Investigation of financial inclusions, financial literation, and financial technology in Indonesia

Muhammad Noor; Finnah Fourqoniah; Muhammad Fikry Aransyah*

Faculty of Social Science and Political Science, Mulawarman University, Indonesia

**To whom correspondence should be addressed. Email: fikryaransyah@fisip.unmul.ac.id*

DOI: 10.22437/ppd.v8i3.9942	Received: 14.07.2020	Revised: 22.08.2020	Accepted: 26.08.2020	Published: 31.08.2020

Abstract
The Indonesian Financial Services Authority (Otoritas Jasa Keuangan) states that the financial literacy increase will be followed by developing the financial inclusion index. Nevertheless, the level of public financial literacy is still far behind the financial inclusion index. Perpres No. 82 of 2016 concerning the National Inclusive Finance Strategy sets a target of 75% of the adult population to access financial services in 2019. As information technology develops and internet penetration rates rapidly emerge, digital financial services emerge that make it easier for people to obtain financial services called financial technology. The increasing use of financial technology is one of the drivers for increasing national financial inclusion. This study aims to investigate studies of financial inclusion, financial literacy, both from knowledge, behavior, and financial attitudes, and financial technology. The research is a literature study research examining thirty journals and reports related to Financial Inclusion, Financial Literacy, and Financial Technology. Formed on the respondents' characteristics, gender, age, education, and occupation had an impact on increasing financial inclusion, financial literacy, and financial technology in Indonesia. Many people use financial products and services without having a good knowledge of the functions, how to choose the right according to needs, and do not know the risks of the products used. Recommendation from this is a strategy strategic of the respondents' characteristics is needed in increasing financial inclusion.

Keywords: *Financial inclusion, Financial literacy, Financial technology*

JEL Classification: L51, L86, L88, O33

INTRODUCTION

Financial literacy is financial awareness and knowledge of financial products, financial institutions, and concepts regarding skills in managing finances (Xu & Zia 2012). As stated by the Financial Services Authority (2016), financial literacy is knowledge, skills, and values affecting behaviors and attitudes to strengthen decision-making and financial management to prosper. Consumers of financial products and services, as well as the broader community, are expected. People are aware of and understand financial services institutions, financial products, and services and can alter or change people's behaviors to enhance their financial management welfare.

People with low financial literacy levels will be easily deceived in using their money (Lestari, 2015). Conversely, people who have high financial literacy levels will utilize financial products and services that suit their needs. They can then do better financial planning, avoid investing in unclear financial instruments, and understand the benefits and risks of products and financial services. The National Survey of Indonesian Financial Literacy and Inclusion in 2019, conducted by the Financial Services Authority, provides an overview of Indonesia's financial literacy condition, which is still low. However, it has increased from surveys conducted previously in 2016 and 2013. Literacy rates Indonesian public finance in 2019, which is around 38.03%, which means that out of every 100 people, there are only around 38 people in the well literate category.

One of the things that can overcome various causes of the still low financial literacy in Indonesia is the emergence of a program to expand financial inclusion. Presidential Regulation number 82 of 2016 concerning the National Financial Inclusive Strategy sets a target of 75% of the adult population to access formal financial services by 2019. By 2019 the level of financial inclusion has been able to reach 76.19%. A significant increase in financial literacy does not accompany an increase in the Indonesian population's financial inclusion level. This problem was then unable to show that financial literacy will be followed by financial inclusion following the Financial Services Authority analysis. It can be assumed that there are still many Indonesians who quickly access and can use financial services but do not have a good understanding and knowledge of these services.

As technology develops and is supported by rapid internet penetration, digital financial services have emerged that make it easier for the public to conduct transactions and financing. This digital financial service is called financial technology, which is then abbreviated as Fintech. Indonesian people use Fintech-based payment services at a 38% percentage and are followed by loan services at 31%. This report shows that the availability of Fintech in Indonesia can help the government provide financial services for payments and loans that are more extensive and efficient. The total value of an investment in Fintech in Indonesia in 2017 reached 2.29 trillion rupiahs (Fintech Indonesia Report, 2018).

This prediction shows the opportunity to develop digital financial services in Indonesia shortly to meet the community's needs. Based on Bank Indonesia's Financial Stability Review (2017), Fintech is considered capable of reaching people who cannot yet be reached by banks. The existence of Fintech aims to make people more comfortable to access financial products, facilitate transactions, and increase financial inclusion. This goal can be achieved with opportunities based on the 2014 Global Index data in the attachment to the National Inclusive Financial Strategy (2016). Only around 36% (thirty-six percent) of the adult population in Indonesia have access to formal financial institutions. Thus, Fintech can target other Indonesian adult population to obtain financial services.

