



City Research Online

City, University of London Institutional Repository

Citation: Besar, Dwityapoetra Soeyasa (2011). Essays on Indonesian Banking: Competition, Efficiency, and its Role in Monetary Policy Transmission. (Unpublished Doctoral thesis, City University London)

This is the unspecified version of the paper.

This version of the publication may differ from the final published version.

Permanent repository link: <https://openaccess.city.ac.uk/id/eprint/1091/>

Link to published version:

Copyright: City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

Reuse: Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.



**ESSAYS ON INDONESIAN BANKING: COMPETITION,
EFFICIENCY, AND ITS ROLE IN MONETARY POLICY
TRANSMISSION**

Dwityapoetra Soeyasa Besar

This Thesis Is Submitted For The Degree of Doctor of Philosophy

Cass Business School, City University London

March 2011

Table of Contents

Chapter 1 Introduction	1
1.1. The nature of this study	1
1.2. Purposes and contribution of this study	1
1.3. The geography and population structure of Indonesia	2
1.4. Thesis Organization	5
Chapter 2 An Overview of the Indonesian Banking Sector	7
2.1. Introduction	7
2.2. The current structure of Indonesian banking	7
2.2.1. Institutional Structure of Indonesia's Banking Sector	7
2.2.2. Market Structure of Indonesia's Banking Sector	9
2.3. How the banking system has developed	10
2.3.1. Banking deregulation 1988	11
2.3.2. Banking crisis 1997-1998	12
2.3.3. Policy responses after the crisis	13
2.3.4. Foreign acquisitions in Indonesian banks	14
2.4. Banks in the wider economy	15
2.4.1. Macroeconomic development	16
2.4.2. The role of banks in macroeconomy	18
Chapter 3 Competition in Indonesian Provincial Banking Deposit Market..	25
3.1. Introduction	25

3.2. Provincial Banking Markets	26
3.3. Literature Review	30
3.3.1. Theory of Competition	30
3.3.2. Market Power and Efficiency Hypothesis	32
3.3.2.1. Market Power	32
3.3.2.2. Efficiency Hypothesis	33
3.3.3. NEIO model: Panzar and Rosse (PR)	34
3.3.4. Review of Empirical Works	36
3.3.4.1. Market Power (SCP studies)	36
3.3.4.2. Efficient Structure hypothesis empirical studies	37
3.4. Data and Methodology	43
3.4.1. Data	43
3.4.2. The application of production technology for the PR model	47
3.5. Model Specification	49
3.5.1. Market-power and efficient-structure hypothesis	49
3.5.1.1. Market- hypothesis – SCP model	49
3.5.1.2. Efficient-structure hypothesis	50
3.5.2. Modified Panzar and Rosse Model	51
3.6. Empirical Results	51
3.6.1. Baseline Model Results	52
3.6.1.1.SCP	52
3.6.1.2. Efficient structure hypothesis	56

3.6.1.3. Dynamic Panzar and Rosse	59
3.6.2. Robustness Checks	62
3.6.2.1. Dynamic Panzar and Rosse	62
3.6.2.2. Efficiency structure hypothesis	62
3.7. Conclusions	65
Chapter 4 Efficiency of Foreign Bank in Indonesia	68
4.1. Introduction	68
4.2. Literature Review	68
4.2.1. Theory of Production and Technical Efficiency	68
4.2.2. Review of Efficiency Measurement Methods	70
4.2.3. Review of Empirical Studies	75
4.3. Data and Methodology	78
4.3.1. Data	78
4.3.2. The implementation of SFA	84
4.3.3. Model Specification	86
4.4. Empirical Results	88
4.4.1. Baseline and Preferred Model Results	88
4.4.2. Robustness Checks	92
4.5. Conclusions	97
Chapter 5 The Role of Banks in Monetary Policy Transmission in Indonesia	99
5.1. Introduction	99
5.2. Monetary Policy Developments	99

5.3. Literature Review	101
5.3.1. Classical interest rate or money view	102
5.3.2. The broad credit channel	102
5.3.3. The bank lending channel	103
5.3.4. Review of empirical studies	105
5.3.4.1. Empirical studies in developed countries	105
5.3.4.2. Empirical studies in developing countries	108
5.4. Data and Methodology	111
5.4.1. Data	111
5.4.2. Model Specification	117
5.5. Empirical Results	120
5.5.1. Baseline Model	120
5.5.2. Robustness Checks	126
5.5.3. Economic significance of the results	129
5.6. Conclusions	129
Chapter 6 Conclusions	134
6.1. Introduction	134
6.2. Limitation of this Thesis	138
6.3. Avenues for Future Research	139

