

Investigating and explaining the relationship between unexpected earnings and unusual stock yields (Focusing on earning quality features)

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Abstract

A lot of financial analysts believe that earning quality is measured based on a set of key financial variables which are useful in evaluating securities. And different reactions from investors and analysts about the information of earnings create different reactions of the market. The purpose of the present study is to investigate the impact of qualitative features of the earnings on the reaction of investors (unusual yield) to unexpected earnings. The population of the study consists of the accepted firms in Tehran Security Exchange and the research sample consists of 101 firms. Data of the study relate to a period of 6 years (2005-2010) which are selected using systematic sampling. Hypotheses test results indicate that there is a meaningful positive relationship between unusual yields and unexpected earnings. Also the effect of the reliability of the earning on the reaction of investors about unexpected earnings is positive and meaningful; on the contrary, the effect of the sustainability of the earning is negative and meaningful. Consequently, it can be mentioned that if the news released by the company show unexpected earnings, the reaction of the stock market to the earnings would be unexpected too, and will end in the unusual yields for the investors.

Keywords: abnormal return, unexpected earnings, earnings consistence, reliability

Introduction

Investors and analysts encounter entering a great deal of information to market every day. This information is very important and affects stock price and other bonds' price. Changes in stock prices derive from a lot of reasons such as political, economic, and social ones (Mahmoudi *et al.*, 2011). The recent researches show that stock price reacts during 60 days after to 3 years after the earnings' announcement (Miao, & Gillian, 2009). According to market efficiency theory, the investors react to the information present in the market. A major part of the information is related to financial reports of companies which deserves an important position in decisions of investors and creditors. Meanwhile the quality of financial reports is potentially affected by opportunistic incentives of managers and they try to make the figures reported to suite the tendencies of investors and other users.

Accounting earnings are emphasized greatly both on the part of the suppliers of financial statements and on the part of users, because the amount of earnings reflects the efficiency amount of managers in appropriate utilization of firms' resources and shows the return resulted from the capitals of owners in the company. Also a part of managers' reward is determined based on earnings' amount. Thus, they try to maintain earnings growth. Theoretically, the efforts of managers to reduce the fluctuations and earnings' inconsistency and creating a

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permanent growth rate are interpreted as earnings smoothening (Kapopoulos, & Lazaretou, 2007).

The goal of management is to show the company consistent and dynamic for investors and capital market. The achievement of an appropriate position among other rivals and in capital market will create a more suitable outlook among investors and creditors towards the company and the company will not need to spend more in competing with other similar companies and will be able to receive credit and loans with less costs. Also those companies which have a suitable earnings trend and their earnings do not have major changes have more market value compared to other similar companies and absorb potential market investors (Arya *et al.*, 2003). Experimental evidences show that managers in profit organizations may use artificial methods such as optional accruals or real methods such as manipulating the time and amount of sales earnings to smooth the earnings. The existence of a consistent growth pattern in earnings of a company has information advantages for investors and other users of information in a company and increases its capability in predicting future profits potentially (Habib *et al.*, 2011).

The fluctuations arising from the inconsistent earnings increases the probability of losses for investors due to doing unaware transactions and it results in less tendency of them to invest in stocks of the company and thus the liquidation of stock and market value of the company will decrease (*ibid*).

Two characteristics which result in profitability of accounting earnings content are the consistency of earnings and the relatedness of earnings. These characteristics are called the primary quality. Dodd and Cottle (1989, as cited in Habib *et al.*, 2011) believed that consistency and repeatability are among important and effective factors in earnings quality. The earnings quality of firms having regular and consistent profits is higher than firms with inconsistent and highly changeable profits because regular and repeatable profit can make future predictions easy and more reliable. Also the profit resulted from probable activities, sudden and unprecedented activities will have less consistence and permanence (Bolo, & Talebi, 2010).

The relatedness means that profit and information can make difference in decisions. On the other hand accounting profit and information should not accompany bias and errors to be reliable and should be faithful in claims (Nourifard and Aliabadi, 2010).

It is inevitable to rely on predictions and this

unreliability is derived from the variety of the components which are unreliable themselves. But it does not mean that the predictions are useless. Budget controlling entails to the necessity of prediction. As management's decisions about production amount, production development and other related factors of business life are made the predictions for making better decisions are highly important (Tona and Werdi, 2008, as cited in Johnson and Bruce, 2012). On the other hand the quality of the predictions posed by management is much more valuable than those predictions done by people out of an organization because management has more information about the status of the company, is aware of the current projects of the company, and has access to details of financial information from the previous periods. Additionally, a considerable amount of resources is appropriated for financial predictions.

