

Report on Ph.D. Thesis Defense

Ph.D. Candidate	Liu Junming
Main referee	James R. Rhodes
Referees	刀根 薫 Wade D. Pfau 福山 博文（福岡大学商学部） 大山 達雄 中村 玲子
Dissertation Title	Multistage Use of Parametric and Non-Parametric Efficiency Measurements and The Applications

Result: Pass (subject to minor changes)

Presentation and Result:

1. Mr. Liu gave a one hour presentation of his dissertation titled: “Multistage Use of Parametric and Non-Parametric Measurements and Applications.” The dissertation was prepared under the joint supervision of professors James R. Rhodes and Kaoru Tone. The examination committee consisted of professors James R. Rhodes, Kaoru Tone, Wade Pfau, Hirofumi Fukuyama, Tatsuo Oyama, and Reiko Nakamura. Following the presentation, questions and comments were fielded from the committee and the audience.

2. An examination meeting consisting of the entire examining committee followed the presentation. There was unanimous agreement that Mr. Liu Junming had successfully defended his thesis. The committee recommended, however, that Mr. Liu make a number of improvements in his manuscript before final submission. It was felt that, with conscientious effort, these improvements can be made in about one month. Mr. Liu is to submit copies of the improved manuscript to all committee members, but responsibility for validating improvements will rest with professors Rhodes and Tone.

Summary of Thesis:

This study proposes a new method for measuring technological efficiency. The methodology involves three stages. The first stage uses the well-known static Data

Envelopment Analysis (DEA) model to measure efficiency scores and estimate output slacks for inefficient Decision Making Units (DMU). The second stage employs the doubly heteroscedastic Stochastic Frontier Analysis (SFA) model to decompose output slacks into three components: managerial incompetence, exogenous environmental factors, and static noise. In the third stage, the DEA model is used again on the corrected data. The procedure is thought to result in improved efficiency scores.

The new methodology is applied to two case studies. The first empirical study uses panel data for 1997-2001 to examine credit risk management in the Japanese banking industry. In sharp contrast to conventional measures, the author finds a stable upward trend in mean measured efficiency. In a second empirical study, cost efficiency of the National Telephone and Telegraph (NTT) branch network is measured.?

Comments of Committee Members:

1. Committee members were in unanimous agreement that the dissertation satisfied the standards for conferring a doctoral degree. The committee also agreed, however, that a number of improvements should be made in the manuscript before final approval is granted. What follows are comments on the thesis and suggestions for improvement.

2. One commentator hailed the thesis as a major contribution to both methodology and empirical application. The empirical results were seen as being very valuable to the Japanese banking industry and the regulators of the telecommunications industry, respectively. Several commentators were impressed by the organization of the paper and the thorough analysis of the relevant literature.

3. A second commentator praised the thesis for both its innovative methodology and its empirical relevance. It is said to be the first study of its type to explicitly incorporate risk into the analysis. Mr. Liu's study of banking was hailed as a "frontier study" in the relation between risk (credit) management and convergence.

4. Although finding the results interesting, several examiners believed that further clarification was needed on the originality of the contribution and the robustness of the empirical results. Several commentators felt that further justification and clarification was needed for the references to the Arrow (1962) paper. More detail is needed about how efficiency is measured. For example, is the most efficient bank recalculated for each

year of the data? If so, then how can environmental factors be teased out, since we have lost the information about how environment factors affect the most efficient bank (this bank gets a score of 1 for each year). One commentator doubted that the author's statement concerning moral hazard could be made so strongly.

5. One commentator, although acknowledging the contribution of the dissertation to the existing literature, remained skeptical that the methodology would necessarily lead to better estimates of technical efficiency beyond the specialized cases examined in this study. A better theoretical justification of the methodology is needed to support the claims of the author.

6. One commentator urged the candidate to change the title to make it more attractive and indicative of the contents of the thesis. He also argued for a more substantial revision of the paper than suggested by other examiners. In his view, chapter one should be restructured into two parts. The first part would deal with the traditional approach. The second part (now consisting of section 1.6) should be expanded to emphasize the contribution of the author. Chapters 2 and 3 should include more detailed numerical results and related investigations based on sensitivity analysis (e.g. efficiency scores distribution, sensitivity of weights, selection of inputs and outputs, and relations between efficiency results and some factors of production). Numerical results in chapter 2 should appear first rather than explaining banking conditions and developments. Chapter 3 has few empirical results. It should be expanded and investigated in greater detail.