List of Tables

<i>Table 1.1</i>	<i>Selected Indonesia's provincial data</i>	4
<i>Table 2.1</i>	<i>Number of banks based on types</i>	8
<i>Table 2.2</i>	<i>Banking markets' structure</i>	9
<i>Table 2.3</i>	<i>List of foreign acquisitions</i>	15
<i>Table 2.4</i>	<i>Macroeconomic indicator</i>	16
<i>Table 2.5</i>	<i>Selected banking sector's balance sheet items</i>	19
<i>Table 3.1</i>	<i>Number of banks' offices in provincial markets</i>	27
<i>Table 3.2</i>	<i>Provincial banking assets and liabilities</i>	28
<i>Table 3.3</i>	<i>Distribution of the pricing of bank deposits</i>	28
<i>Table 3.4</i>	<i>Bank deposits spreads against 1-month CBI rates</i>	29
<i>Table 3.5</i>	<i>Major types of market structure</i>	31
<i>Table 3.6</i>	<i>Empirical studies in SCP approach</i>	37
<i>Table 3.7</i>	<i>Empirical studies in ES approach</i>	38
<i>Table 3.8</i>	<i>Panzar and Rosse's empirical studies in developed markets</i>	40
<i>Table 3.9</i>	<i>Panzar and Rosse's empirical studies in emerging markets</i>	42
<i>Table 3.10</i>	<i>Data definition</i>	44
<i>Table 3.11</i>	<i>Data description</i>	45
<i>Table 3.12a</i>	<i>Regression results of SCP: Price-concentration model (Time deposits)</i>	53
<i>Table 3.12b</i>	<i>Regression results of SCP: Price-concentration model (Demand deposits)</i>	54
<i>Table 3.12c</i>	<i>Regression results of SCP: Price-concentration model (Saving accounts).....</i>	54
<i>Table 3.13a</i>	<i>Regression results of efficient-structure hypothesis (Time deposits).....</i>	56
<i>Table 3.13b</i>	<i>Regression results of efficient-structure hypothesis (Demand deposits).....</i>	57
<i>Table 3.13c</i>	<i>Regression results of efficient-structure hypothesis (Saving accounts).....</i>	57
<i>Table 3.14</i>	<i>Tests for efficient-structure hypothesis</i>	59
<i>Table 3.15</i>	<i>Panzar and Rosse estimation's results using GMM estimator</i>	60
<i>Table 3.16</i>	<i>The result of robustness checks for dynamic PR model</i>	63
<i>Table 3.17</i>	<i>The result of robustness checks for efficient-structure hypothesis...</i>	64
<i>Table 4.1</i>	<i>Summary of foreign bank studies on efficiency</i>	76
<i>Table 4.2</i>	<i>Variable used in cost efficiency estimations</i>	79
<i>Table 4.3</i>	<i>Stochastic frontier regression results: Baseline and preferred models</i>	91
<i>Table 4.4</i>	<i>Robustness checks</i>	93
<i>Table 4.5</i>	<i>Cost efficiency estimates</i>	95
<i>Table 4.6</i>	<i>Cost efficiency of the new foreign banks</i>	96
<i>Table 5.1</i>	<i>Selected monetary indicators</i>	100
<i>Table 5.2</i>	<i>Summary of monetary policy transmission studies in developed countries</i>	107
<i>Table 5.3</i>	<i>Summary of monetary policy transmission studies in developing countries</i>	109

Table 5.4	<i>Descriptive statistics of variables used</i>	112
Table 5.5	<i>Monetary policy transmission, 3 lags GMM estimates and long run coefficients (1-month-CBI rate).....</i>	121
Table 5.6	<i>Monetary policy transmission, 3 lags GMM estimates and long run coefficients (narrative index).....</i>	124
Table 5.7	<i>Robustness Checks</i>	128

