# THE EFFECT OF ELECTRONIC BANKING (E-BANKING) ON FINANCIAL PERFORMANCE AND RISK: EVIDENCE FROM INDONESIAN COMMERCIAL BANKS 2012-2018

By

Jennifer Wijaya 11603047

BACHELOR'S DEGREE in

# BUSINESS ADMINISTRATION – FINANCE AND BANKING FACULTY OF BUSINESS AND COMMUNICATION



SWISS GERMAN UNIVERSITY
The Prominence Tower
Jalan Jalur Sutera Barat No. 15, Alam Sutera
Tangerang, Banten 15143 - Indonesia

June 2020

Revision after Thesis Defense on 15 July 2020

#### STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

	Jennifer Wijaya Student Approved by:	Date
SWI	Ir. Yosman Bustaman, M. Buss  Thesis Advisor	Date
	Dr. Nila Krisnawati Hidayat, SE., MM.  ——————————————————————————————————	Date

#### **ABSTRACT**

# THE EFFECT OF ELECTRONIC BANKING (E-BANKING) ON FINANCIAL PERFORMANCE AND RISK: EVIDENCE FROM INDONESIAN COMMERCIAL BANKS 2012-2018

By

Jennifer Wijaya Ir. Yosman Bustaman, M.Buss, Advisor

#### **SWISS GERMAN UNIVERSITY**

The purpose of this research is to investigate the relationship of each component of E-banking; ATM machines, E-money transactions and Internet Banking transactions towards Bank's Financial Performance and Risk in Indonesian commercial banks. The relationship between E-banking components with Financial Performance and Risk are analyzed individually using panel data. The sample data included 50 of Indonesian commercial banks for the period of 2012-2018. The dependent variable to measure financial performance in this research are ROA & NIM, NPL are used to measure bank's risk. The control variable in this research are Bank size, operating cost and LDR. This research find ATM, E-money and Internet Banking has positive relations toward ROA, but only E-money has significant impact towards ROA. Furthermore, ATM, E-money and Internet Banking has significant positive relationship toward NIM. This indicates the adoption of E-banking leads to a better performance of Indonesian bank. ATM and Internet Banking has significant positive relationship toward NPL; however, E-money has significant negative relationship with NPL. This may be indicating the adoption of E-banking has increase the risk profile of Indonesian commercial bank, except E-money transactions.

Keywords: ATM, E-money, Internet Banking, Financial Performance, Risk



#### **DEDICATION**

I dedicate this works for my parents, my sister, my supportive friends, my best friends, my family and also for my advisor Ir. Yosman Bustaman, M.Buss



#### **ACKNOWLEDGEMENTS**

Special thanks I dedicated to my mother, my father and also my sister who always motivate, support and also calm me down to do this work even though we are in the difficult situation during pandemic of Covid-19.

I would like to express gratitude to my advisor Ir. Yosman Bustaman, M.Buss for taking the time to guide me so well. I am very proud to be in your guidance. Thank you for the patience, input and also the kindness that you have given me during your teaching and also guide me during thesis work.

I would like to thank also all my lecturer in Business administration department especially from Banking and Finance: Ms. Margaretha Lingga. as a teacher who has guided me from semester 1 to the present, thank you for all your patience and guidance as parents during our time at SGU. I would like to express my gratitude for my other beloved lecturers: Ms. Wardatul Adawiyah, Mr. Lucky, Mr. Vicco, Mr. Fiter Abadi, Mr. Rizky Adam, Mr. Esa Theodore. Mr. Antonius Siahaan, Mr. Pangky, thank you for the knowledge you shared from the beginning of my semester in SGU.

I would like to say thank you to all my supportive friends and beloved friends from Banking & finance; Boim, David, Kevin and Nia, Business & Marketing; Alvin, Bram, Christie, Jocelyn and Hana and also Public Relations; Surya, Wulan and Putri for the support, motivation and also input for in all respects. Another big thank you to my best friends Schmutz Biene Nita, Cicil & Aurora and Rachel my best friends from another faculty for the past 4 years we fought together, had fun together all this time and made me incredibly happy.

Finally, I have to say thank you to all parties that have support me for the last 4 year and from I was child. Thank you also for my high school friends; Yessy & Christin as a part of traveling sisters, Anggie, Thasya and Mey" as my best friends from middle school and junior high school.

Above all my deepest gratitude goes to Jesus Christ that already give me adequate life and health for all this time. I will always be grateful.

