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The Effect of Size of Company on the Return of the Investment in Exchange Market

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ABSTRACT

Investors should take into account many internal and external elements regarding choosing and forming the share basket and then choose the one with the highest return rate. Of all, money and financial markets, economic environment, type of organization activities and companies records can be mentioned. It can be noted that the most important factor in choosing a company share is their size which is a determining factor for the volume and extension of the company activities (the size of a company in this research is the same as the rial value or rial volume of a company share).The bigger the company is, the more credit it will have in the share holders' and investment market so that the company has more access to external finances with even a lower interest or it will be more economical due to the size. On the other hand, the smaller the company is, the more limited the foreign resources will be compare to the other case and financial institute will require more interests. In respect to these explanations, a direct link is expected to be between the sizes of a company as an independent variable and investment return which is known as a function variable. However, based on the obtained results in this research, it has been clarified that active companies have more returns than inactive companies, therefore; the H0 hypothesis which mentions if the company is bigger in size, the return will be more, is confirmed and H1 hypothesis which indicates if the size is small, the return will e more is rejected.
KEYWORDS: fair value, real rate of return, required rate of return, portfolio, cash index, risk, size of company, capital.

INTRODUCTION AND LITERATURE REVIEW

Forming capitals is one the most important factors to enter developing countries into the economic process. Forming capitals requires that a part of a country GDP is invested in investing projects; Iranian investors have shown more interest in investment of physical possessions rather than financial investments. One research has shown the share value regarding GDP and this rate is 92% in Japan, 80% in England, 58% in the US, 58% in Malaysia, and 6% in Iran. Comparing these rates show that Iran has the lowest rate of investment in other words, investment means devoting some resources to real or financial possessions involving appropriate return with the expected risk, return or reward of investment includes the current income (e.g. annual profit) and increase or decrease of financial values (invest loss or profit). Income rate or increasing possessions values are indicated by percentage so that the return rate shows all annual income and profit capital is a percent of the investment price. One of the most important purpose of investors in exchange market is to achieve annual interest along with the invest profit, in other words, the aim of investors is to maximize their wealth. For this purpose, they attempt to invest in possessions which have a high return rate and lower risk and in order to motivate investors to invest in financial possessions; the return of these possessions should be more that other possessions. If an individual invests on exchange market in which the return rate is higher than the expected rate, the value or price market of these exchanges will increase and they will have more wealth. Therefore, determining and evaluating the effective factors impacting the company returns finds an essential value for investors, companies and financial mangers. The effects of some elements such as the size of company and P/E coefficient on the return can show that the investor is imposed less risk regarding these two factors and at the purchase time, they can be considered and after comparing small and large companies and the ones with high or low P/E, more share cab be bought with higher confidence. Gordon in 1962 indicated that the ordinary share return has an opposite relationship with the company size. Bonz in 1975 found out that smaller companies in NY Stock market had more average return than larger companies. Keim had the same result in 1990.

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Harris and Marston (1995) tested the effect of size on the return and they also figured out that smaller companies had a higher mean return than large ones. The relationship between size and trade cost, size and risk and size and the yearly months have been investigated.

Blume and Stambaugh found out that the researchers, who used daily return to express the effect of company size on the return, due to the announcement of bid in the effects of smaller companies have exaggerated. Bid shows the offered price to buy one share by the exchange dealers so that investors can sell their share with this price. ASK is the sell price of one share by exchange dealers and investors can buy the mentioned share by that price. In the meantime, when the share interest is paid low, investors have to sell a part of their share and they need to pay for the dealings as well and the ones who pay this price, lose a part of their investment due to dealing procedure.

Reinganum, for example, formed a geometrical mean based on daily return to evaluate the effect of size. He shaped a portfolio based on the daily return balanced mean based on the balance size. He established his theory in that the sold share based on bid is purchased generally and it is sold based on ASK. He perceived that the hypothesis of purchase based on bid and sell based on ask increases the return artificially. This estimate is higher in small companies because they have lower prices, therefore, there will be a gap between selling and purchasing prices.

Stoll and Whaley determined the effects of dealing costs on the obtained results from Reinganum and Banz. They used the net return and tested the NY exchange stock market. They understood that the effects of size are eliminated in a three month period. After that they controlled the gap between selling and purchasing prices and then the dealers' commission on smaller shares. The results showed that abnormal returns were positive in a one year period.

Shultz developed this analysis on the US stock market. After having a more prices and general research, he understood that shares of smaller companies indicate the importance of risk and return match after dealing costs if they are studied in a shorter term. He also concluded that dealing costs couldn't explain seasonal returns or they even couldn't describe why smaller companies had more returns in January.

Barry and Brown expressed that different data obtained from companies' exchange could impact the size effect. It is notable that there is more risk in the value of estimated parameters in small companies because there is little useful information in small companies compared to large ones. To measure useful information, these two researchers considered one period in companies to list the trades. They estimated Beta analysis in the company size between 1926 and 1980. They ignored the January effect and concluded that the interaction between the size and their categorized period was of a great importance rather than considering the size solely.

