

**BANK CHARACTERISTICS, FIRM
CHARACTERISTICS, BANK FUNDING
STRUCTURE AND BANK LENDING DURING
LIQUIDITY CRISIS USING A DYNAMIC
PANEL MODEL**

(Study on Manufacturing Firms Listed on IDX 2011 – 2014)



UNDERGRADUATE THESIS

Submitted as partial requirement to complete the
Undergraduate Degree (S1) of Management Department of
Faculty of Economics and Business Diponegoro University

Submitted by:

SOFIA AD'HA NASTIKA

12010112120026

**FACULTY OF ECONOMICS AND BUSINESS
DIPONEGORO UNIVERSITY
SEMARANG**

2016

THESIS APPROVAL

Author : Sofia Ad'ha Nastika
Student ID : 12010112120026
Faculty/Major : Economic and Business/Management
Title : BANK CHARACTERISTICS, FIRM
CHARACTERISTICS, BANK FUNDING STRUCTURE
AND BANK LENDING DURING LIQUIDITY CRISIS
USING A DYNAMIC PANEL MODEL (Study on
Manufacturing Firms Listed in IDX 2011-2014)
Paper Advisor : Erman Denny Arfianto, S.E., M.M

Semarang, May 16th, 2016

Paper Advisor,

(Erman Denny Arfinto, S.E., M.M)

NIP. 19761205 200312 1001

EXAM COMPLETION APPROVAL

Author : Sofia Ad'ha Nastika
Student ID : 12010112120026
Faculty/Major : Economic and Business/Management
Title : BANK CHARACTERISTICS, FIRM
CHARACTERISTICS, BANK FUNDING STRUCTURE
AND BANK LENDING DURING LIQUIDITY CRISIS
USING A DYNAMIC PANEL MODEL (Study on
Manufacturing Firms Listed in IDX 2011-2014)
Paper Advisor : Erman Denny Arfinto, S.E., M.M

Has passed the examination on May 26th, 2016

Examiners:

1. Erman Denny Arfinto, S.E., M.M (.....)

2. Drs. A. Mulyo Haryanto, S.E., M.Si (.....)

3. Dr. Mahfudz, S.E., MT. (.....)

ORIGINALITY STATEMENT

I am who undersigned here, Sofia Ad'ha Nastika, claimed that this undergraduate thesis titled **“Bank Characteristics, Firm Characteristics, Bank Funding Structure and Bank Lending During Liquidity Crisis Using A Dynamic Panel Model (Study on Manufacturing Firms Listed in IDX 2011-2014)”** is my own writing. Hereby I declare the truth that in this bachelor thesis, there is no writings which I took copy or imitate as a whole or a part in a form of sentences or symbols which represent another writer's idea that I admitted as my own, and/or there is no part or a whole writing which I copied or took from other's without giving consent to its owner.

Hereby, I declare if I took actions contrary to the matters above, whether it was on purpose or not, I will take back my proposed bachelor thesis which I admitted is my own. Later on, if it was proved that I copied or imitated other's writings as mine, I will let my academic title and certificate which has been given to me to be invalidate.

Semarang, May 16th, 2016

Undersigned,

(Sofia Ad'ha Nastika)

NIM. 12010112120026

MOTTO

فَإِنَّ مَعَ الْعُسْرِ يُسْرًا * إِنَّ مَعَ الْعُسْرِ يُسْرًا * فَإِذَا فَرَغْتَ فَانصَبْ * وَإِلَىٰ رَبِّكَ فَارْغَبْ

Surely there is ease after hardship. Truthfully, along with hardship, there is ease.

So when thou art free, strive hard. And to thy Lord do thou attend wholeheartedly.

(QS Al-Insyirah: 5-8)

Do not have to be the best, but do your best

- SSH

When you want something, all the universe will conspire in helping you to achieve it.

-Paulo Coelho

Do something that your future self will thank you for because as you grow older, the only thing you will regret is the things you had not done

-Zachary scott

What is my life if I cannot be useful to the others?

-Anonymous

I dedicate this thesis for my beloved
Mom, Dad, Uncle, Brothers and Sister

ABSTRACT

This study aimed to see the behaviour of bank lending to manufacturing companies. The behaviour of bank lending is examined from the supply side, demand side and the structure of bank funding especially under a liquidity crisis. This study emphasize that less wholesale funding will be more beneficial for banks when there is a liquidity crisis. This study will also examine the effect of bank size, bank capital, bank credit risk, and the lender's characteristics (firm size, firm value and firm leverage) on bank lending to manufacturing sector.

The sample of this study is manufacturing companies listed in Indonesian Stock Exchange in 2011 until 2014. This study collected the long-term bank debt of manufacturing companies, the assets, CAR, NPL of the debtors and the assets, Tobin's Q, DER of the lenders. The Arellano-Bond linear dynamic panel data method is used to analyse the determinants of bank lending.

This study found that bank capital, firm leverage and firm value do not have significant influence on bank lending. On the other side, the interaction of bank funding structure and liquidity crisis, bank size and the first lagged value of bank lending have a positive and significant effect on bank lending while bank NPL and firm size have a negative and significant effect on bank lending.

Keywords : Bank lending, Bank funding structure, Core funding, Relationship banking, Liquidity crisis

ABSTRAK

Penelitian ini bertujuan untuk menganalisis perilaku penyaluran pinjaman bank ke perusahaan manufaktur di Indonesia. Perilaku penyaluran pinjaman bank diteliti baik dari sisi penyedia pinjaman, peminjam dan struktur dari pendanaan bank khususnya saat bank mengalami krisis likuiditas. Penelitian ini menekankan bahwa penggunaan *wholesale funding* yang lebih sedikit akan lebih bermanfaat bagi bank saat terjadi krisis likuiditas. Penelitian ini juga meneliti dampak dari ukuran bank, modal bank, risiko kredit bank dan karakteristik peminjam (ukuran perusahaan, nilai perusahaan dan *leverage* perusahaan) pada pinjaman bank ke sector manufaktur.

Sampel dari penelitian ini adalah perusahaan manufaktur yang terdaftar di Bursa Efek Indonesia pada tahun 2011 hingga 2014. Penelitian ini menggunakan data pinjaman jangka panjang dari bank ke perusahaan manufaktur, total asset, CAR, NPL dari penyedia pinjaman dan total asset, Tobin's Q serta DER dari peminjam. Metode panel dinamis linier dari *Arellano-Bond* digunakan untuk menganalisis faktor-faktor yang mempengaruhi pinjaman bank.

