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THE FACTORS AFFECTING THE DECISION OF PORTFOLIO MANAGERS IN INVESTING COMMON STOCKS: AN APPLICATION IN TURKEY

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Abstract: ***The high volatility of capital market instruments in Turkey combined with the unpredictable nature of economy and dynamic political situation makes investment decision a complex and challenging task. Under these circumstances the role of portfolio managers gains importance. The portfolio managers who possess superior market knowledge, who have extensive experience and in-dept analysis and strong forecasting ability are able to make successful investment decisions.***
As an investment alternative, common stocks are a popular form of investing used by portfolio managers. They are popular, in part, because they offer investors the opportunity to tailor their investment programs to meet individual needs and preferences. With the growing importance in the role of equities to investors, the selection of attractive stocks is utmost importance to ensure a good return.
This paper is conducted to determine the major criteria and their relative weights taken into consideration by portfolio managers when investing in common stocks in Istanbul Stock Exchange (ISE).

Keywords: ***Stock Selection, Analytic Hierarchy Process, Multiple Criteria Decision Making, Stock Exchange.***

PORTFÖY YÖNETİCİLERİNİN HİSSE SENETLERİNE YATIRIM KARARLARINI ETKİLEYEN FAKTÖRLERİN BELİRLENMESİ: TÜRKİYE'DE BİR UYGULAMA

Özet: ***Türkiye'de sermaye piyasası araçlarının fiyatlarındaki oynaklık ve ülkenin ekonomik durumundaki dalgalanma birlikte göz önünde bulundurulduğunda, yatırım kararları karmaşık ve zor hale gelmektedir. Bu şartlar altında üstün Pazar bilgisine ve tecrübeye, detaylı analiz ve güçlü tahmin yeteneğine sahip portföy yöneticilerinin rolü önem kazanmaktadır.***
Hisse senetleri; portföy yöneticilerinin kullandığı popüler bir yatırım alternatifidir. Popüler olmalarının sebebi yatırımcılara risk ve getiri tercihlerine göre geniş yatırım olanağı sunmalarıdır. Bu nedenle yüksek getiri sağlamada etkin hisse senetlerinin seçimi gittikçe artan öneme sahiptir.
Bu çalışmanın amacı İstanbul Menkul Kıymetler Borsası'nda işlem gören hisse senetlerine yatırım yapan Türk portföy yöneticilerinin yatırım yaparken dikkate aldıkları ana ve alt kriterleri belirlemek ve bu kriterlerin göreceli ağırlıklarını tespit etmektir.

Anahtar Kelimeler: ***Hisse Senedi Seçimi, Analitik Hiyerarşi Prosesi, Çok Amaçlı Karar Verme, Menkul Kıymet Borsası.***

I. INTRODUCTION

Common stocks appeal to investors because they offer the potential for everything from current income and stability of capital to attractive capital gains. [1] Istanbul Stock Exchange contains a wide range of stocks from the most conservative to the highly speculative. The selection process is complex because so many elements go into formulating expectatons of stock performance.

Return is the key variable in investment decisions. It allows the investors to compare the actual or expected gains from various investments with the levels of return they need [1].The return on common stocks comes from two sources: from periodic income which means dividends and from changes in market value of common stocks which means capital gains or losses. Combining the capital gain (or loss) with the current income gives the total return.

Stocks are subject to various types of risks including business, financial, liquidity risk and market risk. Market risk embodies a number of different risks: interest rate risk, exchange rate risk, inflation risk. Essentially, market risk is reflected in the price volatility of a security, the more volatile the price of a security the greater its perceived market risk. All of these risks can adversely affect a stock's earnings and dividends, its price appreciation and of course the rate of return earned by investors. The risk associated with a given investment is directly related to its expected return. The broader the range of possible returns the greater the invesment's risk and vice versa.

This research focuses on analysis of decision criteria used by portfolio managers in investing common stocks. The major objectives of this study are (1) to identify which criteria taken into consideration by portfolio managers in investing common stocks in Turkey, (2) to determine which criteria (among those selected for study) the portfolio managers considered important and to measure the relative importance of these criteria.

