailand exchange during 2005-2010 in 60 companies. The results showed that there is positive meaningful relationship between stock price and profit announcement; it also approved information content of earning. Tian(2007) has examined systematic undersell in Shanghai and Shenzhen exchange in 1397 new entrances firms from 1991 to 2004. He recognized that the reasons of undersell (abnormal return in short term) were investment risk in primary market and governmental regulations. Lonkani & firth (2005) examined 175 initial public offering(IPO) companies in Thailand during 1991-1996. The outcomes showed that a positive relationship between earning estimated error and cumulated abnormal return is not meaningful. Haghighat & Alavi (2013) have survied the relationship between accounting profit transparency and abnormal return in 92 listed companies in Tehran exchange

from2005 to 2010. The outputs indicated that there is a converse meaningful relationship between transparency of accounting profit and abnormal return with or without control variables in Tehran stock exchange. Meshki & Rabbani (2011) have proveda meaningful relationship between profit forecast error and stock abnormal return, as well as profit forecast error and systematic risk in 75 accepted companies in stock exchange from2004 to 2010. The results indicated a meaningful linear positive relationship between profit forecast error and abnormal stock return and also there is not relationship between profit forecast error and systematic risk.

Hypotheses

Forecasted profit and accounting profit growth rate can give a full view of company performance and help in evaluation to investors, as it was mentioned above and also the theoretical framework we set 2 main hypotheses:

Hypothesis 1: there is a meaningful relationship between accounting profit growth rate and abnormal return.

Hypothesis 2: there is a meaningful relationship between forecasted accounting profit and abnormal return.

Type of survey, Data:

This paper is based on applied study and in methodology is descriptive correlation study. Data was collected by the firm's financial statement and Tadbipardaz software as well as by the stock exchange. The studied population is the companies that listed in Tehran stock exchange, and sample has been selected by systematic ellipsis method including 110 companies, which the fiscal period ends at end of the year. These companies should not have changes in fiscal year. Data should be accessible and companies should not be listed in financial or investment industries.

METHODOLOGY

As regards importance role of accounting profit in decision making,especially for potential investors, it is expected that there is meaningful relationship between accounting profit and abnormal return which is the investor reaction to earning announcement. Forecasted accounting and accounting profit growth rate can give a general outlook to firm performance and support evaluation, so it is expected that these variables has maximum effect on investors decision.
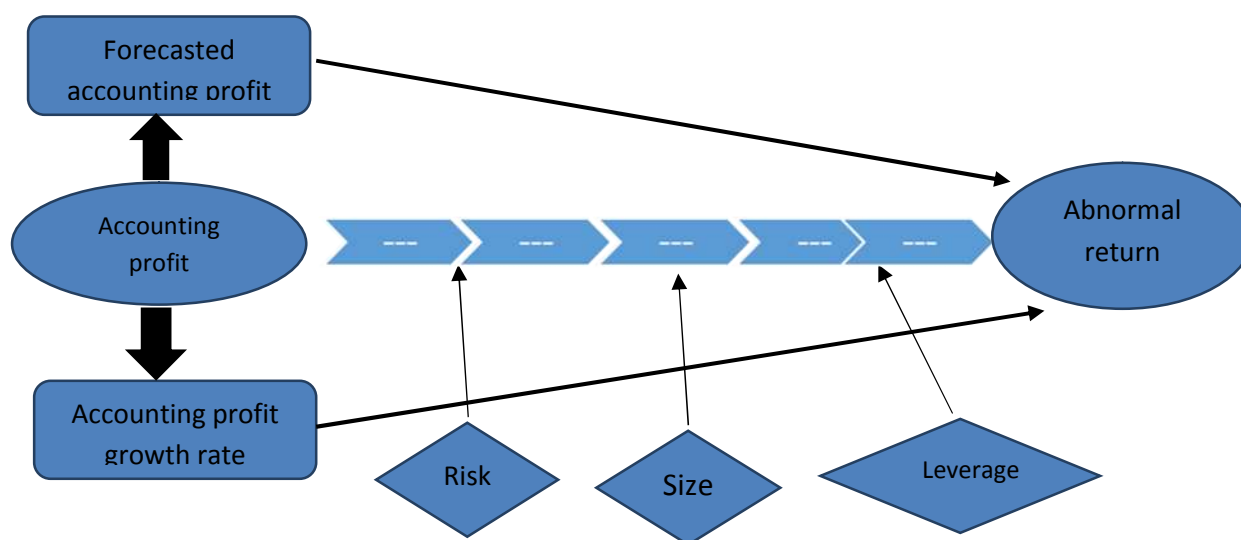
This model wasextended Mark et al basic model (2000) as well asFedmaket aladjusted (2014) model,

