Abstract

This study measures and compares the efficiency of Thai commercial banks for pre- and post- 1997 financial crisis periods. The full sample period is divided into three periods. The pre-crisis period is from year 1990 to 1996, the financial crisis period is from year 1997 to 2000, and the post-crisis period is from year 2001 to 2005. The efficiency scores are measured by using the parametric frontier approach (cost and profit inefficiency scores are generated by stochastic frontier approach), non-parametric frontier approach (efficiency scores are generated by data envelopment analysis (CCR and BCC models) and free disposal hull), and the combination of parametric and non-parametric frontier approach (cost and profit inefficiency scores are generated by combining the stochastic frontier approach and the data envelopment analysis).

The results indicate that the average efficiency level of the post-crisis period is lower than that of the pre-crisis period no matter which approach is used. The parametric approach results show 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. The average cost inefficiency ratio is about 9 percent, 10 percent, and 16 percent for the pre-crisis, crisis, and post-crisis periods respectively. The non-parametric approach results point out 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 about 15 percent, 29 percent, and 21 percent for the pre-crisis, crisis, and post-crisis periods respectively. The average cost inefficiency is about 8 percent, 10 percent, and 16 percent for the pre-crisis, crisis, and post-crisis periods respectively. The parametric approach and the combined approach found that the average efficiency level of the post-crisis period is significantly lower than that of the pre-crisis period.

The correlation analysis between the efficiency scores and other factors is also conducted in an attempt to explain the variation of the efficiency scores across banks and time periods. Several factors are found to have the significant correlation with the efficiency scores of Thai commercial banks. Foreign ownership is negatively related to the data envelopment analysis (DEA) efficiency. Annual real GDP growth rate is positively related to the profit efficiency and DEA efficiency. Annual inflation rate is positively related to the profit efficiency but negatively related to the DEA efficiency. Large and medium banks tend to have the higher efficiency level than the small banks do. The age of the bank and the ratio of deposit to total liabilities are positively related to the bank's cost efficiency. Regarding the capital risk, the equity to total asset ratio is positively related to the cost and DEA efficiency. Regarding the market risk, the ratio of non-interest income to interest income is positively related to the DEA efficiency and negatively related to the cost efficiency. Liquidity risk measured by loan/deposit 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.