The rest of the paper is organized as follows: Section II reviews the literature, Section III presents the methodology used and condensed description of formation of the hierarchy, an interpretation of results is provided in Section IV and a brief summary concludes the paper as Section V.

II. LITERATURE REVIEW

Portfolio theory is an attempt to optimize the risk-reward of investment assets. It proposes that risk can be reduced by combining risky assets into portfolios rather than holding them individually. It implies that investors should hold portfolios of assets in order to minimize risk and that the riskiness of an individual asset should be measured by its contribution to the riskiness of a well diversified portfolio. It emphasizes portfolio diversification over the selection of individual securities. To construct a portfolio consistent with portfolio theory, investors must evaluate the correlation between asset classes as well as the risk/return characteristics of each asset. Portfolio theory offers a disciplined approach to investing that is still widely used today.

There are four aspects of portfolio theory: individual security valuation, which describes a universe of assets by their expected returns and risks; asset allocation, which determines how much should be invested into stocks, bonds, or other asset classes; portfolio optimization, which determines which investments offer the best return given the level of the risk; and performance measurement, which divides each investmentts performance into risk categories based upon its own performance, market-related risk, and industry-related risk.

To achieve top performance, portfolio managers require significant statistical data and financial analytics concerning their security selection. They need clear insight about the factors that drive equity valuation. They need ways to measure how their selections affect investment objectives, benchmarking, risk and reward and overall portfolio performance. They need data on the many factors affecting security prices, including market structure, economics, technicals, fundamentals and more. And what they need most of all is a way to manage and analyze all this information in order to maximize their ability to interpret and exploit it.

A large body of emprical research have been done about portfolio selection process. The disciplined study of portfolio management and model development dates back to 1950's. Modern Portfolio Theory (MPT) was introduced by Harry Markowitz (1952) with his paper.[2] He proposed that investors focus on selecting portfolios based on their overall risk-reward characteristics instead of merely compiling portfolios from securities that each individually have attractive risk-reward characteristics. In a nutshell, inventors should select portfolios not individual securities.

Sprenza [3] proposed a methodology of integrated complex integer programming and heuristic algorithm in his paper. In goal function he used average absolute deviation instead of standard deviation.

Dias [4] reviewed basic concepts about portfolio selection in his work, showing one starting solution and then the mean-variance analysis proposed by Markowitz. He shows an algorithm for efficient frontier derivation and analyze the performance of 24 portfolios generated by his implementation of this method.

Akay, Çetinyokuş and Dağdeviren [5] developed Decision Support Systems (DSS) for constituting the portfolios having cardinality constraints. In the model phase of the DSS, Genetic Algorithm and technical indicator are used. They proposed a methodology of integrated the DSS/GA approach in their paper for portfolio selection problem.

Ulucan [6] applied Markowitz portfolio selection model to the ISE 30 companies. In the first part of the study, Markowitz Portfolio selection model, which is in the form of quadratic programming, was modified to compose a portfolio which has the same risk-return structure with the ISE 30 index. In the second part, using standard quadratic programming model, portfolio weights which have the same return level with ISE 30 index but have lower risk than ISE 30 index were determined. Finally, using standard quadratic programming model, portfolio weights which have the same risk level with ISE 30 index but have higher return than ISE 30 index were determined.

Atan [7] proposed a methodology for portfolio optimization with quadratic programming. In his study, he constitutes expected return and variance- covariance matrix by using returns of firms in ISE 100 index. Then he selects the optimal portfolio by using quadratic programming.

Kıyılar and Eroglu [8] introduced single index model and making a practice on Istanbul Stock Exchange. In their study 24 different portfolio were formed, the risks and the returns of the portfolio were calculated, the risk-

return diagram was drawn and compared with the portfolio determined by single index model.

Bozdağ, Altan and Duman [9], comparised the minimax portfolio selection method and markowitz mean-variance portfolio model.

