



**PEER TO PEER LENDING AS ALTERNATIVE ONLINE
MICROFINANCE PLATFORM: THREAT AND CHALLENGE
TO ISLAMIC MICROFINANCE**

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Abstract

The rapid enhancement of information and communication technologies (ICT) goes hand-in-hand with the development of science. Likewise, innovation is created to provide benefits and convenience for human life. To address this issue, the present study sheds some light on public acceptance toward the use of an online financing application namely P2P Lending. Drawing on technology acceptance model (TAM) theory with structural equation modeling (SEM), the results depicted that all constructs consisting of PEoU, PU, Attitude, Behavior Intention to Use and Actual System Use have a significant effect (<0.05). The conclusion suggests that convenience will create a positive user experience (useful) so that it has an impact on the attitude of using the P2P lending platform. A continuous attitude will result in habits, which will eventually reach a high frequency of use (addiction) and create user satisfaction. At the level of user satisfaction, this means that acceptance from P2P Lending is welcomed and enthusiastic for millennials and therefore will potentially threaten traditional microfinance (disruptive) like BMT.

Keyword: P2P Lending, TAM, SEM, financing, disruptive

Abstrak

Kemajuan teknologi akan seiring sejalan sesuai dengan kemajuan ilmu pengetahuan. Inovasi diciptakan untuk memberikan manfaat positif dan kemudahan bagi kehidupan manusia. Penelitian ini bertujuan untuk melihat penerimaan masyarakat atas penggunaan aplikasi pembiayaan online bernama P2P Lending. Pendekatan dilakukan dengan menggunakan Teori *Technology Acceptance Model* dengan *Structural Equation Modelling* (SEM). Hasilnya menunjukkan bahwa seluruh

konstruk yang terdiri dari PEOU, PU, *Attitude, Behavior Intention to Use* dan *Actual System Use* berpengaruh signifikan ($\alpha < 0,05$). Kesimpulan diperoleh bahwa kemudahan akan menciptakan pengalaman penggunaan yang positif (bermanfaat), sehingga berdampak pada sikap dalam menggunakan platform P2P Lending. Sikap yang terus menerus dilakukan akan membentuk kebiasaan, yang pada akhirnya akan mencapai tingkat frekuensi penggunaan yang tinggi (adiksi) dan menciptakan kepuasan pengguna. Pada level kepuasan pengguna, artinya penerimaan dari P2P Lending disambut baik dan antusias bagi milenialis dan berpotensi mengancam pembiayaan mikro tradisional (disruptive) seperti BMT.

Kata Kunci: P2P Lending, TAM, SEM, financing, disruptive

INTRODUCTION

Technological progress will be in line with the development of science. Innovation was created to provide positive benefits and convenience for human life. Technology also raises a new revolutionary culture. Humans have now enjoyed the many benefits brought by technological innovations that have been created in the past decade. Especially in the current era of globalization, mastery of technology becomes a prestige and an indicator of a country's progress. The country is said to be advanced if it has a high level of mastery of technology.

Technological developments inevitably affect the development of the financial industry¹. In the financial industry, Financial Technology appears or is often referred to as FinTech. After being introduced since 2015 in Indonesia, FinTech has a positive trend in its development. The number of FinTech in Indonesia up to 2016 reached 142 companies with a transaction value in 2016 of Rp 199 trillion.

The 2016 Survey of the Indonesian Internet Service Providers Association (APJII) said the number of internet users in Indonesia was 132.7 million people or 51.8 percent of Indonesia's total population. A large number of mobile users can be used to reach the financial system through digital financial services. So that tens of millions of people, especially smartphone users who have internet access, who have not been touched by the financial system can be reached via mobile devices².

¹ Kiheung Nam, Zoonky Lee, and Bong Gyou Lee, 'How Internet Has Reshaped the User Experience of Banking Service?', *KSI Transactions on Internet and Information Systems*, 10.2 (2016), 684–702.

² Yoga Hastyadi Widiartanto, '2016, Pengguna Internet Di Indonesia Capai 132 Juta', *Kompas.Com*, 2016

The digital era makes it easy for customers to access financial services only through their hands. Customers can easily make transactions via cell phone using various methods ranging from SMS banking to internet banking. The presence of application services for each bank allows customers to access services freely, without having to come to the branch office.

The trend in the use of digital transactions also continues to increase, along with the increase in internet penetration. The Financial Services Authority said e-banking users jumped 270 percent, from 13.6 million customers in 2012 to 50.4 million customers in 2016. The frequency of e-banking usage transactions also rose 169 percent, from 150.8 million transactions in 2012 to 406, 6 million transactions in 2016³.

