CHAPTER V

Conclusion

5.1 Conclusion

The purpose of this paper is to find out whether the Vasicek model or the CIR model, which are both the equilibrium models, can describe the term structure of interest rate on Thai bond market during a period of January 1999 to January 2004. Data used in this paper is obtained from the ThaiBDC and a cross section is used in order to estimate parameters.

The Vasicek and CIR models reveal a positive mean reversion. A positive value for the mean reversion implies that there is speed of the short rate that tends toward a tong term rate quickly while an economic shock occurs. The value of mean reversion of the Vasicek model is 13.17 % which less than the CIR model (17.25%). The higher the value of mean reversion, the faster of short rate will pull back to the long term yield.

In term of goodness of fit, the Vasicek model produces 0.68% of mean absolute percentile error which is larger than the CIR model that has mean absolute percentile error only 0.62%. Similarly, the root mean squared error value from the Vasicek model is slightly larger than the CIR model. The root mean squared error of the Vasicek model is equal to 150.63% while the root mean squared error of the CIR model is equal to 125.02%. In terms of the forecasted errors, the CIR model outperforms the Vasicek model for all maturities of the dataset with 0.98% of mean absolute percentile error across function. The CIR model also superior the Vasicek model in terms of the root mean squared error which the CIR model gives the error equal to 222.57% while the error of the Vasicek model is equal to 327.07%. This suggests that the functional form of model is important for pricing error. From these results the CIR model is suitable for the dataset of Thai bond market rather than the Vasicek model.

To verify whether the estimated model has significance in constructing a portfolio based on estimated yield curve, this paper also tested a contrarian trading strategy. This strategy consists of buying underpriced bonds and selling overpriced bonds which turned out to be profitable. The result showed that the abnormal return of the Vasicek model (0.23%) in overall period is less than the CIR model (0.28%) , although this result is insignificantly. The cause might be the standard deviation of abnormal return from CIR model is higher than the Vasicek model. However, the abnormal returns from the CIR model still outperform the Vasicek in sub-period. This is indicate that the result of better performance of the CIR model both in pricing the historical data and forecasting bond prices. Also, it implies that the CIR model can be a better benchmark in bond trading than the Vasicek model.

5.2 Suggestion for Further Study

The obstacle of this study was the small number of bonds traded each day and also the bonds with longer maturities were rare despite the increasing bond issued and trading volume increased. As a result, the pooling data was employed in this paper. However, the pooling data may be the cause of higher standard deviation in pricing performance. Thus, the future studies should estimate and rebalance parameter for shorter period (daily or weekly) for accuracy in parameter estimation particular when the bond market has more liquidity. Also apply either single factor models with respect to option on bond valuations or other financial assets in order to compare the performance of them. For the topic of two factor models, it is important to introduce the serious danger of fitting noise. The single factor models is already appears to be flexible

In addition, further studies should compare the equilibrium model with non-equilibrium model by using Thai data in order to find the appropriate benchmark for the Thai bond market.