Investigating the Relation Between Systematic Risk and Efficiency Indicators Based on Pricing the Financial Assets in Companies Accepted in Tehran Stocks

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Abstract
An important factor in forecasting the stock expected revenue is systematic risk (Beta). Our financial investment becomes more creditable once we know the systematic risk of general stock in different firms. The current article explores the existence of a positive relationship between efficiency indicators (labour efficiency and capital indicators) and systematic risk (Beta) as dependent variables; the former as the independent variable and the latter as the dependent variable. The research population includes the firms engaged in Tehran stock market within six years; a sample of 102 members was selected. Also, some cases were singled out from financial bills dating from February 2005 until 2010. In order to examine the research's hypothesis, the required data were obtained from basic financial bills, the communities' reports and other documents available in Tehran stock market; and then Pierson correlation ship was applied for analysis. The results don't confirm the research hypothesis. At the end, a couple of recommendations on the subject are offered.

Keywords: Stock Revenue Forecasting, Tehran Stock Market, Systematic Risk

1. Introduction
In order to make the most mindful financial decisions, we would compare different areas of investment in case of revenue and risk. We would look for areas with higher revenues and lower risks, hence the most profitable investment opportunities. Accordingly, when it comes to investment, the revenue and risk relationship is one of the most important issues. The issue has been discussed by various authors in the field. Revenue is made up of the current income, together with the increase or decrease in assets value. Firms and investors in pursue of their goals, try to find the best investable areas and projects and then advance their capital optimal structure and investment strategies. As long as an investors' top priority is achieving an annual profit, capital profit and last but not least maximizing her own wealth, she tries to invest in high-revenue and low-risk assets. Accordingly, firms' revenue and risk are two important factors for investors and financial managers. Another issue which a firm need to put extra effort in is its organization efficiency, which is necessary for the firm to foster and develop. That's why in this study we will explore the relationship between efficiency and systematic risk. We suppose that if this relationship holds, the firm would be achieving profit in the long run.

1.1 Problem and significance
For a country to experience a stable economic growth, suitable investment strategies is a must. If the cash flow is guided towards areas of investment which are profitable the most, the consequences of such an occurrence will be higher national gross
product, job creation, bigger capital income and an increase in general welfare. The stock market can play a crucial role in this issue. It can lead the money movement towards consumption in productive or commercial firms. But what makes individuals attracted to stock investment? According to Merton (1987) attraction of a specific set of stock lies in how much information is available about it or in other interesting features it has. As indicated by numerous writers, risk management and investment revenue are two pivotal factors taken into account by investors. Accordingly, forecasting and calculating the financial risk and the investment revenue are two important features that firms and individuals should take account of when deciding about where to invest their savings and monetary capital in. Thus, recognizing the variables which can cause higher revenues and lower risks is very important. Not until late 1950ies when Markowitz offered his modern portfolio theory, did we know a way for measuring these two factors. His work focuses on studying the effects of asset risk, correlation ship and diversification on expected investment portfolio returns [2]. According to him investors can make the best decisions relying on two tenets: lowering risk while return is constant and increasing revenue while risk is constant. After his pioneering work various models and theories were developed on capital assets measurement. William Sharp’s renowned theory of capital assets pricing model was one of them. This theory indicates that a direct linear relationship exists between systematic risk (Beta) and return and the former is an indicator for predicting the latter. In investment we encounter with two types of risks: 1- systematic risk or market risk, is the unpredictability that influences numerous businesses, stocks and resources. Systematic risk influences the whole market and is hard to forecast. Dissimilar to unsystematic risk, diversification can’t fix systematic risk, since it influences an extensive variety of economical entities. 2- Risks which are smoothened by investment diversification. Thus, the first type of risk concerns many investors. William Sharp’s model suggests that to determine the stock extra revenue (when there is a low risk rate), the stock revenue covariance with the market portfolio extra revenue is sufficient; because Beta coefficient indicates the expected revenue. To recognize and forecast capital assets and to measure the systematic risk constancy, many financial managers or researches rely on the information about financial variables or accounting efficiency. As stated already, systematic risk matters in decisions about investment. On the other hand, efficiency matters for an organization’s development and growth. Accordingly, this study aims at detecting the relationship between labour and capital efficiency and systematic risk; whether that is a significant one or not.