Penelitian ini menemukan bahwa penyediaan modal bank, leverage perusahaan dan nilai perusahaan tidak mempengaruhi perilaku penyaluran pinjaman bank. Di sisi lain, interaksi struktur pembiayaan bank dengan krisis likuiditas, ukuran bank dan pinjaman di periode sebelumnya, berpengaruh positif terhadap pinjaman bank sedangkan risiko kredit bank dan ukuran perusahaan berpengaruh negative terhadap pinjaman bank.

Kata Kunci: Pinjaman bank, Struktur pembiayaan bank, *Core funding*, *Relationship banking*, Krisis Likuiditas

ACKNOWLEDGEMENT

All praises and gratefulness to Allah SWT, because only with His bless and authority, this undergraduate thesis entitled **“Bank Characteristics, Firm Characteristics, Bank Funding Structure and Bank Lending During Liquidity Crisis Using A Dynamic Panel Model (Study on Manufacturing Firms Listed in IDX 2011-2014)”** can be completed.

This undergraduate thesis is written as the final assignment to complete the Undergraduate Program (S1) of Management Department of the Faculty of Economic and Business, Universitas Diponegoro. During the making of this undergraduate thesis, the writer has received many helps and endless support from all family, colleague and other related party. The writer hopes that this undergraduate thesis could be useful for the academic progress in the future. Lastly, the writer would like to say her huge gratitude to:

1. The writer’s Mother, Dwi Suciati Agustina. The writer’s Father, Sutopo and the writer’s beloved Brothers and Sister, Dwi Fitrasari, Suciadi Nugroho and Muhamad Khulqi for the love, supports and endless affection that has been given to the writer.
2. Dr. Suharnomo, S.E., M.Si. as the dean of the Faculty of Economics and Business, Universitas Diponegoro, Semarang
3. Dr. Harjum Muharam, S.E., M.Si. as the head of Management Department, Faculty of Economics and Business, Universitas Diponegoro, Semarang.
4. Erman Denny Arfinto, S.E., M.M as the writer’s greatest advisor that has been believing, supporting and caring the writer during the college years and the making of this undergraduate thesis.
5. Dr. Sugiono, MSIE and Dr. Hj. Indi Djastuti, M.Si as the writer’s guardian lecturers that have been taking care of the writer during the college years.
6. Rizal Hari Magnadi, S.E., M.M, Firmansyah, Ph.D., Alfa Farah, S.E., M.Sc., Andrian Budi Prasetyo, S.E., M.Si., Akt., and Mirwan Surya

Perdhana., Ph.D., as the writer's lecturers that have been helping and supporting the writer the most in many ways during her college years.

7. All of the Faculty of Economics and Business lecturers and staffs that have given their best knowledge, care, supports and advices for the sake of the writer.
8. The writer's big family that have been supporting physically and mentally and never get tired to make the best of the writer, also, the writer's nieces and nephew, khansa, arkha, kle, ve and me that have become one of the writer's motivation to complete this undergraduate thesis.
9. The whole part of UPKFEB Crew, Mas Wicak, Mbak Mega, Mbak Retno, Mas Andi, Mas Gallus, Mbak Tara, Mbak Ayu, Mas Kim, Mas Syam, Mas Rudi, Mas Nuzul, Mas Adit, Sani, Mas Axel, Mas Join, Hamzah, Aldi, Nabil, Vian, Indri, Amel, Citra, Diah, Diana, and Burhan that have become the writer's best friends, best lectures, best brothers and sisters for the last four years and still counting.
10. My Lovely Bap(e)rincess club, Asti, Mende, Itang, Nuri and Monic that have become the writer's lovely sisters in different bloods.
11. Nonik Nyonyo, Ledina, Duta, Lana, Syafira, Ari, Agil, Tabligh, Lutfi, Frysca, and many more, that have been taking care, supporting and accompanying the writer to release stress in the last four years.
12. The Graduation Fighters, Hannina, Ipang, Asih, Supri, Ramos, Vijai, Jaya, Vera, Yudha, that have been becoming the writer's discussing friends during the making of this undergraduate thesis. All the best luck for all of you.
13. Muchammad Fikrisani that have been patiently guide the writer to act better.
14. Chyntia Tessa, Shinta Puspita, Misbay and gengs, Sarah Dewi, Risky Diba, Rina Haryati, Hida Efri, Kiky, Molly, Venny, all of the writer's closest friends and all of Management 2012 friends that have given their help since the sophomore until now.

15. The writer's long-distance-sisters, Deasy, Rifni, Alin, Kim, Eva, Celia, Nina, Nao, Alicia, Nades, Faye, Bianca, Alma, Claire, and those that cannot be mentioned that have been loving and caring the writer.
16. Zuldi, Arisa, Dede, Tri, Yosua, Ulfi, Andre, Dolly, and all parties and members of Tim II KKN Kelurahan Purwoharjo, without all of you, a part of my 3 SKS must be difficult. Thanks.
17. Diponegoro Flag Football Gentayo, that has been giving good laughs during stress times.
18. Mas Sandy Juli Maulana that had gave the writer a better understanding in making this undergraduate thesis and all valuable contributors that have been helping but cannot be mentioned one by one.

The writer is fully aware that this undergraduate thesis is not perfect. Critiques and advices are welcomed whether to the undergraduate thesis or to the writer. Hopefully, this undergraduate thesis can be useful to those who need it.

Semarang, May 12th 2016

Yours Faithfully,

Sofia Ad'ha Nastika

12010112120026

TABLE OF CONTENT

THESIS APPROVAL	ii
EXAM COMPLETION APPROVAL	iii
ORIGINALITY STATEMENT	iv
MOTTO	v
ABSTRACT	vi
ABSTRAK	vii
ACKNOWLEDGEMENT	viii
TABLE OF CONTENT	xi
LIST OF TABLE	xiv
LIST OF FIGURE.....	xv
LIST OF APPENDIX	xvi
CHAPTER I INTRODUCTION	1
1.1. Research Backgrounds	1
1.2. Problem Formulation	16
1.3. Research Objective.....	19
1.4. Research Benefits.....	20
1.5. Research Outline	21
CHAPTER II LITERATURE REVIEW	23
2.1. Definitions.....	23
2.1.1. Bank.....	23
2.1.2. Bank Lending	25
2.1.3. Bank Funding Structure.....	28
2.1.4. Liquidity Crisis	31
2.1.5. Bank Size.....	32
2.1.6. Bank Capital	32
2.1.7. Non-Performing Loans	Error! Bookmark not defined.
2.1.8. Firm Size.....	34
2.1.9. Firm Value	35

