



Selection of optimal stock portfolios using accounting information, value-based information and balanced scorecard information

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ARTICLE INF	ABSTRACT
<p><i>Article history:</i> Received: 2019/06/28 Accepted: 2019/12/03</p>	<p>The purpose of the present study is to develop a comprehensive optimal portfolio model using accounting information analysis, value-based information and balanced scorecard information. The statistical population of the research is the companies listed in Tehran Stock Exchange during the period 2007-2017. In order to achieve the objectives of the research, the formulation of dimensionality reduction, data envelopment analysis methods, backing vector machines, and clustering algorithms were used. The above model was implemented in four steps and in each step besides risk and return component, accounting criteria, value based criteria and financial criteria and then non-financial balanced scorecard were used as input step by step portfolio model. The findings of the research indicate that the criteria used in the research for optimizing the portfolio of stocks have informational content and the addition of each set of criteria leads to an increase in the efficiency of the portfolio. This information content of the balanced scorecard is even more impressive. Overall, the simultaneous application of hybrid optimization methods and comprehensive benchmarks extracted from financial reports resulted in a more optimized portfolio and higher risk-taking and Markovitz literature returns.</p>
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1- Introduction

One of the main goals of accounting is providing information for use in investment decisions. The discovery of the value of information provided by accounting systems is one of the major axes of empirical studies in the field of financial and accounting knowledge. Given the constraints on investment resources, if investors invest all their resources in a particular asset, they will

increase the risk of losing their resources, which is not, in their view, desirable. Therefore, the main problem for investors is the determination of a set of securities that leads to maximization of wealth. This also leads to the selection of the optimal stock portfolio from a set of stock portfolios in order to maximize the benefits to shareholders. The effective components of choosing the optimal stock portfolio are two main factors: the criteria used in stock portfolios and the approach of choosing stock portfolios. In this research, we focus on choosing the optimal portfolio based on a comprehensive model including accounting information, value-based information and balanced scorecard information and a dimensionality reduction approach.

2- Research Question

Is it possible to use a comprehensive set of analysis of accounting information, value-based information and a balanced scorecard information, and using the Dimension Reduction Approach to create an optimal stock portfolio model, so that this model would increase shareholders' returns?

3- Methods

The research methodology is a quantitative research that uses the scientific method and empirical evidence, and based research designs is done. The empirical data was collected from a panel consisting of 103 Iranian companies listed in TSE, over the seven-year period of 2007 to 2017. The criteria used in this study are accounting information, value-based information and balanced scorecard information. In order to achieve the research goals and to create optimal stock portfolios, we used Data Envelopment Analysis, Support Vector Machine and Anomaly Clustering algorithms. The above method was implemented in four stages. At each stage, in addition to the risk and return components, we used accounting information, value-based information and balanced scorecard information as a step-by-step portfolio input.

4- Results

The findings of the research indicate that the criteria used in the research to provide the stock portfolio are informative and adding each category of criteria will lead to an increase in the utility of the stock portfolio. In addition, this informativeness has increased significantly with

the balanced scorecard. Generally, the simultaneous use of hybrid optimization techniques and comprehensive criteria derived from the financial stock portfolios were more optimal and more favorable than the risk and efficiency of the Markovitz literature.

Keywords: Optimal Stock Portfolio, Accounting Information, Value-Based Information, Balanced Scorecard Information.