Ballestero, Günter, Santamaria, Stummer [10] used a multi-criteria linear performance index of simulated future returns, which avoids difficulties with performance ratios. The real world applicability is illustrated through two studies based on data from the exchanges in Frankfurt and Vienna.

Bana, Costa ve Soares [11] presented a new model to support the selection of a portfolio of stocks based on the results of the fieldwork undertaken with fund managers and using direct rating, MACBETH and optimisation techniques. The model consists of defining a benchmark portfolio (the Dow Jones Eurostoxx50) and scoring its different stocks according to several expected return criteria. Based on this multicriteria value analysis, a procedure is proposed to suggest adjustments to the proportions of the stocks in the portfolio. Finally, the risk of this modified portfolio is taken into consideration in an optimization module that includes constraints concerning the limits of variation for the proportion of each stock.

III. METHODOLOGY

When multiple objectives are important to a decision maker, it is often difficult to choose between alternatives. Thomas L. Saaty's Analytic Hierarchy Process (AHP) provides a powerful tool that can be used to make decisions in situations where multiple objectives are present. The AHP makes it possible to judge qualitative and quantitative criteria [12].

In this paper the factors affecting the decision of portfolio managers in investing common stocks in Turkey are investigated by AHP. The criteria that form the hierarchy are determined by examining the literature and by expert opinion. Questionnaires are applied to outstanding portfolio managers in Turkish Capital Market.

The first step of AHP is to identify main criteria, sub-criteria and potential alternatives and to build the hierarchy according to them [13]. In our problem the main criteria for The Factors Affecting The Decision Of Portfolio Managers In Investing Common Stocks consist of "**Risk and Return**". "**Risk**" criterion includes 2 sub-criteria: Systematic Risk which means the inescapable portion of an investment risk attributable to forces that affect all investments and Unsystematic Risk which means the portion of an investment's risk that results from uncontrollable or random events that are firm-specific. Systematic Risk includes 3 sub-criteria: "Interest Rate Risk, Inflation Risk and Exchange Rate Risk". Unsystematic Risk includes 5 sub-criteria: "Financial Risk, Business Risk, Liquidity Risk, Sectoral Risk, Management Risk".

In our research the sub-criteria of "Return" are Historical Performance and Future Expectations. Historical Performance is related to both qualitative and quantitative factors related to market information of stock and some fundamental performance ratios and consists of 8 sub- criteria: "the business group the firm belongs to, free floating rate, daily trading volume, whether the stock is traded in ISE 30 or 100 indices, past ratio analysis, market capitilization rate, whether the stock is demanded by foreign investors or not and speculators' interest". Past Ratio analysis includes "Price/Earning Ratio (P/E) which shows how much investors are willing to pay per dollar of reported profits, Market Value/Book Value ratio which indicates how aggresively the stock is being priced, Return on Average Asset (ROAA) which measures the overall effectiveness of management in generating profits with available assets, Return on Average Equity (ROAE) which is a measure of return earned on the owners' investment, Leverage Ratio (D/E) which is the relative amount of funds provided by lenders and owners and Dividend Payout Ratio which is an indication of how much of its earnings a company pays out to stockholders".

Future Expectations consist of 2 sub-criteria: Forecasted Performance and Growth Opportunities. Forecasted Performance includes some projected efficiency and relative valuation ratios about performance of the firm. These are: Enterprise Value/Earnings Before Interest and Tax Plus Depreciation and Amortization (EV/Ebitda) Ratio which compares the value of a business, free of debt, to earnings before interest, Projected Price Earnings Ratio (P/E), Projected Market/Book Value Ratio, Projected Return on Average Asset (ROAA), Projected Return on Average Equity (ROAE) and Discounted Cash Flow (DCF),a valuation method,which is used to evaluate the potential for investment. Growth opportunities consist of 2 sub-criteria: Company-Based, Country-Based. The sub-criteria of "Company-Based Growth Opportunities" are the followings: "Projected Investments, Mergers/Acquisitons and Forecasted Dividend Policy". The sub-criteria of "Country-Based Growth Opportunities" are the followings: "Growth in GDP, Investment Subsidies and Global Fund Raising". The hierarchy could be seen in Figure.1.