2.1.10. Firm Leverage.....	36
2.2. Theoretical Basic.....	36
2.2.1. Credit Risk – Internal Rate Based Approach.....	36
2.2.2. Structure Conduct and Performance.....	41
2.2.3. The Legal Lending Limit.....	42
2.2.4. Basel III: A Global Liquidity Framework for More Resilient Banks and Banking System	43
2.3. Empirical Evidence	46
2.4. Research Framework and Hypothesis Conceptual.....	52
2.4.1. Interaction Between Liquidity Shocks and Funding Structure on Bank Lending.....	52
2.4.2. Bank Size Effect on Bank Lending	53
2.4.3. Bank Capital Effect on Bank Lending.....	54
2.4.4. Bank Credit Risk Effect on Bank Lending.....	56
2.4.5. Firms Asset Effect on Bank Lending	57
2.4.6. Firm Value Effect on Bank Lending	57
2.4.7. Firm Leverage Effect on Bank Lending	58
CHAPTER III RESEARCH METHODOLOGY	60
3.1. Research Variables and Variables Operational Definition	60
3.2. Population and Sample.....	62
3.3. Data Type and Collecting Method	62
3.4. Data Analysis Method.....	64
3.4.1. Dynamic Econometrics Model	64
3.4.2. Generalized Method of Moments	65
3.4.2.1. Wald Test.....	67
3.4.2.2. Arellano-Bond Test	67
3.4.2.3. Sargan Test	68
3.4.3. The Estimation Model	69
3.4.4. Hypothesis Test	69
3.4.1.1 Chi-Squared Test	69
3.4.1.2 Z Test.....	70

CHAPTER IV RESULT AND ANALYSIS.....	72
4.1. Research Object Overview.....	72
4.2. Data Analysis	77
4.2.1. Descriptive Statistics	77
4.2.2. Wald Test.....	80
4.2.3. Arellano-Bond Test	81
4.2.4. Sargan Test	82
4.2.5. Estimation Result.....	82
4.3. Discussions.....	89
4.3.1. The Interaction between Funding Structure and Liquidity Crisis on Bank Lending	89
4.3.2. Bank Size Effect on Bank Lending	91
4.3.3. Bank Capital Effect on Bank Lending.....	92
4.3.4. Bank's Credit Risk Effect on Bank Lending	93
4.3.5. Firm Size Effect on Bank Lending	94
4.3.6. Firm Value Effect on Bank Lending	96
4.3.7. Firm Leverage Effect on Bank Lending	98
CHAPTER V CONCLUDING	101
5.1. Conclusion	101
5.2. Research Limitation	103
5.3. Suggestion	104
5.3.1. Commercial Banks in Indonesia.....	104
5.3.2. Suggestion For Future Research.....	105
BIBLIOGRAPHY	106
APPENDIX 110	

LIST OF TABLE

Table 1.1 Third Party Funds of Indonesian Commercial Banks in 2006-2014	5
(in billion Rp).....	5
Table 1.2 Commercial Banks's Lending to Manufacturing Sector Based on Bank Types.....	8
Table 1.3 Banks' Asset, Tier1, NPL and Loans of Commercial Banks in Indonesia 2011 – 2014 (<i>in billion rupiahs</i>)	10
Table 1.4 Firms' Asset, Tobin's Q and Leverage of Manufacturing Firms Listed in Indonesian Stock Exchange 2011 – 2014 (<i>in billion rupiahs</i>).....	12
Table 1.5 Changes of Debt and Leverage of ASII, AUTO, BAJA (some manufacturing firms listed in IDX)	14
Table 2.1 Type of Source of Funds	30
Table 2.2 Minimum Capital Requirement	34
Table 2.3 Three Pillars of Basel II Accord	39
Table 2.4 The Legal Lending Limit	43
Table 2.5 Empirical Evidence	49
Table 3.1 Variables Operational Definition	60
Table 3.2 Source of Data.....	63
Table 3.3 <i>Z-table</i> of 1%, 5% and 10% significance level (one-tail)	71
Table 4.1 Research Object Overview.....	74
Table 4.2 Summary of Bank Lending to Manufacturing Firms Listed in IDX Year Period 2011-2014.....	75
Table 4.3 Summary of Descriptive Statistics	77
Table 4.4 Wald-Test Statistic Result.....	80
Table 4.5 Arellano-Bond Test for Autocorrelation.....	81
Table 4.6 Sargan Test for Overidentifying Restriction.....	82
Table 4.7 Estimation Result of Arellano-Bond Two-Step GMM Estimator	83

LIST OF FIGURE

Figure 1.1 Banks' Liability Structure across Regions	4
Figure 1.2 Manufacturing Loans by Banks in Indonesia (YoY).....	6
Figure 1.3 Commercial Banks' Lending to Manufacturing in 2009	7
Figure 2.1 Research Framework	59
Figure 4.1 Figure of Bank Lending, Bank Lending Growth and Indonesian Rupiahs Exchange Rate Year Period 2011-2014.....	73
Figure 4.2 Proportion of Banks that Provide Lending to Manufacturing Company Listed in IDX Year Period 2011-2014.....	75
Figure 4.3 Summary of Bank Funding Structure, Liquidity Crisis and Bank Lending	90
Figure 4.4 The Average of Bank Lending and Bank Size	91
Figure 4.5 The Average of Bank Lending and Bank Capital.....	92
Figure 4.6 The Average of Bank Lending and Bank's Credit Risk.....	94
Figure 4.7 The Average of Bank Lending and Firm Asset	95
Figure 4.8 The Average of Bank Lending and Firm Value	97
Figure 4.9 The Average of Bank Lending and Firm Leverage	99

LIST OF APPENDIX

Appendix 1	Research Population List of Manufacturing Firms Listed in Indonesia Stock Exchange in 2011-2014	110
Appendix 2	List of Banks which are Providing Loans to Manufacturing Firms Listed in Indonesia Stock Exchange in 2011-2014	113
Appendix 3	Bank Lending of Manufacturing Firms Listed in IDX 2011-2014	114
Appendix 4	Firms' Closing Price, Shares Outstanding, Preferred Stock and Minority Interest	127
Appendix 5	Firms' Total Liabilities, Total Debt and Total Equity.....	130
Appendix 6	List of Firms' Total Asset, Tobin's Q and Leverage.....	133
Appendix 7	List of Banks' Tier 1, Customer Deposits, Long-Term Debt and Prime Lending Rate	136
Appendix 8	List of Banks' Asset, CAR and NPL.....	139
Appendix 9	Descriptive Statistics Result	141
Appendix 10	Arellano-Bond Test Result.....	141
Appendix 11	Sargan Test Result.....	142
Appendix 12	Arellano-Bond GMM Estimator Result	142

CHAPTER I

INTRODUCTION

1.1. Research Backgrounds

Most of commercial banks' loans in Indonesia are distributed to business entities as working capital loans. According to Indonesian Banking Statistic (2014), 48% loans issued by commercial banks were used as working capital loans, 24% loans issued by commercial banks were used as investment loans while 28% loans issued by commercial banks were used as consumption loans. In line with Indonesian government's expectancy to bank's lending, 72% loans issued by commercial banks in 2014 were distributed to fund the productivity of business entities while only 28% were used for consumption.

