

Chapter 6

Conclusion

There have been a lot of changes in regulations and more liberalization on the banking industry in Thailand after the 1997 financial crisis. For instance, there are at least five changes of Thai commercial banks. 1) The foreign limit control is lifted for 10 years. Hence, the ownership structure of Thai commercial banks changed dramatically. 2) The provisions for possible loan losses were increased after the crisis. 3) Many banks' governance also changed after the crisis through either foreign acquisitions or domestic mergers. 4) The average capital ratio measured by the equity to total assets ratio is decreased from 7.12 percent before the crisis to 6.36 percent after the crisis. 5) The banking industry is taking higher market risk after the financial crisis. All of these changes may affect the efficiency of Thai commercial banks.

Therefore, it is of great interest to measure and compare the pre-crisis and post-crisis period efficiencies of Thai commercial banks. The study employs the most updated sample period covering from year 1990 to 2005. Then the full sample period is divided into three sub-periods: the pre-crisis period from 1990 to 1996, the financial crisis period from 1997 to 2000, and the post-crisis period from 2001 to 2005.

The efficiencies of Thai commercial banks are measured using three different approaches: parametric frontier approach (stochastic frontier approach is used to estimate the cost and profit inefficiencies), non-parametric frontier approach (data envelopment analysis (CCR and BCC models) and free disposal hull are utilized to estimate the efficiency), and the combination of parametric and non-

parametric approach (cost and profit inefficiency scores are estimated by combining stochastic frontier approach and the data envelopment analysis).

The results from the parametric approach indicate that the average profit inefficiency ratio is about 15 percent, 29 percent, and 21 percent for the pre-crisis, crisis, and post-crisis periods respectively. Whereas the average profit efficiency ratio is above 20 percent, negative 200 percent, and about 11 percent for the pre-crisis, crisis, and post-crisis periods respectively. The average cost inefficiency ratio is about 9 percent, 10 percent, and 16 percent for the pre-crisis, crisis, and post-crisis periods respectively. Whereas the average cost efficiency ratio is about 94 percent, 91 percent, and 87 percent for the pre-crisis, crisis, and post-crisis periods respectively. The results from the non-parametric approach show that the average CCR efficiency score is about 93 percent, 77 percent, and 92 percent for the pre-crisis, crisis, and post-crisis periods respectively. The average BCC efficiency score is about 97 percent, 92 percent, and 96 percent for the pre-crisis, crisis, and post-crisis periods respectively. The results generated from the combined parametric and non-parametric approach are: the average profit inefficiency is 15 percent, 29 percent, and 21 percent for the pre-crisis, crisis, and post-crisis periods respectively. The average cost inefficiency is 8 percent, 9 percent, and 16 percent for the pre-crisis, crisis, and post-crisis periods respectively. The conclusion is that the efficiency level of Thai commercial banks during the post-crisis period is lower than that of the pre-crisis period no matter which approach is used.

The correlation between efficiency scores and other factors such as bank general and financial characteristics and environmental factors is also studied in this

paper in an attempt to explain the variation of efficiency scores across banks and time periods.

The dependent variable is efficiency or inefficiency scores generated from the full sample with different methods (parametric, non-parametric, and the combined parametric and non-parametric approaches). 15 independent variables include macroeconomic environmental variables, banking industry environmental variables, and bank general and financial characteristic variables.

The estimates indicate that some effects are significantly related to the efficiency score. Inflation is positively related to the expected profit efficiency and negatively related to the DEA efficiency. Annual real GDP growth rate is positively related to the expected profit efficiency and DEA efficiency. Foreign ownership is negatively related to the DEA efficiency. Age is positively related to the cost efficiency. Large banks and medium banks tend to have the higher efficiency level than the small banks do. Large banks tend to have the highest DEA efficiency and the combined approach efficiency. The ratio of deposits to total liabilities is positively related to the cost efficiency. Regarding the capital risk, the E/TA ratio is positively related to the cost and DEA efficiency. Regarding the market risk, non-interest income/interest income is positively related to DEA efficiency and negatively related to the cost efficiency. Liquidity risk is measured by the loan/deposit ratio. This ratio is positively related to the cost efficiency and DEA efficiency. Further, the cost efficiency scores of government-owned banks are generally lower than that of private-owned banks, which may be due to the rescue role of the government-owned banks assigned by the Bank of Thailand. For credit risk, the coefficient of provision/loan ratio is not significantly related to any efficiency.

The above findings regarding efficiency scores and correlated factors may be useful for Thai commercial banks to study themselves and improve their efficiencies. They may also be useful for the regulators who could study the related factors and set the proper policies to improve the overall efficiency level of Thai commercial banking industry.