On the other hand, the rapid growth of FinTech start-up companies has encouraged traditional financial institutions to reevaluate their core business models and begin to utilize digital innovations. If not, the mushrooming of FinTech can pose a threat to banks and traditional financing companies.

The rapid growth can be seen from the value of investments invested from venture capital to the FinTech startup. No less than the US \$ 13.8 billion during 2015 or more than twice investment during 2014. Currently, there are 12 FinTech worth over the US \$ 1 billion or often called unicorn. In terms of distribution, of the 6500 FinTech startups in the world in 2015, 2500 were in Asia.

In the field of FinTech, China is at the forefront of the world's largest mobile payment company, Alipay. Alipay users can put their money in Yu'e Bao, the largest money market fund in the country. While the largest digital insurance service, Ping An collaborates with Alibaba and Tencent. In India, the PayTm payment system service is used by more than 122 million users.

One of the FinTech products that are popular today is Peer to Peer Lending (P2P Lending). P2P Lending is a technology platform, which finds borrowers who need business capital with lenders who expect competitive returns, by online communication and in the digital marketplace. P2P Lending has the distinct advantage of being able to perform interface functions through off-balance sheet funding. P2P Lending services are also more flexible and can allocate capital or funds to almost anyone, in any amount of value, effectively and transparently, and with low interest.

³ APJII, 'Buletin APJII', *APJII* (Jakarta, November 2016), pp. 1-7.

Furthermore, Reynold Wijaya as the Coordinator of the P2P Lending Task Force of the FinTech Indonesia Association in FinTech talk said that financial services such as P2P Lending are very relevant, which is still working hard to complete of homework. According to him, *first*, Indonesia still needs to improve the level of financial inclusion. The FinTech Indonesia Association reports that there are still 49 million SMEs that are not yet bankable in Indonesia, which are generally caused by business capital loans requiring collateral. P2P Lending can bridge creditworthy SME borrowers to be bankable by providing loans without collateral⁴.

Second, Indonesia must deal with the uneven availability of financing services. In Indonesia, 60% of financing services are still concentrated in Java. Technology-based P2P Lending is expected to reach almost anyone, anywhere, effectively and efficiently. *Third*, there is a gap in development funding of Rp 1,000 trillion every year. Currently, the existing financial institutions are only able to absorb the needs of around Rp 700 trillion from the total needs of Rp 1,700 trillion each year. P2P Lending offers low overhead, with innovative credit scoring and algorithms, to be able to fill the huge need for such financing. These potentials indicate that P2P Lending is actually the essence of financial inclusion, which is able to open a new segment of the economy, especially to the layers of Indonesian society that have not been reached by existing financial institutions⁵.

The rapid growth of P2P Lending indicates user satisfaction both on the lender and borrower side. This means that the presence of P2P Lending provides practical benefits for service users. Davis suggests that satisfaction will impact on user intentions. Based on this understanding, the theory of TAM (Technology Acceptance Model) is an ideal approach for mapping relationships to P2P Lending products⁶.

TAM is one of several theories relating to the use of information technology systems. TAM is considered to have a strong influence and is generally used to provide an explanation for the acceptance of the use of information technology systems. TAM was first introduced and developed by Davis based on previous theoretical modeling namely TRA (Theory of Reasoned Action). The

⁴ Reynold Wijaya, "P2P Lending" Sebagai Wujud Baru Inklusi Keuangan, *Kompas.Com*, 2016.

⁵ Muhammad Afidi Nizar, "Teknologi Keuangan (Fintech) : Konsep Dan Implementasinya Di Indonesia," *Warta Fiskal* 5, Desember (2017): 5-13.

⁶ Qingxiong Ma and Liping Liu, 'The Technology Acceptance Model', *Advanced Topics in End User Computing, Volume 4*, January (2011): 59-72.

most significant advantage of TAM is that TAM is a parsimony model, which is a simple model but has good validity. TAM has also been tested with a lot of research, the results of which state that the acceptance model with the TAM approach is a good model, especially when compared with the TRA and TPB (Theory of Planned Behavior) model. The TAM model uses the construct of Perceived Ease of Use (PEoU), Perceived Usefulness (PU), Attitude Toward Using, Behavior Intention to Use and Actual System Use⁷.

Based on the disclosure, this research concerns to further examine whether P2P Lending has an impact on the creation of Behavior and Actual System Use in creating new cultures in the era of digital loans. Is P2P Lending able to be an alternative to small financing, even damaging traditional microfinance because it has the potential to have a disruptive effect?