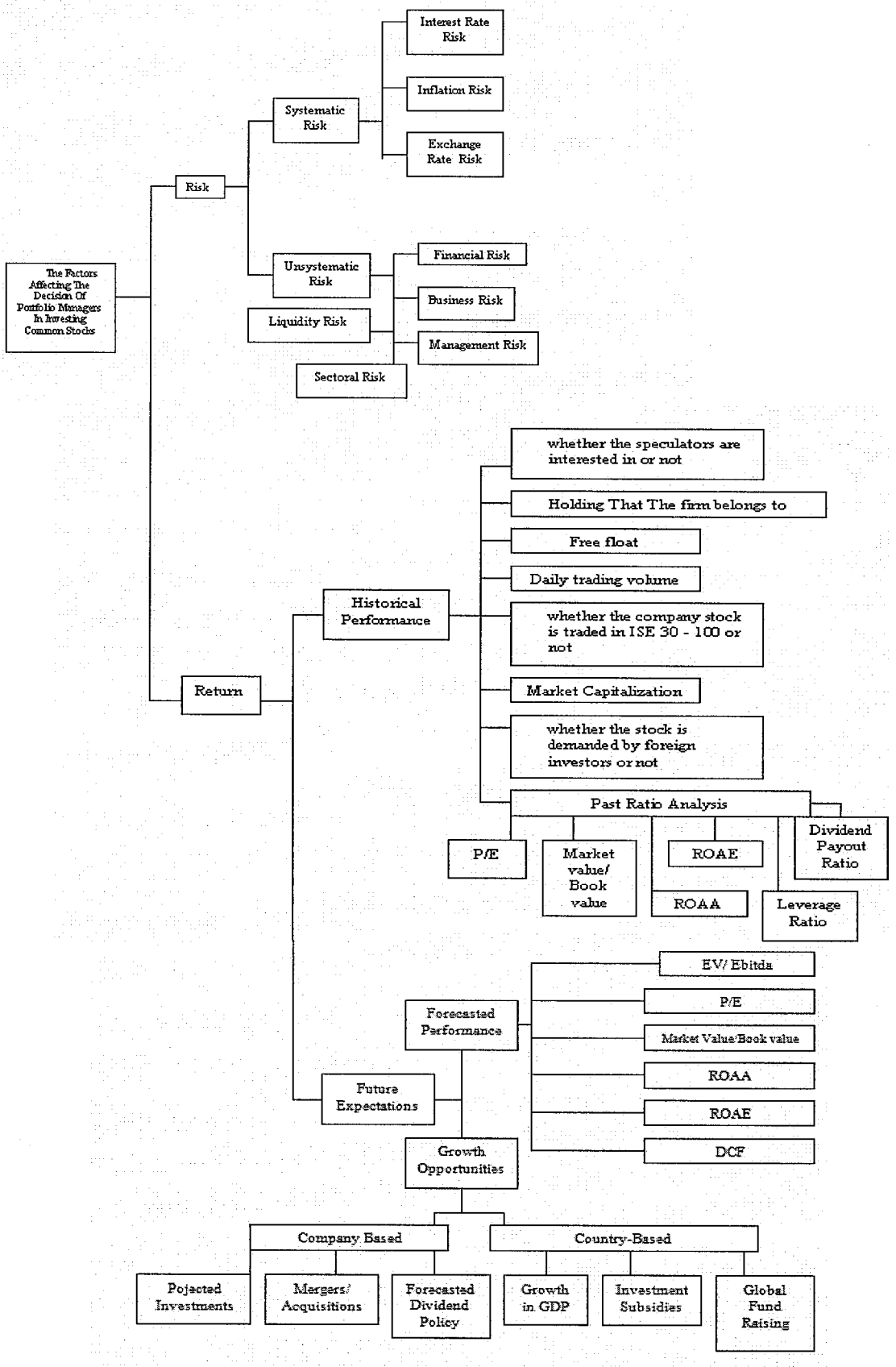

Figure.1. The Hierarchy for The Factors Affecting The Decision of Portfolio Managers in Investing Common Stocks Problem