Merton developed an investment market model which was balanced with insufficient data. In this model, each investor had information about some of exchanges. This appears as a real hypothesis in investing institutes. In Merton's model, useful information on all shares are the same, in addition, the risk estimated parameter is not very different in exchanges although data on one specific share is not appropriate for all investors and they suffice some. Based on these hypotheses, Merton proved that the expected return could be higher if the number of share holders is less and company unsystematic risk would be more and the size would be bigger. This positive relationship between return and size of large companies opposes experimental evidences. Merton compared the number of real share holders of small and large companies and also their unsystematic risks. Smaller companies tended to have fewer investors and their unsystematic risk would be more than larger companies. It should also be mentioned that Merton's findings shouldn't be supposed to reject that smaller companies had more returns. (Experimental evidences have shown that smaller companies had more returns). The obtained results by Barry and Brown were similar to Merton's. Arbel and Strebel investigated the shares which hadn't been attended to (the shares that analysts and investing institutes hadn't followed up well) and they also confirmed Merton's findings.

Research hypotheses:

1-the bigger the company is, the more the return will be.

2-the smaller he company size, the more the return

RESEARCH METHODOLOGY

Data collection for this research has been done as library case and for the experimental parts; research data collection has been historic from annual reports and other reports from the exchange market and also the software designed for annual reports of companies.

Research area:

Time line of this research: this research has happened in a 6 year period between Farvardin 1378 to Esfand 1383. The research place: the accepted companies in the exchange market whose shares have been dealt during the mentioned years (of all 429 admitted companies within these 6 years, 189 companies have been selected as samples).

The research subject area: the area of this research concentrates on return which shows the effects of company size on returns.
In this research all research steps have been identified one by one and each step has been done as the following.
Step 1: calculating the increase percentage of companies' capitals for each year:
One of the elements required for the real return calculation is the increase percentage of companies' capitals which has been computed as the following:

$$\text{Capital increase percentage} = \frac{\text{the capital for the 1st period} - \text{the capital for the last period}}{\text{the capital for the 1st period}} \text{ x } 100$$

NB.: this increase capitals percentage is calculated for all accepted companies in the stock market for each year (78-83) (429 companies).
Step 2: extracting companies whose shares have been traded continuously within these six years
Regarding step one, and some studies on 429 accepted companies in the stock market, one statistical society has been selected from all companies which have the following characteristics:
1-They included all information on prices, cash interest rate, and market and capital value.
2-They have been accepted at least in the early 78 and they have been active in the stock market by the end of 83 (the basis is this).
Considering all above cases, 189 companies have been selected as samples among all industries.
Step 3: the share price average at the beginning and end of each year for each company
The first and end share price foe each year sounds necessary to calculate the real return. Therefore, these data have been extracted from the related sites and some other from software (form 1378 to 83, 189 companies).
Step 4: cash interest of each company annually
The cash interest for each company has been calculated annually and this element is necessary for the real return (form 1378 to 83, 189 companies).
Step 5: calculating the real return:
The real return of each company has been calculated through the following formula:

$$R_{i,t} = \frac{P_1(1+\alpha) + D - [P_0 + \alpha(1000)]}{P_0 + \alpha(1000)}$$

P_1: the mean share price at the end of each year
P_0: the mean share price at the end of each year
D: cash interest
α: capital increase percentage
Step 6: the difference between the real return and the expected return
The expected return is the market portfolio return which has been explained later.
$AR_{jt}=R_{jt}-R_{mt}$
AR_{jt}=share abnormal return
R_{jt}=share real return
R_{mt}=market portfolio return
Steps 7 and 8: the value of companies' markets and sorting out the companies based on their market values
The market values of companies are extracted from statistical software and related information in the stock market, and then companies are sorted out based on their highest and lowest market values.
Step 9: calculating the mean abnormal return in each year:
Regarding step 9 in which companies have been sorted out based on highest and lowest values, the mean of abnormal return for 50 companies had the highest value in the market and 50 companies had the lowest on in each year and he have been shown by…. and…..
Step 10: calculating the mean of collected abnormal return for all small and large companies
Based on the calculated mean of abnormal return for each year, the collected mean of abnormal return has been calculated.
Considering that this is the last step, 2 collected mean of abnormal return has been obtained; one for the companies with the highest market value (large companies) and one for the companies with lower market values (small companies).
In result, these two collected means can help for the research hypotheses.
At this time, all research variables are described separately.

