

**Year: 2013**  
**Volume: 58**  
**Issue: 3**

# STUDIA Universitatis Babes-Bolyai OECONOMICA

## **TECHNICAL EFFICIENCY OF SOUTH AFRICAN BANKS IN GENERATING INTEREST AND NONINTEREST INCOME: A STOCHASTIC FRONTIER ANALYSIS**

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**Abstract.** This study applies stochastic frontier analysis to estimate the technical efficiencies of the four largest banks in South Africa, for the period 1994 to 2010, with regard to their generation of interest income and noninterest income. Interest income and noninterest income of the banks are investigated separately using a stochastic frontier production function model. A stochastic frontier output-orientated distance function is also estimated in order to investigate the changes in interest and noninterest income for the banks. Using the stochastic production frontier model, it is found that deposits do not have any significant influence on the levels of interest and noninterest incomes of these banks. The inefficiency effects for the generation of interest income were found to significantly decline for larger values of loans and investments and interest costs, but increased with increasing values of financial capital and also increased over time. Using an alternative approach involving an output distance function for the two income variables, we find that deposits have a significant effect on the explanation of the interest and noninterest incomes and that inefficiency effects are still significant in explaining the generation of these incomes.

**JEL classification:** C50, G21, L21

**Keywords:** Technical efficiency, Stochastic Frontier Analysis, Production function, Bank inputs/outputs, Output distance function, South African banks.

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Note: A first version of this paper was presented at the Conference in Memory of Lennart Hjalmarsson, 7-8 December, 2012, School of Business, Economics and Law, University of Gothenburg.