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摘 要

随着中国金融市场的进一步开放，外资和外资银行不断涌入中国资本市场，金融市场的多元化、业务的多元化以及交易主体的多元化，将会使得中国银行业在人才、业务、技术及经营理念等方面面临前所未有的冲击，市场风险、操作风险和信用风险等风险因素将会变得更为错综复杂。因此，一个银行是否具有稳健的经营效率和较强的抗风险能力成为当前金融监管当局以及市场各经济主体普遍关注的重要问题。

近几年来，商业银行效率的研究引起了我国金融理论界的普遍关注。但与国外同类研究相比，我国现有的研究在理论的系统性、方法的完善性以及研究视角的新颖性等方面存在较大距离。为此，本著作在改进现有的效率研究方法的基础之上建立一个新的评估体系，同时有别于现有的研究思维，运用博弈论与委托代理理论等研究工具构建模型来剖析我国银行业市场结构以及产权结构与银行效率之间的内在逻辑联系，证实相关银行改革路径的可行性。本书的研究对于我国银行效率研究理论体系的进一步完善、监管当局的政策制定、投资者的决策行为以及商业银行的可持续发展等都具有较强的理论与现实意义。

各章节的主要内容与主要观点如下：

第1章论述了银行效率研究的经济背景、研究意义，以及国外银行效率研究的最新进展，指出了本书的创新之处，理清了全书的研究脉络和基本框架。

第2章重点研究了银行效率的概念以及国外现有的效率计量方

法。考虑到中西方国家在金融发展历史、金融市场的完善性、会计制度的规范性等方面存在的差异,我们认为在生产前沿面模型的系列方法中,数据包络分析(data envelopment analysis, DEA)方法和随机边界分析(stochastic frontier analysis, SFA)方法相对比较适合我国目前的银行效率研究。

第3章研究了我国银行业的静态效率结构。首先利用传统的数据包络分析模型和截面资料对我国14家商业银行进行了效率评价,接着利用数据包络分析模型的投入产出松弛量(slack variable)检验了银行业投入冗余和产出不足的问题,讨论了不同银行的效率改进策略。针对现有研究的局限性,提出并构建了多阶段超效率数据包络分析(multi-step super-efficiency DEA)模型进行实证研究。结论表明,尽管国有银行综合效率不如股份制商业银行,但是服务效率却难分伯仲,国有银行与股份制银行综合效率的差异主要在于盈利能力和盈利效率的差异。

第4章研究了中国银行效率的动态衍变特征。我们将巴提斯和库利(Battese & Coelli, 1992)模型引入中国银行业的效率研究,同时分别选择贷款总额和税前利润作为产出指标,依次构建贷款效率模型和利润效率模型进行实证研究。结果表明,从长期来看,国有银行的贷款效率高于股份制商业银行,而利润效率的表现恰恰相反。因此,从银行效率的视角证明了国有银行存在强烈的不良资产扩张冲动。接着,从所有权结构、经营规模、员工素质和风险偏好等九个方面构建相应的指标,检验了与银行效率之间存在的动态关系。

第5章在对现有的绩效评价方法进行分类和评价的基础上,利用平衡计分卡理论(balanced score card, BSC)和服务利润链思想(service-profit chain)建立了基于数据包络分析模型的商业银行综合效率评价体系,使银行效率评价思路和方法在理论上趋于完美。

第6章研究了我国银行业市场结构与银行效率之间的关系。立足于我国法制不健全、金融市场不完善的大前提,我们建立了反映

银行集中、寻租、不良贷款形成与银行效率之间的关系模型。模型表明,在当前的制度背景下,银行业过度集中造成的信贷配给和金融寻租导致职业经理偏离正常放贷准则,因而不良贷款的形成和银行盈利效率的下降将不可避免。而市场垄断格局的打破,贷款市场实现由当前的卖方市场向买方市场的转变,一方面可以从根本上遏制金融寻租产生的土壤,另一方面也可以通过提高银行之间的竞争来提升银行的危机意识,杜绝银行职业经理在进行贷款决策时偏离正常的放贷准则。这两个方面都有助于遏制不良贷款的生成渠道,提高银行业整体的贷款质量,最终促进我国银行业整体盈利效率的改善。同时,本章也从市场角度说明了由几家国有银行垄断存贷款市场的格局为国有银行职业经理人实现私利和不良资产扩张冲动提供了外部条件。

