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Original Article

The Effect of Equity Returns of Shares Holders and Firm Size on Abnormal Returns on in IPO

Oktay Yamrali*[1], Mohammad Reza Aboujafari[1], Ali Aliyani Nezhad[1], Somayeh Ghochzadeh[2]

[1]Department of Accounting Payame Noor University. IR. of Iran
[2]Department of Economic Payame Noor University. IR. of Iran

*Corresponding Author E-mail: OktayYamrali@gmail.com

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ABSTRACT

The purpose of this study is the investigation of variations in equity returns of shares holders and firm size on abnormal return created in IPO. For this case, the firms which entered to Tehran Stock Exchange from 1999 to 2011 were investigated by means of regression analysis. Therefore, 92 firms were selected randomly by removal method. The results show that there is a meaningful relationship between equity return of stock holders and abnormal return in IPO and there was no meaningful relationship between firm size and abnormal return in IPO.

Key words: Return On Equity, Firm Size, Abnormal Returns.

Introduction

There are so many years that the operation of public offering shares has attracted primary attention of financial researchers. Based on the definition of efficient capital markets' hypothesis, the price of stocks in every moment of time reflects inherent value of shares by regarding to the existing information in the market. However, the financial literature confirms that in the initial public offering of stock, there are three phenomena that are in contradiction with the hypothesis of efficient capital markets. The first phenomenon is pricing less than real one or offer below the price of public offers' shares. Pricing less than reality means that firms which offer stocks, offer their stocks in a price less than inherent value and this causes that buyers of these stocks obtain higher return at the first day (approximately between 10 to 30%). There are so many experimental evidences that show pricing less than reality phenomenon is a universal one and has publicity in stock exchange market of all countries. The second phenomena in primary public shares offering is that these stocks in comparison with market portfolio or shares of similar firms, will have negative return for their investigators in long term. Negative operation of primary public offerings shares in long term phenomenon has not been confirmed in all markets of the worlds as the first phenomenon and it is not universal and the methods of its measuring are in conflict by financial researchers. The third phenomenon related to primary public offering shares is "the existence of special periods in number and volume of public offering in market (or named as hot periods of primary public offerings in financial literature) and fluctuation of price measuring less than reality proportional to the market conditions". These three phenomena, because of having contradiction with the principals of efficient capital markets hypothesis, have attracted attention of financial researchers. In this way, several theories and hypotheses have been presented from financial economists for explain and description every one of these phenomena. In general, these theories or hypotheses put the principal of their reasoning based on the non similarity of information between three beneficiaries groups in the process of primary public offering (the firm which offers share, investigator bank and potential investors in the market) and they contribute each phenomenon to the especial factors and variables. By regarding to the reasoning for every theory, there are several researches and studies that investigated relationship between these phenomena with factors such as (Bagherzadeh *et al*., 2007) conditions of market in the date of offering stocks (Bhagat and Rangan, 2003) combination and number of shares holders of the firm which offers shares in the period before and after offering share (Cai *et al*., 2008) information related to the offered share and (Deepak, 2010) accounting information of offering share firm. Despite that there are so many researches which investigated relationship of this phenomenon with three first factors, but the investigation of the relationship of the first phenomenon and the negative long term operation of primary public shares' offer with information and accounting variables and efficiency of accounting information in determination of offering price and its relationship with the primary abnormal return and negative return of these shares in long term are less in attention of researchers. By regarding that the most important group in the capital market are potential and active investigators, therefore their proper decision making have important role in directing capitals and optimum allocating of them. Thus, accounting information systems should offer useful information to users to satisfy their needs in their decision making models.Literature review and related backgrounds:

Internal researches

Ghodratollah Talebnia, (1995) Based on the revolutions occurred during recent years in Tehran Stock Exchange, some researches have been done about different financial subjects. The first research in this case was performed in 1995 by Ghodratollah Talebnia named problems of pricing shares of firms that are subjected for specialization and suggesting proper method for pricing. He tried to emphasize or reject the relationship between primary price of performed bargains of firms which are subjected for specialization and pricing based on experimental theories and at the end the main hypothesis of research was rejected. Abde Tabrizi and Damori, (2003).In a research named determination of effective factors on long term return of shares in firms which recently have been accepted in Tehran Stock Exchange, those firms were investigated whose shares were offered for the first time in Tehran stock Exchange. In this research, the new arrived firms to Tehran stock Exchange during 1990 and 1995 were investigated and effective factors on long term return of these firms were tested. These factors are: volume of yearly bargaining of shares, firm size and short term return obtained from buy and sell of shares in related companies. The results of this research showed the existence of more short term return of shares from new comer firms to the market proportional to the market index and less long term return of shares for these firms proportional to the market index. Therefore, they believe that the operation of new arrived firms to Iran Stock is similar to the capital market in different countries. Zariffard and Mehrjou, (2004) in a research the operation of pricing on the new arriver's firms pricing to the Tehran Stock Exchange has been investigated. In this research short term return for 91 new arrived firms during 1999 to 2003 has been investigated. The results of this research showed that short term return of new accepted firms were more than market's return. Imani, (2005) In a research named "investigation of pricing of firm's shares in the first offering of their shares to Stock" the difference between stock's price in the primary offering with the next prices and also effective factors on this difference in price for accepted firms during 81 and 82 in a 3 months period was investigated. The results of his research showed that amount of P/E of firm, type of industry, time of offering shares and amount of firms' capital is effective in difference of shares' price but the percent of offering shares has no effect. Ghaemi, (2006) in a research named "investigation of short term return of shares from new arrived firms to Stock Exchange "he investigated the relationship between volume variables of offered shares, firm size, ownership condition and existence of similar firms with abnormal return of new shares. The obtained results from 153 sample firm showed a relationship between variables of market conditions and existence of similar firms with abnormal return of shares. Ashtab, (2007) in a research as "investigation of relationship between accuracy of return's prediction and abnormal return of shares' firms" he investigated shares of newly arrive firms during 1999 and 2005. The findings of this research showed that there is a meaningful difference between predicted return and real return of shares. Also, there was a negative relationship between accuracy of predicting return and abnormal return of new stocks. By Zahra Moradi, (2009) In this research also assumptions in relation with primary offering of shares in Tehran Stock Exchange in 2001 to 2008 were represented. These assumptions include reaction of investor, the number of days that the price of new stocks are recorded and also accounting variables such as EPS, P/e and several other assumptions which were the result of research. It has been suggested that the number of days to record the price in Tehran Stock Exchange averagely was 19 days during the investigated years and also in investigated variables only P/E variable was effective on short term operation of IPO. Tajiknia (2010) she explained financial and non financial factors on the short term operation of IPO in Tehran Stock Exchange that in this research three months return of IPO was analyzed between 2004 and 2008. Among investigated years, 56 new arrived firms were interred to the capital market of Tehran which research on the short term operation of shares in these firms has been performed and also in continue the effect of financial and non financial factors effects were tested in the shape of 5 variables on short term operation of IPO. The variables in this study were: the volume of equity propagation, the amount of reputation of the institution's audited financial statements for the newcomer firm, the amount of owning ownership of real and legal persons' capital, kind of ownership of newcomer firm to the stock exchange (governmental/ private) and amount of capital's firm which the effect of these cases on short term return was measured and analyzed both separately and in combination on the short term operation of IPO.