According to the Financial Services Authority (2017), the increasing use of Fintech has become one of the drivers to increase national financial inclusion. According to the Asosiasi Penyelenggara Jasa Internet Indonesia survey (2016), Indonesian people who have internet penetration have reached 51.8%, which is 132.7 million of Indonesia's 256.2 million population. Thus, digital and internet-based financial services will be straightforward to reach by people in various areas of residence. Supporting OJK's statement, according to the Ministry of PPN (BAPPENAS) in 2017, Fintech is one form of implementation of the National Financial Inclusive Strategy.

The OECD International Network on Financial Education has started a financial literacy survey instrument that can be used with very different backgrounds in various countries (Atkinson & Messy, 2012). This financial literacy survey instrument was updated by the OECD (2016) by adjusting the questions on each instrument to the community's state. Three components of the instrument used to measure the level of respondent's financial literacy are: 1) Financial knowledge, calculated by counting the number of responses or correct answers by each respondent to six or more questions related to knowledge of calculating the time value of money, loan interest, the principle of calculating bank interest, compound interest, risk and profit, the definition of inflation, and diversification; 2) Financial behavior, the calculation is based on respondents' answers from a total score of seven questions that are used to determine the respondent's financial behavior. Questions asked related to prudence before making a purchase, timeliness in paying bills, setting long-term financial goals, saving activities, decisions in choosing financial products, and loans to meet needs; and 3) Financial attitude, measured by calculating the total score of respondents' answers from the three questions given. The question relates to how respondents in their attitude prioritize short-term desires rather than long-term security or make long-term financial plans. Financial literacy will be measured by an index built from answers to a series of questions related to the financial literacy component.

The development of a better Fintech company amid the Indonesian people is expected to realize the achievement of the target level of community inclusion. However, there has not been an analysis of how the level of influence of Fintech in increasing financial inclusion. Therefore, based on the background described, the researcher intends to analyze how the influence of Fintech on community inclusion and whether financial literacy affects financial inclusion. In addition to these two things, the researcher will analyze how the respondents' characteristics affect public financial inclusion.

The Financial Services Authority is determined to realize a sustainable and stable financial system. It is stating that the level of financial inclusion will follow financial literacy. However, the level of public financial literacy is lower than the level of financial inclusion. This problem raises the suspicion that many people use financial services but do not understand and have good knowledge of these services. However, this is not able to increase the financial literacy of the people to be well literate.

METHODS

The literature review takes place to provide a comprehensive overview of the research topic based on local and international corruption issues in the construction sector. This research uses a literature review method. The researcher conducts a series of studies involving various kinds of information originating from literature such as books, encyclopedias, documents, and various theories and ideas that can then be formulated according to the research objectives. The systematic review of systematic reviews was undertaken to synthesize the impacts of financial inclusion, financial literacy, and financial technology. Thirty systematic reviews were identified. Only full papers were included in the review if they satisfied the following conditions: the author researched a specific case, the author presented a theory, or the author discussed a trend in financial inclusion, financial literacy, and financial technology. For the literature review, the papers which answered the research question were considered adequate. The results of this literature review will be used to investigate financial inclusion, financial literacy, and financial technology, especially in Indonesia.

RESULTS AND DISCUSSION

Financial literacy

Based on Services Authority Regulation Number 76 / POJK.07 / 2016 concerning Increasing financial literacy and inclusion in the financial services sector for consumers and communities, financial literacy is knowledge, skills, beliefs, which influence attitudes and behaviors to improve the quality of decision making and financial management to prosper. The Organization for Economic Co-operation and Development (OECD) (2016) defines financial literacy as knowledge and understanding of financial concepts and risks, along with the skills, motivation, and confidence to apply their knowledge and understanding in order to make effective financial decisions, improve the financial well being of individuals and communities, and participate in the economic field.

According to the OECD/INFE (2015), financial literacy is a combination of awareness, knowledge, skills, attitudes, and behaviors needed to make financial decisions to achieve the ultimate goal of achieving individual financial well-being. According to Welly et al. (2016), financial literacy is the ability of someone in making effective decisions related to finances. Financial literacy helps individuals avoid financial problems, especially those that occur due to financial management errors.

In Kharchenko's research (2011), financial literacy can be summarized as the necessary numerical skills and understanding of basic economic concepts needed for savings and decision making in loans. According to Warsono (2010), everyone needs to achieve financial independence, knowledge, and implementation in carrying out healthy and ideal personal financial practices. Financial literacy is defined as the extent of knowledge and implementation of a person managing his finances.

