

Investigating the Relationship between Market Risk on Stock Returns and Company Value in the Iranian Stock Market

Kimia Mansoorian¹, Abdol Karim Moghaddam^{2,*}

¹ Department of Accounting, Damghan Branch, Islamic Azad University, Damghan, Iran

² Department of Accounting, Damghan Branch, Islamic Azad University, Damghan, Iran

ABSTRACT

Identifying important indicators for expected returns is one of the important issues in modern financial science. Stockholders' wealth depends on both risk factors and returns. It is not possible to determine future returns, so shareholders are risk-averse when investing and looking to maximize their profits to anticipate stock returns. Most actual and potential investors use financial accounting and forecasting future cash inflows to the entity and, consequently, predict the return on investment from accounting information. This study examines the relationship between market risk on stock returns and company value in the Iranian stock market. The statistical population of this research is all active companies in Tehran Stock Exchange between 2012-2017. The purpose of this research is to investigate "applied" and "descriptive". The results of the research indicate that the results showed that there is a positive and significant relationship between stock market risk and CAR at a level of 5%; therefore, this hypothesis is confirmed directly.

KEYWORDS

Market risk, Company value, Stock returns, Tehran Stock Exchange

INTRODUCTION

One of the basic criteria for making a decision on the stock exchange is the return on equity, the stock returns alone have information content, and most of the actual and potential investors use it in financial analysis and forecasts (Kamyabi and Ranjbar, 2012: 20) The returns are usually made up of two parts: (a) Income received: The most important component of the return on profit is the periodic cash flows of the investment and can be in the form of interest or dividend. B) Profit (loss) of capital: Except as a result of an increase (decrease) in asset prices, they are

capital gains (losses). This loss is due to the difference between the purchase price and the price at which the holder of the securities intends to sell them. Returns are different types: (a) Expected returns: The return expected by an investor over a given period, or in mathematical terms, is the most likely outcome of an expected return on investment. Therefore, in case of accepting a higher risk, the investment is expected to be as high as possible. (B) Realized returns: the returns that have been made or the returns that have taken place (Soleimani, 2013: 128). Usually, people would prefer to use current consumption in the future, so to encourage people to postpone current consumption, they should expect to earn rewards from investing.

The return on investment in ordinary shares is achieved in a given period, depending on the first and last price and the benefits of the property. The interests derived from ownership in the periods held by the company, the assembly, are attributed to the shareholder and will be zero in periods when the assembly is not held (Raei & Chavoshi, 2005: 55). Benefits from ordinary shares may be distributed to shareholders in various forms, most notably: (a) cash benefits; (b) increase in capital from the holdings (equity shares); (c) increase in capital from claims and cash inflows.

STATEMENT OF THE PROBLEM

Identifying important indicators for expected returns is one of the important issues in modern financial science. Stockholders' wealth depends on both risk factors and returns. It is not possible to determine future returns, so shareholders are risk-averse when investing and looking to maximize their profits to anticipate stock returns. Most actual and potential investors use financial accounting and forecasting future cash inflows to the entity and, consequently, predict the return on investment from accounting information. The stock market is affected by macroeconomic and non-economic parameters, and many other variables, the multiple factors affecting capital markets and their unknowns have created uncertainty about the

*Corresponding Author: Abdol Karim Moghaddam
E-mail r:a_moghad@pnu.ac.ir
Telephone Number r:

Fax. Number r:

investment. Part of the variables affecting the stock market are the financial data of the economic units that derive from the accounting system of these units, the extent of the effect of this information is very complex and somewhat unknown. Various methods can be used to determine the effect of this information on stock returns (Esmail Nezhad Ahangarani, 2011: 15).

Until the 1940s, risk was a qualitative concept, but from the 1940s, and especially from Markowitz's work in the 1950s, the risk was a bit of a concept. In 1950, Harry Markowitz presented the basic portfolio model; the risk of an investment is the probable change in the future return on investment, or risk is the likelihood of a change in the benefits and benefits foreseen for a decision, an event or a future state. Simply put, the risk of the risk of deviation from the actual return on investment is expected from the expected return (Soleimani, 2013: 112). Investing in securities can be risky for various reasons, and the investor's expected returns are not matched to realized returns. Accordingly, the total risk is classified into two categories:

(A) Systematic Risk: Includes that part of the overall risk that is associated with market variability and can not be reduced by the investor. Such as unexpected events, war, sanctions. In this situation, all securities in the market are affected by an event like the war, and the diversification and formation of an investment basket will not reduce the risk. In other words, the whole system of economics suffers, not just a specific company or industry.