List of Figures

<i>Figure 1. 1</i>	<i>Map of Indonesia</i>	2
<i>Figure 4.1</i>	<i>Technical and allocative efficiency with two factor inputs</i>	70
<i>Figure 4.2</i>	<i>Cost to income ratio</i>	81
<i>Figure 4.3</i>	<i>Return on Assets</i>	82
<i>Figure 4.4</i>	<i>Non-performing loans</i>	83
<i>Figure 5.1</i>	<i>The impact of money policy on bank funding</i>	114
<i>Figure 5.2</i>	<i>Measures of Monetary Policy – Narrative Index</i>	116

Acknowledgements

I would like to express my gratitude to my supervisor, Dr. Alistair Milne, for his excellent guidance and critical comments, which were crucial in completing this thesis. In particular, he reviewed many previous drafts of this work with regular encouragement and long patience. I am deeply indebted to him for many helpful comments and brilliant suggestions.

I am also thankful to my advisors Prof. Geoffrey Wood, Prof. Giovanni Urga and the member of Banking Research Center's at Cass Business School especially Prof. Shelagh Heffernan and Dr. Barbara Casu for their encouragement and guidance.

Special thanks are due to the Board of Governors of Bank Indonesia that generously supported my studies both at Columbia University during 1997-1998 and at Cass Business School, City University of London since October 2007. In particular, I would like to express my appreciation to the Governor Mr. Burhanuddin Abdullah, Deputy Governors: Dr. Muliaman D. Hadad, Mrs. Siti Ch. Fadjirjah, Mr. Budi Mulya and Dr. Halim Alamsyah for their kind support and encouragement.

I am also very grateful to some individuals in Bank Indonesia for their help in many ways. Specifically, in the Banking Sector, I would like to thank Dr. Wimboh Santoso, Dr. Agusman, Mrs. Ita Rulina and all my good friends at Financial Stability Bureau. In the Monetary Sector, I am thankful to Dr. Perry Warjiyo, and Dr. Juda Agung. In the Directorate of Human Resource, I wish to express my thanks to Mr. Gatot Sugiono, Mrs. Nita Yosita and Mr. Rudi Susetyo. In Bank Indonesia's Representative Office in London, I also would like to thank Mr. Budiman Kostaman and Mr. Dian E. Rae. The support provided by all of my friends in Bank Indonesia is also gratefully acknowledged.

I am particularly indebted to my father and my mother, who taught me that education is one of the keys to unlock the mystery of life and would like to thank my mother for her unflagging prayers and encouragement. I also take this opportunity to express my gratitude to my brothers and sisters and their family, for their help, kindness and prayers.

Very special thanks to my wife, Nila Yuliawati Soeyasa Besar and our lovely daughter, Amanda Soeyasa Besar. Without their love, support and patience I would not have accomplished, or even started this work.

Finally, I thank Allah SWT for His guidance and the opportunities provided for me.

Declaration

I grant powers of discretion to the University Librarian to allow this thesis to be copied in whole or in part without further reference to me. This permission covers only single copy made for my study purposes, subject to normal conditions of acknowledgement.

Abstract

This thesis investigates competitiveness of banking market in Indonesia and monetary policy transmission during the period 2000 to 2009. As has been the case for most previous structure-performance studies, the results using the SCP specification are not very robust. When PR approach is used, as done in other studies, it reveals much evidence of imperfect competition in Indonesian provincial markets. The estimated values of H-statistics for the sample period 2001-2008 are positive ranging between 0.31 - 0.62 which is consistent with the study by Claessens and Laeven (2004). We find that the market in Java and Sumatra is more competitive than metropolitan and the periphery. H-statistic of metropolitan and the periphery are 0.31 and 0.52 respectively while Java and Sumatra is 0.62. However, the weakness of PR modeling is that it does not tell us much about the sources of imperfect competition, what can be done to change matters. The estimation using ES hypothesis specification does not also reveal significant influence of the geography of Indonesia. Although there is a modest impact of the geography of Indonesia on the level of competition, the development that help overcome geographical barriers, e.g. new banking technologies can usefully promote competition in Indonesian deposit markets.