III.1. Priorities of the Criteria

Once the hierarchy is built, the decision-makers evaluate the criteria by making pairwise comparisons. While making pairwise comparisons, the scale of relative importance (1-9), developed by Saaty is used. When all the comparisons are completed the priorities of criteria and a consistency ratio of the judgements are calculated. The consistency ratio should be less than 10 %. If the rate is less than 10 %, we can say that the judgements are consistent, if it is not the pairwise comparison matrices (Figure.2) are calculated again [14] .

III.2. The Priorities of The Main Criteria

In this paper Expert Choice program has been used. In Figure.3, the priorities of the main criteria are shown.

IV. RESULTS

According to the experts' judgements, the most important criterion is "Return" (69%) and the second one is "Risk" (31%).

The most important sub-criterion of the "Risk" is "Systematic Risk" (76%). The second important is "Unsystematic Risk" (24%). The most important sub-criterion of the "Systematic Risk" criterion is "Interest Rate Risk" (55%), the second one is "Exchange Rate Risk" (34%), the last one is "Inflation Rate Risk" (11%). When the sub-priorities of "Unsystematic Risk" sub-criterion are analyzed, it is apperantly seen that "Financial Risk" is perceived as the most important sub-criterion (42%). The second important one is "Sectoral Risk" (18%), the third one is "Liquidity Risk" (16%), the fourth one is "Business Risk" (13%) and the last one is "Management Risk" (11%).

Under the "Return" main criterion; "Future Expectations" has the higher priority (77%) than "Historical Performance" (23%). The most important sub-criterion of future expectations is forecasted performance (55%) but the growth opportunities also close priority to it (45%). The sub-criteria of forecasted performance are, from the most imporant to least, EV/Ebitda, Discounted Cash Flow (DCF), ROAA, ROAE, P/E, Price/Book Value and their priorty levels are 23%, 22%, 16%, 15%, 13% and 11% respectively.

