CHAPTER 5

Conclusions and Future Works

5.1 Conclusions

Fractal theory is employed to investigate the Thai natural rubber price using the method of R/S analysis. 2272 observations of daily Thai natural un-smoked rubber price from 21 April 2003 to 7 July 2014 are used, which from TRA. Based on the R/S analysis, the following conclusions are drawn.

1. The Hurst exponent is equal to 0.6167, greater than 0.5, which indicates that there is long-term persistent existing in Thai natural rubber price. This results in the correlation coefficient and power law exponent of 0.1756 and 2.2334, respectively. Meanwhile, this coefficient means the strength of the long term memory can be affected (Peter, 1994). The Thai natural rubber price is thus a positive persistent process with long-term memory. According to the power law, the color noise of Thai natural rubber is obtained as 2.2334, which is black noise. The black noise occurred when there is strong economic growth or decline during a period of time, and the prices fall or increase all of a sudden.

2. The correlation coefficient equals to 0.1756 implies the correlation between present value and future value is positive. It means that 17.56% change that the prices of future Thai natural rubber are affecting by past prices.

3. The memory term is determined as 9 days. This implies that the influence of the past price can significantly last for 9 days after which the memory will disappear.

4. Based on the Hurst exponent, the Thai natural rubber price follows the FMH rather than the EMH. Because in this work, the price can be predictable, which violates the EMH.

5.2 Research Implications

Since the FMH gives more confidence to long-term investments, which could be a good information to long-term investors. All investors have their own investment horizons. For the long-term investors, it is more reliable to predict the price by Hurst exponent, correlation coefficient and long term memory. The policymakers can also make use of the price characteristics in the same manner.

5.3 Future Works

Based on the Hurst exponent of the Thai natural rubber price, the fractal dynamic model is suggested for modeling the price movement. This requires the knowledge of fractal calculus and should be the future focus.

For Hurst exponent is not 0.5, which clarifies that the new information has impacts on the process that implies the predictability in a certain level (Rostek S. & Schobel R., 2013). On the other hand, the market is very comprehended and incomplete, which has different risks at all kinds of scenarios. Risks have a significant impacts on price movement analysis. Since the fractional Brownian motion believes that the correlations of increments are infinite and can be used to describe the complex real case with self-similar increments, the fractional Brownian motion is expected to be a vigorous tool for the study of the price movement.

The time scales dominates the Hurst exponent which is the most significant part in fractal analysis. The determination of the time-scale effects on the Hurst exponent is still a huge room for future research. This importance was also addressed in (Peter E., 1994)