第7章从银行职业经理人激励和不良贷款形成两个角度出发研究了中国银行业产权结构与银行效率之间的关系。通过建立职业经理人激励模型发现,在一个国有股份较大或者纯粹国有的银行中,由于政府存在对国有企业的“父爱主义”关怀,因而这类银行具有跟私人银行不同的目标函数;为了能够保持与私人银行职业经理同样的激励水平和努力程度,这些银行将不得不以牺牲银行利润为代价来提高职业经理对银行利润的提成比例。因此,从这层意义上来说,国有或国有股份较高的银行比私有或国有股份较低的银行具有更高的代理成本和较低的治理效率。另外,通过对德沃特里庞和马斯金(Dewatripont & Maskin)模型(1995)的改进建立了产权结构、沉没成本累积机制与银行效率的关系模型。对模型的求解发现,在一个国有企业占主体的市场中,由于存在政府对国有企业的“父爱主义”关怀和预算软约束,随着银行股权结构中国有股份的增加,银行职业经理愿意为所有国有企业项目提供再融资服务的可接受的坏项目最低比例可以进一步下降。这样,至少会带来两方面的效应:一是国有股比例的增加将会提高银行因给更多坏项目提供贷款而不断出现沉没成本和坏账的可能,同时也意味着在一定程度

上加强了银行对企业实施软预算的支持力度；二是作为博弈的另一方，企业在得知银行愿意为它提供再融资服务之后反而倾向于选择低努力，因此必然进一步降低企业的经营效率和盈利水平，从而反过来加大银行产生不良资产的压力，最终导致银行整体效率的降低。上述两个研究结论均支持银行产权结构中国有股份的比例不应过高，进而认为对我国银行业进行股份制改造可以提高银行业整体效率。此外，产权结构、沉没成本累积机制与银行效率关系模型的研究结论也意味着银行国有比重过高必将推动银行不计贷款质量和自身盈利的不良贷款扩张冲动，进一步解释了国有银行存在不良资产扩张冲动的内在机理。

第8章为本著作的研究结论、研究不足及未来的研究展望。

从技术基础来看，我们主要采用国外最近比较流行的银行效率研究方法——生产前沿面模型。实际上，生产前沿面模型是一个方法体系，它包括参数方法和非参数方法。在全面考察各种方法的优缺点以及结合中国银行业实际的基础上，遴选了非参数方法中的数据包络分析模型和参数方法中的随机边界分析模型作为全书实证研究的主要工具。

从研究特色来看，我们重点集中在生产前沿面模型的改进及应用、银行效率综合评价理论模型的构建以及通过建立经济学及博弈论模型以求从新的视角来理解银行效率导向的银行业改革问题这三个方面。具体来说，本著作的创新点如下：

第一，结合中国实际，整理并进一步完善了现有的商业银行效率测度方法和理论体系。同时，利用改进的数据包络分析模型和 Battese 和 Coelli (1992) 模型分别从静态和动态角度全面研究了中国银行业的效率表现，指出了我国银行业效率存在的问题及相关改进措施。

第二，提出了银行业效率评价的多阶段超效率数据包络分析模型。该模型提出并论述了银行综合效率、服务效率和盈利效率的概念、联系及指标设定，既结合了现代商业银行经营服务性和盈利性

兼备的基本特征，又统一了学术界在银行业数据包络分析效率模型中有关投入产出指标设定上存在的争议。此外，该模型也可以克服传统数据包络分析方法无法对有效率银行进行再排序的问题。

第三，将巴提斯和库利（Battese & Coelli, 1992）模型引入中国银行业的效率研究，通过建立利润效率模型和贷款效率模型进行实证研究，发现国有银行存在明显的不计利润回报的贷款行为，具有强烈的不良资产扩张倾向，数值上表现为，国有银行的长期盈利效率低于股份制商业银行，而贷款效率高于股份制商业银行。第6章和第7章分别从银行外部和内部两个角度进一步解释了国有银行不良资产扩张冲动以及利润效率低下的相关原因。

