

## CHAPTER 6

### Conclusion

#### 6.1 Conclusion

This paper allows forecasting the Thai Baht gold spot price 96.50% with exchange rate of THB per USD and the Thai Baht gold spot price 99.99% with exchange rate of THB per USD then compare the results between ARFIMAX (p, d, q, X) and ARFIMAX (p, d, q, X)-GARCH (p, q) models during the period of 2001 to 2011. The study uses daily data on the defined time series. First, test the data using unit root test by the Augmented Dickey-Fuller test (ADF test) and Phillips Perron Test (PP test) and after found the variable has no unit root. Next, estimate the data using long memory test. Then application of the ARFIMAX (p, d, q, X) and ARFIMAX (p, d, q, X)-GARCH (p, q) models between the Thai Baht gold spot price and exchange rate of THB per USD and selected the best model from the value of AIC and BIC, which value has lower than other models. Later, the best accurate forecast which is the value of the MAPE (%) should be less than 10%.

The ARFIMAX (p, d, q, X) and ARFIMAX (p, d, q, X)-GARCH (p, q) models are difference from the ARIMA model because both models have a fractional integration parameter to capture the slow hyperbolic decay in the sample autocorrelation function. Therefore, the ARFIMAX (p, d, q, X) and ARFIMAX (p, d, q, X)-GARCH (p, q) models are more appropriate than the other models. In addition, the model can study a volatility of exogenous variable which is positive or negative shocks to endogenous variable in the models.

The results of the ADF test and PP-Test confirm that all the data has no unit root at level-trend and intercept. The Long Memory process reveals that there exists long term memory relationship between the Thai Baht gold prices with the exchange rate of THB per USD imply that the Thai Baht gold prices is not affected by any information immediately such as exchange rate. The Long memory or long range dependence means that the information from “today” is not immediately absorbed by

the prices in the market and investors react with delay to any such information (Silvia Bardoş, 2008).

The results show the best model between ARFIMAX (p, d, q, X) and ARFIMAX (p, d, q, X)-GARCH (p, q) models to forecast the Thai Baht gold spot price 96.50% with exchange rate of THB per USD is the ARFIMAX (0, d, 0)-GARCH (1, 1) model because this model has the minimum value of the AIC, BIC, MAE and MAPE (%). Also, the model to forecast the Thai Baht gold spot price 99.99% with exchange rate of THB per USD is the ARFIMAX (0, d, 0)-GARCH (1, 1) model because the AIC, BIC, MAE and MAPE (%) is less than the ARFIMAX (0, d, 1) model.

Furthermore, the most estimates of GARCH (1, 1) for the ARFIMAX (0, d, 0) of the Thai Baht gold spot price 96.50% and the ARFIMAX (0, d, 0) of the Thai Baht gold spot price 99.99% are highly statistically significant at 1% level. The results was similar to the result of studies the option pricing using daily realized volatility and ARCH type models. The model used ARFIMA, ARFIMAX, HAR, HARX models for comparison GARCH, EGARCH and FIEGARCH models. The main result shows that ARFIMAX model with daily realized volatility performs best. (Toshiaki Watanabe and Masato Ubukata, 2009)

The economic point view, to obtain more accurate the Thai Baht gold spot price with exchange rate of THB per USD estimations, it is necessary to maintain the ARFIMAX models for the realized volatility and the GARCH model for the volatility of realized volatility at the same time. Thus, when estimated the volatility in financial applications such as risk management and portfolio analysis, the time-varying conditional heteroskedasticity of volatility should be taken into consideration.

Finally, this paper concludes that this research can help predict the gold price in the future and may be used to decide whether to invest on the gold market. Otherwise, this research will be advantage to the policy maker in part of import or export for the gold market of Thailand. These results show that the volatility of gold with exchange rate exhibits the long memory dependence implying a high level of predictability in price variations.

## 6.2 Suggestion for Future Study

This research used only the data of Thai Baht gold spot price 96.50%, the Thai Baht gold spot price 99.99% with the exchange rate of THB per USD within last 10 years.

The future study should be select other factors which is effect to gold price because the price of gold has many factors which can make it fluctuations such as inflation, demand and supply on gold market and select more observations.

Investors should study more information of gold price before decide whether to invest on the gold market.