THE INTER-TEMPORAL RELATIONSHIP OF NON-PERFORMING LOAN AND COST EFFICIENCY OF INDONESIAN COMMERCIAL BANKS DURING PERIOD 2013Q1 TO 2016Q3

UNDERGRADUATE THESIS

As a partial fulfillment of the requirements for Undergraduate Degree in Management in Universitas Bakrie

CLARA LIAGINA

1131001070

FACULTY OF ECONOMICS AND SOCIAL SCIENCES

MANAGEMENT PROGRAM

UNIVERSITAS BAKRIE

2017

STATEMENT OF ORIGINALITY

This undergraduate thesis is my original work and all informatiom contained in this project paper which is derived from the work of others had been givem an award by citing the name of the source author correctly. All the contents of this undergraduate thesis are fully the responsibility of the author.

Name	: Clara Liagina
NIM	: 1131001070
Signature	:
Date	: May 16th, 2017

STATEMENT OF APPROVAL

This Undergraduate Thesis is prepared and presented by:

Name	: Clara Liagina
NIM	: 1131001070
Program	: Manajemen
Faculty	: Faculty of Economics and Social Sciences (FEIS)
Judul Skripsi	: The Inter-Temporal Relationship of Non-Performing Loan and Cost Efficiency of Indonesian Commercial Banks during Period 2013Q1 to 2016Q3

Has been approved by the Board of Examiners and accepted as a partial fulfillment of the requirements for Undergraduate Degree in Management Program, Universitas Bakrie.

BOARD OF EXAMINERS

Supervisor I : Anon Kuswardono, MBA ( )

Examiner I : Dr. Dudi Rudianto, M.Si ( )

Examiner II : Ir. Deddy Herdiansjah, Ph.D ( )

Established in : Jakarta

Date : May 16th, 2017

ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and the Most Merciful

Foremost, I would like to express my sincere gratitude to my honourable supervisor **Mr. Anon Kuswardono, SE., MBA**, for his continuous support, excellent guidance, patience, motivation, enthusiasm, and immense knowledge, so I could successfully finish this skripsi. **Dr. Dudi Rudianto, SE., M.Si** and **Ir. Deddy Herdiansjah, M.Sc., MBA., Ph.D.,** as my honourable examiners for their encouragement, insightful comments, and their contribution in completing this skripsi.

I have no words to express my gratitude for and I am indeed so grateful to my parents, sisters, and brother who have been wholeheartedly loving, encouraging and supporting me through all the years. This skripsi is heartily dedicated to my caring family who always prays and wishes the best for me. Thank you for being my reason to look forward to the next day. My love was, is and will always be with all of you.

I wish to present my special thanks to **Scherzo Wahid Naiborhu, BSM** for his never ending support, motivation, for the shoulder to cry on and for being a friend, family, lover, and companion of me through this topsy turvy journey.

For the persons I can run to when I feel lonely, **Anisa Rizky, Ratu Rika**, **Galih Pratiwi,** and **Putri Eka** thanks for being around when my times get hard and making me laugh when I did not even want to smile.

A sincere gratitude to my friends during these memorable university life: **Rainy Syafitri, Dara Azizah, Nurul Fauziah, Putri Dwi, Putri Islamiati, Cut Zulfa, Bunga Badzlina, Sobrina Fuadiah,** and **Erin Mailina** who shared their stories, times and knowledges with me.

To those who indirectly contributed in this research, your kindness means a lot to me. Thank you very much.

Jakarta, May 16th, 2017

Author

STATEMENT OF APPROVAL OF UNDERGRADUATE THESIS FOR ACADEMIC PURPOSES

As an academic community of Universitas Bakrie, I who undersigned in below:

Name	: Clara Liagina
NIM	: 1131001070
Program	: Manajemen
Faculty	: Economics and Social Science
Type of Thesis	: Empirical Study (Skripsi)

For the development of science, agreed to grant **Universitas Bakrie Non-eksklusif Royalty-free Rights *(Non-exclusive Royalty-Free Right)*** for my undergraduate thesis, entitled:

The Inter-Temporal Relationship of Non-Performing Loan and Cost Efficiency of Indonesian Commercial Banks During Period 2013Q1 to 2016Q3

With the non-exclusive Royalty Free Rigths, Universitas Bakrie holding rights to keep, avert media/ format, manage database, maintain, and publish my final assignment as far as my name as author / creator and owner of Copyright is mentioned.