Working capital loans and investment loans to business sectors need to have higher proportion since both loans are important for Indonesian economics. Both loans help to fund the business processes of enterprises so that they can increase their productivity, sales and profits. Based on The Central Bureau of Statistic, there are three main sectors that have biggest contribution in increasing Indonesian gross income; Agriculture, Manufacturing, and Wholesale and Retail Trade. In the first semester of 2012, it was said that Manufacturing contributes to the gross income by 23,6%, Agriculture 15%, Wholesale and Retail Trade 13,7% and loans in those three sectors are higher.

Banks's lending in those three sectors had always been on the top-five every year. That is still the same until today. Since the three sectors had been the biggest

contributor for national gross income, banks need to distribute loans to those three main sectors thus it could help increasing national economic stability by improving its business sector's performance. In January 2015, commercial banks' credit to manufacturing was (in billion rupiahs) 656,410, Wholesale and Retail Trade was 704,159 and Agriculture was 211,790.

Banks gathered funds from various sources. Traditionally, the act of funding can be done through collecting savings or customer deposits. But nowadays, we can categorize funds into two, core funding and non-core funding. Core funding are funds that are considered stable. These funds come from bank's core capital, deposits or long-term debt. They are usually covered by deposit insurance or kept in bank for a certain or long period while non-core funding consists of short term funds and funds that response more sensitively to liquidity crisis.

The structure of bank's funding is one of the banking main issues. The structure of bank's funding may be crucial in determining the bank's stability, thus it is important for commercial banks to find the most effective and efficient funding structure. Banks's lendings are usually long-terms, they will face difficulties when the fund provider withdraw their funds if they rely more on unstable funding. Core funding might be a safer source of funding since they are insurable and/or long term. But, core funding is limited and is less profitable.

The competition in banking area is increasing every year and creating a difficult competition in gathering third party fund. There are 120 commercial banks in 2013 and 118 banks in 2015. All of those banks are competing to gather stable bank funding altogether. The high competition forces bankers to find a new way in

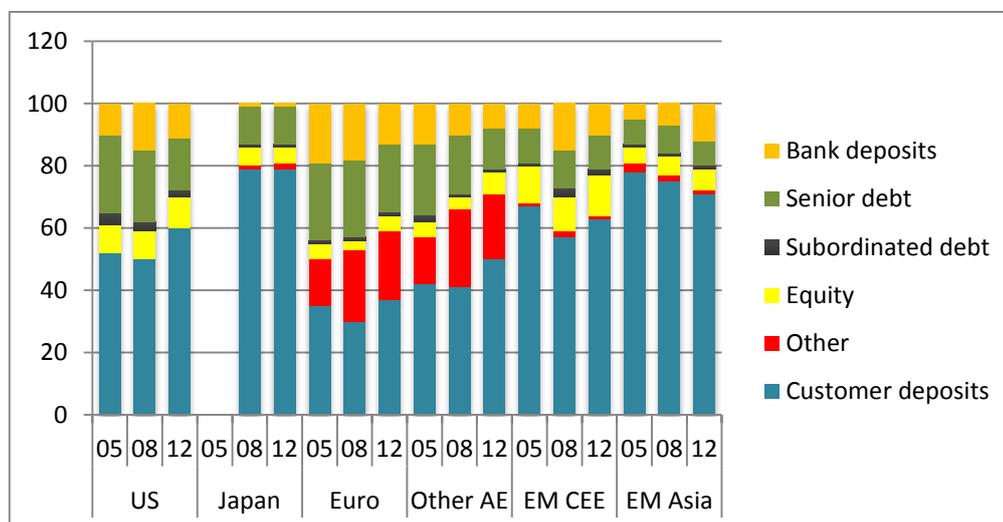
collecting funds through innovative funding strategies, like non-core or wholesale funding.

The problem arises because non-core or wholesale funding are generally short-term and sensitive to negative news. When there is a bad sign of credit risk in the financial institution, the wholesale funding providers could suddenly withdraw their funds and create a liquidity risks (Jung & Kim, 2015). Most of U.S and European banks had relied more on non-core or wholesale funding as its financial innovations. In two thousand and five (2005) until two thousand and eight (2008), most U.S and European banks' customer deposit was less than 50%. At the same time, the global financial crisis happened and shook most banks in advanced economics area.

Based on IMF's Global Financial Stability Report, the percentage of customer deposit¹ on its liability structure of U.S Banks in 2005 was only about 52%, it became lesser to 50% during 2008. While the percentage of customer deposit on its liability structure of European Banks in 2005 was about 35% and 30% during 2008. Meanwhile in the other advanced economic countries, the percentage of customer deposits were also lower than 50% and from 2005 to 2008 we can also see a slight decrease. The same condition was also happening in Emerging Countries of Centre and Eastern Europe and Emerging Countries of Asia even though the percentage of non-core or wholesale funding was not that high.

¹ See Chapter 3 of International Monetary Fund (2013), Global Financial Stability Report: Transition Challenges To Stability

Figure 1.1
Banks' Liability Structure across Regions



Source: Bank of Japan, SNL Financial and IMF staff-estimates (2013)

The liability structure consists of customer deposits, total equity, bank deposits, subordinated debt, senior debt and others. "Other" includes derivative liabilities, insurance liabilities, noncurrent liabilities, account payable and accrued expenses, deferred taxes and tax liabilities and other provisions.

Some literatures believe that the use of wholesale funding might affect the banks' stability. Most of banks in U.S and European area had more to wholesale funding and when the global financial crisis happened, a lot of banks collapsed. While in Japan where the percentage of customer deposit remains higher every year, were not affected as much as the U.S and European areas. No major Japanese banks collapse recorded during the global financial crisis and most emerging countries, including Indonesia, stayed stable. After the global financial crisis in 2007-2009, the structure of bank funding changed. The percentage of third party funds on U.S and European banks in 2012 increased to 60% and 37%. While in the other advanced economic areas, the percentage of third party funds increased to 50%.