METHODOLOGY

Structural Equation Modeling (SEM) is a statistical technique used to construct and test statistical models that are usually in the form of causal models. SEM is actually a hybrid technique that includes confirmatory aspects of factor analysis, path analysis, and regression which can be considered as special cases in SEM.

Slightly different from previous definitions, structural equation modeling (SEM) develops and has a function similar to multiple regression, however SEM seems to be a stronger analysis technique because it considers interaction modeling, nonlinearity, correlated independent variables (correlated independents), measurement errors, correlated error terms, several latent independent variables where each is measured using many indicators, and one or two latent dependent variables which are also measured by each several indicators. Thus, according to this definition, SEM can be used as a more powerful alternative than using multiple regression, path analysis, factor analysis, time series analysis, and covariance analysis.

Structural Equation Modeling (SEM) is a very common statistical modeling technique, which is widely used in behavioral science. This can be seen as a combination of factor analysis and regression or path analysis. Interest in SEM is often in theoretical construction, which is represented by latent factors. The relationship between theoretical constructs is represented by regression or path coefficient between factors. Structural equation models imply structures for

⁷ Fred Davis, "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology" 13, no. 3 (1989): 319–340.

covariance between observed variables, which provide modeling of alternative name covariance structures. However, the model can be expanded to include the means of observed variables or factors in the model, which makes modeling the name covariance structure less accurate. Many researchers will only consider these models as “Lisrel-models”, which are also less accurate.

SEM can tell what the model is adequate or not. The parameters are estimated and compared with the sample covariance matrix. The goodness of fit statistics can be calculated which will tell whether the model is appropriate or needs further revision. SEM can also be used to compare several theories that are determined a priori. SEM can tell the amount of variance in the dependent variable (DV) - both manifest and latent DV - calculated by infusion. It can also tell the length of each variable measured. And, as mentioned earlier, SEM allows for checking mediation and moderation, which can include indirect effects. SEM can also tell about group differences. Can enter separate structural equation models for different groups and compare the results. In addition, it can include random effects and remain in the model and thus include hierarchical modeling techniques in the analysis

Structural model testing in PLS was carried out with the help of software Smarts veer 3 for windows. Steps to be taken in Partial Least Square (PLS), which include: 1. Designing a Structural Model (inner model); 2. Designing a measurement model (outer model); 3. Model evaluation (estimated path coefficient, loading, and weight, the goodness of fit); and 4. Hypothesis Testing.

1. Structural Model (Inner Model)

SEM using PLS only allows the relationship model between recursive variables (unidirectional) only. This is the same as the path analysis model, not the same as covariant based SEM that allows also the occurrence of non-recursive (reciprocal) relationships. In the structural model, which is also called the inner model, all latent variables are connected to one another based on the theory of substance. Latent variables are divided into two, namely exogenous and endogenous. Exogenous latent variables are cause or variable variables without being preceded by other variables with arrows leading to other variables (endogenous latent variables). This study uses a modified approach to Technology Acceptance Model (TAM) initiated by Davis. Each variable is measured using question items with 5 Likert scale levels.

2. Measurement Model (Outer Model)

Outer models are often also called outer relations or measurement models that define how each indicator block is related to its latent variables. The measurement model (outer model) is used to assess the validity and reliability of the model. Validity test is conducted to determine the ability of the research instrument to measure what should be measured. While reliability tests are used to measure the consistency of measuring instruments in measuring a concept or can also be used to measure the consistency of respondents in answering statement items in a questionnaire or research instrument.

3. Structural Evaluation Model (Inner Model)

The structural model (inner model) is a structural model to predict the causality relationship between latent variables. Through the bootstrapping process, statistical t-test parameters are obtained to predict the existence of a causality relationship. The structural model (inner model) is evaluated by looking at the percentage of variance explained by the R-square value for the dependent variable using the Stone-Geisser Q-square test or Goodness of Fit (GOF)⁸.

4. Hypothesis Testing

According to Hartono in Jogiyanto explains that a measure of the significance of the support of hypotheses can be used to compare the values of t-table and t-statistic⁹. If the t-statistic is higher than the t-table value, it means that the hypothesis is supported or accepted. In this study for a 95 percent confidence level (alpha 95 percent) the t-table value for the one-tailed hypothesis is more than 1.68023. The PLS (Partial Least Square) analysis used in this study was carried out using the SmartPLS version 3 program that was run with computer media.