Therefore, regarding the importance of earnings information and also the unprecedented profits resulted from the weak predictions of managers the main question of the present research will be as follows:

What is the effect of the interactions of unexpected earning and the qualitative characteristics of earnings on abnormal return of the stocks of companies?

Theoretical framework and deciding hypotheses

The expectations of individuals follow their predictions and it sometimes is along with inefficiencies. The comprehension of the source of these inefficiencies can have important functions for studying the market efficiency issue. In financial studies the efficient workings of market is broadly considered important. In bourse, usually the stock price is a function of the present value of the future earnings. If these future earnings are not accurate enough that is if there is an unprecedented difference between the real earnings and the predicted earnings the transactions done up to the announcement of the real earnings would not be optimal. The higher amount of unexpected earning will result in more fluctuations in prices (Arya *et al.*, 2003). Thus the first research hypothesis will be as follows.

H1: Unexpected earning will affect abnormal return of firms' stocks.

Francis *et al.* (2008) believe that the low earnings quality is not desirable for investors because it shows the existence of risk in resource appropria-

tion. The main source of this risk is information asymmetry among the stockholders and managers which creates different reactions of capital market towards the information published besides intensifying the agency contradictions in a company. The expectations of investors about earnings and future cash flows of companies are formed based on the analysis of past data and the data predicted by managers. It was reasoned that if the real figures have an unprecedented difference with the previous expectations of investors their attention will turn to the quality of the information published and the ability of manager in appropriate estimation of accruals. In other words, unprecedented earning is a symptom of lack of ability of managers in proper assessment of the future events which may absorb the attention of users to qualitative characteristics of earnings. Therefore, in hypotheses 2 to 5 of the research, the effect of qualitative characteristics of earnings on the reactions of investors to unexpected earning will be considered.

H2: The interaction of earnings consistency and unexpected earning affects abnormal return of firms' stocks.

H3: The interaction of earnings relatedness and unexpected earning affects abnormal return of firms' stocks.

H4: The interaction of reliability and unexpected earning affects abnormal return of firms' stocks.

Research literature

The preliminary evidences of the reaction of bourse to accounting earnings announcement was posed by Ball and Brown in 1968. They showed that firms with good news have positive unprecedented returns and firms with bad news have negative unprecedented returns. The special status of every individual or group to achieve gain or loss in market is considered the main factor in good or bad quality of the news. However, regarding the market perspective, good news will increase return and bad news will decrease return in the market.

Yohn (1998) refers to the existence of some factors in his research during the years between 1985 and 1995 on 317 companies which create important movements in stock prices considering the time of profit announcement which can encourage the transaction parties to collect more information. He found out that both earnings changeability and market reaction have a positive relationship with the changes in the range of the suggested exchange price

of the stocks before the earnings announcement compared to unprecedented earnings. Thus, the range of suggested prices during the day before announcement, the day of announcement and the day after announcement has an additive trend. Spohnoltz (2005) found out in a research carried out among 1270 year-company that there is an unusual fluctuation during some days before the announcement of the earnings. This shows that earnings announcements contain information related to stock market. The continuance of unusual fluctuations during some days after earnings announcement shows that the information environment of bourse reduces the adjustment speed of prices. Besides the signs mentioned concerning the lack of efficiency a meaningful positive abnormal return was observed along with earnings announcement. Pollet and Wilson (2010) studied the relationship between average correlation and stock market return. If the role of cash is considered to be important the changes in stock market variance can only be partially related to the integration risk change and surplus return of stock market. However, since stock return presents a certain type of sensitivity towards the immediate changes of market return higher integrative risks can only be created through the relationships between stocks. Additionally, every change in stock market variance which does not affect integrative risk cannot affect stock market risk or can have a reverse effect. In this paper it will be shown that changes in stock market risk can be predicted by the changes in average variances of individual stocks. These changes have a negative effect on the future abnormal return in the market. Mark Chadeknet *et al.* (2011, as cited in Johnson and Bruce, 2012) studied the usefulness of firms' activities compared to unexpected earnings in Canadian Stock Exchange in the time period between the years 1994 and 2009 in research paper entitled: "Is exchanging to get unexpected earning a useful strategy?" The evidences in this research showed that stock price increases considerably during some months after earnings announcement but these unexpected earning create a type of unreliability in long-term towards the predictions of analysts about the earnings of companies which will not be favorable for the companies regarding activity strategy and also lack of in time responding of earnings to market information. Mahmoodi *et al.* (2011) studied the type of reaction of investors to earnings announcement. They divided the investors' reactions into two types of low and high amounts of reactions in the time