The banks funding structure in Indonesia still relied on core funding as their main source of funds. According to OJK's Banking Industry Profile Report, in second triwulan of 2015, the percentage of Third Party Fund as source of fund is almost 89%. The other source of funds came from Liabilities to Bank Indonesia, Interbank Liabilities, Issued Securities, Loans Received, Spot and Derivatives Liabilities, Other Liabilities, and Margin Deposits. As well as the source of funds' composition in the previous year, third party funds were still the main source of funds which are increasing every year.

Table 1.1
Third Party Funds of Indonesian Commercial Banks in 2006-2014
(in billion Rp)

Year	Third Party Funds
2010	2,338,824
2011	2,784,912
2012	3,225,198
2013	3,663,968
2014	4,114,420

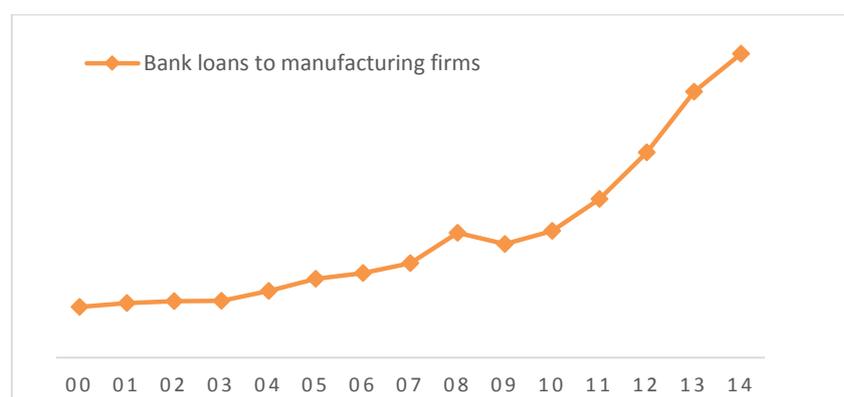
Source: Indonesian Banking Statistic (processed), ojk.go.id

Jung & Kim (2015) believe that banks may behave differently in lending according to their funding structure, especially during a liquidity shock crisis. When there is a liquidity shocks crisis, bank would decrease their lending due to the lack of funds. But, banks with higher core funding might increase their lending because they have more stable source of funds. Most of advanced economics' banks that relied more on wholesale funding experienced failure on the global financial crisis. Japan and Indonesia, which were still holding core deposits as their major source

of fund, generally survived from the crisis and no major bank's collapse happened in the countries.

In Indonesia, the aggregate lending from banks to manufacturing sector is increasing every year. In 2000, the commercial bank's loans to manufacturing sector (per December, in million) was about 110,508 and it was significantly increased in 2014 to 660,536. According to Indonesian Banking Statistics, the lending to manufacturing sector in 2001 was growing 7,37% from the previous lending but the growth was not stable. In 2004, 2005 and 2008, there were a significant higher growth which reached 17,04%, 18,2% and 31,89%. The growth in 2008 seemed to be the highest but it suddenly decreased in the following year. In 2009, the growth of bank lending was significantly decreased 8,76%. After that, the following years were furnished with almost some increasing growth on bank lending.

Figure 1.2
Manufacturing Loans by Banks in Indonesia (YoY)

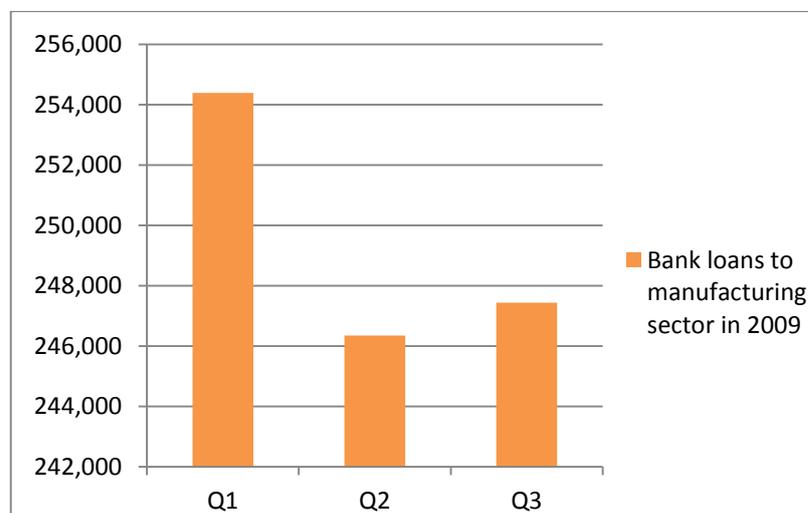


Source: Indonesian Banking Statistic (processed), ojk.go.id

Eventhough the loan to manufacturing sector was increasing, the loan growth was not good. Until 2010, the commercial banks' loan to manufacturing sector was

slow and even experienced some decreased. Based on Figure 1.2, Indonesian Banks's loan to manufacturing sector decreased during the global financial crisis. In 2009, there was a sudden decreased of loan channelling. In detail, during 2009:Q1, commercial banks' loans to manufacturing sector was (in billion rupiahs) 254,392, in 2009:Q2, the loan to manufacturing sector by commercial banks was 246,352, and was 247,440 in Q3, The biggest downfall happened in state-owned banks, foreign exchange commercial banks, joint-venture banks and foreign-owned banks. While for the non-foreign exchange commercial banks and regional development banks, the loans to manufacturing sectors were experiencing a significant increase. The loans of non-foreign exchange commercial banks per

Figure 1.3
Commercial Banks' Lending to Manufacturing in 2009



Source: Indonesian Banking Statistic (processed), ojk.go.id

December 2009 was (in billion rupiahs) 2,208. It experienced an increase from 1,618 compared to the previous year. While the loans of regional development banks per December 2009 was increasing from 815 to 1,146.

Table 1.2 presents the behaviour of bank lending across the years based on the bank types. Each type of banks might have their own characteristics which can affect their lending in various conditions. Non-Foreign Exchange Commercial Banks increased its lending more than the other banks in 2011. Regional Development Banks and Joint-Venture Banks lower their lending growth in 2013 and 2014. Foreign Exchange Commercial Banks contributes the highest lending to manufacturing firms every year.

