CHAPTER II

LITERATURE REVIEW

2.1.Fintech

2.1.1.Definition of Fintech

Fintech is “disruptive”, “revolutionary” and armed with “digital weapons”, that will “tear down” barriers and traditional financial institutions (World Economic Forum, 2017). Fintech also can be defined as the use of technology in the financial system that produces a product, service, technology, and / or new business models, and can have an impact on monetary stability, the stability of the financial system, and / or efficiency, smoothness, safety, and reliability of the payment system (Bank Indonesia, n.d.). Fintech can disrupt stability and become a threat to traditional banks, especially in rural banks. In different word, Fintech means the innovation from financial services or products that are produced by technology. In concert with the progress in technology as well as mobile and internet along with their global widespread adoption, the expectations from consumers are changing. Many business or startups are operating on Fintech related products and there are major disruptions in financial services (Lee & Teo, 2015). Fintech products and services are continuously being invented, it is given that the industry is in its early stages.

"Fintech" is a term that has been set to describe the digitalization of the financial sector. Fintech is a tool used for advanced technology, mostly internet-based in the financial sector. This term describes modern technology to enable or provide financial services, such as internet-based technology in the fields of e-commerce, mobile payments or early-stage crowd-based financing or it can be called crowdfunding and crowd investing (Dapp, Slomka, & Hoffmann, 2014). In the other meaning, Fintech is a financial industry that applies technology to increase financial activity (Schueffel, 2016).

The term of Fintech is not confined to specific industries, such as financial industry or specific business models such as peer-to-peer (P2P) lending, nevertheless it includes all of financial products and services that were traditionally supplied by the financial industry (Mello, 2018). Therefore, Fintech has many meanings according to experts.

2.1.2. The History of Fintech

The history of modern financial business started in:

1. In 1967: the launch of the ATM (Automated Teller Machine)
2. In 1967-1987: the financial services industry changes from analog to digital industry
3. In 1987-2008: the financial services industry was largely transformed into a digital industry, supported by the emergence of the internet around 2000 (Arner, Barberis and Buckley, 2015).

In 2009 until today, the crisis makes a change in Fintech development. Many innovations in Fintech due to changes in market conditions. Therefore, the emergence of the Fintech industry in the current era is increasingly competitive (Arner, Barberis and Buckley, 2015). Fintech which is an abbreviation of financial technology, is probably one of the most popular buzzwords in the financial world nowadays (Mello, 2018). The evolution of Fintech has been described on the Web Page of Investopedia stated that

"Fintech is a portmanteau of financial technology that describes an emerging financial services sector in the 21st century. Originally, the term is applied to technology applied to the back-end of established consumer and trade financial institutions. Since the end of the first decade of the 21st century, the term has expanded to include any technological innovation in the financial sector, including innovations in financial literacy and

education, retail banking, investment and even crypto-currencies like bitcoin"

World Bank data shows that the Indonesian population aged over 15 has 36.1 percent who have accounts in financial institutions. The development of Fintech needs to be supported by the acceptance of the community (Davis, Maddock, & Foo, 2017). Internet users in Indonesia until 2017 showed a number of 143.26 million people out of 262 million of the total population in Indonesia, where the majority of Indonesians are literate with technology (Kementrian Kominfo, 2018). Therefore, the development of the Fintech industry in Indonesia is very fast and data from financial services authority (FSA) in June 2018 that there are 63 Fintech companies registered in the FSA (Otoritas Jasa Keuangan, 2018).

2.1.3. The Advantage of Fintech

Technology provided by Fintech makes the job becomes more effective and efficient and provides many benefits to the community. First, Fintech allows them to lend cheaper or provide better products. Second, Fintech companies can save labor and office space costs that are significantly more comfortable according to consumer reviews. Third, lenders may be able to screen potential borrowers better, leveraging alternative sources of information and the big data approaches inherent in technology-based lending (Buchak, Matvos, Piskorski, & Seru, 2018).

