Review relationship degree of financial leverage as symbols of accounting information with risk

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Abstract: Precise decision-making is inevitable by individuals, companies, government, etc for proper distribution and efficiency of financial resources. To make such decisions, decision-makers must have reliable information. In fact, the goal of accounting is to help these decision-makers. On the other hand, investment is essential in growth process and economical development of country. In this study, a number of accounting variables such as accounting profit , degree of financial leverage were selected as symbols of accounting information. Then their relation with systematic risk of those companies accepted in Tehran Stock Exchange was investigated .In this research, a sample including 98 companies accepted in Tehran Stock Exchange were selected during a 6 years period (2006-2012). Regarding to nature and method, this is correlation research,In order to test the assumptions, linear regression was used and in order to test correlation of variables, p-value test was used. The results showed that there is a direct relation between degree of financial leverage with systematic risk by 90% confident level.
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1. Introduction

Risk and return are among the effective factors on investment. The role of risk and return in investment is similar to the role of supply and demand in pricing goods. Theoretically, risk means a potential and measurable loss in investment. Up to 1950s, "risk" was a qualitative factor. But, it became quantitative by efforts of Harry Markowitz. Also, deviation of cash flows of investment plans in different economical, social, and political conditions was introduced as "risk measure" [16].

Effect of an investment risk to total investment risk requires calculation of "covariance" and "correlation coefficient", which complicated calculations. Then, William Sharp offered a simple and applicable model to investment world by getting the coefficient as risk criterion [3].

Using current theories and methods and theorizing requires production information in accounting system, which undoubtedly, would be got hardly in the new investment market of our country. For this reason, recognition of relation between market risk and accounting information is very important. Other studies imply relation between accounting ratios and market risk. They propose using accounting ratios to anticipate beta of securities [1].

2. International and local researches

Iman zare tried to use accounting information to anticipate payment disability, sale capability, purchase capability, and interest rate. Then they ranked debentures upon them. (zare , 2012) [4].

Iman zare suggested that DFL and DOL describe a large part of systematic risk changes directly and positively.(zare , 2011) [2]. Also, Haffman suggested that systematic risk has a direct relation with DFL and a reverse relation with DOL. Thus, in this study, we investigate relation between accounting profit and operational, financial, and DTLs to find a suitable model for decision-making of investors. According to pricing model of investment asset, it is assumed that systematic risk is one of the factors that vibrates return [7]. In a research titled "Study of effect of investment structure on systematic risk", Ghalibaf Asl studied relation between financial leverage and systematic risk. The results showed that financial leverage affect systematic risk directly, namely, by increment of financial leverage (debit), systematic risk increases, too [9].

Namazi and Khajavi studied profitability of accounting variables to anticipate systematic risk of companies accepted in Tehran Securities Bourse. The

results showed that there is a relation between accounting variables and risk, and these variables are effective for anticipation of systematic risk. The most important application of the results of this study was evaluation of companies out of bourse and new comers. According to the results, this pattern can be used to determine expected return rate (discount rate), so that first systematic risk index of a company is identified by model coefficients and variable value, then this index and other variables are used to obtain expected return rate to find a base for evaluation of stocks price of the company [12].

Investment in order to maximize profit requires anticipation of stocks market and selection of a suitable portfolio. According to the model offered by Sharp, Fisher, one of the important factors that cause changes in stocks return and will not minimize by diversification of portfolio is systematic risk. Therefore, anticipation of systematic risk plays an important role in anticipation of stocks return and maximization of profits of stockholders. Systematic risk stems from a set of economical factors such as money supply, inflation, industry strategy, etc and affects on all active companies in market [11].

In a research titled "Effect of operational and financial leverages and company size on systematic risk", Ahmadpour and Namazi studied it in companies accepted in Tehran Securities Bourse. The results showed that financial leverage affects systematic risk directly, namely, by increment of debit of companies, systematic risk increases, too. But, operational leverage does not affect systematic risk. On the other hand, company size affects systematic risk reversely, namely, by increment of assets of a company, systematic risk decreases [7].

DOL is degree of operating leverage , DFL is degree of financial leverage and DTL is degree of total leverage [8].

In a paper, Ahmad Ahmadpour and Reza Gholami Jamkarani studied relation between accounting information and market risk in companies accepted in Tehran Securities Bourse. The results show that some of independent variables including ratio of debit to stockholders' rights, ratio of current assets to current debits, and sum of index assets for evaluation of risk of companies have no relation to market risk of companies. In other words, history accounting information does not include price and risk of securities. Therefore, the previous results about market efficiency can be confirmed [6].

In an study titled "Relation between accounting profit and cash flow with systematic risk in Tehran Securities Bourse", Mollayi investigated the relation between accounting profit and operational cash flow with systematic risk. They concluded that accounting variables including accounting profit and operational cash flow have a positive relation with systematic risk. Also, accounting profit is more powerful in anticipation of systematic risk than operational cash flow [11].

Gholamali Ghorbani in his thesis studied the relation of DFL with systematic risk. He finally concluded that systematic risk increases by increment of financial leverage and there is a direct relation between them [10].

In a paper, Bowman studied the theoretical relation between systematic risk and financial variables. Financial variables used by Bowman were company leverage, accounting beta, profit changes, growth, company size, and profit-sharing policies. He showed that there was a systematic relation between company's leverage and accounting beta, and profit changes, growth, company size, and profit sharing cannot relate with systematic risk. He defined growth variable in two cases:

First, growth as investment in projects in which expected return is more than company's current return. Second, he suggested growth as opportunities for investment in projects that conclude additional return. Then he used these definitions to imply no relation between growth variable and systematic risk [13].

In a study, Brimble studied role of accounting information to estimate systematic risk. These accounting variables included accounting beta, profit changes, growth, size, profit payment ratio, current ratio, financial leverage, interest coverage ratio, and operational leverage. He used information of 123 companies during 1991-2000. His results showed that the above accounting variables clarify more than 57% of systematic risk changes [14].

Also, Robert K. Su and Chi-Chang Chiou, in a paper titled "Relation between systematic risk and accounting variables" suggested that the determinative factors of systematic risk are accounting profit, sale growth, book value, stocks profit, DOL, DFL, market return, and free risk. He offered 3 general results about systematic risk and accounting variables. First, for an economical unit with positive previous year income and current year sale rate, if compound effect of current book value, stocks profit, and its incomes are positive on stocks price, then DFL and DOL resulted from DTL have a positive effect on systematic risk. Second, when book value and incomes of stocks price are positive, and when stocks profit has a reverse effect on stocks price, then profit has a positive (reverse) effect on systematic risk. Third, for an economic unit, DOL related to DFL positively (reversely) by positive (reverse) sale growth [15].

3. Hypothesis of research

main Hypothesis: There is a relation between degree of financial leverage (DFL) with systematic risk.

4. Method of research

Regarding to the goal of this research, this is an application research due to it is going to solve a problem. The goal of this research is identification a relation between financial, with systematic risk. Regarding to nature and method, this is correlation research, which studies the above relation by field study and experimental data.

Regarding to scientific scope and subject, this research is in management area and investment market area. It is especially in information area for DFL and systematic risk. By location, the subject of research is in area of public joint-stock companies.

This research is for the early of 2006 to the end of 2012.

In this research, data was gathered from libraries including books, papers, and internal and external journals. Also, field study and experimental methods were used to test the assumptions.

Data was gathered from documents, databases, and observations. Data include return, accounting profits, interest costs, stocks numbers, and stocks prices of sample companies existing in financial information of audited financial statements. This data was extracted from records of Rahavard Novin Software, electronic archives, and internet. Also, Excel and SPSS were used to analyze and conclude from data.

5. Society and the statistical sample

Statistical society of this research includes all companies accepted in Tehran Securities Bourse (iran). The reason to select these companies is simplicity of access to their audited financial statements and their stocks returns in different times. Regarding to a five years period of this research (the early of 2006 to the end of 2011), those companies were selected that were members of Tehran Securities Bourse at least at early of 2000 and their financial year ended to March 20 (29 Esfand).

A sample of companies of the whole society based on statistics were selected under criteria:

1. At least at the beginning of the membership 2000 Tehran stock exchange.

2. The financial companies, leading to the history every year on March 29.

3. The shares of dealing with a maximum during six months have not been interrupted.

With regard to the above-mentioned cases about the election as an example and with regard to the samples available number of members of samples under study include 98 companies that their information for the year 2006 to 2011and collect the test.

6. Data analysis and test of assumptions

In this research, Excel software was used to calculate dependent and independent variables. Linear regression was used to test assumptions. P-value (sig) by SPSS was used to test significance of correlation between variables.

To better identification of research society and familiarity with research variables, data interpretation was done before data analysis. Also, data interpretation is a step to identify their pattern and a base to clarify relations between variables. This image includes indices to interpret the research variables. The indices include central index, dispersion index, and distribution form index.

Table 1: Variable indices: central index, dispersion indes, and distribution form index

Index \ Variable	Risk (β)	DFL
Number	98	98
Average	0.3545290	0.6241404
Deviation error	0.00445	0.8195969
Median	0.1964953	1.0980765
Mode	-7.33773	1
Deviation	1.31317	24.17463
Variance	1.7244137	584.4130
Skewness	0.425	-29.134
Standard error of skewness coefficient	0.083	0.083
extension	4.595	855.955
Standard error of extension coefficient	0.166	0.166
Changes domain	14.17364	738.92577
Lowest	-7.33773	-708.722
Highest	6.83591	30.20377
Total	308.44026	543.00214

Regarding to the above table, all variables can be examined by indices. For example, table 1 shows that variance of accounting return variable is 0.00418. It also shows the lowest and highest data and their distance. Regarding to output of SPSS software (the following table) and regarding to sig less or more than 10%, correlation of variables is confirmed or rejected. Also, the calculated correlation coefficient is effective and powerful for determination of correlation between variables and ranking. Table 2 shows the results of test of assumptions regarding to output of SPSS.

7. Conclusion

This research concluded that there is a direct relation between accounting variable including DFL with systematic risk. Other variables have little correlation with systematic risk with confidence level

of 90%.This research showed that between DFL has, direct relationship with systematic risk.

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Table 2: Results of test of assumption

Statistical component assumption	Pierson corr.	Determination coeff.	Adjusted deter. coeff.	F	t	Error level	Significance level	Test result
Relation between DFL and sys. Risk	0.083	0.007	0.005	3.758	1.930	0.053	10%	Confirmed