In measuring the efficiency of the Indonesian banks, we find that the mean of cost-efficiency was in the range of 40%-50%. State-owned banks were found to be relatively more cost-efficient than foreign banks. The analysis suggests several conclusions about banking efficiency in Indonesia. Firstly, foreign ownership has positive effect on improved cost efficiency of the banks. However, the changing effect is small. Secondly, it appears that although old foreign banks are able to maintain comparable efficiency to the new acquired foreign banks, old foreign banks' efficiency tend to worsen. They need to hire more skilled workers and install better working environments. .

Finally the result of the role of banks in monetary policy in Indonesia shows that there is an operative lending channel in Indonesia. We also find evidence that large banks are more responsive, while high liquidity and high capitalization banks are less responsive to the changes in monetary policy.

Abbreviations

<i>ARDL</i>	<i>autoregressive distributed lag</i>
<i>BI</i>	<i>Bank Indonesia</i>
<i>BPD</i>	<i>Bank Pembangunan Daerah (Regional/Provincial Development Bank)</i>
<i>BIS</i>	<i>Bank for International Settlements</i>
<i>bn</i>	<i>billion</i>
<i>BUMN</i>	<i>Badan Usaha Milik Negara (state owned enterprise)</i>
<i>CAMEL</i>	<i>Capital adequacy, Asset Quality, Management, Earnings, and Liquidity</i>
<i>CEE</i>	<i>Central Eastern Europe</i>
<i>CIA</i>	<i>Central Intelligence Agency's</i>
<i>CBI</i>	<i>certificate of Bank Indonesia (Bank Indonesia's bills)</i>
<i>CR3</i>	<i>concentration ratio of top three banks</i>
<i>DEA</i>	<i>data envelopment analysis</i>
<i>DFA</i>	<i>distribution free approach</i>
<i>DIAI</i>	<i>Deposit Insurance Agency of Indonesia (LPS)</i>
<i>ES</i>	<i>efficient-structure hypothesis</i>
<i>ESS</i>	<i>efficient-structure hypothesis using scale efficiency</i>
<i>ESX</i>	<i>efficient-structure hypothesis using X-efficiency</i>
<i>FASBI</i>	<i>Fasilitas Bank Indonesia (deposit facility given by Bank Indonesia for banks with excess funds).</i>
<i>FDH</i>	<i>free distribution Hull</i>
<i>GCG</i>	<i>Good Corporate Governance</i>
<i>GDP</i>	<i>gross domestic product</i>
<i>GMM</i>	<i>generalized method of moment</i>
<i>HHI</i>	<i>Herfindahl-Hirschman Index</i>
<i>IBA</i>	<i>Indonesia Banking Architecture</i>

<i>IBRA</i>	<i>Indonesian Bank Restructuring Agency (BPPN)</i>
<i>IMF</i>	<i>International Monetary Fund</i>
<i>IT</i>	<i>inflation targeting</i>
<i>M&As</i>	<i>mergers and acquisitions</i>
<i>MC</i>	<i>monopolistic competition</i>
<i>MENA</i>	<i>Middle-east and north Africa</i>
<i>MMDA</i>	<i>money-market deposit accounts</i>
<i>MP</i>	<i>market power</i>
<i>MSA</i>	<i>metropolitan statistical areas</i>
<i>MSME</i>	<i>micro small and medium enterprise</i>
<i>NPL</i>	<i>non-performing loans</i>
<i>NEIO</i>	<i>new empirical industrial organization</i>
<i>OMOs</i>	<i>open market operations</i>
<i>PC</i>	<i>perfect competition</i>
<i>PR</i>	<i>Panzar and Rosse</i>
<i>RMP</i>	<i>relative market power hypothesis</i>
<i>ROE</i>	<i>return on equity</i>
<i>ROA</i>	<i>return on assets</i>
<i>SAMC</i>	<i>State-owned Asset Management Company (PPA)</i>
<i>SFA</i>	<i>stochastic frontier approach</i>
<i>SCP</i>	<i>structure conduct performance</i>
<i>SME</i>	<i>small medium enterprises</i>
<i>SPP</i>	<i>single presence policy</i>
<i>TE</i>	<i>transition economies</i>
<i>TFA</i>	<i>thick frontier approach</i>
<i>US</i>	<i>the United States</i>
<i>USD</i>	<i>US Dollar</i>
<i>VAR</i>	<i>vector autoregressive</i>
<i>VRT</i>	<i>variable rate tender</i>
<i>y-o-y</i>	<i>year-on-year</i>