Previous research conducted by Muat et al. (2014) using literacy level analysis instruments started by Lusardi & Mitchell in 2011. The research aims to examine the level of respondents' understanding of financial literacy and then the effect on applying for a personal loan. This research object's population is permanent lecturers who teach at the Sultan Syarif Kasim Riau State Islamic University (UIN Suska Riau). The results of testing on respondents obtained that financial literacy influences personal loan decisions. Also, some definitions suggest that financial literacy reduces the risk of taking credit or other financing services.

Tsalitsa & Rachmansyah (2016) examined the Financial Literacy Analysis and Demographic Factors on Credit Taking at PT Columbia Kudus Branch. This study states that a person's financial literacy level will influence financial institutions' credit decisions. Furthermore, with the increasing availability of financial institution services, it will provide convenience to the public. Nevertheless, this must be supported by the concept of personal financial literacy. If it is not supported, then taking credit risk will arise because it merely wants to fulfill desires and lifestyles only, not to meet needs.

Cardinal (2017) examines financial literacy on the use of financial products in Palembang Multi Data STIE students. The research results found that the respondents' financial knowledge was quite good from several predetermined categories. It was concluded that the higher the level of financial literacy, the higher the financial knowledge and would have implications for the level of investment made by respondents. The level of use of financial products as a whole, more students use investments in insurance products and savings in banks. Students still prioritize investment in financial instruments that provide guaranteed security and a stable rate of return.

Nasution et al. (2013), concerning the effect of financial literacy on access to financial services in Kenya in 2009, concluded that access to financial services is not only influenced by the level of financial literacy. The level of Income, distance from the bank, age, marital status, gender, size of the household, and education level have a tremendous influence on the decision to access financial services.

One needs financial freedom, expertise, and execution to achieve safe and optimal personal financial activities. Financial literacy is characterized as a manager's degree of knowledge and implementation. However, the growing availability of financial institution services would provide comfort to the public. Nonetheless, personal financial literacy will help this. Unless it is not sponsored, the likelihood of taking credit risk will occur because it only wants to satisfy desires and habits, not needs. However, the growing availability of financial institution services would provide comfort to the public.

Nonetheless, personal financial literacy will help to achieve financial freedom. If it is not sponsored, the likelihood of taking credit risk will emerge because it only wants to satisfy desires and lifestyles, not meet needs. The level of Income, distance from the bank, age, marital status, gender, household size, and educational level have a considerable impact on the decision to access financial services.

The effect of financial technology on financial inclusion

Hutabarat (2018) explains that the higher the number of people who use digital-based financial services will support the government's achievement of the implementation of financial inclusion. The availability of financial services will be more extensive. It can reach people who previously had difficulty accessing financial products and services—changing the form of services and financial products from conventional to technology-based efficiency and operational costs for the community. Payment products, settlement clearing, peer-to-peer lending, market aggregators, risk, and management can help the public access financial services and products. High internet penetration in the Indonesian people will further increase financial inclusion through the increasingly developing use of financial technology services. This situation is in line with the statement of the Ministry of PPN (BAPPENAS) in 2017; Fintech is one form of implementation of the National Financial Inclusive Strategy. This strategy formulated that the government had reached the Indonesian people's financial inclusion, 76.19% in 2019.

Financial services availability will be full and will reach people who historically had trouble accessing financial products and services — changing the type of services and financial products from traditional to community-based, technology-based performance, and operating costs. Payment products, settlement clearing, peer-to-peer loans, market aggregators, risk, and management can help connect financial services and goods to the public. High internet penetration among Indonesians would further increase financial inclusion by increasing the use of financial technology services.

The gender factor for financial inclusion

The financial inclusion of male sex society was better than that of women. Men use more financial services than women, and the level of men's trust in financial services is better than women (Hutabarat, 2018). This research is also supported by the fact that there are more male workers than women in society. So that financial activities will be mostly done by men. Nugroho (2017), who found that gender did not affect decisions on account ownership, saving, and borrowing informal financial institutions. However, this result was supported by Perpres No. 82 of 2016 concerning the National Inclusive Finance Strategy, which strategy targets the female gender community because of the low level of financial inclusion.

Society has more male staff than women. Male society's financial inclusion was higher than women's. Men use more financial services men's trust in financial services is higher than women. Gender did not affect account ownership decisions, saving and borrowing informal financial institutions—targets strategy targets in the female gender community due to low financial inclusion.