In addition, Fintech is easy to adapt with the needs of consumers who are fast changing and the existence of low-cost financial services that make Fintech more attractive to the public, so there is no need for geographical concentration, easy adjusting changes in consumer behavior, easier regulation, and relatively lower exposure to risk by the services and products (Romānova & Kudinska, 2016). The services and products offered by Fintech are the same as banks, the difference is they utilize technology that makes Fintech becomes more efficient (Navaretti, Calzolari, Fernández, & Pozzolo, 2017).

2.1.4. Types of Fintech

There are several types of Fintech, namely:

1. Lending tech (alternative lending)
2. Payments/billing tech
3. Personal finance/wealth management (Wealth Tech)
4. Money transfer/remittance
5. Blockchain/bitcoin (Cryptocurrencies)
6. Institutional/capital market tech
7. InsurTech
8. Equity crowdfunding

2.2. Rural Bank

2.2.1. Definition of Rural Banks

People can make loans to fulfill their needs through rural banks, and rural banks are a place to help the poor in alleviating poverty and firsthand information of the needs and enthusiasm of poor people (Nsiah, 2014). Rural Banks also have several purposes, such as to stimulate banking habits among rural folks/dwellers, to mobilize resources locked up in the rural areas into the banking systems to facilitate development, and to identify viable industries in their respective catchments areas for investment and development.

In Indonesia, rural banks are commonly referred to as *Bank Perkreditan Rakyat* (BPR), and can be categorized as small banks that usually finance small and medium enterprises (SMEs). Commonly, rural banks in Indonesia only operate in one province throughout Indonesia. Rural banks are one of the main financial intermediary entities for the SMEs (Chou & Buchdadi, 2016). Therefore, the Rural Bank business is very important to help the development of society who have small and medium enterprises (SMEs).

2.2.2. Emergence and Evolution of Rural Banks

The history of the emergence of Rural Banks (BPR) began in the Dutch colonial era. Rural Banks (BPR) in Indonesia began in the 19th century with the establishment of *Bank Kredit Rakyat* (BKR) and the Village Granary, which was built with the aim of helping farmers, employees, workers, in order to escape the bondage of moneylenders who are burdened with high interest. After Indonesia proclaimed independence, the Government encouraged the establishment of market banks which were particularly well-known because they were established in the market environment and aimed to provide financial services to market traders. Then, the market banks were confirmed as Rural Banks (BPR). Thenceforward, rural banks in Indonesia have grown rapidly. In June 2018, Rural Banks were recorded in the financial services authority (FSA) in Indonesia as many as 1,603 offices spread across regions in Indonesia.

2.2.3. Service Provided by Rural Banks

The basic function of rural banks is to meet the financial pressures of middle and small entrepreneurs, farmers and savings mobilization (Koduah-Boateng, 2016). There are several services that are provided by rural banks in general, such as:

1. Savings

   According to Law No. 10 of 1998 concerning Banking, saving is a deposit that can be withdrawn under certain agreed conditions, but cannot be withdrawn by check, demand deposit, and / or other equivalent equipment.

2. Deposit

   Deposits or often referred to as time deposits are bank products in the form of savings services that are usually offered to the public. Funds in deposits are guaranteed by the government through the Deposit Insurance Corporation (LPS) with certain requirements.

3. Credit

Credit is a financial facility that allows a person or business entity to borrow money to buy a product and repay it within a specified period. Law No. 10 of 1998 states that the credit is "provision of money or the equivalent, based on agreements between bank lending and other parties who require the borrower to repay the debt after a certain period with interest". If someone uses credit services, he will be charged interest.

2.2.4. The Advantage of Loans

Rural banks provide several benefits by providing loans, the first is that rural folks or dwellers have been helped for several years by the existence of rural banks with loans. Second, the Rural Bank teaches rural folks or dwellers to have savings and make loans at banks. Third, helping the economy by giving loans to people who have productive businesses, helping development, and improving the socio-economic life of the rural population (Koduah-Boateng, 2016). Banks provide loans and advances money to people, business associations and also the government with a specific purpose to empower them to increase business and increase training as a method to help their development specifically or contribute to a country's monetary advancements (Nsiah, 2014).