第四，将平衡计分卡理论与服务利润链思想引入商业银行的综合效率分析，在此基础上提出了基于数据包络分析模型的商业银行综合效率评价体系。它不但在一定程度上可以弥补现有各种方法的不足，而且从银行利润创造的角度分析了从内部员工满意到外部顾客满意的一系列指标与银行效率之间的关系，既考虑到了财务因素和非财务因素的结合，又考虑到了银行内部因素和外部因素的结合。因此，利用该理论模型进行银行效率评估更具解释力和说服力，在理论上趋于完美。

第五，在第6章和第7章采用了不同于一般文献的研究思路。考虑到我国目前尚无法满足结构—行为—绩效（Structure - Conduct - Performance, SCP）框架需要的市场条件，第6章利用新的视角构建模型来研究银行集中、信贷配给、寻租、不良贷款生成与银行效率之间存在的内在逻辑关系，并以此论证在我国法律不健全、金融市场不完善背景下提高银行业竞争程度对于从外部促进银行效率改善的好处。在第7章，分别从银行职业经理的激励机制以及沉没成本的累积机制两个方面构建模型来说明产权结构与银行效率的关系，证明了在我国金融市场降低国有产权比重，进行产权结构的多元化改革对于银行完善治理结构、降低银行代理成本、强化激励机制和遏制不良贷款产生的好处。

Abstract

According to the related agreements accepted by China on accessing World Trade Organization, it has become reality for foreign banks to enter domestic financial markets. In the surroundings of dancing with wolves, it is unrealistic for Chinese banks only to depend on the series of governmental transfusion actions if they want to bring “catfish effect” and seek for survival and development facing the fierce challenges. On one hand, foreign banks will enjoy the national treatment granted by China. On the other hand, it seems to run counter to goals of socialistic market economy that the government who draws on the financial resources on hand to pay for the ever – accumulating vast amount of NPL caused by the state – owned banks for ages. Therefore, after leaving completely the paternal care of government for a new challenging situation, the sole solution of Chinese banking industry is to learn to walk by themselves and to improve the ability of gaining profits and the level of efficiency through constantly perfecting their own corporate governance mechanism.

Consequently, research on banking efficiency gives rise to universal interest of both theoretical and practical circles. Nevertheless, in contrast to foreign similar research, there are many shortcomings in the perfection of both theories and methods, the novelty of research perspective and so on. So, this dissertation strives to construct a new assessment system for bank efficiency based on improving existing methods. At the same

time, different from the existing research thinking, this dissertation investigates the internal relationship between bank efficiency and structure determinants of banking industry, namely ownership structure and market structure in China, based on game theory and principle and agency theory. By doing so, we hope to find some expected evidences supporting feasibility of some Chinese banking innovations. Therefore, this dissertation is of great importance to perfection for theoretical system, policy – making for supervisors, decision – making for investors and maintaining development for banks, etc.

The main content and viewpoints of this dissertation are as follows.

Chapter 1 investigates Chinese economic background of research on bank efficiency and its meaning, studies the latest progress of abroad studies on bank efficiency and points out the drawbacks of domestic present research as well as the possible innovation of this dissertation.

Chapter 2 emphatically studies the concept of bank efficiency and its measuring methods prevailing in present overseas papers. Compared with other methods, we holds Data Envelopment Analysis and Stochastic Frontier Analysis are more suitable for the study of domestic banking efficiency considering discrepancies between China and western countries on financial development history, perfection degree of financial market, the standard of accountant rules, etc.