thus we applied in this paper as follows:

$CAR_{i,t} = \alpha_i + \beta_1 \text{ASD index}_{i,t} + \beta_2 \text{EAR Dummy }_{i,t} + \beta_3 Xsize_{i,t} + \beta_4 Lev_{i,t} + \beta_5 R_{i,t} + \varepsilon_i$

$CAR_{i,t}$= cumulated abnormal return (dependent variable)

$\text{ASD index}_{i,t}$= accounting profit growth rate (independent variable)

Year Dummy= forecasted accounting profit (independent variable)

$XSize_{i,t}$= size of the firm (control variable)

$Lev_{i,t}$= financial leverage (control variable)

$R_{i,t}$ = firm risk (control variable)

$\varepsilon_{i,t}$= Residual error of firm I at t

$\alpha_{i,t}$=Regression intercept

β= Regression coefficient that estimate slope regression line

And we calculate the variables as below:

Dependent variable:

$CAR_i = \sum AR_{i,t}$ is the cumulated abnormal return

$AR_{s,m}$= r_s-r_m is the abnormal return which r_s is the stock return and r_m is market return.

As mentioned above, to calculate abnormal return, first of all we should take expected rate of return and realized rate of return according to 3-1

$$r_s= [DPS+P_1(1+\alpha+\beta)-p_0-\alpha*1000]/(p_0+\alpha*1000) \tag{3-1}$$

Which r_s is stock return, p_0 is the stock price at the beginning of the period, p_1 is the stock price at the end of period, DPS is Dividend per share , α is capital increase from cash receipt, β is capital increase from stockpile.

Independent variables:

Accounting profit growth rate: $(ASD\ index_{i,t})=[(E_{i,t}-E_{i,t-1})/E_{i,t-1}]*ASD\ index_{i,t}$

$ASD\ index_{i,t}$=Accounting profit volatility ratio of company i at t

$E_{i,t}$=profit/ Earning company i at t

$E_{i,t-1}$= profit/Earning company at t-1

Forecasted accounting profit (Year dummy$_{i,t}$) is equal to logarithmic forecasted profit.

Control variable:

Company size ($XSize_{i,t}$) is logarithmic book value of company fixed asset (bebchook & ferid, 2003)

Firm leverage ($lev_{i,t}$) was calculated as below (binberig,2000):

$$Lev_{i,t} =(Book\ value\ of\ total\ debt) / (Book\ value\ of\ total\ assets) \tag{3.2}$$

Firm risk ($R_{i,t}$): capital asset pricing model (CAPM) states that expected rate of return is risk free rate plus risk premium that is as below (baily &etc 2006):

$E (R_i) =R_f+\beta_i (E (R_m)-R_f)$

$R_{i,t}=R_{f,t}+\beta i(R_{m,t}-R_{f,t})+e_{i,t}$

$R_{i,t}$=Rate of return company i at t , $R_{f,t}$= Risk free rate at t , β_i=systematic risk index for firm I , $R_{m,t}$=market rate of return at t, $e_{i,t}$=Residuals

It should be noticed, systematic risk measurement is obtained from securities rate of return and market portfolio information in stock exchange. Since β was calculated from equation (3-10), which covariance shows and compares variation of variables with each other's and is also was computed as below:

$$\beta_i=COV(R_i,R_m)/VAR(R_m) \tag{3-3}$$

$Cov(R_i,R_m)=\sum(R_i-R^-)(R_m-R^-)/n=E(R_i-R^-)(R_m-R^-)$

Descriptive statistics:

The research population and sample has been used in this paper are shown in table 3.1. Obviously far off data is eliminated by SPSS.