Table 1.2
Commercial Banks's Lending to Manufacturing Sector Based on Bank Types

Year	State-Owned Bank	Foreign Exchange Commercial Bank	Non-Foreign Exchange Commercial Bank	Regional Development Bank	Joint-Venture Bank	Foreign-Owned Bank
2008	98,878	95,520	1,618	815	30,568	43,788
2009	94,201	87,315	2,208	1,146	29,258	33,312
2010	94,975	108,878	2,476	2,969	32,155	33,950
2011	109,948	145,923	4,266	3,727	41,936	38,797
2012	142,652	183,778	4,785	5,643	51,871	57,077
2013	180,215	224,347	6,286	7,400	75,770	83,862
2014	199,191	271,943	9,473	7,645	77,632	94,653

Source: Indonesian Banking Statistic (processed), ojk.go.id

The loans issued by Indonesian Banks might be affected by certain possible external and internal factors such as liquidity crisis or banks and firms performance. In 2007-2009, there are two big financial phenomena's which were the U.S Subprime Mortgage Crisis and Europeans Sovereign Debt Crisis. Both crisis was caused by the credit defaults happened in U.S and Europe. These crisis affected several countries and caused some contagion effects. As the strongest region in the world, the debt crisis happened in the two countries might cause a decline in the other's country economics and also a reduction in banks' power in collecting funds

and distributing lending. Banks might also behave differently according to its liabilities structure given the condition of global economics. Banks's with foreign currencies assets or liabilities would suffer from loss. Some firms connected to the global economy might suffer some financial distress which would reduce their performances and lessen banks' trust in placing their funds. Thus, the loans issued by the Indonesian Banks might change.

Bank's loans can also be affected by bank's funding structure. Bank's funding can come from the banks itself, second parties (other party loans) or third parties (public's savings and deposits). Those funding will be allocated to fund bank's activities (bank's assets). The structure can be formulated from bank's core funding to total assets. The higher the ratio of bank's funding structure, the higher bank's confidence in issuing loans either now or in the future. Jung & Kim (2015) found that bank's usually reduce their manufacturing loans during crisis but bank's with high core of funding ration tends to increase their loans and are not affected by the crisis.

Bank's loans can be affected by several bank's characteristics too. Kořak, Li, Lončarski, & Marinč (2013) analyses 4.106 banks during 2000 until 2010 in 91 countries and found out that the quality of bank funding strategy (tier 1 and retail deposits) affect bank lending especially during financial crisis period. Based on the Indonesian Banking Statistic, Tier 1 of commercial banks in Indonesia increased in the past four years. The Tier 1 range from (in billion rupiahs) 404.698 to 694.198. In line with Tier 1, the banks' loans to manufacturing sector were also increasing.

The phenomenon above shows that Tier 1 might be positively influence banks' loans to manufacturing sector.

Table 1.3
Banks' Asset, Tier1, NPL and Loans of Commercial Banks in Indonesia 2011 – 2014 (*in billion rupiahs*)

	2011	2012	2013	2014
Asset	3.652.832	4.262.587	4.954.467	5.615.150
Tier1	404.698	444.545	565.774	694.198
NPL	11,746	10,479	10,023	12,267
Loans	835.937	1.075.512	1.399.754	1.617.601
Δ Loans	148.594	239.575	324.242	217.847

Source: Indonesian Banking Statistic (processed), ojk.go.id

NPL are the Non-Performing Loan ratio of Indonesian Commercial Banks to Manufacturing sector. Loans are the average of short and long-term banks loans received by manufacturing firms' listed in IDX in 2010-2014

Loans are short and long-term bank loans of manufacturing firm listed in IDX 2011-2014.

Second, the size of the banks could affect the banks' loans to manufacturing sector. The role of bank's size has been debated for several years. Kishan & Opiela (2000) found evidences that bank capital and bank size distinguish bank's credit channel. Larger and well capitalized banks are less responsive to external changes, thus they will be better in performing loans. Whereas, Sorkin (2009) popularized the "Too Big to Fail" theory which supports that certain corporation, particularly financial institutions, are too large and that their failure would be disastrous to the economic system thus they will grow bigger and perform better automatically. Various responses respond the theory, some opponents believe that because of the TBTF theory, bigger banks would face a serious moral hazard that would affect their performances thus size would not be positively significant in their performances.

In Indonesia itself commercial banks' asset were increasing in the past four years. As we can see in the Table 1.3, the commercial banks' asset in Indonesia were respectively (in billion rupiahs) 3.652.832, 4.262.587, 4.954.467, 5.615.150. The increase was followed by the growth of banks' loans to. According to Table 1.3, banks' loans were respectively (in million rupiahs) 853.937, 1.075.512, 1.399.754 and 1.617.601.

Lastly, some studies proved that NPL has a negative influence to banks' loans to manufacturing sector (see Pratama, 2010; Huda, 2014). To keep their performances, banks should be selective in selecting debtors. If the banks are careless, there would be too much credit loss and would be bad for their performances or liquidity. The ratio of non-performing loans should be negatively related to banks' loans. As an early warning of credit risk, the non-performing loans ratio can be one of the indicators of banks' loans portfolio. If there is a sign of increased NPL, banks might consider reducing their loans to that specific business sectors. As we can see in Table 1.3, the loan growth in 2012 was relatively smaller than 2013 while the smallest growth happened in 2014. In 2012, the NPL ratio of commercial banks in Indonesia dropped 1,27% and the loans increased (in billion rupiahs) 525.580. In 2013, the NPL ratio dropped only 0,46% and the loans increased 594.168 from the previous year. In 2014, the NPL ratio increased 2,24% and the banks' loans experienced the lowest loan growth where the loans increased only 386.659 from the previous year, showed that NPL has a negative influence to banks' loans.

Table 1.4
Firms' Asset, Tobin's Q and Leverage of Manufacturing Firms Listed in
Indonesian Stock Exchange 2011 – 2014
(in billion rupiahs)

	2011	2012	2013	2014
Asset	3.634.285	4.323.024	5.250.407	5.857.717
Tobin's Q	1,71	1,81	1,86	1,84
Leverage	102,85	71,63	86,43	88,01

Source: Bloomberg, 2015 (processed) The data above are the average of each variables from manufacturing firms listed in IDX in each given period.

On the other side, banks should also consider firm's past performances before issuing loans to the firms. In assessing lender's credit worthiness, banks should look onto the six credit principles. Several firm's characteristics that might have an influences to bank's loans are firm's asset, Tobin's Q and firm's leverage. According to bank's six credit principles in performing loans, firm's asset, Tobin's Q and firm's leverage might show firms ability to give a collateral to banks, firm's character, capital or capacity of the lender. Bigger firms could give a bigger collateral and highly reliable firms should have a smaller leverage and/or Tobin's Q ratio thus, the banks' trust in the firms would be increased.