RESULT AND DISCUSSION

1. Disruptive Innovation

Disruptive innovation comes from the word disruptive which means destructive and innovation which means new ways or new alternatives. In terms of terminology, the meaning is innovation that helps create new markets, disrupts or destroys existing markets and ultimately replaces these earlier technologies.

⁸ Dirk Kreis, Temme Henning, and Lutz Hildebrandt, *PLS Path Modeling: A Software Review* (Berlin, 2006): 1-18.

⁹ Jogiyanto, *Sistem Informasi Keperilakuan* (Yogyakarta: Andi, 2008).

Disruptive innovation develops a product or service in an unexpected manner in the market, generally by creating different types of consumers on new markets and lowering prices on the old market.

The definition of market competition in the past economic sciences often makes prices the main parameters in looking at the factors that influence competition itself¹⁰. But it is often forgotten that in modern market competition, technology has a huge influence. Especially for companies that are already established and feel they are leading the industry, often the egos and self-confidence that are too large turn a blind eye to innovations made by competitors or newcomers. The technology that emerged afterward was slowly acceptable to consumers and replaced the technology provided by the established company. However, this is the basis of how innovation that replaces and is easier is called disruptive innovation.

It is very difficult to determine when actually this disruptive innovation first appeared in the world. However, the term disruptive innovation was popularized by Clayton M. Christensen in 1997. Annoying innovations were first popularized with disruptive technological terms. Christensen introduces disruptive innovations as a form of disruption by newcomers. The newcomers competed with established incumbent companies¹¹.

In market competition theory, known as Structure, Conduct and Performance (SCP). The arrival of new competitors carrying intrusive technology will certainly change SCP on a large scale. The market structure will change little by little. A shift will occur towards a service industry that offers convenience and cheap. Furthermore, Conduct that is influenced by consumers begins to shift according to the ability of consumers to access technology. Finally, the performance carried out will definitely adjust how the market forms a balance point. Disruptive technology which later becomes a disruptive innovation arises not because it is not intentional. Annoying innovation arises in response to the use of the latest technology for business. In other words, market developments will force SCP in the industry to change to meet consumer needs in accordance with the current of modernization.

The cornerstone of the theory which is quite strong when discussing renewal or innovation is the theory of Joseph Alois Schumpeter. Schumpeter

¹⁰ Yuli Wahyuningtyas, Inge Graef, and Peggy Valcke, "How Google and Others Upset Competition Analysis: Disruptive Innovation and European Competition Law," 2014, 1–19.

¹¹ Lawson Ashburner and others, *Digital Disruption: What Do Governments Need to Do?*, ed. by Peter Harris (Canberra: Productivity Commission Research Paper, 2016): 1-24.

believes that an important factor in economic development is renewal carried out by entrepreneurs¹². The renewal referred to by Schumpeter is a new step from business actors. Such renewal in other contexts can be interpreted as innovation. Innovation according to Schumpeter is that the renewal must be useful for many people. Furthermore, the process is part of the production process that is made efficiently and effectively. The innovation process comes from the creativity of entrepreneurs.

As explained earlier, it is very difficult to determine when the first disruptive innovation appeared in the world. Did it first appear when a steam engine was discovered by James Watt in 1769? It is possible that the innovation of the steam engine which is the core of the industrial revolution is included in the category of disruptive innovation. Steam engines replace many conventional machines in various fields. With a steam engine Richard Trevithick (1804) was able to perfect the train locomotive. With the perfect locomotive, it will certainly interfere with the old technology, the horse carriage. If it is interpreted according to existing criteria, of course, steam engines are included in disruptive innovations.

It should be understood that Christensen's popularization of disruptive innovations began in 1997, so some things need to be understood. First, there is no need to debate when the first disruptive innovation emerged in the world because the term disruptive innovation (which was previously disruptive technology) was only introduced by Christensen in 1997. Various innovations that could be said to be disruptive innovations were limited in scope after the term was introduced. Second, innovation can be said to be a disruptive innovation if the innovation brings new technology that is cheaper and easier than existing technology. Efficiency offered because of low prices ultimately disrupts old technology that is expensive and inefficient. Third, disruptive innovation occurs in the same industry. If the innovation has done does not make the old industry players disturbed, or on the other hand, indirectly disturb other industries, then the innovation cannot be said to be a disruptive innovation.