(B) Non-systematic risk: It is a part of the overall risk that is linked to the variability of the investment market, and the investor can reduce the total risk by proper management and proper selection. This type of risk is limited to certain securities and depends on factors such as business, financial, and liquidity risk. Therefore, the overall risk: systematic risk + non-systematic risk; for each share, an indicator of systemic risk is calculated. The benchmark is "Beta", which measures the simultaneous change in price between a price tag and market value of a market portfolio. Beta means covariance of a return sheet of a market with market returns divided by the market variance (standardization) and covariance, which measures the degree of simultaneous exchange of two assets. The beta coefficient is an indicator for risk rating of various assets. If the beta coefficient for an asset is greater than one, its return fluctuations will be larger than market volatility, and it will be called a risky asset (aggressive), such as the petrochemical industry. In terms of assets with a beta coefficient of less than one, it means less fluctuations than market fluctuations, and it is referred to as defensive goods such as food industry or general utility services (Soleimani, 2016: 20).

BACKGROUND RESEARCH

Darabi (2016), in a study aimed at investigating the relationship between the financing method (capital structure) and the unusual returns of shares of listed companies in Tehran Stock Exchange. The domain of research is from 2010 to 2015, a total of 133 companies in the form of 23 different industries formed research samples.

The method of the present research is applied to the applied purpose, descriptive-correlational research, and the method of data collection is then an event. To test the models, first, the chow test was used and it was determined that the panel method should be used and then the Hausman test was used for using the random or fixed panel method. Finally, the fit of the proposed model and the results of the classical regression assumptions for the research models were expressed. The results of the research show that there is a reverse and significant relationship between office leverage and abnormal returns of corporations, but there is not a significant relationship between market leverage and abnormal returns of companies at 95% confidence level.

Kappoles & lazarito (2012) examined the effect of capital structure on company performance using 111 Greek companies data and concluded that the concentrated capital structure is positively related to the company's high profitability. And requires less dispersal ownership to become more profitable. Also, capital structure has a positive and significant relationship with firm performance.

Yazdani Khodashahri (2011), in a research entitled *The Relationship between Financial Decisions, Growth Opportunities and Capital Structure in Companies Accepted in Tehran Stock Exchange* using data of 105 companies accepted in Tehran Stock Exchange during the years 2004 to 2008. The results indicate an inverse relationship between the concentration of ownership and the value of the company. Therefore, with the company's largest shareholder's share increasing, the market value of the company has declined. In this research, the impact of growth opportunities as a controlling variable was confirmed in the relationship between dividend and centralized ownership of the company. The role of this variable has been interpreted as an indication of the status of the company by investors. A sign that is based on past corporate events in support of short-term shareholder interests.

Hashemi and Akhlaghi (2010) examined the effect of the leverage, profit sharing and profitability policies on the company's future value. The results of the research showed that there is a positive and significant relationship between the financial leverage, the policy of dividend and profitability of the company. Also, there are positive and semantic relationships between the variables studied and the future value of the company. In addition, the research findings showed that the likelihood of an increase in the company's future value increases with a rise in financial leverage ratios, profit-sharing policies and more.

RESEARCH HYPOTHESES

1. There is a meaningful relationship between the market risk in stock returns and the value of the company in the stock market in Iran.

STATISTICAL POPULATION, SAMPLE AND SAMPLING METHOD

Society in fact includes all the elements that apply to a given subject of research and we want to infer it. The scope of each research community is determined on the basis and

the definition of the society is expressed by the combination of common features whose elements are in the society and considered relevant in terms of the subject of research (Azar and Momeni, 2003).

The statistical population of this research is all the active companies in the Tehran Stock Exchange between 2012-2017 which have the following conditions:

1. Their financial information will be available in 2017.
2. Includes investment companies, leasing companies and banks.
3. Companies that will end their finances by March 29th.
4. There are no financial interruptions.

Which is based on a systematic knockout procedure of 89 companies. Since the number of companies in the statistical society as well as the number of variables that must be computed and studied for each company is high, and given the database that can be used and all the required data to be obtained from it, There is no, if not available, usually comprehensive and due to the time limit for doing research, the use of sampling is mandatory.

Considering the size of the statistical society (89 companies), the distribution of society is considered normal and the sample size is calculated using the Cochran formula.

$$n = \frac{NZ_{\alpha}^2 \rho q}{\varepsilon^2 (N-1) + Z_{\alpha}^2 \rho q}$$

We have:

N: The size of the statistical society

n: sample size

P: The ratio of success to being selected in the sample

Z: Normal distribution standard variable

q: Failure ratio for sampling

ε : Estimation error

If the confidence interval and estimated error are considered to be 95% and 5%, according to similar researches and researchers and in the absence of complete information about p and q, the most conservative condition is to consider both of them equal to 0.5, in which case the sample size will be maximal (Azar and Momeni, 2003).

$$Z_{\frac{\alpha}{2}} = 1/96$$

$$q = 50\% \quad p = 50\% \quad \varepsilon = 5\% \quad N = 132$$

Therefore, the number of predicted samples is based on the above-mentioned number of $n = 49$, and in this research, 50 companies are selected as the sample.