2.3. Management Credit of Bank

2.3.1. Definition of Credit

Credit is the provision of money or bills based on an approval or agreement. In the activity of lending, the bank has a purpose to obtain profit, where the profit is generated from the difference between the interest generated from the funds lent to parties who need funds with interest that the bank gives to a third party or to a surplus party of funds. Before obtaining credit, the customer must go through several phases of credit which must be fulfilled as the stage of the crediting process which includes the credit preparation stage, credit analysis / assessment phase, credit decision stage, credit administration and implementation phase, credit disbursement stage, supervision and settlement stage from credit (Kasmir, 2010).

2.3.2. Banking Credit Products

According to Koduah-Boateng 2016, he stated that there are 4 types of banking credit products, which consist of:

1. Micro-finance loans
2. SouSou loans
3. Salary loans
4. Commercial loans

2.3.3. Process of Credit

In providing credit to borrowers, there is a process that must be performed. The process is credit administration, which is an evaluation of the credit value and business feasibility of the client. The things used in the credit administration process are collecting information about clients regarding their financial monetary conditions, their reputation in making credit or their character in fulfilling commitments.

Credit administration is carried out to protect both parties, namely banks or related financial institutions and clients or parties who carry out credit. Banks or related financial institutions conduct credit administration to avoid the risk of default, while the client is making more obligation commitments that cannot be settled in auspicious way. Both parties will get benefit if the credit administration is running properly (Nsiah, 2014).

2.3.4. Types of Credit

There are four types of credit, which can be categorized through several terms:

1. Service credit which means installments that are regularly scheduled for utilities, such as telephone, gas, electricity, and water. If the installments are not paid on time, people will get a charge.
2. Loans which means that people can take loans in small or large amounts, and they can borrow for short or long stretches.
3. Installments credit which means purchases made in the form of credit and provide advances as collateral. Products purchased using credit are usually automotive, real apparatuses, and furniture. In making a purchase, there is a signing of the agreement, making the initial installments, and agreeing on the amount of installments to be paid. The money charges are incorporated in the installments.
4. Credit cards which means a credit card issued by several financial institutions, retail and individual organizations. One example of a credit card is MasterCard which is commonly called credit without interest.

2.3.5. Credit Analysis

Banks can conduct investigations or analysis to obtain information about feasibility analysis from client's willingness to pay or ability to pay. According to Arafah & Nugroho (2016), they stated that there are 5 categories to centralize an investigation, according to a banking credit expert called 5C's, which consists of:

1. Character: character is about the candidate's history in fulfilling past commitments, money related, contractual, and moral. The history of installments made by candidates in the past is legitimate information and can be used to assess characters.
2. Capacity: capacity analysis is used to determine the client's ability to make installment payments and pay off their loans. Specific accentuation on liquidity and obligation proportions, are normally used

to survey the candidate's ability. Analysis can also be performed on the client's ability to manage his business from education, business records, the history of the company that has been managed

3. Capital: capital is the condition of assets owned by the company that is managed by the client. This can be seen from the balance sheet, income statement, capital structure, profit ratios obtained such as return on equity, return on investment. From these conditions, it can be assessed whether the prospective borrower is eligible for financing or credit, and a large amount of financing ceiling that is eligible to be granted.
4. Collateral: Collateral is a guarantee that may be confiscated if it turns out that the client really cannot fulfill his obligations. This collateral is considered to be the latest, meaning that if there is still a doubt in other considerations, then it can assess assets that might be used as collateral.
5. Condition: condition is when banks will loan a credit, it is necessary to consider the economic conditions associated with the client's business prospects. There is a business that is highly dependent on economic conditions, therefore it is necessary to relate the economic conditions with the client's business.