positive and negative earnings are announced and concluded that investors showed low reactions when the changes of positive earnings announcement and negative earnings announcement are carried out. Mahmoodi and Mohaghegh (2011) studied the reactions of Tehran Stock Exchange to fundamental deviations in stock dividends trend. The results of measurements gave evidences that market follows a certain trend and shows a positive reaction to increases done by that trend. Market does not show an unprecedented reaction until the time an entity deviates from its previous trend. Regarding the fact that market reaction to fundamental positive deviation takes a negative trend it is considered as a negative reaction and we can conclude that positive news along with negative trend is not accompanied with an appropriate reaction on the part of market and the market follows the trend in this type of deviations. Parvin Sadri (2011) studied the relationship between the error in predicting earnings per share and abnormal return of stocks in companies newly entered into Tehran Stock Exchange. The results of the research shown by using a multi-variable linear regression analysis entails that there is a positive

meaningful relationship between earnings prediction error per share and abnormal return of stocks of newly entered companies during both time periods under investigation and the type of industry affects this relationship, too. Johnson and Zheho (2012, as cited in Johnson and Bruce, 2012) studied the relationship between unexpected earning and stock market price reaction along with earnings announcement in a sample containing 2203 companies. They generalized the studies of Bugstahler and Martin (2001, as cited in Khoshtinat, 2006) and found out that there is a meaningful and negative relationship between unexpected earning (positive and negative) and stock price reaction. That means the higher amounts of unexpected earning will result in more reactions on the part of investors.

Methodology

The present research is applied regarding its goal and it is post incidental correlation type regarding methodology. In this research, we have used multi-variable models of multi-regression to test the hypotheses.

$$AR_{it} = \beta_0 + \beta_1 unexpected\ earning_{it} + \beta_2 EQProxies_{it} + \beta_3 unexpected\ earning * EQProxies + \beta_4 SIZE_{it} + \beta_5 MTB_{it} + \beta_6 \Delta E + \varepsilon, \quad (1)$$

where AR_{it} = abnormal return index in year t and in firm i

Unexpected earning_{it} = unexpected earning index in year t and in firm i

EQProxies_{it} = indexes of qualitative characteristics of earning in year t and in firm i

SIZE = index of firm size in year t and in firm i

MTB_{it} = market value to book value of the company

ΔE = earning fluctuations index

ε = measurement error in the model

tion error. The lower amount of unexpected earning will result in less earning prediction error because earnings will have a higher quality. To calculate unexpected earning we have used absolute amount index of the difference between real earning and the predicted earnings per share:

$$UE_{it} = |AEPS_{it} - FEPS_{it}|, \quad (3)$$

where FEPS = predicted earning

AEPS = realized earning

Research variables and their measurement methods

Dependent Variable

Abnormal Return

$$AR_t = RET_{it} - RET_{mt}, \quad (2)$$

where RET_{it} = return rate of the firm

RET_{mt} = return rate of total stock market index

Independent Variables

Unexpected earning

Unexpected earning shows the earning predic-

Earning Power

Earning power means the permanence (repeatability) of current earnings. The more earning power means that the company has more capability to maintain the current earnings and it is presupposed that earning quality of the company will be higher. In the present research, following Penman (2001, as cited in Dastgir and Rastegar, 2011) earning power has been measured through earning regression of the period t on earning of period t-1.

$$Earnings_t = \beta_0 + \beta_1 Earnings_{t-1} + \varepsilon_t, \quad (4)$$

In the regression pattern above, the coefficient

β_1 shows the amount of relationship between the earnings of the current period and earnings of the previous period which reflects earning power. If the coefficient β_1 is statistically meaningful there would be a consistent pattern in earnings reported by the statistical sample companies during the research period.