Prepared in	: Jakarta
Date	: May 16th, 2017

Stated by,

Clara Liagina

THE INTER-TEMPORAL RELATIONSHIP OF NON-PERFORMING LOAN AND COST EFFICIENCY OF INDONESIAN COMMERCIAL BANKS DURING PERIOD 2013Q1 TO 2016Q3

Clara Liagina

ABSTRACT

This research investigates the inter-temporal relationships between bank efficiency, especially cost efficiency and non-performing loan (NPL) of Indonesian Commercial Banks in the period of 2013Q1 to 2016Q3 to test two hypotheses introduced by Berger and deYoung (1997): 'Bad Luck' and 'Bad Management'. This research covers the periods January 2013 – September 2016 using time series and quartely -published report data of Central Bank of Indonesia (Bank Indonesia) with 10 commercial banks in Indonesia. The Data Envelopment Analysis (DEA) approach is used to measure cost efficiency of commercial banks and Vector Autoregressive (VAR) model is used to test the two hypotheses 'Bad Luck' and 'Bad Management'. The finding of DEA indicates that Bank Permata (BNLI) in every quarter as the most cost efficient in managing its cost with all efficiency score is equal to 1. The average cost efficiency of commercial banks is 0.9294 or 92.94%. The finding also indicates that inefficiency problem of banks lies in the input side rather than output side. This results support the "bad management" hypothesis proposed by Berger and De Young (1997) which suggested that decrease in measured bank efficiency is generally followed by increases in non performing loan. The bad management hypothesis indicates the major risks facing commercial banks are caused by internal problem.

Keyword: Cost Efficiency, Data Envelopment Analysis, 'Bad Luck' and 'Bad Management'.

THE INTER-TEMPORAL RELATIONSHIP OF NON-PERFORMING LOAN AND COST EFFICIENCY OF INDONESIAN COMMERCIAL BANKS DURING PERIOD 2013Q1 TO 2016Q3

Clara Liagina

ABSTRAK

Penelitian ini meneliti tentang hubungan inter-temporal dari efisieni bank, dalam hal ini efisiensi biaya dan Non-performing Loan (kredit macet) pada Bank Umum Indonesia pada periode 2013Q1 – 2016Q2 untuk menguji dua hipotesis yang diperkenalkan oleh Berger dan deYoung (1997): *'Bad Luck'* dan *'Bad Management'.* Penelitian ini mencakup periode Januari 2013 – September 2016 menggunakan data *time series* dan laporan keuangan kuarter yang dirilis oleh Bank Indonesia dengan sample 10 Bank Umum di Indonesia. *Data Envelopment Analysis* (DEA) digunakan dalam mengukur efisiensi biaya pada bank umum dan *Vector Autoregressive* (VAR) digunakan untuk menguji dua hipotesis '*Bad Luck*' dan '*Bad Management*'. Hasil DEA menunjukkan Bank Permata (BNLI) merupakan bank dengan efisiensi biaya paling efisien dengan skor 1 di setiap kuarter. Rata-rata efisiensi biaya Bank Umum di Indonesia adalah 92.94%. Hasil dari penelitian ini juga menunjukkan permasalahan inefisiensi biaya terletak pada bagian *input* dibandingkan *output.* Hasil penelitian mendukung hipotesis '*Bad Management'* yang dikemukakan oleh Berger deYoung (1997) dimana penurunan efisiensi biaya mengindikasikan kenaikan pada Non-performing loan. *Bad Management* hipotesis menunjukkan risiko terbesar yang dihadapi oleh Bank Umum di Indonesia disebabkan oleh faktor internal.

Keywords : Efisiensi Biaya, Data Envelopment Analysis, '*Bad Luck'* dan *'Bad Management'*

TABLE OF CONTENTS

STATEMENT OF ORIGINALITY ..... **ii**
STATEMENT OF APPROVAL ..... **iii**
ACKNOWLEDGEMENT ..... **iv**
STATEMENT OF APPROVAL ..... **v**
ABSTRACT ..... **vi**
ABSTRAK ..... **vii**
TABLE OF CONTENTS ..... **viii**
LIST OF TABLES ..... **xi**
LIST OF FIGURE ..... **xii**
LIST OF APPENDIX ..... **xiv**
LIST OF ACRONYMS ..... **xv**
CHAPTER I **1**
INTRODUCTION **1**