Chapter 3 investigates the static efficiency structure. Firstly, we utilize the traditional DEA model and cross – section data to make an evaluation on the efficiency of four state – owned banks and ten joint – stock commercial banks, verify input redundancy and output scarcity in Chinese banking industry after analyzing input – output slack variable of DEA model and discuss how to improve efficiency of different banks. Given limitations of existing researches, this dissertation puts forward and constructs multi – stage super – efficiency DEA model to study. Studies show

that service efficiency of state – owned banks and joint – stock banks is almost the same though comprehensive efficiency of state – owned banks is not as good as that of joint – stock banks; the differences in comprehensive efficiency between state – owned banks and joint – stock banks stemming from the difference in their profitability and profit efficiency.

Chapter 4 investigates dynamic evolving characteristics of Chinese banking industry. We introduce Battese and Coelli (1992) model to study the efficiency of Chinese banking industry. During the research, we choose gross loan and total profit before taxation irrespectively for output variables of both loan efficiency model and profit efficiency model. Conclusions show that, in the long run, loan efficiency of state – owned banks is higher than that of joint – stock banks, while profit efficiency is the opposite. So, in the perspective of bank efficiency, we can conclude state – owned banks lack the strict control of loan quality and present strong NPL impulse. Besides, the dissertation investigates the dynamic relationship bank efficiency and some determinants such as ownership structure, operating scale, employee quality, risk preference, etc.

After classifying and evaluating the present performance appraisal method, Chapter 5 combines BSC theory and serve – profit chain theory to build appraisal system of comprehensive efficiency of commercial banks, which is based on the DEA model. This theoretical model is more explanatory and persuasive on bank efficiency appraisal and tends to be theoretically perfect.

Chapter 6 discusses the relationship between financial market structure and Chinese banking efficiency. The relationship model is built to reflect the intrinsic relationship between bank concentration, rent seeking, NPL forming and bank efficiency on the basis of our unsound legal system and imperfect financial market in the process of research. Models

show that, on the background of present institution, credit quotation and rent seeking caused by over-concentration of Chinese banking industry result in the deviation from the normal loaning rules for professional bank managers, which makes it inevitable to forming more NPL and lowering bank profit efficiency. By further analyzing, Models show that it can at least bring two advantages by achieving to transfer the present seller market of loan market to buyer market and breaking down the monopoly pattern of financial market. On the one hand, it fundamentally clears off the soil where financial rent seeking generates. On the other hand, it brings the sense of crisis to bank managers by improving the competition between banks and puts an end to the deviation from the normal loan rules when professional bank managers make decision on loaning. These two sides help to prohibit the NPL generating channel and raise loan quality of the whole banking industry, and eventually, it will improve the profit efficiency of our banks greatly. From this point of view of market, it can be found that monopoly in the financial market by the several state-owned banks is the external cause that leads to pursuing private interest and NPL expansion impulse for managers of state-owned banks.

Chapter 7 investigates the relationship between ownership structure and bank efficiency in Chinese banking industry from two aspects of incentive to bank professional managers and NPL forming mechanism. After analyzing professional manager incentive model, conclusions are as follows: the banks with higher proportion of state-held share, or purely state-owned banks, have different objective functions because of paternal care of government for state-owned enterprises; in order to maintain the same incentive level and diligent degree for professional managers of state-owned banks as those of joint-stock banks, they have to increase the proportion given to professional managers of bank profits on

condition of sacrificing bank profits in a state holding – stock bank or a sheer state – owned bank discovered from the incentive model of professional managers. From this point, state – owned banks or state holding – stock banks possess higher agent cost and lower governance efficiency than private banks or banks with less state – held share. In addition, the relationship model between ownership structure, sunk cost accumulating mechanism and bank efficiency are established by improving Dewatripont and Maskin model (1995). According to the improved model, it shows that in the market dominated by the state – owned enterprises, because of paternal care of government for state – owned enterprises and soft budget constraints, the lowest proportion of bad projects to which bank professional managers would provide refunding service to all social projects could be further lowered as the proportion of national share of bank ownership structure is increasing. So it will bring two effects. First, higher national share proportion means higher possibility of bring constantly sunk cost and NPL because banks with more state – held share will provide loans for more bad projects. It also means the support of soft budget for business is strengthened to a certain degree. Secondly, as the other game player, enterprises tend to choose lower degree of diligent when they know that these banks will provide them refunding service. Therefore, it is inevitable to further lower the business management efficiency and profit level, and finally it will inevitably increase the pressure for banks to generating more NPA. So, it eventually causes to lower banking efficiency on the whole. These results support to reform the ownership structure of Chinese banking industry and at one time point out the national share proportion can't be too high. Besides, the relationship model between ownership structure, sunk cost accumulating mechanism and bank efficiency provides the explanation that over – high proportion of state – held share in banks inevitably leads to thinking little about of loan

quality and bank profit and so it is the internal causes that leads to NPL expansion impulse for state – owned banks.

