

MN3141—Performance Measurement in Financial Institutions

Assignment

Due 30 April 2020 @ 3:00 pm. Save a screen shot of Blackboard submission which should be in pdf format.

Semester 2 (2020)

Instructor: G. Charles-Cadogan

Assignment. **Write a 1500 word paper using at least 12-point pitch, double spaced, 1"-margins**, on the topic below. Reference section, 250 words executive summary, and or an appendix will not count against the word limit. At least 12-point pitch double spaced paper, with 1" margins should be about 6-pages long. You may add material such as charts, graphs, tables, formulae, computer output, etc, each in a clearly labelled appendix none of which will not count against the word count.

I. Introduction

As the principal sources of financial intermediation and channels of making payments, banks play a vital role in a country's economic development and growth. The banking sector is becoming highly competitive due to the emergence of new technologies, and banks are exerting considerable efforts to improve their performance and stay competitive. For instance, banks are subject to:

- Efficiency changes over time due to banking liberalization and deregulation, market structure and economic environmental changes.
- Effects of ownership and bank types.

- Bank performance benchmark and improvement.
- International comparison.

The existence of an increasingly competitive market highlights the importance of evaluating banks' performance in order to continuously improve their functions and monitor their financial condition. Moreover, measuring banks' performance is a matter of concern not only for banks' managers but for policy makers and investors as well.

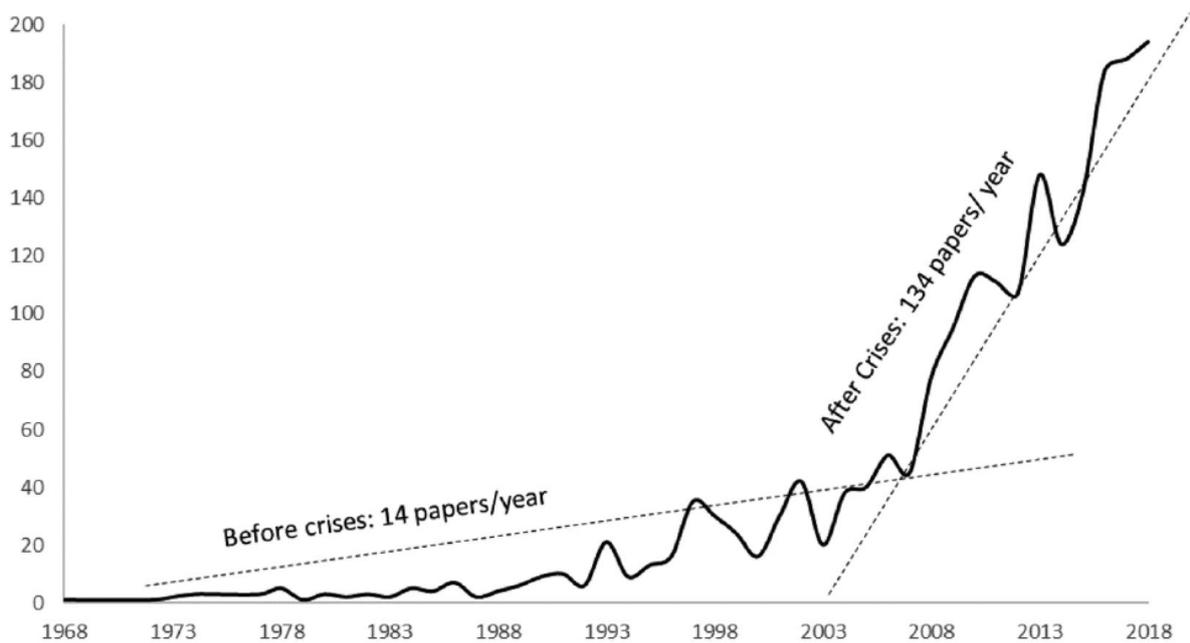


Figure 1. Annual Publication Trend (1965–2018).

Source: Ahmad, et al. (2020), Banking Sector Performance, Profitability, And Efficiency: A Citation-Based Systematic Literature Review, *Journal of Economic Surveys*, 34(1): 185–218, <https://doi.org/10.1111/joes.12346>

As shown in Figure 1, above, since the banking collapse that preceded the Great Economic Recession of 2008, the literature on measuring banks' performance using parametric and non-parametric methods have grown exponentially. Parametric approaches favoured by Stochastic Frontier Analysis (SFA), and nonparametric approaches favoured by Data Envelopment

Analysis (DEA) are the main methodologies applied in the literature.

II. **Assignment**

This assignment provides you with a balanced panel of financial data for a sample of 63 banks over the last 7 years. The variables provided represent the factors needed to estimate bank efficiency for the sample of banks. You can access the data by logging in to Blackboard and download the file named **Assignment_banks_data.xlsx** to start work on the following requirements.

1. Estimate the technical efficiency scores for each bank using Data Envelopment Analysis (DEA) under the following assumptions
 - a. Constant returns to scale (CRS)
 - b. Variable returns to scale (VRS)

Briefly explain the difference between the two assumptions.

2. Estimate the cost efficiency for each bank using the VRS assumption. Now, estimate the allocative efficiency scores. Compare the cost efficiency, technical efficiency, and allocative efficiency scores for each ownership group and briefly explain your results.
3. Managerial ability is an unobservable trait of an organization, and it is often estimated by the residual claim on bank efficiency after controlling for bank characteristics. For example, bank efficiency = firm characteristics + managerial ability. Use the bank efficiency scores you obtained in Part 1 above, under VRS assumption, to estimate managerial ability for the banks, and provide a density distribution for it. Compare the managerial ability

between ownership groups. Briefly comment on why you chose the particular methodology to estimate managerial ability.

Guidance:

- The assignment consists of three distinct tasks above. Your paper should be presented in the form of a report with a 250 words executive summary of your findings. This does not count against the word count. Each task should contain a short section or subsection header that alerts the reader on what is being done in that (sub)section. Sources you consulted should be placed in the reference section.
- Use the information provided in the data file to group the data accordingly in accord with the requirements above.
- Note that the data provided is in 000\$ dollars. So, you should scale the data before estimating the DEA models.
- You can use Excel, Stata, R, DEAP or any other software to compute estimates. Attach the computer output you generated in a clearly labelled Appendix. For example, Appendix A (what it contains); Appendix B (what it contains), etc. The same goes for any charts, plots, etc., that you choose to place in an appendix instead of the body of the main paper.
- Refer to the lecture slides and seminar hand-outs for more guidance on how to utilise the software required to compute the estimates above. For example, you may simply wish to edit one of the sample R programs or Stata programs given in lectures as a starting point, and use that to conduct your analysis.

Variable description for data in the Excel file

ID	Bank identification
OWN	Ownership of the bank--State-owned bank (SOB), Private bank (PB) and Foreign bank (FB)
YEAR	Year identification
TC	Total cost
TL	Total loans (output)
IS	Investment and securities (output)
TD	Total deposits (input)
FA	Fixed Assets (input)
L	Personnel expenses (input)
PF	Price of funds (input price of funds)
PK	Price of capital (input price of physical capital)
PL	Price of labour (input price of labour)
TA	Total Assets (A proxy for Size)
E	Equity capital