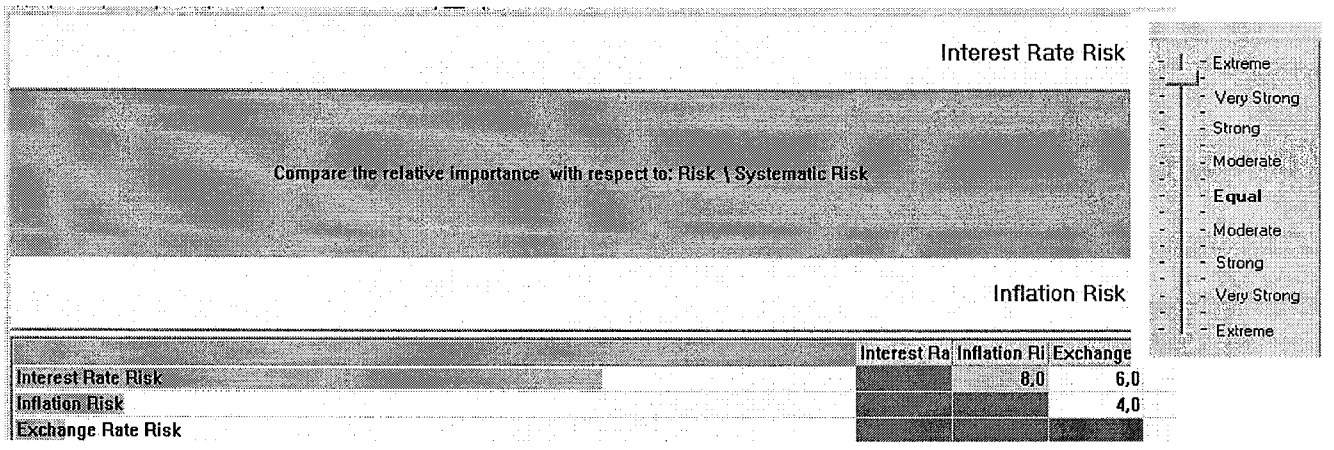

Figure.2. The Pairwise Comparison Matrix for Systematic Risk

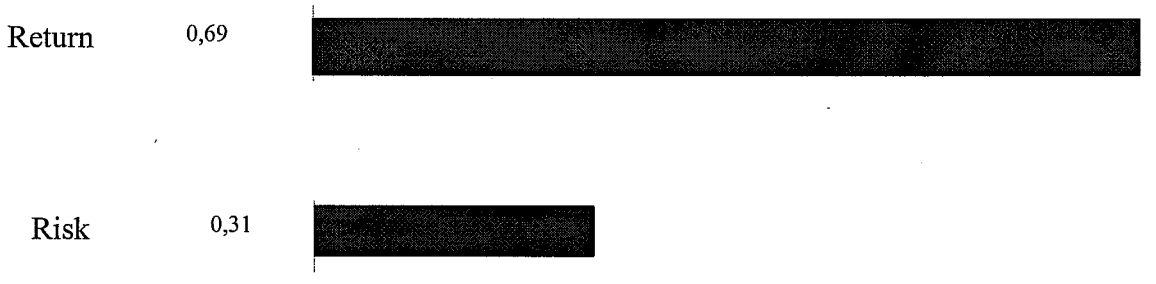

Figure.3. The Priorities of The Main Criteria

Under growth opportunities sub-criteria; company-based one has considerably higher priority (87%). Among its sub-citeria; the mergers and acquisitions takes the first (53%). Projected investments follows it by 38 % priority level and forecasted dividend policy takes the least (9%). The country–based growth opportunities has 13% priority level, when it comes to the sub-criteria; Global fund raising ranks at the top (44%), growth in GDP holds the second (39%) and investment subsidies takes part at the least (17%).

When the priorities of sub-criteria of historical performance are examined, past ratio analysis is seen as the most significant sub-criterion by 22 %. ROAA is slightly higher priority level than P/E and ROAE. These ratios share the same priority level (21%). Leverage ratio has 15%, dividend payout ratio is the lowest priority level by 7% among others.

The remaining sub-criteria of historical performance and their prioritey levels are ranked from the most important to least as: whether the stock is traded in ISE 30 or 100 indices and whether the stock is demended by foreign investors or not have both 17%, market capitilizatin has 15%, trading volume has 10%, business group the firm belongs to has 9%, whether the speculators interested in or not has 6%, free floating rate has 4% priority levels.

The whole results are presented in Table 1.

Table.1. The Overall Priorities of The Criteria

MAIN CRITERIA AND SUB-CRITERIA	THE OVERALL PRIORITIES	CONSISTENCY RATIO
RISK	**0,31**	
SYSTEMATIC RISK	**0,76**	0,027 < 0,10
Interest Rate Risk	0,55	
Inflation Risk	0,11	
Exchange Rate Risk	0,34	
UNSYSTEMATIC RISK	**0,24**	0,087 < 0,10
Financial Risk	0,42	
Business Risk	0,13	
Liquidity Risk	0,16	
Sectoral Risk	0,18	
Management Risk	0,11	
RETURN	**0,69**	
HISTORICAL PERFORMANCE	**0,23**	0,022<0,10
Holding That The Firm Belongs To	0,09	
Free Float	0,04	
Daily Trading Volume	0,10	
Whether the company stock is traded in ISE 30-100 or not	0,17	
PAST RATIO ANALYSIS	0,22	0,019<0,10
Price/Earning Ratio	0,21	
Market Value/ Book Value	0,13	
ROAA	0,22	
ROAE	0,21	
Leverage Ratio	0,15	
Dividend Payout Ratio	0,07	
Market Capitalization	0,15	
Whether the stock is demanded by foreign investors or not	0,17	
Whether the speculators are interested in or not	0,06	
FUTURE EXPECTATIONS	**0,77**	
FORECASTED PERFORMANCE	**0,55**	0,046<0,10
EV/ Ebitda	0,23	
P/E	0,13	
Market Value/Book Value	0,11	
ROAA	0,16	
ROAE	0,15	
DCF	0,22	
GROWTH OPPORTUNITIES	**0,45**	
COMPANY-BASED	0,87	0,008<0,10
Projected Investments	0,38	
Mergers/Acquisitions	0,53	
Forecasted Dividend Policy	0,09	
COUNTRY-BASED	0,13	0,067<0,10
Growth in GDP	0,39	
Investment Subsidies	0,17	
Global Fund Raising	0,44	

