Testing the Applicability of the CAPM in the Serbian Stock Market

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Abstract— In this paper authors examined validity of applying of the CAPM in the emerging market of Serbia. Data used in the analyses of the applicability of the CAPM in serbian stock market are the monthly returns of ten the most liquid stocks listed on the Belgrade Stock Exchange. The returns are collected from official BSE's web site for the period from January 2006 to December 201001. The time series data of 60 months is long enough to nullify all short-term shocks, for beta coefficients to take long-term values or for beta coefficients to adjust to their long-term values. To reduce the impact of the non-synchronous trading, in the process of selecting stocks, special attention was paid to liquidity of stocks. The research confirms applicability of the CAPM in serbian stock market. Authors suggest that the findings of this study should be interpreted with caution for two reasons, first, the sample share was very small, there were numerous problems in the estimation of beta coefficient. The bete coefficients are estimated using method ordinary least squares.

Index Terms— beta coefficient, CAPM, emerging stock market, Serbia.

I. INTRODUCTION

Modern portfolio theory is the most important innovation in the field of investment and portfolio management. The key step in improving portfolio theory was the discovery of Sharpe and Lintner that there is a functional relationship between the returns of individual securities and the market return. They found that asset's excess returns are proportional to the regression coefficient of return in individual securities and the market return (market premium). Sharpe (1964) and Lintner (1965) presented these findings in the form of the Capital Asset Pricing Model - CAPM.

CAPM is a linear model, in the market equilibrium, which explains individual-asset's excess returns using covariance of return of the individual investments with the overall market. The appearance of the CAPM has enabled the search for answers to fundamental questions of modern portfolio theory - how to establish equilibrium between the price and the risk of financial assets, that is, prices of individual securities for a given level of risk. Usage of the CAPM is very simple. CAPM is based on the assumption of a positive return-risk trade off. This assertion implies that an asset's responsiveness to general market movements is the only variable to cause systematic differences in the returns between assets [22, p. 101]. However, empirical tests have not confirmed the exceptional applicability of the CAPM. Although early empirical analyses showed that the beta coefficient predicts relatively good returns, especially in portfolio of stocks, the research of achieved returns has revealed the existence of numerous anomalies. According to Fama and French (2004), the CAPM's empirical problems may reflect theoretical failings, being the result of many simplifying assumptions, but they may also be caused by difficulties in implementing valid tests of the model. Despite plentiful evidence against the CAPM, portfolio managers and academics still think about risk in terms of market beta (see Fama [1991, p. 1593]. These beta preferences are results of the simplicity of implementation of the CAPM and the innate appeal of beta, even today, when there are better ways to measure systematic risk.

The aim of this paper is to examine how well the CAPM describes the returns on the emerging stock market of Serbia, and to test the applicability of the CAPM under conditions where relatively short and interrupted time series data do not provide a sufficiently reliable basis for quality analysis, as a contribution to the debate on the validity of the model. The main purpose of this paper is to present evidence of the unconditional relationship between returns and beta in the Serbian stock market.

The paper is organized as follows: The first section contains the introduction. In the following section the history of empirical work is reviewed together with the suggestions it gives on the shortcomings of the CAPM. In section III, the data and methodology used to test the validity of the CAPM are described. Section IV discusses the results of testing. The final section summarizes the conclusions.

II. LITERATURE PREVIEW

In literature, there is an abundance of studies on testing CAPM that can be classified in two groups: the first group consists of studies that confirm the validity of the CAPM, and the second group includes studies that provide evidence against the CAPM.

Early research related to testing the validity of the CAPM, such as Black, Jensen and Schole's or Fama and Mac Beth's studies confirm the applicability of the CAPM in capital markets. Black, Jensen and Schole (1972) have investigated

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