1.2 Goals

Main goal: exploring the relationship between systematic risks and (capital and labour) efficiency based on CAPM.

Ancillary goals:
- Providing a suitable measure for determining the stock return and risk of the firms engaged in Tehran stock market. This way we hope to help any legal or natural entity who is active in capital market to make the best investment decisions.
- Investigating the possibility of using the information on efficiency indicators to estimate the systematic risk in Tehran stock market companies.
- Exploring whether the information obtained from firms’ historical financial statements could be used to identify a relationship between efficiency indicator and systematic risk based upon CAPM.

2. Literature review

A couple of studies have confirmed the existence of a strong relationship between stock market profits and their systematic risk coefficient and it would apply for short-time forecasts. The performance of capital assets pricing model was explored by Ben Mabrouk et al. (2007) in French market. Pirjeta and Puttonen (2007) studied a couple of factors: functional profit margin, profit margin, net value, return on capital, growth and sale. They report that revenue stocks with higher return on capital ratio go from value to growth achievement easier and can offer more return and economic value. Therefore, return on capital ratio was the most important. Their study included Europe markets. According to another study [5], capital efficiency using return on invested capital indicator functions as a positive estimator for stocks return and companies with higher efficiency (i.e. higher ROIC ratio) experience more growth and valorization. Their study involved the best American firms amid 1975 and 2005. Cao et al. (2007) also investigate the capital efficiency measurement using ROIC indicator and valorization. This study concludes that valorization process is ex post facto to an increase in capital efficiency (i.e. higher ROIC ratio). Black et al. (1972) with a research population including all the firms engaged in New York stocks during 40 years, studies the relationship between risk and stock revenue. They concluded that no concurrence exists between risk and stocks revenue. The model they offered seemed insufficient for studying the stocks risk and revenue. Blume (1971) explored the systematic risk stability in New York stocks amid January 1926 and 1968. This study concluded that there is no stability between general stocks systematic risk in New York, individually; but the bigger number of stocks in stability portfolio, the higher the systematic risk of the stocks.
3. Hypotheses

Main Hypothesis
There exists a significant relationship between efficiency indicators and systematic risk based on CAPM.

Secondary Hypotheses
1) There exists a significant relationship between labour efficiency (the number of personnel) and systematic risk based on CAPM.
2) There exists a significant relationship between labour efficiency (the personnel costs indicator) and systematic risk based on CAPM.
3) There exists a significant relationship between capital efficiency (fixed assets indicator) and systematic risk based on CAPM.
4) There exists a significant relationship between capital efficiency (total assets indicator) and systematic risk based on CAPM.

4. Methodology
The present research is a descriptive survey and can be considered as an example of applied research. For the literature part of the issue, the library method and for testing the hypotheses the financial bills and exchanging soft wars (the novel and speculative grant) and for analyzing data the Pierson correlation coefficient and the regression analyze were used, regarding the software Excel and SPSS. The research population involves all companies engaged in Tehran stocks. The sample size was decided about relying on four following tenets and by using the sampling method (systematic elimination based on screening style), and 102 companies were selected as our sample.

1) Information on financial bills studied should be accessible during 6 years (2004 to 2009).
2) Every financial year's ending must be dated at February.
3) The transaction intervals should not exceed 6 months for the studied firms.
4) The studied firms should not be a part of financial mediators or investors.