V. CONCLUSION

This research focuses on analysis of decision criteria used by portfolio managers in investing common stocks. The major objectives of this study are (1) to identify which criteria taken into consideration by portfolio managers in investing common stocks in Turkey, (2) to determine which criteria (among those selected for study) the portfolio managers considered important and to measure the relative importance of these criteria.

Contribution of our paper to the existing literature is the determination of the hierarchy and the priorities of the criteria which will help the decision makers for investing common stocks problem. Also the authors believe the benefit of using the combination of the qualitative and quantitative decision techniques together, which will help the decision makers to decide more precisely. Further studies in this subject would be trying different tecniques.

The consistency ratios for all main sub-criteria are smaller than 10%. At the top of the hierarchy, the risk has 31% and the return has 69% priority. That means the portfolio managers in Turkey give presidence to return when selecting common stocks for their portfolio and they reflect risk on their expected rate of return.

Under the risk criterion; the interest rate risk is ahead of other sistematic risk sub-criteria. That means as interest rate is very important factor in valuation of companies, portfolio managers take into consideration it firstly. The second important criterion is exchange rate risk. It is important in $ based valuation, any change in exchange rates affects the value of firms.

The financial risk has the highest priority among the other unsystematic risk criteria. As financial risk is the degree of uncertainty of payments attributable to the mix of debt and equity to finance a business, the larger the proportion of debt financing the greater the risk placed on stockholders. The portfolio managers emphasizes high degree of importance on the ability of firm to cover financial costs. They weight the increased financial risk associated with greater finacial leverage against the expected increase in returns.

The sectoral risk has the second important priority level among the unsystematic risk criteria. With sector rotation portfolio managers choose stocks in specific industry sectors that will do best depending on current and projected stages of business cycle, there is obviously a good deal of market timing.

In the return point of view, futures expectations has 77% priority against historical performance with 23% priority. Portfolio managers devote a great deal of attention to making prediction of future performance. The stock which has higher than the average forecasted ratio has greater demand in the market. Among the selected relative valuation ratio EV/EBITDA and Discounted cash flow, which is a common valuation method, have very close priority levels. In the last years as more–qualified portfolio managers are on duty, the use of modern valuation tecniques and relative valuation methods have become prevalent in investing common stocks.

Company–based growth opportunities have more priority against country-based. The probability of any merger or acquisition makes the stock attractive for investors. Many foreign bank have acquired or merged Turkish banks and with the european union integration process and improving economic conditions, it is expected to be many mergers and acquisitions for also industrial companies.

Under country–based growth opportunities, the global fund raising which means the portfolio investment of foreign investors has effective role. As global funds flow throuhg capital markets the common stocks demanded by foreigners also attract native portfolio managers.

Although most investors recognize that future performance is not guaranteed by historical performance they would agree that past data often provide a meaningful basis. So, historical performance has 23% priority level and among its sub-criteria past ratio analysis has the most with 22% ROAA, P/E, ROAE and leverage ratio are more important among those selected. Also whether the stock is demanded by foreign investors and whether the stock is traded in ISE 30 or 100 indices are also important criteria. Because global fund flows are mostly seen as the period of economic growth and an uptrend is also seen in ISE. That means when foreign investors enters security market, an increase is observed in ISE 100 index. Whether the stock is traded in ISE 30 or 100 indices is also important because the companies which are traded in these indices are less subject to speculation, more transparent and can be purchased and sold in big amounts. So they are more preferrable for both foreign investors and Turkish portfolio managers.

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