## TABLE OF CONTENTS

	Page
STATEMENT BY THE AUTHOR	2
ABSTRACT	3
DEDICATION	5
ACKNOWLEDGEMENTS	6
LIST OF FIGURES	9
CHAPTER 1 – INTRODUCTION	11
1.1 Background	11
1.2 Research Problem	14
1.3 Research Questions	15
1.4 Research Objectives	15
1.5 Scope and Limitation	16
1.6 Significance of Study	16
CHAPTER 2 - LITERATURE REVIEW	18
2.1. Conceptual Framework	18
2.2. Financial Performance	19
2.3. Electronic Banking (E-Banking). 2.3.1 ATM (Automated Teller Machine). 2.3.2 Electronic Money (E-Money). 2.3.3 Internet Banking.	22 23
2.4. E-Banking to the Financial Performance	
2.5. E-Banking to the Risk	
2.6. Operating Cost	31
2.7. Loan to Deposit Ratio	
2.8. Previous Study	34
2.9. Study Differences	38
2.10. Hypothesis	40
CHAPTER 3 – RESEARCH METHODS	42
3.1. Type of Study	42
3.2. Unit Analysis/Unit Observation	42
3.3. Sampling Design	43
3.4. Location & Time Frame of Study	
3.5. Data Sources and Collection Method	44

3.5.2. Data Collection Method	. 44
3.6. Research Model	. 45
3.7. Variable Operationalization	. 45
3.8. Variable Measurement 3.8.1. Independent Variable 3.8.2. Dependent variable 3.8.3. Control Variable	. 47 . 47
3.9. Data Processing Procedures	
1.7 Data Analysis 3.10.1. Panel Data 3.10.2. Multicollinearity 3.10.3. Goodness Fit of Statistics	. 50
CHAPTER 4 – RESULTS AND DISCUSSIONS.  4.1 Data Processing	. 54 . 54 . 57
4.2 Result Analysis	. 74
CHAPTER 5 – CONCLUSIONS AND RECCOMENDATIONS	
<ul><li>5.1 Conclusions</li><li>5.2 Recommendations</li></ul>	
GLOSSARY	. 85
APPENDICESAPPENDIX A: CHOW TESTAPPENDIX B: HAUSMAN TEST	. 90
APPENDIX D: DESCRIPTIVE STATISTICS	104
APPENDIX E: MULTICOLLINEARITY TEST	104

### LIST OF FIGURES

	Page
Figure 3. 1 Step of Panel Data (Source: Statistikian, 2014)	50
Figure 4. 1 Hausman Test Result of y1 (ATM)	60
Figure 4. 2 Chow Test Result of y1 (ATM)	60
Figure 4. 3 Hausman Test Result of y1 (EMONEY)	61
Figure 4. 4 Chow Test Result of y1 (EMONEY)	61
Figure 4. 5 Hausman Test Result of y1 (IB)	62
Figure 4. 6 Chow Test Result of y1 (IB)	63
Figure 4. 7 Chow Test Result of y2 (ATM)	64
Figure 4. 8 Hausman Test Result of y2 (ATM)	64
Figure 4. 9 Chow Test Result of y2 (EMONEY)	65
Figure 4. 10 Hausman Test Result of y2 (EMONEY)	66
Figure 4. 11 Chow Test Result of y2 (IB)	67
Figure 4. 12 Hausman Test Result of y2 (IB)	67
Figure 4. 13 Chow Test Result of y3 (ATM)	
Figure 4. 14 Hausmann Test Result of y3 (ATM)	68
Figure 4. 15 Chow Test Result of y3 (EMONEY)	69
Figure 4. 16 Hausmann Test Result of y3 (EMONEY)	
Figure 4. 17 Chow Test Result of y3 (IB)	71
Figure 4. 18 Hausmann Test Result of v3 (IB)	71

### LIST OF TABLES

Page			
Table 1. 1 Total number of banks in Indonesia 2020			
Table 3. 1 Total Banks Used for Sample			
Table 4. 1 Descriptive Statistics Result			
Table 4. 2 Multicollinearity Test			
Table 4. 3 Common Effect Regression result ATM (y1)			
Table 4. 4 Common Effect Regression result EMONEY (y1)			
Table 4. 5 Common Effect Regression result IB (y1) 62			
Table 4. 6 Fixed Effect Regression result ATM (y2)			
Table 4. 7 Fixed Effect Regression result EMONEY(y2)			
Table 4. 8 Fixed Effect Regression result IB (y2)			
Table 4. 9 Random Effect Regression result ATM (y3)			
Table 4. 10 Random Effect Regression result EMONEY (y3)			
Table 4. 11 Random Effect Regression result IB (y3)			
Table 4. 12 Summary Table of Regression Result			