Chapter 8 discusses this dissertation's drawbacks and further researches in the future.

From the aspect of research methods, this dissertation mainly utilizes production frontier models, which are prevalent in the foreign similar research, to study the efficiency of Chinese banking industry. In fact, production frontier models are the system of many methods and conclude both parametric and nonparametric methods. After analyzing advantages and disadvantages of all the methods and combining the actual situation of China, we choose one parametric method, DEA model, and one nonparametric method, SFA model, as the main methods during the empirical research.

From the aspect of research characteristics, this dissertation mainly focuses on improvement and implication of the production frontier models, construction of theoretical model for assessment of banking comprehensive efficiency and discussion on how to reform Chinese banking industry to improve bank efficiency from the new prospective by establishing economics and game theory models. Concretely, the possible innovations are in the dissertation as follows.

First, this dissertation puts in order and appraises the existing methods of efficiency measurement both abroad and domestically according to characteristics of Chinese banking industry. At the same time, improved DEA model and Battese and Coelli (1992) are respectively used to investigate comprehensively the static and dynamic efficiency of Chinese banking industry, and then some suggestion is given to solve the existing problems.

Second, this dissertation put forward the multi – stage super – efficiency DEA model to assess the banking efficiency. This model puts for-

ward the concept of comprehensive efficiency, service efficiency and profit efficiency, discusses their relationship, and their own responding financial indexes. By doing so, this model not only considers characteristics of providing service combined with pursuing profit. Besides, super – efficiency DEA model could solve the problem that traditional DEA can't rank efficient banks.

Third, the dissertation introduces Battese and Coelli (1992) model into study Chinese banking industry. After establishing profit efficiency model and loan efficiency model and then carrying out corresponding empirical research, the results show that state – owned banks present strong impulse of NPL expansion. On number value, that's to say, the loan efficiency of state – owned banks is higher than that of joint – stock banks, while the profit efficiency is just the opposite. The next two chapters, Chapter Six and Chapter Seven, give lessons to the impulse of NPL expansion and low efficiency for state – owned banks respectively from internal and external aspects.

Forth, combining value – creating thinking of BSC theory and serve – profit chain theory, this dissertation builds appraisal system of comprehensive efficiency of commercial banks with the help of DEA model. To a certain degree, it not only overcomes defects of present methods but also analyzes the relationship between bank efficiency and a series of indexes that concludes from inside personnel satisfaction to outside customers' satisfaction at the angle of bank profit creating. This theoretical model is more explanatory and persuasive on bank efficiency appraisal and tends to be theoretically perfect because it combines not only financial and non – financial factors but also inside and outside factors of commercial banks.

Fifth, new prospective different from the existing documents are used in chapter 6 and chapter 7. In chapter 6, getting rid of the frame of

traditional SCP, a game model is built to reflect the intrinsic relationship between bank concentration, rent seeking, NPL forming and bank efficiency under the backgrounds of our imperfect legal system and imperfect financial market in the process of research. By so, the dissertation testifies that more fierce competition of banking industry in China is more helpful to improve overall efficiency of Chinese banking industry from outside under the backgrounds of imperfect market and legal system. Chapter 7 researches the relationship between ownership structure and bank efficiency in Chinese banking industry from two aspects of incentive to bank professional managers and NPL forming mechanism. Conclusions are drawn that lowering the proportion of state - held share and achieving the diversification of ownership structure will contribute to perfecting corporate governance of bank, lowering agency cost, strengthening incentive mechanism, prohibiting NPL, etc.

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