Bigger firms would have an easier access to external funds. Oliner & Rudebusch (1996) following Gertler & Gilchrist (1994) proposed that firm size can be a noteworthy factor in examining bank lending channel. One of the components of loans commitment is collaterals. Collateral plays an important role in firm's access to external funds (González, Lopez, & Saurina, 2007). The size of the firm shows the amount of available collateral. Thus, bigger firms would probably have an easier access to external funds.

According to Bloomberg (2015), the average of manufacturing firms' asset in Indonesia was increasing in the past four years, in line with commercial banks' loans to manufacturing firms. For example, in 2013, the average of manufacturing firms' asset grew 21,5%. The growth was higher than in 2012 where the asset just grew 19% from the previous year. In line with Oliner & Rudebush, 1995; Gertler & Gilchrist, 1994; firm size seems to positively influence banks' loans. In 2012, the commercial banks' loans to manufacturing sector increased (in billion rupiahs) 239.575, relatively smaller than the growth in 2013 which was 324.243. But overall, the banks' loans in aggregate increased when the aggregate firm size increased as well.

When assessing credit risk of a potential borrower, banks would consider some aspect, for example, capital. The quality of firms' capital can be shown from their capital structure, whether they are highly leveraged or not. Jung & Kim (2015) stated that small yet high leveraged firms receive a smaller amount of loans from banks. They found that the amount of debt will be smaller when the firms' leverage increases. Table 1.5 shows the leverages and debts of some manufacturing firms listed in IDX which are ASII IJ Equity, AUTO IJ Equity and BAJA IJ Equity. For example, AUTO IJ Equity, when their leverage was low in 2011 for about 18,91% the company received high debt for about (in billion rupiahs) 56.757 in 2012. Then, in 2012, their leverage increased a lot until 30,02% and the firms' debt dropped to 329 in 2013. AUTO IJ Equity's leverage in 2013 decreased to 3,45% and their debt increased to 1476 in 2014.

Table 1.5
Changes of Debt and Leverage of ASII, AUTO, BAJA (some manufacturing firms listed in IDX)

	2012		2013		2014	
	LEV _{t-1}	DEBT	LEV _{t-1}	DEBT	LEV _{t-1}	DEBT
ASII	59,32%	56.757	63,19%	64.523	60,76%	70.072
AUTO	18,91%	1.647	30,02%	329	3,45%	1476
BAJA	62,74%	222	86,46%	123	70,5%	307

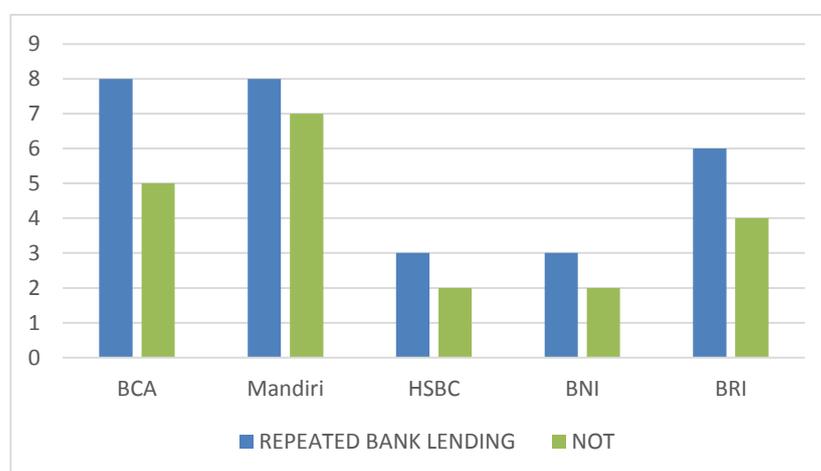
Source: Bloomberg, 2015 (processed)

LEV_{t-1} is firms' leverage a year before. DEBT is firms' total short and long term debt (in billion rupiahs)

Dia & Casalin (2009) review the Tobin's Q theory for investment and financing. They found that firms' debt is positively influenced by Tobin' Q and the current value of the productivity of capital. Table 1.5 shows that the average Tobin's Q of manufacturing firms range from 1,71 until 1,84 while the banks' lending range from (in million rupiahs) 853.937 to 1.617.601.

Bank lending, especially business lending, also have certain possible behaviour. There is a common practices in bank lending that exist between banks and firms, called relationship lending (Memmel et al, 2008). Relationship based banking is the provision of financial services by a financial intermediary on the basis of a long term investment. Financial intermediary institutions prefer to provide lending to firms that had received their lending previously. The preference exists since it might be more comfortable to provide fund to close borrower thus the financial institution had already known deeper information about the borrower. There are also profitable agreements that have been made with each other for a long term.

A relationship bank lending was also shown in Indonesia. Some banks were seen to provide a durable lending to some manufacturing firms in Indonesia. Out of 121 bank's lending to some manufacturing firms from 2011 until 2014, there are 48 lending that were provided by BCA, Bank Mandiri, BNI, BRI and HSBC. Fifty eight percent (58%) of the bank lending was noted as a continuous lending which means, the same banks provide lending to the same company for four years continuously.



Source: Manufacturing firms' annual report, 2011-2014

Petersen and Rajan (1994) and Berger and Udell (1995) showed evidences of durable lending relationships in small firms. While, Lummer and McConnell (1989) and Slovin et al (1993) found evidences that relationship bank lending happens to large firms. Relationship lending can decrease the asymmetric information between the lender and borrower. It could give benefit to both of them. The lender have a safer way in channelling lending while the borrower might get a cheaper debt financing.

This research will study about the bank's lending behaviour according to its funding structure, bank characteristics and firm characteristics. Begins with the

thought that banks' lending behaviour cannot be influenced by the lender's conditions or borrower's condition only, this research will use a unique dataset to forecast banks' lending behaviour from both loan supply's and loan demand's view. Afterwards, looking at the failure of some U.S and European banks during the 2007-2009 financial crises, this research will study whether the same problem occurs. A dynamic panel method will be applied to accommodate the presence of relationship bank lending that might happen.

This research will be conducted to manufacturing firms listed in Indonesian Stock Exchange. Manufacturing sector has been one of the highest bank's loans receivers every year. For about 20% and more credits to business sector has been given to manufacturing sector since 2007. Manufacturing sector is also known to be easily affected by crisis and other external factors too because of its large business scope.

