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APPROACHES TO BETA ESTIMATION: AN EMPIRICAL STUDY

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ABSTRACT

Estimation of systematic risk is one of the most critical topics in finance. As a relevant measure of risk in security analysis, the beta coefficient has been widely used in the recent past. The power of measuring the ex-ante security risk highly depends on the degree of predictability and the temporal stability of security betas over future time periods. For beta predictions, like all the other predictions in economics, the simplest method is to assume that the future will be like the past. Historical betas could then be used directly. But such methods rest on the assumption that the underlying processes must stable over time and the past record is an adequate reflector of their essential characteristics.

The objectives of this study are twofold. First we try different adjustment techniques, such as naive adjustment, time-varying adjustments or Bayesian adjustments, to find a model which fits best to predict the ex-ante security beta coefficients using the data from the Bombay Stock Exchange (ISE), India. Two leading sectors of Indian economy: Pharmaceuticals and Information Technology are selected for this study.

Second, we investigate the sources of forecast error (MSE), the bias, inefficiency and random error, and furnish more detailed answers concerning the effects of various adjustment procedures on MSE. The study attempts to indicate the superiority of other time-varying and Bayesian Approaches to Beta Estimation over the usual OLS Procedure through an empirical analysis of two leading sectors of Indian Economy: Pharmaceutical and Information Technology sectors.

KEYWORDS: *Bayesian Approach, Beta, Mean Squared Error, Time-varying Models.*