Earning relatedness

To test the amount of relatedness of earnings we have used the valuating model framework of Olson (1995) which has been utilized by Nourifard & Aliabadi (2010), too.

$$P_{it} = \beta_0 + \beta_1 E_{i,t} + \varepsilon_{it} \quad (5)$$

where

P_{it} = stock price index in the year t and in the company i

$E_{i,t}$ = net earnings index after subtracting the tax of each share in the year t and in the company i

ε = measurement error in the model

Reliability

To study the reliability we used Defound and Park's (2001, as cited in Dastgir and Rastegar, 2011) model which entails two perspectives of faithful expression and earning proof capability.

$$AWCA - DP_t = WC_t - [(WC_{t-1} / S_{t-1}) \cdot S_t], \quad (6)$$

where

AWCA-DP: abnormal walking capital accrual

WC: walking capital in cash

S: sales amount of the company

Control variables

1) Firm size: it is achieved by rial logarithm of assets;

2) Market value to book value of the company: it is calculated by dividing market value of firm stocks to book value of the share during the same year;

3) Earnings fluctuations

$$\Delta E = (E_{it} - E_{i,t-1}) / TA, \quad (7)$$

where

(E_{it}) : earnings per share in the year t

$(E_{i,t-1})$: earnings per share in the year t-1

(TA): total assets

Results

Descriptive statistics

The results of descriptive analysis of the data are presented in table 1.

Descriptive analysis of research variables are shown in table 1. Total research period through which the data of the sample companies have been collected include 7 years from 2004 to 2010. Since some of research variables were postpone model and were related to t-1, practically 6 years were analyzed in research hypotheses' tests which involved 606 year-company.

Table 1. Descriptive statistics of research variables.

variable	Number of observation	minimum	maximum	average	Standard deviation
AR	606	-7.6136	1.4184	.003994	.7081074
E	606	-.7179	.5757	.116318	.1309216
M v	606	.0298	6.9291	.761709	.7425352
AWCADP	606	-.7595	1.3926	.027951	.1757585
TA	606	-1.6860	1.2924	.020805	.1893449
PPE	606	.0000	1.6940	.273599	.2150494
DE	606	-.4966	1.0854	.015940	.1134333
SE	606	-.52831	.29282	-.0000227	.06051564
Rel	606	-1.38727	1.12671	-.0000689	.10717677
TAC	606	-9.16364	5.75296	.0000000	.99751758
Size	606	10.6620	18.3212	13.199181	1.4887603
MTB	606	-103.1214	37.4031	1.704544	5.7821377
UE0	606	.0001	3.5887	.132277	.2786683

Research Hypotheses testing results

To test the hypotheses, the basic presuppositions of the regression pattern were studied as follows:

- All data should have normal distributions: to test the normality of the data we used Kolomogrov-Smirnov (K-S) method.
- Error phrases in different observations are not correlated: if this presupposition is violated we will encounter a problem entitled self-correlation. Generally speaking, whenever ϵ_t has a certain order the lack of correlation presupposition is violated and we would have a positive, negative or an integration of self-correlation. To do this task we have used Durbin-Watson's method. If the amount of statistics of the test is between 1.5 and 2.5, the existence of self-correlation between errors will be rejected.
- There should not be co-linearity (correla-

tion) between independent variables: there are several techniques to do so. The great amount of R², and small amounts of t or (lack of meaningfulness of the coefficients) is one of the recognition criteria of co-linearity and above 30 status is another criterion. An important point in this test, unlike other tests is that whether this co-linearity is tough or not? The toughness of co-linearity shows a serious problem in using the regression.

The items above were not observed in testing the research hypotheses above and the regression patterns were approved.

Results of testing the first hypothesis

The coefficient gained for the variable UE0, which shows the abnormal return resulted from unexpected earnings, is positive and meaningful. Thus, the third hypothesis is accepted in assurance level of %95.

Table 2. Statistical analysis results for first hypothesis test.

$AR_{it} = \beta_0 + \beta_1 UE0_{it} + \beta_2 Size_{it} + \beta_3 MTB_{it} + \beta_4 \Delta E + \epsilon$										
Results of testing	Overall regression model				co-linearity tests					
	R ²	D-W	P-value	F	Tolerance	variance amass factor	P-value	t test	coefficient	variables
Accepted	.230	2.150	.000	21.76	.983	1.018	.001	3.336	.326	UE0
					.998	1.002	.858	-.179	-.003	Size
					.981	1.020	.098	1.660	.008	MTB
					.989	1.011	.000	-8.457	-2.023	DE

Results of testing the second hypothesis

Table 3. Statistical analysis results for second hypothesis test.