2.4. Loan of Portfolio

2.4.1. Loan Classification

All financial institutions related to credit are required to monitor credit portfolios and risk assessments. Assets are classified into five grades of risk. They are current, other loans especially mentioned (OLEM), substandard, doubtful and loss. While for non-performing loans or who have high risk, namely the aggregate of substandard, doubtful and loss. Loans can be classified as current or delinquent. If the interest and principal have not been received on the due date, the loan is problematic or delinquent.

Prior to rural banks provide loans to borrowers, rural banks make several considerations such as the ability of the borrower to make payments before the due date and willingness of the borrower to obey the obligation on the due date. Rural banks also ask for guarantees from borrowers in case the borrower fails to pay.

2.4.2. Non-Performing Loan Ratio

Non-Performing Loans (NPLs) are ratios that compare the total delinquent loans to total loans in the form of percentages. NPL can be used as an indicator of credit risk. The lower level of the NPL ratio means the lower level of credit delinquent will occur, which means the better the condition of the bank and the higher level of the NPL ratio, the greater credit risk will be face by the bank.

2.4.3. Return on Asset Ratio

ROA shows the bank's ability to obtain profits (profit before tax) resulting from the average total assets owned by the bank. ROA means the ability of management to acquire deposits at a reasonable cost and invest them in profitable investments. Managerial performance will be better and more efficient in the utilization of company assets if the ratio is high and indicators of inefficient use of assets if the ratio is low. To increase ROA can be done by increasing profit margins or asset turnover, but it becomes a trade-off because it cannot be done simultaneously between turnover and margin. Therefore, banks which maintain higher ROA will make more the profit.

2.4.4. Loan to Deposit Ratio

Loan to Deposit Ratio (LDR) is a traditional measurement that shows time deposits, demand deposits, savings, and others used in fulfilling loan requests by its clients. The higher the LDR, the higher the company's profit (assuming the bank is able to extent loans effectively, so the amount of bad loans will be small).

2.4.5. Net Loan to Asset Ratio

NLTA measures the percentage of asset that are tied up in loans. This is also another important ratio that measures the liquidity condition of the bank. NLTA also measures the bank's ability to meet the credit demands of debtors through the guarantee of a number of assets. The higher the ratio, the less liquid the banks will be. The bank with low NLTA is also considered to be more liquid as compared to the bank with higher NLTA. However, high NLTA is an indication of potentially higher profitability and hence more risk.

2.5. Previous Research and Hypothesis

According to research conducted by Jagtiani & Lemieux (2017), Fintech adds credit modelling. Fintech has enhanced financial inclusion and has allowed some borrowers to be assigned better loan ratings and receive lower-priced credit than before. It can make borrowers more often to take loans at Fintech, so that the borrowers are not on time to pay loans at rural banks. As a result, non-performing loans at rural banks has increased.

The Joint Small Business Credit Survey Report (2015) in Jagtiani & Lemieux (2017) stated that credit in banks has a complexity in providing loans. The findings of the Federal Reserve are small businesses encounter obstacles in taking credit loans in rural banks. Therefore, from these difficulties, small businesses prefer to switch in taking credit loans to alternative online lenders or Fintech. From the findings, Fintech is growing and caused a decline in the income of rural banks. Rural Banks cannot expand lending to people and debtor cannot payback the loans which causes an increasing in NPL. This finding is supported by the research from Schweitzer and Barkley (2017), which examined the characteristics of businesses that take loans from online lenders. The findings are in line with the argument that businesses denied funding by banks turned to Fintech lenders to arrange credit for their businesses that would not qualify for traditional bank financing.

In the other hand, research conducted by Yang (2015) stated that in exchange for provide funding, traditional financial institutions are able to draw on the insights of startup companies in order to stay on the forefront of the technology. It means the emergence of Fintech can help Rural Banks become more efficient. The positive relationship between rural banks and Fintech can make the borrower carries out credit smoothly and reduces the value of delinquent or decrease the value of Non-Performing Loans.