RESEARCH MODEL

The relationship between research variables is analyzed using the following multivariate regression:

$$CAR_{i,t} = a + b_1 SIZE_{i,t} + b_2 BETA_{i,t} + \varepsilon_{i,t}$$

In this regard:

CAR: unusual stock cumulative return;

BETA: Market risk in stock return;

ε : random error rate.

In fact, in the above equation, the value of each company is equal to: the ratio of total debt to total assets, the ratio of cost to book value, the ratio of price to income and the risk in the stock market.

RESEARCH METHODOLOGY

The choice of methodology for research is one of the most important and technical steps that a researcher should follow with special sensitivity (Khaki, 2009). The purpose of this research is to investigate "applied". Research uses research that applies theories, rules, principles, and techniques that are developed in basic research to solve actual and actual problems. From the dimension of the method, this research is "descriptive". Descriptive research can only be used to understand existing conditions or to assist in the decision-making process. Also, this study can be considered as a part of the "correlation" research in which the relationship between variables is considered. The statistical population of Tehran Stock Exchange is Tehran. In order to analyze the data, to test the hypotheses and express the relationships between the variables, the correlation test was used and to evaluate the efficiency of a regression model (cross-sectional regression) using combined data, one of the common effects models, fixed effects and random effects were selected using appropriate tests (F limer test; Hausman test; F Fisher test; Watson test; etc.).

DATA COLLECTION TOOLS

One of the important aspects of each research is the existence of necessary information in the course of the study and analysis of the evaluation of research objectives and hypotheses. In general, experiments or experiments are referred to the set of activities that are performed to find the answers to research questions and to better express the problem in order to ascertain the validity of research hypotheses. Its main objective is to provide sufficient information and evidence for measurement and evaluation in a well-defined and appropriate manner. What investigator determines which method of data collection is used depends on the nature of the research, the type of information required and the possibilities and limitations of the research. Therefore, to collect that part of research data that relates to theoretical foundations of research, Persian and Latin specialized articles and journals have been used and tried to use newer information to meet the needs of our society today. For the other part of the study, the data and information needed to design and test the model is also used in the archive of trades in the Tehran Stock Exchange Information Exchange, Rahavard Novin software, and the Tadbirpardaz platform as well as the site.

DESCRIPTIVE STATISTICS

Descriptive statistics are used to describe, describe, and explain important data properties. In this section, different data are shown in tables and charts, followed by different

indicators in this area. In this type of statistics, the data are first summarized and presented in different tables, and then numerical criteria are obtained to obtain the value of the representative of the data center and their scattering values.

Tab.1.Descriptive statistics of research variables

Stock market risk	
Average	60/2
Middle	55/1
Maximum	22/1
Minimum	33/0
Standard deviation	32/0
Skidding	28/0
Elongation	71/2

INFERENCE STATISTICS

In the combined data test (data panel) after the variables have been prepared for estimating the regression equation, the F limer test is firstly calculated to determine that the regression equation must be estimated using aggregated regression or regression models of panel data. In other words, the zero hypothesis of the F Limer test expresses the appropriateness of using the combined regression models and shows the hypothesis that the use of panel models is appropriate. The results of the F limer test for this pattern are shown in the table below.

Tab.2.Chow test results for research models

Statistical assumption	Benchmarking	Test statistic	The significance level	Test result
Zero Assumption: The entire width of the originals is equal.	F-statistic,	2.37	0.03	Reject zero assumption
	Chi-2 statistics	10.68		

Tab.3.Hausman test results for research models

Statistical assumption	Benchmarking	Test statistic	The significance level	Test result
Zero Assumption: The width of the sources with the explanatory variables is not significantly correlated.	Chi-2 statistics	10.45	0.03	Reject zero assumption

As can be seen in Table 4, in the hypothesis model, the probability of a test statistic is less than the significant level, and the assumption of zero is not verified, therefore, the

Hausman test is implemented for the model. Also, according to Table 5 for the hypothesis model, the probability of Chi-2 statistics is less than the significant level, therefore the fixed-effect effects model is used for the hypothesis.

TEST OF RESEARCH HYPOTHESIS

In this research, the hypothesis examines the relationship between market risk on stock returns and company value.