Educational factors on financial inclusion

Hutabarat (2018) states that the higher the last education, the more comprehensive the financial insight and education source. Good financial education will increase public knowledge and awareness about formal financial institutions, financial products, and services, including features, benefits and risks, costs, rights, and obligations, and improve people's financial planning and management skills. These results are consistent with Nugroho's (2017) study, which found that age and education significantly influence account ownership and saving informal institutions. Research by Putro & Nainggolan (2016) found that the latest education was correlated and affected respondents' inclusion in deciding the use of investment products and services.

The higher the academic, the more detailed the financial perspective and knowledge. Effective financial education can improve public knowledge and understanding of formal financial institutions, financial products, and services, including features, advantages and risks, costs, rights, and responsibilities, and strengthen people's financial planning and management skills. Age and education significantly affect transparency. Latest education associated with the participation of respondents in determining the use of investment goods and services

Employment factors for financial inclusion

Angraeni (2014) and Hutabarat (2018), people who work in trade and finance have much knowledge about financial products and services and better utilization. People who have tertiary employment, namely trade, transportation, finance, and services, have better financial inclusion levels than other sectors. Hutabarat (2018) also states that the most critical financial inclusion is the employment variable. The respondent's occupation will have the most dominant influence on the level of financial inclusion he has. People who have jobs in the tertiary sector will increase the understanding and use of financial products and services.

People with trade and finance knowledge of financial goods and services and their use. Persons with tertiary employment, including commerce, transportation, banking, and services, have higher financial inclusion rates than others. The most critical financial inclusion is employability. People with tertiary employment should improve awareness and use of financial products and services.

Income factors on financial inclusion

Putri & Rahyuda (2017) and Hutabarat's (2018) and Income has no significant effect on inventory decision behavior. That is, one's income level does not become a benchmark for making an individual investment decision or other financial services. In this group of people, despite having a high income, it is not a factor of getting better and trust in financial services. This result is different from Nugroho (2017), Putro, & Nainggolan's (2016) research that Income has a significant effect on influencing account ownership and saving informal institutions and respondents' inclusion in deciding the use of investment products and investment services.

Financial technology

Financial technology is one implementation of information technology related to finance (Alimirruchi, 2017). Professor Douglas W. Arner (in Mawarni 2017) from Hongkok University divided Fintech's development into four eras. Fintech 1.0 took place between 1866-1967, the era of infrastructure development and computerization to form a global financial network. Between 1967-2008, the era Fintech 2.0 of internet use, and digitalization in the financial sector. Fintech 3.0 and Fintech 3.5 take place from 2008 until now. Fintech 3.0 is the era of telephone and smartphone use in the financial sector. Fintech 3.5 is an era in which the emergence of a financial technology business emerges as a newcomer who takes advantage of technological process innovations, products, and business models and changes in people's behavior. Bank Indonesia (2016) classifies financial technology into four categories, as follows:

1. Crowdfunding and peer-to-peer (P2P) lending; This classification is based on the platform's function as a means of meeting capital seekers and investors in the loans field. This platform uses information technology, especially the internet, to provide accessible loan services. Capital providers only provide capital, and the borrower makes the loan process through an online platform. This financial technology category includes lending and borrowing services based on information technology that is regulated and supervised by the Financial Services Authority (OJK). To guarantee the security of using crowdfunding and P2P lending services in Indonesia, in 2016, OJK issued POJK No. 77/POJK.01/2016 concerning Information Technology-Based Lending and Borrowing Services.
2. Market aggregator; This category is a media that collects and collects financial data from various data providers to be presented to users. This financial data can then be used to facilitate users in comparing and choosing the best financial products.
3. Risk and investment management; The following categories are classifications for financial technology services that function as financial planners in digital form. So,

users can plan and know the financial condition at any time and all circumstances.

4. Payment, settlement, and clearing; Financial technology services in this category function to facilitate users in making payments online quickly. Fintech is under the supervision of Bank Indonesia. In 2016, Bank Indonesia issued Bank Indonesia Regulation Number 18/40/PBI/2016 concerning the Processing of Payment Transactions. This regulation aims to continue to support the creation of a smooth, safe, efficient and reliable payment system by prioritizing the fulfillment of the principle of prudence and adequate risk management and by taking into account the expansion of access, national interests, and consumer protection, including international standards and practices.

