EFFICIENCY OF AUSTRALIAN BANKS: ITS DETERMINANTS AND STOCK PRICE RELEVANCE

A thesis
submitted in fulfillment of the requirements
for the degree of Doctor of Philosophy
Faculty of Business and Law
The University of Newcastle

Dong Xiang
B.A., Hebei University, 1993
M.A., Massey University, 2006
January 2011
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Dedication

This dissertation is dedicated to my parents for instilling in me the values of hard and persistent work. It is also dedicated to my wife, Yu Wang, for the inspiration to achieve higher goals. Without her encouragement, support and personal sacrifices, I could not have done it.
Acknowledgements

First, I would like to thank my research supervisor, Associate Professor Abul Shamsuddin, for his wise advice, great efforts and encouragement during the completion of this PhD thesis. I am also grateful for the advice given by Associate Professor Akhtar Hossain and Dr Janet Dzator as of my co-supervisors at the various stages of my thesis.

I would also like to extend my gratitude to all the staff of Newcastle Business School for providing such a brilliant researching environment. Likewise, I convey my gratitude to the Australian Postgraduate Award and the University of Newcastle for the scholarships provided to fund the pursuit of this research degree.

Finally, I wish to extend my appreciation to Mrs Vicki Tonkin for her excellent proofreading, according to Standards D and E of the ‘Australian Standards of Editing Practice’, and the individual banks and institutions that generously provided data for the research. To all those who directly and indirectly contributed to this study, I also offer many Thanks and will be forever grateful.
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Abstract

The aim of this thesis is to conduct a thorough analysis of the performance of Australian banks over a long period of time, covering a period of various regulatory measures. To achieve this aim, the following four objectives are set in this thesis: first, to investigate economic efficiency (i.e. cost and profit efficiency) of the Australian banks before and after the implementation of the prudential regulation; second, to examine whether the Australian banks operate at the minimum efficient scale; third, to assess whether the efficiencies achieved contribute to wealth maximization of shareholders; fourth, to examine the determinants of Australian bank efficiency. Using a data set covering a period from 1985 through 2008, I first apply the stochastic frontier analysis (SFA) to examine the technical, cost and profit efficiency of Australian banks. A standard data envelopment analysis (DEA), as well as a slack-based DEA model (Tone 2001), is then used to assess the technical and scale efficiency of Australian banks. In addition, a Malmquist index model is used to investigate bank productivity changes over the sample period. The relationship between bank efficiency and bank stock returns is also examined using the market model. Lastly, a mixed two-step approach is used to examine efficiency and the determinants of efficiency using panel data from 1988 to 2008 across three countries, namely, Australia, Canada and the U.K.. In the first stage, a common efficiency frontier for banks in three countries is constructed including the environmental factors. The firm-level determinants of efficiency are then investigated by regressing these efficiencies on firm-specific factors.
A key finding of this thesis is that, over the period from 1985 through 2008, the technical, cost and profit efficiency of Australian banks improved. However, scale efficiency showed a declining trend, which was mainly due to the scale inefficiency of the big-four banks over the sample period. Australian banks have a high level of cost and profit efficiency, but have a relatively low level of technical efficiency. Technological improvement is found to be the major driving force behind productivity changes of Australian banks, and also has a positive effect on the profit efficiency frontier. It is also observed that technical, cost and profit efficiency have a positive effect on bank stock returns, suggesting that bank efficiency is properly recognized by market participants.

Compared to their regional counterparts, the big-four banks have a lower level of technical efficiency, but a higher level of cost efficiency. The low level of technical efficiency of the big-four banks is attributed to scale inefficiency. In comparison, the regional banks can achieve the same level of profit efficiency as that of the big-four banks by devising a better way of transforming inputs into outputs.

Australian banks show a superior performance in terms of technical, cost and profit efficiency compared with that of Canadian and U.K. banks. The factors such as intangible assets, loans to deposits ratio and, loans to assets ratio exert a positive influence on technical efficiency. On the other hand, technical efficiency is inversely affected by size, ratio of loan loss provisions to total loans and debt to equity ratio.

The findings of this thesis appear to provide justifications for the deregulatory measures and the prudential regulation framework introduced by the Australian
regulatory bodies. Australian banks with increased efficiency levels and relatively capital adequacy ratios demonstrated resilience to external shocks, such as the Asian financial crisis and the subprime mortgage crisis. An investigation of the determinants of bank efficiency suggests that an Australian bank manager has the choice of tuning either the capital structure or the asset structure to improve efficiency. However, these findings should be interpreted with caution due to the limitations relating to data unavailability and efficiency evaluation techniques.