Market risk is not related to the company's return on equity. $H_0: \beta = 0$

Market risk is related to the return on equity of a company. $H_1: \beta \neq 0$

The result of its regression is presented in Table (4):

Tab.4.The result of the regression of the research hypothesis

Type of variable	Symbol	Variable name	Coefficient	Statistics	The significance level
Dependent variable	Y	Company value (stock return)	-	-	-
Constant	α	Alpha	684.	672.	467/0
In dependent variable	X4	Market risk in stock returns	*1.36	048.	921/0
Control variable	Size	Size of the company	041.	541.	603/0
Durbin-Watson stat		Durbin-Watson	2.125	-	-
F-statistic		F statistics	184.	-	811/0
R		The correlation coefficient	066/	-	-
R Square		The coefficient of determination	0752.	-	-
Adjusted R Square		Adjusted coefficient of determination	070.	-	-

As shown in this table, the market risk ratio has a significant relation with the return on shares of the company (p-value <5%). Regarding the amount of F statistics, fitted regression model is significant and according to the coefficient of determination, these variables only explain 0.075% of the company's value changes. The Durbin-Watson statistic is also between 1.5 and 2.5, so we can conclude that there is no correlation problem between the variables.

DISCUSSION AND CONCLUSION

There is a meaningful relationship between market risk in stock returns and company value in the stock market in Iran.

The results showed that there is a positive and significant relationship between stock market risk and CAR at a level of 5%; therefore, this hypothesis is confirmed directly.

Today's life continues as the shadow of the conditions of uncertainty on all affairs has changed in various ways for the decision-making process. Changes in commodity prices, exchange rate changes, changes in profit rates, as well as changes in stock prices are the ones that today's companies are constantly struggling with. Multi-factor market risk models evolve in the work of King (1966), Rosenberg (1974), Ruz (1976), and Ruz & rol (1980). The selection of different factors leads to the production of different risk models. Rosenberg (1974) and Rosenberg and Marat (1979) developed the internal market risk based on the company's core data (such as price and size). Greenhead and Kahn (1999) and Rad and Classing (1982) fully discussed these models that are effective on the value of the company. Fama and French (1998) examined the cross-sectional difference between the average stock return on market risk through regression testing and concluded that market risk is not related to the average return on equity. In Sinaia and Nissi's research (2003), there was no significant relationship between business risk and capital structure. Also, the results of the Islamic research Bidgoli and Jula (2004) showed that financial leverage and leverage changes with a very low percentage effect on systematic risk and there is no significant relationship between financial leverage and systematic risk at a 1% error rate. Therefore, according to Aghaei and Mokhtarian (2004), investors, when choosing an investment, compare the risk and returns of these investments. A rational investor will choose a higher-return investment in the event of a similar risk of two investments. In general, any type of investment, especially in stocks, is sensitive to the nature of the events and issues surrounding them. This is also sensitive to events and news related to the operation and the company itself, as well as to the economic events inside and outside the country. The existence of such a problem causes the fluctuations in the capital market, and in the first place, the company's share price, which is part of the structure of capital, with changes, the existence of such a problem requires the company to face the risk.

• Research Limitations:

Restrictions on research are those factors that prevent the collection of information and achieve optimal results, and their full or relative control is not in the hands of the researcher. So, in this section, by presenting the research constraints, he tries to give the reader this message in order to be more aware of the generalization of the results of the research and to have a fair judgment about the research process. In this regard, the most important limitations of the present research are as follows:

1. Many companies in the statistical community have been excluded from the statistical community due to lack of certain features. Therefore, the research does not cover all categories of industries in the stock market, and should consider this issue when generalizing the results of this research to other companies and industries.

2. Failure to control and investigate some of the factors affecting the results of the research, including the impact of variables such as economic factors, political circumstances, company life, insurance laws and regulations, industry type, etc. are beyond the reach of the researcher. And it may affect the investigation of relationships.

• Research Suggestions:

In order to improve the research results, future researchers will submit the following suggestions:

1. For future studies, it is suggested in other models that use the historical average of returns as expected returns to be based on the predicted value (s) of intelligent techniques and the capital structure compared to traditional ones.
2. Future researchers are recommended to examine the average-variance model and the average-variance-skewness model in daily calculation data (determination of return) and its relationship with capital structure.
3. If future research determines the capital structure of listed companies in the stock market, then the value of different industries of different companies will be better compared to each other.
4. It is suggested that in future researches, considering the variables (capital cost, tax rate, profitability, company life cycle, etc.) of companies in three large, medium and small groups, the relationship of capital structure and company value will be investigated.
5. The Distinction of the Current Research in Iran The study of this relationship with the tax effect suggests that future research into the relationship between tax effects on capital structure and company value is suggested.

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