TIME SERIES MODEL FOR COMMON STOCK RETURN IN BURSA EFEK JAKARTA

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"Not that we of ourselves are adequately to reckon anything as issuing from ourselves, but our being adequately qualified issues from God"

2 Corinthians 3:5

"Rejoice in the hope. Endure under tribulation. Persevere in prayer"

Romans 12:12
YULIA ASMAWATY. Time Series Model for Common Stock Return in Bursa Efek Jakarta, with advisory committee ASEF SAUFUDIN and BUNAWAN SUNARLIM.

Common stock is the most publicly known among bonds sold in the stock exchange market. As an alternative way of investment common stock of course gives many advantages. Return is one of the advantages for the stockholder in addition common stock gives fund for the emiten.

The common stock return data 1996-2000 period shows that before the economic crisis in Indonesia which happened in the middle of 1997, there were relatively small fluctuation in the data, but after the economic crisis data started to fluctuate sharply. Therefore it can be concluded that the common stock was influenced by the economic situation.

Time series modeling using ARIMA model, indicates that the best model for the common stock return is MA(1) and will be designated as follow $y_t = \varepsilon_t + \varepsilon_{t-1}$.

This model has the minimum MSE 0.00005260. The RACF and RPACF plot also indicate that it is the best model.
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IN BURSA EFEK JAKARTA

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BIOGRAPHY

The author was born in Lubuklinggau, South Sumatera on July 10th, 1979, as the seventh of seven to Suwanto and Sulistiwati.

Graduated from SD Xaverius Lubuklinggau in 1991 and SMP Xaverius Lubuklinggau three years later. In 1997, the author was graduated from SMU Xaverius Lubuklinggau and invited as an undergraduated student in Department of Statistics, Bogor Agricultural University, minor in Economics.

Balai Pengkajian Teknologi Pertanian Malang was the place where the author had a work practice from February to April 2001.
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Yulia Asmawaty
INTRODUCTION

Background
People took many ways to invest their money like saving the money in the bank, buying pieces of land, houses and many more. Another way to invest their money is to buy bonds from an emiten company.

Among the bonds sold in the stock exchange market, common stock is most publicly known. The common stock also potential to give more advantages than the other type of investment. For the emiten, common stock generate fund from stock holders.

Common stock is a certificate explaining the participation or the ownership of one or corporation in certain business. Various benefits of common stock are deviden, capital gain, and entitled to attend RUPS (general meeting of stock holder). However the stockholder will not get deviden if the emiten is bankrupt. It may also possible that the stock holder loose their fund if the emiten is totally bankrupt.

In addition the stock holders can sell their bonds out whenever they want to. Usually this is the most advantage for the holders which attracts people to buy bonds. The gain that the holder obtain is called return.

Objective
The objectives of this study are to describe the characteristic of the return of common stock and to identify the model of the common stock return in Bursa Efek Jakarta.

THEORETICAL OVERVIEW

Return
Return is one of the advantages of common stock received by the stockholder. The stock holders will get deviden if the common stock is still theirs until the time of allotment of deviden, but if they sell their common stock before the time of allotment then the gain which is got by the stock holder is called return.

According to Husnan (1998) return can be described as follows:

\[
\text{return} = \log\left(\frac{\text{current price}}{\text{previous price}}\right)
\]

Time Series Exploration
Time series is a sequence of observation on variable of interest. The variable is observed at discrete time, of usually equal space (Montgomery et al., 1990). Data exploration is implemented to explain the behavior of the time series. The series may be decreasing, increasing, fluctuating or constant. Several components that contain in time series are (Hanke & Reitsch, 1992):

- The trend is the long term component that represent the growth or decline in the time series over an extended period of time.
- The seasonal component is a pattern of change that repeated itself year after year.
- The cyclical component is the wavelike fluctuation around the trend. Cyclical pattern is repeated for a long time period.
- The irregular component measures the variability of the time series after the other components have been removed. It accounts for the random variability in a time series caused by analysis unanticipated and nonrecurring factors. Most of the irregular component is made up of random variability.

Stationarity of Time Series
Stationarity occurs when there is no growth or decline in the data. Data are roughly horizontal along the axis. In other words the data fluctuate around the mean and are independent by time, and the variance of the fluctuation remains essentially constant over time (Makridakis et al. 1983).

Autocorrelation is a linear relationship between a group of observation ordered by time. Actually, the theoretical autocorrelation function is unknown and must be estimated by the sample autocorrelation function as follows:

\[
\hat{\rho} = r_k = \frac{\sum_{t=1}^{N-k} (y_t - \bar{y})(y_{t+k} - \bar{y})}{\sum_{t=1}^{N} (y_t - \bar{y})^2}
\]

where \(N\) is the length of time series under study. As a general rule, we would compute the first \(K=\lfloor N/4 \rfloor\) sample autocorrelation (Montgomery et al., 1990).