The terms functional and conceptual definitions:
The labour efficiency: The amount of organization possessed asset per each Rial paid to the labour force or to each person in the labour force.
The capital efficiency: The amount of organization possessed per each Rial of asset adopted.

\[ L.P.P = \frac{V.A}{N.P} \]  
\[ L.E.P = \frac{V.A}{E.P} \]  
\[ C.F.A.P = \frac{V.A}{T.F.A} \]  
\[ C.T.A.P = \frac{V.P}{T.A} \]  
\[ L.P.P = \frac{V.A}{N.P} \]

The systematic risk indicator (\( \beta \)): The systematic risk (nondeductible) is some scale for assets diversification and/ or some investment basket comparing with the market; the systematic risk (nondeductible) is that part of the assets risk which would not be deducted by forming the portfolio \( \text{Cov}(R_i,R_m) \) and for this risk the investors are tended to risk-taking; \( \beta = \text{VAR}(R_m) \)

5. Results
The first Hypothesis: There exists a significant relationship between the labour efficiency indicators (the number of personnel) and systematic risk based on the capital assets pricing model.

The second Hypothesis: There exists a significant relationship between labour efficiency indicators (the personnel costs) and systematic risk based on the capital assets pricing model.

The results of hypothesis 2 explored by three tenets mentioned in the study: the services and items wholesaling total price indicator; without any mediation and the inflation rate shows that there is no significant relationship with 95% confident, regarding the significance level of 0/296 and 0/324 and 0/149 and the (\%5) acceptable error level. In other words, the assumption H0 is confirmed based on the lack of a significant relationship.

The third Hypothesis: There exists a significant relationship between capital efficiency (the fixed assets) and systematic risk based on capital assets pricing model.

The results of exploring hypothesis 3 by three tenets mentioned in the study: services and items wholesaling price indicator; without any mediation and inflation rate shows that there is no significant relationship with 95% confident, regarding the significance level of 0/839 and 0/180 and 0/327 and the (\%5) accepted error level. In other words, the assumption H0 is confirmed based on the lack of the existence of a significant relationship.

The forth Hypothesis: There exists a significant relationship between capital efficiency indicators (the total assets) and systematic risk based on the capital assets pricing model.
The results of exploring hypothesis 4 by three tenets mentioned in this study: services and items wholesaling price indicator; without any mediation and inflation rate shows that there is no significant relationship with 95% confident, regarding the significance level of 0/955 and 0/052 and 0/188 and the (%5) accepted error level. In other words, the assumption H0 is accepted based on the lack of existence of a significant relationship.

6. Discussion and Conclusion
In order to maximize the considered desirability, the investors use all information related to identifying and pricing the stocks. One of the most important factors affecting on activities improvement in companies is providing the necessary payment for improvement and the financial support provided by the company investors (present and potential) is one of the most significant sources of financial support which would come true with suggesting all data on companies (stocks) including Beta factor (systematic risk). The risk measuring is the base for many financial decision makings. The researchers and investigators of capital market are always trying to find some better and newer ways to calculate the risks related to stocks investments in stock market. The model CAPM is one method that has been considered by many researchers of capital market. This model indicates that the stocks revenue is some function of the systematic risk amount (Beta coefficient). The aim of this research, is to discuss the relation between efficiency indicators and systematic risk based on capital assets pricing model and regarding the aim of that research, the investigators have been seeking to find some answer for this question that: is there any significant relation between efficiency indicators and systematic risk? The results show no relation between efficiency indicators and systematic risk. So, based on what mentioned above, some considerable functional suggestions related to the topic could be presented, including:

1) According to the importance of systematic risk estimation, we could investigate the relation of other financial and accounting indicators and variables (like: functional and financial levers, function indicators ...) and the kind of systematic risk.
2) The importance and efficiency of companies' accounting data in determining the amount of stocks revenue and risk makes it necessary for the companies accepted in stock market to provide better information and make the financial data of various periods accessible on internet sites. These data could help in predicting the stocks revenue and risk.
3) Studying the role of capital assets pricing model in capital budgeting in the future researches could be considered.
4) To repeat the present research as a case study and/or for the active companies in some certain industry and to compare the results with the results of this research.
5) The present research could be performed as comparative between stock market of two or more countries and the results could be compared with the results of this research.
6) At the future research, it would be better to perform it in longer periods for example 10 years, to provide more confident for the results.

References