Table 3.1.Descriptive statistics of variables

| Item	observations	μ	σ	Min	Max	Skewness	kurtosis
CAR	660	1.511	0.5357	0.0000	4.3974	1.621	5.022
ASD index	660	0.6875	0.5150	0.0013	3.9603	1.489	4.083
YearDummy	660	0.7079	0.0521	0.4622	0.8608	-0.136	1.445
Size	660	5.9028	0.6010	4.7761	7.9889	0.751	0.712
Leverage	660	0.2368	0.1621	0.0058	1.0159	1.702	4.109
Risk	660	0.9470	0.2832	0.0589	1.8100	-0.569	0.735

One of the classic assumptions is that the residuals are normal, so we should test normality of dependent variables, to satisfy this assumption. For this purpose we run Kolmogorov-Smirnov (K-S) test on dependent variables. The results are shown in table 3.2.

Table 3.2. study dependent variable normalized test result

Variable	Observations	K-S statistic	Significant level
Cumulated abnormal return	660	3.079	0.0000

Since significance level K-S test is lower than 0.05, $CAR_{i,t}$do no not have normal distribution, which is displayed in fig 3.1.

**Fig3.1. abnormality of CAR (Q-Q plot) and independent variable**
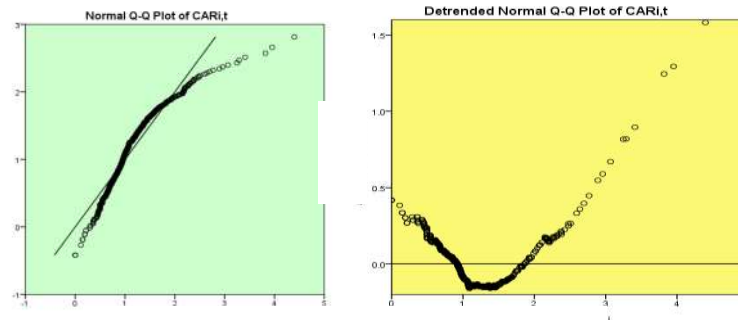
By considering the normality importance of dependent variable, that is the first order condition for regression models, variable should be made normal. Johnson transformation function is used by Minitab 16 software for analysis and normalization.

The results of K-S test after normalization has been displayed in table3.3.

variable	Observations	K-S statistic	Significant level
CAR	660	0.935	0.346

According to fig.3.1,since the significant level of K-S test after normalization dependent variable is greater than 0.05 (0.346), thereforeCAR$_{i,t}$ has normal distribution.
Fig3.2 shows dependent variable normal distribution.
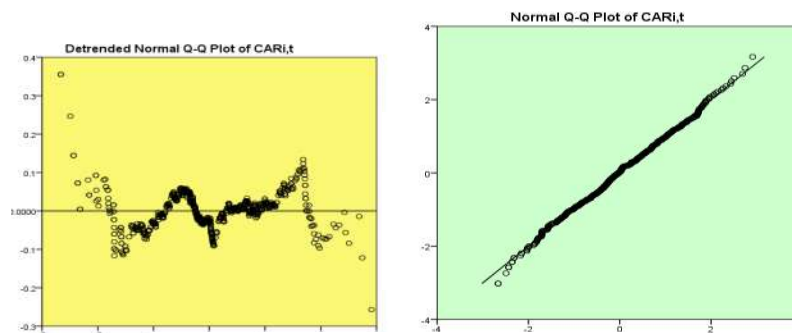
Model estimating

The results of Chow or bounded F test and Hausman test has been shown in table 3.4.