Research variable:
Calculating method for the abnormal return
Share abnormal return means the difference between the real return and the expected return of that share
Abnormal return= real return-expected return
The real return of each share is determined through the following cases.

a) Share price fluctuations in during each investment period
b) Cash interest of each share
c) Capital increase percentage

Different models are usually used to calculate the expected return of each share. Financial and capital researchers have recommended specific models for particular conditions. In most related researches, the reaction of two balanced return models in the market and the market model has been used. This research has been inspired by other researches in respect to exaggerated reaction of other investors to calculate the abnormal return form the balanced return model in the market.
According to this model, it is assumed that the expected return is similar for all exchange bonds and the return of each exchange bond is similar to the market return.
$E(R_{jt})= E(R_m)$
According to this model, abnormal return is calculated as the following:
$AR_{jt}=R_{jt}-R_{mt}$
AR_{jt}=share abnormal return in time
R_{jt}=share real return in time
R_m=market portfolio return
Market portfolio return:

In researches related to the Iranian capital market to calculate market portfolio, Tehran stock index has been used. There were no indexes prepared by 1369. Since then, this stock market started to provide indexes as other ones. At present, Tehran exchange stock market is one part of data provided on a daily basis and it is presented to the share folders. Price index, in fact, is the mean weight of share price of accepted companies and it is called "tipx". Market index was not deducted from the cash return until 1377. Since Farvardin 1377 and on, the market index is deducted from the cash return. In other words, since then price index and cash return (total return index) are calculated in the exchange market. In this research the market return has been calculated as the following:
$R_m = \frac{I_1 - I_0}{I_0}$ in which I_1 us the market price index at the beginning of the year and I_0 is the market price index at the end of the ear, and price index has been used from 1371 to 1376 and total return index has been used from 1377 to 1383. Market return has been as the table 1 for the period of the research.

Table1 : Market return in the period of research

Year	Market return (%)	Year	Market return (%)
1371	- 7/8	1378	70/84
1372	- 7/28	1379	37/44
1373	72/06	1380	43/68
1374	123/17	1381	51/24
1375	25	1382	138/63
1376	- 14/65	1378	12/9
1377	17/36		

Calculating the real return: in calculation of real return of each share, increasing capital has been taken into account as well. It is assumed that capital increase is namely (1000 rials for each share according to trade law). Indeed, due to tax issues of most companies, capital increase has been registered as called price.
Due to balancing the index for the cash return, the real return for each share in a period and trail period (from 1378 to 1383) has been calculated as the following:

$$R_{i,t} = \frac{P_1(1+\alpha) + D - [P_0 + \alpha(1000)]}{P_0 + \alpha(1000)}$$

P_1: the mean share price at the end of each year
P_0: the mean share price at the end of each year
D: cash interest
α: capital increase percentage

Companies' market value: market value of present companies in the research has been extracted through available statistics in the stock market and also the related software and then the present companies have been sorted out based on their values in the market from the highest to the lowest.

Calculating abnormal return mean: due to sorting the companies according to their values in their markets for each year, 50 companies have had the highest and 50 had the lowest market values and then their abnormal return mean has been calculated for each year.

Calculating collected abnormal return mean within 6 years:

Considering the abnormal return mean of companies with high and low returns in each year, the collected mean for companies with high and low abnormal return is calculated.

Almost all studies related to the hyper reaction of abnormal return have been calculated for some periods collectively. The purpose of calculating the collected return is to dominate all effects of an event on the share price.
In this research, in order to accept or reject the hypotheses, the mean of abnormal return for small and large companies should be calculated (according to the market value).
The mean of collected abnormal return of small and large companies has been computed based on the following features:

1) Real return: for the purpose of calculating the real return of companies the following formula has been used.

$$R_{i,t} = \frac{P_1(1+\alpha) + D - [P_0 + \alpha(1000)]}{P_0 + \alpha(1000)}$$

P_1: the mean share price at the end of each year
P_0: the mean share price at the end of each year
D: cash interest
α: capital increase percentage

2) Abnormal return: the abnormal return of companies has been computed as the following:
   Abnormal return-real return-market return
   The market return can be introduced as the price index and cash return of exchange market which can be found in the stock market archive.

Mean of abnormal return: in order to calculate the mean of abnormal return, companies are sorted by their market values from the highest to the lowest. Then, mean of abnormal return for 50 companies with the highest and 50 companies with the lowest values have been computed for each year. The final result of these calculations has been taken in the next page table.

Conclusion

Considering the above table and comparing the mean of collected abnormal return, 50 companies were active and 50 others were inactive among which the active ones had the more returns than the inactive ones. Therefore, H0 hypothesis which stated that if the companies are bigger, their returns will be bigger is confirmed. In the meantime, the H1 hypothesis which indicated that if companies are smaller, their returns are more is rejected. As mentioned earlier in the literature review, it is seen that researchers in their countries have found out that the smaller the companies are, the higher the returns will be and the larger the companies are, the less the returns will be. However, our researches have proven the opposite in our country.
Suggestions: according to the result of this research, it has been observed that there is a direct relationship between the market value of a company and return rate. If the market value is high, the return rate will be higher as well.
Therefore, according to the above result, potential and active investors are recommended that as they use different factors in investment, the can also consider their own market value as an appropriate indicator for share return. It means that companies which have higher market values should be prioritized in investment.
Research limitations:

1- Problems in accessing required data and information
2- Lack of resources and researches I the subject area of this research: regarding theoretical basis, lack of Farsi language is observed so that foreign resources should be used and that is one limitation for research.
3- Collecting most of elements, which are effective on returns and keeping them constant, is problematic when the effect of size is evaluated on returns. Therefore, ignoring the effects of these elements on returns is one other limitation.

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