1.1 Background of Study 1

1.2 Problem Identification 6

1.3 Statement of Problem 8

1.4 Research Objectives 8

1.5 Definition of Terms 8

1.6 Scope and Limitations 9

1.7 Research Benefits 9

1.8 Systematics of Writing 10
CHAPTER II **11**
LITERATURE REVIEW **11**

2.1. Theoretical Review 11

2.1.1 Bank 11

2.1.2 Function 12

2.1.3 Financial Statement 13

2.1.4 Non-Performing Loan 15

2.1.5 Bank Efficiency 16

2.1.6 Cost Efficiency 18

2.1.7 Data Envelopment Analysis (DEA)..... 19

2.2 Previous Researches..... 20

2.3 Theoretical Framework..... 23

2.3.1 Bank Cost Efficiency..... 23

2.3.2 Relationship between NPL and bank efficiency..... 24

2.4 Hypothesis..... 26

CHAPTER III 27

RESEARCH METHODOLOGY 27

3.1 Research Method..... 27

3.2 Research Framework..... 28

3.3 Research Instruments 29

3.4 Sampling Design 30

3.5 Data Collection Method 32

3.6 Operational Definition 32

3.7 Data Analysis Method..... 34

3.7.1 Descriptive Statistics Analysis 34

3.7.2 Data Envelopment Analysis (DEA) Model 35

3.7.3 Eviews9 VAR Model..... 37

CHAPTER IV..... 39

ANALYSIS AND INTERPRETATION 39

4.1 Company Profile 39

4.2 Gathered Sampling Data 45

4.3. Descriptive Statistics of Commercial Bank in Indonesia period 2013Q1- 2016Q3 47

4.4 Data Envelopment Analysis Result 48

4.4.1 Comparative Cost Efficiency Score of Commercial Banks 49

4.4.2 Cost Efficiency Result for Specific Bank's Sample 54

4.5 VAR Model Testing Result 66

CHAPTER V CONCLUSION AND RECOMMENDATION 69

5.1 Conclusions 69

5.2 Limitations of Data 70

5.3 Recommendations 70

REFERENCES 71

APPENDIX 79

LIST OF TABLES

Table 2.1. Previous Research of Bank Cost Efficiency 22

Table 2.2. Previous Research of The Relationship between NPL and Bank Cost Efficiency 24

Table 3.1. Variables and Operational Definition of Bank Cost Efficiency 35

Table 3.2. Variables And Operational Definition Of The Relationship Between NPL and Bank Cost Efficiency 35

Table 4.1. Profile of Each Bank Sample 46

Table 4.2. Sampling Design 47

Table 4.3. Descriptive Data of Each Variable 48

Table 4.4. Comparative Cost Efficiency Scores of Commercial Banks in Indonesia Period 2013Q1-2016Q3 51

Table 4.5. Cost Efficiency of Commercial Banks in Indonesia Period 2013Q1-2016Q3 56

Table 4.6. Bad Luck Hypothesis 68

Table 4.7. Bad Management Hypothesis 68

LIST OF FIGURE

Figure 1.1. Average NPL of Indonesia Commersial Banks Period 2013Q1-2016Q3.....6

Figure 2.1. Theoritical Framework of The Relationship between NPL and Cost Efficiency.....26

Figure 3.1. Research Framework 28

Figure 3.2. Non-Performing Loan Ratio of Indonesia Commercial Banks Perion 2013Q1 – 2016Q3 31

Figure 4.1. Slack Movement of Bank Sample.....53

Figure 4.2. The Average Costs of Top Three The Most Efficient Banks' Sample.....54

Figure 4.3. Cost efficiency of Bank Artha Graha International Tbk Period 2013Q1 – 2016Q3 56

Figure 4.4. Cost efficiency of Bank Bukopin Tbk Period 2013Q1 – 2016Q3.....57

Figure 4.5. Cost efficiency of Bank Danamon Indonesia Tbk Period 2013Q1 – 2016Q3.....58

Figure 4.6. Cost efficiency of Bank Mega Tbk Period 2013Q1 – 2016Q3.....59

Figure 4.7. Cost efficiency of Bank Mestika Dharma Tbk Period 2013Q1 – 2016Q3.....60

Figure 4.8. Cost efficiency of Bank MNC International Tbk Period 2013Q1 – 2016Q3.....61

Figure 4.9. Cost efficiency of Bank Nusantara Parahyangan Tbk Period 2013Q1 – 2016Q3.....62

Figure 4.10. Cost efficiency of Bank Permata Tbk Period 2013Q1 – 2016Q3.... 63

Figure 4.11. Cost efficiency of Bank Sinarmas Tbk Period 2013Q1 – 2016Q3.. 64

Figure 4.12. Cost efficiency of Bank Tabungan Negara Tbk Period 2013Q1 – 2016Q3..... 65

Figure 4.13. Input Slacks of Bank Tabungan Negara Period 2013Q1 - 2016Q3 66

LIST OF APPENDIX

Appendix 1. Research Time Table.....79

Appendix 2. Non Performing Loan (NPL) of 10 Sample of Indonesian Commercial Banks (in percentage) 80

Appendix 3. Data Envelopment Analysis Result of All Banks Sample Period 2013Q1 to 2016Q3 81

Appendix 4. Data Envelopment Analysis Result for Specific Banks Sample 96

Appendix 5. Vector Autoregressive Model Result 105

LIST OF ACRONYMS

NPL:	Non-Performing Loan
DMU:	Decision Making Unit
DEA :	Data Envelopment Analysis
CRS :	Constant Return to Scale
IDX:	Indonesia Stock Exchange
INPC :	PT Bank Artha Graha International Tbk
BBKP :	PT Bank Bukopin Tbk
BDMN:	PT Bank Danamon Indonesia Tbk
MEGA:	PT Bank Mega Tbk
BBMD:	PT Bank Mestika Dharma Tbk
BABP:	PT Bank MNC International Tbk
BBNP:	PT Bank Nusantara Parahyangan Tbk
BNLI:	PT Bank Permata Tbk
BSIM:	PT Bank Sinar Mas Tbk
BBTN:	PT Bank Tabungan Negara (Persero) Tbk