

Forecasting of the Malaysian Betas

Catherine Ho Soke Fun
Chen Yin Foo

Abstract

Estimating beta is a straightforward application of the market model. However, investors are interested in the historical value of betas only in the hope of better able to forecast the probable future value.

The issue of beta forecasting is explored using segmented Malaysian industries data.

Four forecasting techniques are used to evaluate the forecasting ability of historical betas. The techniques included the commonly accepted Blume and Vasicek methods, a naïve constant model and a technique widely used by commercial providers.

These accuracy and suitability of these predicted betas will be examined with the MSE criteria.

It is observed that the commercial model adjustments greatly improve the MSE performance in both periods. Specifically it reduces the inefficiency element of the MSE components.

Introduction

Beta, the systematic risk of an asset, is empirically estimated via the market model using historical data to obtain the historical value. However, the main purpose of estimating beta of an asset is not to estimate its historical value but rather to infer from past records its probable future value for the purpose of in putting into the CAPM to estimate the capital cost or the required rate of return of an investment.

While the estimating of beta is a simple regression exercise of the market model, the estimation of beta is biased by several issues such as the thin trading effect of lesser traded securities, the tendency to regress to one over time, the different return interval options and the stability of beta over the period of estimation.

Due to the above biases, forecasting of future betas, particularly single security through mere extrapolation of historical betas has produced disappointing results and techniques have been suggested to minimize the various biases.

The objective of this paper is to explore the forecasting performance using techniques of Blume and Vasicek, a technique used by a commercial beta provider and a naïve raw OLS betas.

There are two aspects of forecasting, the accuracy and the dispersion of forecasts. The performance of the various techniques as predictors of next period beta will be examined using the M.S.E. (mean forecasted error) as it can be partitioned into three components of forecasted error, bias, variance and the random element of the different techniques. Bias measures the degree of accuracy, variance or inefficiency, the degree of order bias and the random refers to the forecasted error not related to the model.

Squared errors are used as the loss function is likely non-linear, that is, the cost of forecast errors increases exponentially with the size of the error.

In the case of Malaysia, as in most developing markets, there is potential for estimation inaccuracy as many of the shares are traded infrequently, while the bigger index and government linked shares are actively traded. As such, an attempt to circumvent this problem is to use sectors data rather than aggregated single securities to minimize the issues arising from thin trading effect.

Literature Review

The tendency of raw betas to regress to one was first recorded by Blume (1971), who then adapted a technique of regressing the current period raw betas against earlier period raw betas to capture the regression factor. According to Blume, the reversion tendency is independent of the order bias i.e. results contaminated by measurement errors. Management behaviour trying to bring the riskiness of the firm to be on par with the market average, natural evolutions of firms in diversifying business and spreading out risks, lack of high risk projects and monetary policy of the government all are possible reasons for the regression phenomenon.

The regression model for a seven year period developed by Blume, based on US data, was: