

MODELING INDONESIAN LQ45 STOCK MARKET INDEX VOLATILITY (APPLICATION OF GARCH AND BAYESIAN GARCH)

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Abstract. A comparative study has been conducted to examine the performance of the GARCH (Generalized Autoregressive Conditional Heteroscedasticity) model and Bayesian GARCH applied to the daily LQ45 stock market index of the Indonesian Stock Exchange, where the innovations of both models are assumed to follow Student-t. The forecasting performance of both models are evaluated with standard statistical measurement.

The empirical result shows that there a no different performance between these models. This is an indication that bayesian estimation only an alternative method in predicting LQ45 volatility, but not to increase the prediction

Key words and Phrases : *GARCH, Bayesian, LQ45, index.*

1. INTRODUCTION

Financial economists are concerned with modelling volatility in asset returns. This is important as volatility is considered a measure of risk, and investors want a premium for investing in risky assets. Banks and other financial institutions apply so-called value-at-risk models to assess their risks. Modelling and forecasting volatility or, in other words, the covariance structure of asset returns, is therefore important.

Volatility plays a central role in empirical finance and financial risk management and lies at the heart of any model for pricing derivative securities. Research on changing volatility (i.e., conditional variance) using time series models has been active since the creation of the original ARCH (AutoRegressive Conditional Heteroscedasticity) model in 1982. From there, ARCH models grew rapidly into a rich family of empirical models for volatility forecasting during the last twenty years. They are now widespread and essential tools in financial econometrics.

Recent developments in financial econometrics suggest the use of nonlinear time series structures to model the attitude of investors toward risk and expected return. For example, Bera and Higgins (1993, p.315) remarked that “a major