External Researches

In addition to the performed researches in the field of primary offering of shares (IPO), now in this part it is pointed out to some cases: Ibetson and Jeff (1975) by investigation of a larger sample from Ibetson research at the same time zone, they stated that pricing less than reality in primary offerings of shares is a periodical phenomenon. It means that in the periods that the number of primary public offering in more in the market (hot period for primary public offering) the pricing less than reality is more and in the periods that the number of primary public offering is less in the market (cold periods for the primary public offering), the pricing less than reality is less (short term return). Riter, (1999) He is the first researcher who found that primary public offering shares in long term have negative operation. He investigated the operation of the primary public offerings shares during 1974-1975 by means of different indexes and criteria and reported that the primary public offerings in this country have created 19.6% of return in market. Derin and Vumak, (2000) they stated that current conditions of the market have important role in determination of pricing less than reality for the primary public offerings shares. Therefore, the more optimum is the market conditions before the date of primary public offerings, the pricing less than reality is more expected. Yatman, (2001) Information efficiency of the primary pricing and three years return of the primary public offerings were accounted by him and concluded that accounting information by the primary pricing and three years return of the primary public offerings have meaningful relation. Bagat and Serivanastan, (2003) they performed a research which is the most exclusive one in the field of the relation between accounting information with value making of shares from newcomer firms to the stock market. In this research, in addition to the role of accounting information, other variables such as growth opportunity, percent of ownership of the primary shares holders in the date before and after primary offering of shares and credit of the investigator bank responsible for offering firms' shares were investigated by means of information sample of 1655 newcomer firms to America during 1986-2001 and the results showed that in addition to accounting variables such as net interest, book value of share and selling, other factors such as percent of ownership for the primary shares holders and credit of investigator bank responsible for offering shares in pricing less than reality play important role. Also (2003) He investigated the effect of firm size, ratio for book value and market value and previous information on the additional return. The results showed that published financial statements by the firms have informational content. One of abnormal obtained results is that significant additional returns are continued under the methods of research in time returns. Hatez (2005) By means of "traditional research event" he investigated informational contents of income's statements in small shares market of Denmark. The results of the research show that in the announcement days of interest, there is abnormal fluctuation which this is the result of informational content of interest. Myring, (2006) In a study he investigated the relationship between return and unexpected incomes by means of accounting whose the main purpose of it was determining reaction against unexpected incomes which is used by change in interest of each share and error of analyst's prediction. Yung, Ko Kim (2007), they performed a study about combination of paying and abnormal return methods in firms which accept guest. The results of research showed that guest acceptors received 12 cases of positive abnormal return and a negative relation exists between cash paying and abnormal return by service receivers. Bachta *et al*., (2008)They investigated the relation between capability of prediction of abnormal return and expected errors in financial markets and by means of research's data about participating people in shares market, bargaining market, Bonds and money markets in different countries, the results of which are as follows: The first, in the markets that the predictability of abnormal returns is possible, such as exchange market, there is no predictability, and the error is almost impossible to predict.Adel Bobabakr and Mazhood, (2010) They investigated the relation between firm's operations in the primary offering of shares with ownership structure and they concluded that there is an inverse relationship between operations of firms in IPO with changes in ownership structure.Poolet and Wilson, (2001) They investigated the relation of intermediate correlation and return of shares market and they concluded that every change in shares market's variance which is ineffective on accumulative risk can be ineffective on the shares' market risk or it has inverse effect and also they showed that average relation between daily return of shares could predict abnormal return for four months. Also change in the risk of shares market can be predicted by changes in average variance of individual shares.

Research questions

1 - Is there a meaningful relation between equity returns and abnormal return of shares in IPO? How much is it?
2- Is there any meaningful relationship between firm size and abnormal return of shares in IPO?

Research's hypotheses:

1- There is a meaningful relation between equity return and abnormal return of shares of newcomer firms to Stock market.
2- There is a meaningful relation between firm size and abnormal return of newcomer firms to stock market.
Note that the above assumptions will be tested in 12 months period after primary offering of shares in stock market.

Operational definition of variables

For this study the following general model is used:

$CAR = a_0 + b_1\, ROE_{it} + b_2\, SIZE_{it} + e_i$

In the above equation, we have CAR_q- Cumulative abnormal returns and the new shares will be calculated as follows:

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

R_{it} :Stock returns i in year t.

R_{mt} = return of price index and cash return of Tehran stock market in month t.

AR_{it} = abnormal returns (adjusted returns than stock return) stock
I in month t.

Return on equity shall be computed as follows.
And the market return is calculated as follows.

$$r_{mt} = \frac{I_{mt} - I_{m0}}{I_{m0}}$$

I_{mt} =price index and cash return at the end of month t
I_{m0} = Price index and cash return at the beginning of month t
After calculating monthly abnormal return, it is used from the following relation to compute average of abnormal return n of sample share in month t:

$$AR_T = \frac{1}{N}\sum_{i=1}^{n} ar_{it}$$

In this relation we have:
AR_T =Average rate of abnormal return n share in month t
N= number of shares in month t
After computing average rate of abnormal return n share in t month, it is used from this relation to compute accumulation abnormal rate of return:

$$CAR_{q-S} = \sum_{T=q}^{S} AR_T$$

$SIZE_i$: Is firm's size that in this research it has been used from selli volume logarithm.
ROEi **:** Is the return of shares holders' equity which is equal to the interest to special value ratio of firm in the year before arrive to the stock market.
ei **:** error

Materials and methods

The methodology is correlation one which will be used from regression analysis to obtain model coefficients and confirm or rejecting hypotheses. Regression analysis studies the dependency of a variable (dependent variable) to one or more variables (explanatory variable), which is done by estimation or prediction of average amount or first type variable's amounts , in a way that amounts of second type variable's amount is given. But before regression analysis it should be ensured from the correlation between variables and meaningfulness of correlation coefficient. Data are collected from journals and reports of the organization, accounted financial statements of sample firms and software informational banks and informational station of research management.

Statistical community

By regarding to the place zone of the research, statistical community included all firms accepted in Tehran Stock exchange organization that during 1999 to 2011 for the first time offer the primary public shares in Tehran stock market.

Table 1. distribution of firms entered to Tehran Stock market

2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	Year
11	5	6	6	5	4	6	39	49	17	9	10	13	Community
7	3	4	5	4	3	2	13	22	9	6	6	8	Sample

The primary offerings were not tested because it should be analyzed abnormal return of the next 12 months which under these conditions until 2011 the newcomer firms can be selected.

Methods and tools for data analysis

After computations related to variables and obtaining firms' information, data are prepared to analyzed and in this way by means of regression method of cross-sectional variables, tests of meaningfulness of correlation coefficient, test of average, hypotheses of test's researches and based on the results obtained from investigation of meaningfulness, it will decide about reject or confirm hypotheses.

Test of hypotheses

The first hypothesis test
"There is no relationship between return of shares' owners and abnormal return of shares in newcomer firms to stock market".
To investigate the relationship between variables of return for shares' owner rights and abnormal return of shares in newcomer firms to stock market, the following hypotheses are represented:

$$\begin{cases} H_0: \rho = 0 \\ H_1: \rho \neq 0 \end{cases}$$

In which ρ is Pearson correlation coefficient between variables of shares owners' return and abnormal return of newcomer firms' shares to the stock market. As it is observed from table 2, the amount of this correlation coefficient has been estimated 0.259 that this amount is in meaningful level of 0.01(p-value < 0.01). Therefore it can be concluded that there is a meaningful relationship between return variables of shares owners' return and abnormal return of newcomer firms to the stock market and as this coefficient id positive, the relation between these two variables is direct. It means that by increase of shares owners' return, abnormal return of shares in newcomer firms to the stock market will be increased.

Results

Table 2. relationship between return of stock owners' return and abnormal return of stock in IPO

value–P	Correlation coefficient amount	Sample volume
003/0	259/0	92

Test of second hypotheses

"There is no relationship between firm size and abnormal return of newcomer firms' shares to the stock market".