The different results were found in Sorkin (2016) in his research conducted in Europe, which said the emergence of Fintech companies still caused a lot of debate over whether Fintech companies would eventually replace banks in performing lending and other functions.

H1: There is a negative difference before and after the emergence of Fintech on NPL in rural bank

According to research conducted by Dermine (2017) in the US Lending Club, it is getting results that Lending Club has achieved success in penetrating unsecured consumer credit loans. This is evidenced by a decrease in the Bank's revenue due to sharing or the existence of cooperation between banks and Fintech. The decline in the Bank's revenue made the value of Return on Assets was decreased.

Guo and Liang (2016) in their research also stated that the emergence of Fintech made a decrease in ROA in commercial banks in China during 2014 to 2016. It was due to the number of internet financial platforms or Fintech applications having reached more than 8.490 and the number of active users until 2016 was 710 million, and internet finance users accounts for 87% of total internet users in China. Since the emergence of Fintech continues to grow, it will penetrate more in the everyday scenario of its customers, which in turn creates a significant threat to the dominant position occupied by the bank.

According to Nakashima (2018), the new era when technology began to be used to provide services that were needed and could be accepted by community easily and directly or indirectly created new ways for society, so this made the emergence of new cultures. Fintech can realize such a business scheme and new business model, and these are forms of technology that will be demand in the future for the community. when community demand can be fulfilled, this makes the community begin to switch to using Fintech in conducting transactions especially in credit loans. Continuously, it can affect the income of the Rural Bank which is reflected in the decline on ROA.

According to Skan, Dickerson, & Masood (2015) in a survey among financial services executives, 80% of the participants stated that collaboration with startups brings new ideas into their businesses. It is a positive impact for financial institution such as rural banks, because from collaboration with Fintech startup can generate a new profit that directly or indirectly increases company's ROA.

The same research is conducted by Johnes et al (2018) in Sharia and conventional bank of which result is bank reduces operating cost by embracing the latest information technology financial applications (Fintech) and /or adopts a cost ceiling policy for Shariah Supervisory Board costs, which would relate to the size, complexity and nature of business. It means that Fintech has a positive impact on the Bank.

H2: There is a negative difference before and after the emergence of Fintech on ROA in rural bank

According to research conducted by Thompson (2017), Fintech could facilitate higher payment frequencies, help tailor payment amounts to individual participation levels, and greatly reduce the number of middlemen that a person must pass through to get service from buyer to seller. It became threat for traditional banking service because the easier people to lend money from Fintech, the more often they will do it. Therefore, it led to reduce in bank deposits. Debtor are more likely to distribute money to Fintech which causes a reduction in the level of bank liquidity. The decline in the level of bank liquidity has an impact on the percentage of LDR. It gives a negative impact on the bank.

According to research conducted by Ozili (2018), Digital finance through Fintech providers has positive effects toward financial inclusion in emerging and advanced economies, and the convenience that digital finance provides to individuals with low and variable income is often more valuable to them than the higher cost they will pay to obtain such services from conventional regulated banks. These results indicate that debtor will more often distribute their funds to Fintech than at banks and bank will be facing difficulties in terms of liquidity if there are new creditors, due to a decrease in funds from third parties or depositors.

The different result is shown by Scott, Van Reenen, and Zachariadis (2017). Innovation in digital finance can have long-term positive effects for banking performance. They examined the impact on bank performance of the adoption of SWIFT, a network-based technological infrastructure and set of standards for worldwide interbank telecommunication. They examined 6.848 banks in 29 countries in Europe and the U.S. They found that the adoption of SWIFT has large effects on profitability in the long-term and these profitability effects are greater for small banks than for large banks and exhibits significant network effects on performance.

H3: There is a negative difference before and after the emergence of Fintech on LDR in rural bank

According to research conducted by Vives (2017), it is found that Amazon, Apple, or Google are growing quickly in payment services, with close to 150 million users in the first semester of 2017. Amazon lending has been growing steadily since its launch in 2011. Even social media platforms can sell profitable financial services based on their knowledge of the characteristics of their users. Through this findings, Fintech has the potential to disrupt established financial intermediaries and banks in particular.