Test	Observation	Statistic	Value statistics	Degree of freedom	P-value
Chow	660	F	3.4903	109.545	0.00000
Hausman	660	χ^2	38.1168	5	0.00000

According to the above information, panel data and fixed effect method are used for model specification. In this paper, we use Jarque-Bera, Breusch-Pagan, and Durbin-Watson and Ramsey test for regression assumption investigation, Residual normality, homoscedasticity, independence residuals and error specification model (linear model). The results of the tests are represented in table 6.4. Since significant level of Ramsey test is greater than 0.05, so we accept null hypothesis, linear model, and model does not have error specification.

As significant level of Breusch-Pagan test is less than 0.05, we reject null hypothesis, homoscedasticity, therefore our model has heteroscedasticity, and we use generalized least squares (GLS) for solving this problem.

Table3.5. Result of hypothesis

Ramsey Statistics		Durbin-Watson	Breusch-Pagan Statistic		Jarque-Bera statistic	
P-Value	F	D	P-Value	F	P-Value	χ^2
0.1880	1.6753	2.00	0.0000	14.1287	0.8796	1.9119

Due to the Chow andHausman test results as well as classic regression assumption test results, we estimate model by panel data method and fixed effect. The results of model are displayed in table 7.4. Estimated model by Eviews software is as below:

$$CAR_{i,t}=-0.2350+0.0356ASDindex_{i,t}+1.0115YearDummy_{i,t}-0.0094XSize_{i,t}+0.068Lev_{i,t}+0.7237Ri,t+\varepsilon_{i,t}$$

Table3.6. Hypothesis test results by fixed effect method

Independent Variable: Cumulated abnormal return Number of observation: 660				
Variable	Coefficient	t-statistic	P-Value	Relationship
Constant	-0.2350	-0.3370	0.7362	meaningless
Accounting profit growth rate	0.0356	1.4853	0.0380	Positive
Forecasted accounting profit	1.0115	2.6496	0.0083	Positive
Size	-0.0094	-0.0911	0.9274	meaningless
Leverage	0.0680	0.3749	0.7078	meaningless
risk	0.7237	16.3241	0.0000	Positive
The coefficient of determination model				0.5469
F- statistics				5.771
P-Value				0.0000

For meaningfulness of model, hence, F-statistics is less than 0.05with 0.95 confidence level, model meaningfulness will be confirmed. The coefficient of determination indicates that 54.69% of $CAR_{i,t}$firms was explained by the variables entered into model.

CONCLUSION

According to table3.6, in review of coefficient significant, since t-statistic of coefficient of accounting profit growth rate and forecasted accounting profit is less than 0.05, so we approve the meaningful relationship between accounting profit growth rate and stock abnormal return, and also between forecasted accounting profit and stock abnormal return with 0.95 significant level. Furthermore positive sign of coefficient explain that increase in the forecasted accounting profit and accounting profit growth rate will cause increasing in stock abnormal return. On the other side control variables, firm size and financial leverage, are not meaningful, because of significance level that is greater than 0.05, in the other hand these variables in relationship between accounting profit and stock abnormal return in stock market do not play effective role. But company risk has a meaningful and direct relationship with stock abnormal return.

RECOMMENDATIONS AND LIMITATIONS

According to the results it is recommended that because of the positive and direct relationship between forecasted profit and accounting profit growth rate by the abnormal return, investors notice to the profit and loss information. So profit and loss is too important factor on abnormal return. Also investors should precaution at the profit and loss announcement, because market is high risk and returns are volatile. There are two limitations about this study: first capital market inefficiency caused the company to be improperly reflected, that can affect the results and price limitation in Tehran stock exchange that cause prices do not display the inherent value of share.

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