Financial inclusion

Bank Indonesia (2014) defines financial inclusion as all efforts to eliminate all forms of price and non-price barriers to public access in utilizing financial services. Indicators that can measure a country's financial inclusiveness are availability or access to measure the ability to use formal financial services in real affordability and prices. Then indicators can use to measure the ability to use actual financial products and services, quality to measure whether the attributes of financial products and services meet customer needs, and welfare to measure the impact of financial services on the level of life of service users. The Financial Services Authority (2016) defines financial inclusion as the availability of access to various financial institutions, products, and services following the community's needs and abilities to improve its welfare. Based on the Financial Services Authority Regulation No. 76/POJK.07/2016 regarding increasing financial literacy and inclusion in the financial services sector for consumers and the public, the objectives of financial inclusion include a) Increased public access to financial services institutions, products, and services; b) Increased supply of financial products and services by financial service businesses per the community's needs and abilities of the community; c) Increased use of financial products and services under the needs and abilities of the community; and d) Increasing the quality of the use of financial products and services according to the community's needs and abilities.

The objectives of financial inclusion mentioned above can be achieved with the National Financial Inclusion Strategy prepared by the government. Based on the Republic of Indonesia Presidential Regulation No. 82 of 2016 concerning the National Strategy for Inclusive Finance (*Strategi Nasional Keuangan Inklusif*), inclusive financial policies include National Strategy For Inclusive Finance pillars and foundations supported by coordination between relevant ministries/institutions or agencies and complemented by inclusive financial actions. The following are the pillars and foundations of National Strategy For Inclusive Finance:

1. Financial education pillars; Financial education aims to increase public knowledge and awareness about formal financial institutions, financial products, and services, including features, benefits and risks, costs, rights, and obligations, and improve people's financial planning and management skills.
2. Pillars of community property rights; aim to improve public credit access to formal financial institutions.
3. Pillars of intermediation facilities and commercial distribution channels; Intermediary facilities and financial distribution channels aim to expand the reach of financial

services to meet various community groups' needs.
4. Pillars of financial services in the government sector; Financial Services in the government sector aims to improve governance and transparency of public services in government funds' non-cash distribution.
5. The pillar of consumer protection Consumer; protection aims to provide security to the public in interacting with financial institutions, as well as having the principles of transparency, fair treatment, reliability, confidentiality, and security of consumer data/information, handling complaints, and settling consumer disputes simply, quickly, and affordable costs.
6. Active organization and implementation mechanism; The diversity of inclusive financial actors requires organizations and mechanisms to encourage the implementation of various activities and integration.

Effect of financial literacy on financial inclusion

Hutabarat (2018) shows that financial literacy has a positive and partially significant effect on financial inclusion. Financial literacy has three components, namely, financial knowledge, financial behavior, and financial attitudes. These three components have a positive influence on financial inclusion. This research shows that the higher the financial knowledge, the better the financial behavior and financial attitude of a person will increase the use, utilization, and understanding of financial products and services.

The available financial products and services can improve the community's economic welfare by managing and utilizing their finances. These results are consistent with Andrew & Linawati's (2014) study, which suggests that financial knowledge variables have a positive and significant influence on personal financial management dimensions. In this study, the results showed that the better the financial knowledge of a person, the better the personal financial management behavior in society.

Putri & Rahyuda (2017) explained that financial literacy has a significant positive effect on individual investment decisions' behavior. The higher the level of financial literacy, the better the behavior of individual investment decisions. Research by Tsalitsa & Rahmansyah (2016) found that the research results that the amount of financial literacy affects credit taking. Lusardi & Mitchell (2007) state that an adequate financial literacy level will encourage a person to make plans, including anticipating retirement planning with investments from a productive age. This result is supported by Atkinson & Messy (2012) that the way a person behaves in financial literacy has a significant impact on financial performance and the selection of personal financial services. It is, therefore, essential to analyze evidence of behavior in terms of financial literacy.

People who understand the time value of money, interest on loans, interest on deposits and compounds, the rate of return and investment risk, the definition of inflation, and diversification will be better able to appropriately use financial products and services. In addition to using it well, the public can also choose financial products and services that suit their needs and abilities. Communities that have done household financial budgeting, conduct personal financial supervision, have long-term targets, and are careful in making financial decisions have better financial inclusion rates.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Financial literacy consists of three components, namely, financial knowledge, financial behavior, and financial attitudes. The theory states that the level of financial inclusion will follow the level of financial literacy. This conclusion is not by reality in society, where financial literacy is still shallow compared to financial inclusion. It can be concluded, there are still many people who use financial products and services without having a good knowledge of the functions, how to choose the right according to needs, and do not know the risks of the products used.

Recommendations

Until now, the Financial Services Authority and Bank Indonesia have done much education about financial terms, the benefits of each financial product and service, and financial management for business actors in the tertiary sector, especially SME entrepreneurs. Based on the above study results, it is known that gender, age, education, and occupation have a real influence on financial inclusion. This recommendation means that in increasing financial inclusion, a strategy evaluation of the respondents' characteristics is needed.

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