Different result is shown by CGAP (2015) which stated that digital financial inclusion can improve the welfare of individuals and businesses that have reliable digital platform with which to access funds in their bank accounts to carry out financial transactions. Because of the frequent transactions, the total assets of the bank have been invested in loans decreased, it means that banks are more liquid in providing loans.

Positive result is also found in the research conducted by Boot (2017) which stated that Fintech are not typically independent of banks, but have developed in joint ventures or other types of alliances with traditional banks. Through this joint ventures or partnership, banks can fulfill obligations in providing funds to third parties.

According to Lu (2018) in his research conducted in one of Fintech industry namely Ant Financial Services Group (Alipay), it is found that the services industry has been accepted by millions of retailors and online shops, making Alipay become the largest digital payment system. Another Fintech is MyBank, as an online-based lender has utilized big data and artificial intelligence to offer loan services to small businesses that do not have access to mainstream financial institutions. Both Fintech provides consumers with better, safer, and more accessible financial services. According to Lu, Fintech can be supplement for the present financial industry to serve SME borrowers neglected by most banks and able to help existing lenders to assess the financial conditions of millions of consumers and smaller businesses and make smarter loan decisions.

H4: There is a negative difference before and after the emergence of Fintech on NLTA in rural bank

2.6. Theoretical Framework

The method carried out in this research was 3 years before the emergence of Fintech and 3 years after the emergence of Fintech, it uses to determine whether there is a difference from the emerged of Fintech in rural banks.

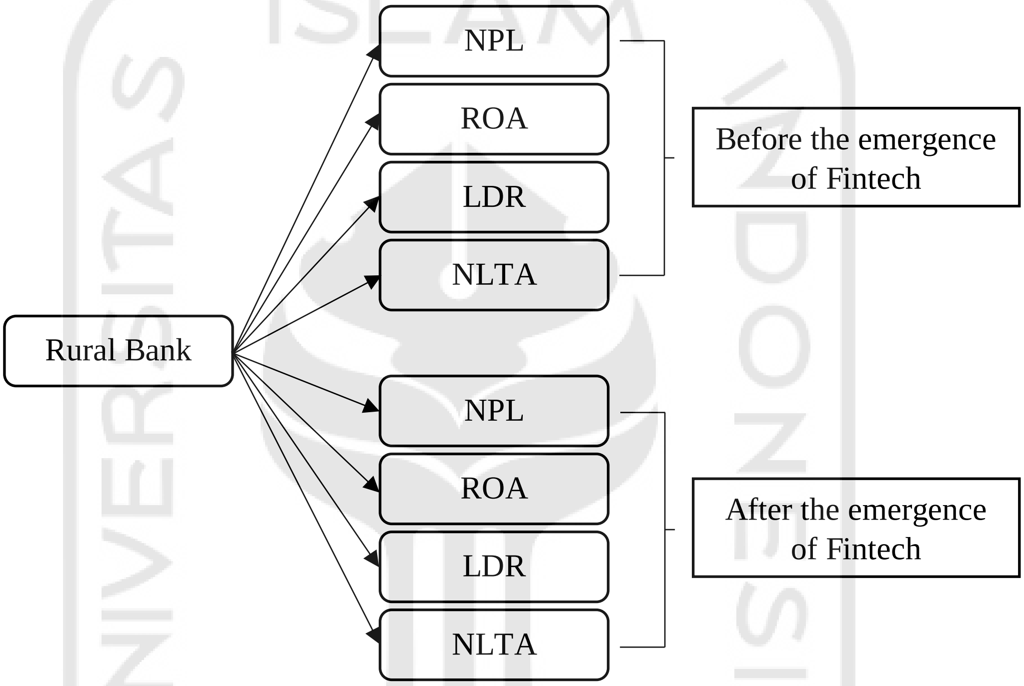

Figure 2.6 Theoretical Framework