$AR_{it} = \beta_0 + UE0_{it} + \beta_2 SE_{it} + \beta_3 UE0_{it} \times SE_{it} + \beta_4 Size_{it} + \beta_5 MTB_{it} + \beta_6 \Delta E + \epsilon$										
Results of testing	Overall regression model				co-linearity tests					
	R ²	D-W	P-value	F	Tolerance	variance amass factor	P-value	t test	coefficient	variables
Accepted	.236	1.834	.000	14.70	.521	1.921	.000	2.412	.312	UE0
					.686	1.459	.029	2.347	1.120	SE
					.409	2.443	.031	-2.03	-1.082	UE0× SE
					.995	1.005	.615	-.221	3023	Size
					.974	1.027	.312	1.506	.102	MTB
					.954	1.048	.000	-8.65	-2.331	DE

The coefficients gained for the variable UE0, and SE are positive and meaningful. These findings show that firstly the unexpected earnings result in increasing abnormal return of stocks and secondly the investors react positively to earning power. Meanwhile the coefficient of the variable UE0 * SE is negative and meaningful. This finding shows that earning power has changed the type of the reaction by the investors to unexpected earnings. Therefore, the second research hy-

pothesis is accepted in an assurance level of %95.

Results of testing the third hypothesis

The coefficient gained for the variable UE0, which shows the abnormal return resulted from unexpected earnings, is positive and meaningful. Meanwhile, the reaction of return to the relatedness variable and the interaction of unexpected earnings and relatedness are not meaningful. Thus, the third hypothesis is rejected in assurance level of %95.

Table 4. Statistical analysis results for third hypothesis test.

$AR_{it} = \beta_0 + \beta_1 UE0_{it} + \beta_2 Rel_{it} + \beta_3 UE0_{it} \times Rel_{it} + \beta_4 SIZE_{it} + \beta_5 MTB_{it} + \beta_6 \Delta E + \varepsilon$										
Results of testing	Overall regression model				co-linearity tests					
	R ²	D-W	P-value	F	Tolerance	variance amass factor	P-value	t test	coefficient	variables
Rejected	.130	2.139	.000	14.89	.647	1.545	.006	2.782	.335	UE0
					.570	1.755	.135	-1.498	-.500	Rel
					.436	2.294	.480	.706	.421	UE0× Rel
					.983	1.017	.852	-.187	-.003	Size
					.906	1.104	0.45	2.009	.010	MTB
					.966	1.035	.000	-8.205	-1.986	DE

Results of testing the fourth hypothesis

The coefficient gained for the variable AWCADP is negative and meaningful. This finding shows that the investors have an undesirable reaction towards earnings reliability. The coefficient estimated for the variable UE0 * AWCADP which shows

the effect of reliability of earnings over the reaction of investors towards unexpected earnings is positive and meaningful. This finding accord with the claim posed in fourth hypothesis and thus, this hypothesis is accepted in an assurance level of %95.

Table 5. Statistical analysis results for fourth hypothesis test.

$AR_{it} = \beta_0 + UE0_{it} + \beta_2 SE_{it} + \beta_3 UE0_{it} \times SE_{it} + \beta_4 Size_{it} + \beta_5 MTB_{it} + \beta_6 \Delta E + \varepsilon$										
Results of testing	Overall regression model				co-linearity tests					
	R ²	D-W	P-value	F	Tolerance	variance amass factor	P-value	t test	coefficient	variables
Accepted	.242	2.163	.000	16.50	.747	1.338	.000	3.779	.420	UE0
					.631	1.585	.002	-3.055	-.58	AWCADP
					.544	1.838	.011	2.536	1.144	UE0× AWCADP
					.961	1.041	.419	-.809	-.015	Size
					.977	1.024	.112	1.594	.007	MTB
					.870	1.149	.000	-7.430	-1.88	DE

Conclusions

The results of testing the hypotheses showed that investors have presented a positive reaction towards unexpected earnings in our statistical sample companies. In other words, by increasing (decreasing) unexpected earnings, abnormal stock returns of firms have increased (decreased). It seems that the more difference between real results and the expectations of investors will result in more distances of stock return of the company from market return index.

According to the research findings, capital market reacts to qualitative features of earnings. Therefore, investors have reacted positively towards earning power. In other words, firms having more powerful earnings have prepared more abnormal return for their stockholders. It is possible that firms with consistent earning be considered more suitable places for investment because firstly these companies will encounter more probability to maintain their profitability in the future and secondly the future earnings predictions in these companies will be more probable and easier for the investors. The results showed that earning power affects investors' reactions to unexpected earnings negatively. This may be due to the improbability of the happening of unexpected earnings in firms having earning power and the investors have interpreted it as an undesirable incident.

Regarding the reliability of earnings the findings have shown that the capital market reacts towards this variable negatively. Meanwhile, the reaction to the interaction of unexpected earning and reliability is positive. Therefore, it seems that probably investors estimate earnings reliability low encountering unexpected earnings because unexpected earnings are evidently deviations from the reality and probably reduce the amount of earnings reliability through the investors' perspectives.

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