Based on the research background above, this research will be titled as **“Bank Characteristics, Firm Characteristics, Bank Funding Structure and Bank Lending during Liquidity Crisis Using a Dynamic Panel Model”**.

1.2. Problem Formulation

The new trend of banks funding management could lead to disadvantages. When loan growth exceeds customer deposits growth, banks tend to seek for another funding alternative. In the advanced economic countries, the use of alternative funding had been a trend, since more banks compete for the public's deposits. But, that actually resulted in financial instability for the banks, as well as

for the country. The funding alternatives were usually short-term or sensitive to market-wide liquidity crisis. Thus, when a bank relied more to its funding alternative, they would suffer during liquidity crisis and reducing their lending channel.

Gatev et al. (2006) in Jung and Kim (2015) demonstrate that banks with high level of deposits as a source of core funding do not face high liquidity risk from unused loan commitments. Cornett et al. (2011) show that banks in the U.S which rely more on stable funding source (such as demand and term deposits) and equity capital financing, are able to continue lend to firms during the crisis. Allen and Paligorova (2011) showed a similar result stated that banks that rely most on wholesale funding reduce lending the most during global financial crisis.

The behaviour of bank lending is not only affected by bank funding structure. There are several other factors either from the loan supply side or from the loan demand side. The supply side explains that bank lending behaviour would be affected by the condition of the banks. The condition of the banks would show whether banks can increase their lending based on their financial conditions or should tighten it. Meanwhile, banks should also consider the potential borrower's conditions before performing loans. Credit profile checking is important for banks to avoid some potential risk which will be disadvantageous for the bank.

The role of bank capital has been a debate. Some people questioned whether bank capital is important for banks. Diamond & Rajan (2000) explain the role of bank capital and the ideal amount of an effective and efficient bank capital. Kořak et al. (2013), using a worldwide bank sample for 10 years, found that banks' lending

behaviour during global financial crisis highlighting the role of bank capital. The high quality of the bank funding strategy and prevalent government backing were crucial to the continuous of the bank lending during crisis.

Besides, expertise also questioned whether bank size matters for banks. Some did not think that bank size is significant for bank loans. Uchida, Udell, & Watanabe (2008) found a negative relation between bank size and bank lending. The opponent of TBTF theory believes that bigger bank would face a serious moral hazard and performs bad. (Opiela, 2015) found that small and under-capitalized bank reduce bank lending during monetary policy transmission but bigger and high-capitalized bank does not.

Huda (2014) found a negative relation between banks' NPL with credit channel. High NPL indicates that bank faces a serious credit risk. Keeping high NPL too long would not be good for the bank. Banks should consider analysing sectors or entities with bad credit and tighten the loans until the condition is better.

When performing loans, banks should also consider several firm's characteristics. Considering the potential borrower's characteristics is important in assessing their credit risks. Firms with bad profile should be avoided especially when there is a high possibility of credit default.

According to the bank's credit principles, there are several firm's characteristics that can be considered. The characteristics are firm's size, growth opportunity and leverage. González et al. (2007) stated that collateral plays an important role in firm's access to external finance. Firm's asset indicates the maximum amount of collateral available for loans covenants. The higher firm's

asset, the higher collateral can be offered to banks. Dia & Casalin (2009) showed that Tobin's Q (growth opportunity) can be used to describe firm's financing. The higher firm's value or growth opportunity, third parties would be more interested to place their funds. Jung & Kim (2015) found a significant negative relationship between firm's leverage and bank's loans. Banks would not be interested in high leverage firms since there is a higher possibility of credit default.

Based on the phenomenon and research gaps above, we can formulate this research's problems as follows:

1. Does bank funding structure affect banks' lending to manufacturing sector during liquidity shock?
2. Does bank size affect bank's lending to manufacturing firms?
3. Does bank capital affect bank's lending to manufacturing firms?
4. Does bank credit risk affect bank's lending to manufacturing firms?
5. Does firm's size affects bank's lending to manufacturing firms?
6. Does firm's value affect bank's lending to manufacturing firms?
7. Does firm's leverage affect bank's lending to manufacturing firms?

1.3. Research Objective

Based on the research backgrounds and problem formulation above, we can certify that the objectives of this research are:

1. To analyse the effect of bank funding structure towards bank's lending to manufacturing firms during liquidity shock.

2. To analyse the effect of bank's size towards bank's lending to manufacturing firms.
3. To analyse the effect of bank capital towards bank's lending to manufacturing firms.
4. To analyse the effect of bank credit risk towards bank's lending to manufacturing firms.
5. To analyse the effect of firm's size towards bank's lending to manufacturing firms.
6. To analyse the effect of firm's value towards bank's lending to manufacturing firms.
7. To analyse the effect of firm's leverage towards bank's lending to manufacturing firms.

1.4. Research Benefits

This research is expected to give certain benefits for concerning parties as follows:

- a. For Corporations

This research is expected to be manager's base in looking for bank's loans and selecting banks for their demand for credit. This research can also help managers to find the reason why bank does not accept their demand for credit so that they can manage their corporation to fulfil bank's criteria.

- b. For Banks

This research is expected to give bank's managers view in distributing their credits to manufacturing firm so that they can give lending

to prospective firms with better credit worthiness. This research can also provide the determinants that would increase bank's lending so that it can be factors that can be considered by bank's managers.

c. For Academics

This research is expected to be an academic reference for those who want to do similar research or completing the lack of this research. This research is also expected to be new knowledge in banking credits for those in needs.

1.5. Research Outline

This research consists of 5 chapters that would explain about Bank Funding Structure and Lending. The research systematisation in this research would be as follows:

CHAPTER I INTRODUCTION

This chapter elaborates the problem backgrounds of bank funding structure and lending during liquidity shocks in Indonesia, problem formulation, research objectives and research benefits.

CHAPTER II LITERATURE REVIEW

This chapter elaborates the theoretical basic which underlie the writer's hypothesis, earlier empirical evidence, conceptual frameworks and hypothesis.

CHAPTER III RESEARCH METHOD

This chapter provides the description about the method used in this research which is then elaborated into research variables and variables operational definition, population and sample, data type and sources, data collection method and data analysis method.

CHAPTER IV RESULT AND ANALYSIS

This chapter elaborates about research object description, data analysis, result interpretation and writer's argumentations on the research's results.

CHAPTER V CONCLUDING

This chapter is the last part of the research which contains the conclusion of the discussion above, research constraints and suggestion for the future research or the other interested parties.