To investigate the relationship among firm size and abnormal return of newcomer firms' shares to the stock market, test hypotheses are used ad the following:

$$\begin{cases} H_0: \rho = 0 \\ H_1: \rho \neq 0 \end{cases}$$

In which ρ is the amount of Pearson correlation coefficient between variables of firm size and abnormal return of shares for newcomer firms to the stock market. As it is observed from table 3, the amount of this correlation coefficient has been estimated 0.024, that this amount is not meaningful in 0.05 levels. Therefore it can be concluded that there is no meaningful relationship between firm size and abnormal return of shares from newcomer firms. The results obtained from this research have been confirmed by Abde Tabrizi and Damoori (1382), but in performed researches by Kooli and Soort (2003), Kat *et al.*, (2008) and Modarres and Asgari (2009), the reverse results have been obtained.

Table 3. relationship between firm size and abnormal return of newcomer firms to the Stock exchange

value–P	Correlation coefficient amount	Sample volume
785/0	024/0	92

Investigation of regression model

To investigate simultaneous effect of independent variables of shares owners' return, firm size on dependent variable of abnormal return's shares, it is used from regression model (1).As it is observed in the table of variance analysis (table 4), the amount of F statistics and p value confirm meaningfulness of regression model (the amount of p is less than 0.05). Also the amounts of determination coefficient and adjusted determination coefficient respectively are 0.28 and 0.074 that shows a percent of variable's changes.

Table 4. variance analysis table

Watson-Dorbin statistics	Meaningfulness level of model	F statistics	Adjusted determination coefficient	Determination coefficient
575/1	004/0	353/3	0784/0	28/0

Now we investigate meaningfulness of regression coefficients of individual variables (amounts of β_i s) . The meaningfulness of each variable in model is investigated in model by means of t statistics and p value. As it is observed in table 5, p value is meaningful in 0.05 levels for return of shares holders and firm size variable is not meaningful in 0.01 levels. Then, only return of shares' holders is necessary in regression model. In the following we investigate regressions: The amount of Durbin-Watson statistics has been calculated 1.575 which confirms lack of correlation between remaining.In multiple linear regression model, we use from VIF statistics to investigate lack of co-linearity between independent variables. Amounts smaller than 10 for VIF statistics show lack of co-linearity which in this model, VIF amount are less than 10 and show co-linearity in regression model (co-linearity means the existence of meaningful relationship between independent variables which is not optimum for regression and creates problems).

Conclusion

Limitation of research

One of limitations of this research is that we suppose economical factors as constant, such as the rate of inflation which if this factor interferes, it causes changes in results. In this study, to estimate abnormal return it was used from price index of stock exchange. Therefore, if it is used from other models related to estimation such as total cash return and also index of 50 firms which are more active, may be the results were different.

Suggestions obtained from research's results

The first hypothesis was that "there is a meaningful relationship between rights of shares holder and abnormal return of newcomer firms' shares". By rejecting the statistical hypothesis and the positive relationship between variables, it is recommended to the buyers of newcomer firms' shares that they buy firms' shares that have more return of shares.

The second hypothesis was that " there is a meaningful relationship between firm size and abnormal return of newcomer firms to the stock market " which by confirming statistical hypothesis this variable hasn't informational content for buyers of shares from newcomer firms.

Suggestions to perform future researches

During different steps of this research, it was found unclear points and their investigation needs more researches as the following:

1-investigation of inflation rate's effect and other economical indexes on the relationship between research variables and abnormal return of shares in IPO

2-investigatio of the relationship between different industries with abnormal return of shares in IPO

3-identification and investigation of effective accounting variables on the abnormal return of the new shares which have not been investigated in this research such as accruals return rate of investment, growth of fixed assets, operational cash, interest cost and distribution of cash interest.

Table 5. Estimation of regression coefficients of model

Statistics of VIF	value–P	Test statistics of t	Amount of β_i	Regression coefficients
-----	995/0	006/0-	018/0-	β_0
497/1	002/0	115/3	013/0	β_1
206/1	880/0	151/0	029/0	β_2

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