Disruptive innovations occur in various parts of the world. In Europe, for example, the biggest case has ever happened, for example, Nokia. Mobile phones which in the heyday were dubbed as a million mobile phones, in the end, had to recognize Android-powered cellphones and iOs as a disruptive innovation. At first, Nokia was still full of confidence with the Symbian system. The company

¹² Sadono Sukirno, *Ekonomi Pembangunan: Proses, Masalah Dan Dasar Kebijaksanaan* (Medan: Borta Gorat, 1976).

feels that the market that is owned is highly dependent on Symbian. Even when Apple released an iPhone in 2007, Nokia still felt unrivaled and continued its Symbian as a mainstay. While its new competitor, Android, continues to solidify its position in the market. Nokia's Symbian market share began to decline when Apple began introducing the iPhone 3G in 2008. The end of Symbian began to be seen when Android was introduced by Google through HTC devices. Starting in 2010, Nokia's Symbian market share continued to decline even leaving only 13.9% in 2013.

Other case studies conducted by the Australian government, for example, also indicate disturbing innovations. The study by the Australian Government: Productivity Commission in 2016 showed that there were disruptive innovations in the manufacturing, transportation and e-commerce sectors. Amazon is the largest online retailer and virtual market in Australia. Its existence replaces the conventional market and will definitely become an incumbent in a short time¹³. Robotics and online data systems have replaced manual data input in manufacturing industries in Australia. New technology has replaced the role of humans in the manufacturing industry. Human labor is required to improve their abilities and skills to operate robots and other sophisticated systems. In the transportation industry, public and private transportation technology automatically begins to replace manually controlled transportation. The company providing manual transportation services began to be displaced by automatic transportation service providers.

2. Financial Technology (Fintech)

In some recent literature, various definitions or meanings have been found relating to FinTech. In general and in a fairly broad sense, FinTech refers to the term in the use of technology to provide financial solutions¹⁴. Therefore specifically, FinTech is defined as a digital technology application platform for matters relating to financial intermediation¹⁵.

In another sense, FinTech is also defined as an industry in which there are companies that use technology, so that the financial system and financial service delivery are more efficient. FinTech can also be interpreted as technological

¹³ Commission, *Digital Disruption: What Do Governments Need to Do? Productivity Commission Research Paper* (Canberra: Commission Research Paper, 2016): 1-251.

¹⁴ Douglas Arner, Janos Barberis, and Ross Buckley, "The Evolution Of Fintech: A New Post-Crisis Paradigm?", *University of New South Wales Law Research Series*, 047 (2015), 1-44.

¹⁵ Meyer Aaron, Francisco Rivadeneyra, and Samantha Sohal, "Fintech: Is This Time Different? A Framework for Assessing Risks and Opportunities for Central Banks," *Bank of Canada Staff Discussion Paper* 10 (2017): 1-32.

innovation in financial services that is able to produce business models, applications, processes or products with material effects related to the provision of financial services.

FinTech is not a new item. Indeed, the evolution of FinTech which is stretching lately, actually originated from credit card innovation (credit card) in the 1960s, the debit card and the terminal that provided cash, such as automatic teller machines (ATM) in the 1970s¹⁶. After that, developments continued with the advent of the advent of telephone banking in the 1980s and various financial products following the deregulation of the capital market and bonds during the 1990s.

The development continues with the presence of internet banking, which then encourages branchless banking and banking activities that can be carried out remotely (long distance banking service). With these various dynamics and changes, customers no longer need to meet face to face in a conventional manner with the bank. Then the present era, mobile technology emerges, which is much easier in financial transactions. Changes that have occurred have triggered the emergence of direct financing and intermediation, which is predicted to replace indirect financing and replace expensive and inefficient financial intermediation.

The occurrence of global financial evolution in financial technology innovation also participated in influencing FinTech's development in Indonesia. According to the CCAF publication report (Cambridge Center for Alternative Finance) in The 2nd Asia Pacific Region Alternative Finance Industry Report - Cultivating Growth, written by Garvey note that during 2016, in Indonesia there are at least 9 (nine) types of alternative financing models that are online¹⁷.

Based on this explanation, FinTech is simply a financial industry that uses computing information technology that is centered on gadgets. FinTech is a financial innovation that transforms conventional systems into the digital finance era. FinTech is developing very fast because humans are currently in a transition to cultural change, from the manual era to the automatic era. This digital era allows humans to make transactions only with internet-connected smartphones. The online transaction system is preferred to manual systems because it makes it easier for users to access and conduct financial product

¹⁶ Arner, Barberis, and Buckley, "The Evolution Of Fintech: A New Post-Crisis Paradigm?" P...?

¹⁷ Kieran Garvey and others, *Cultivating Growth: The 2nd Asia Pacific Region Alternative Finance Industry Report*, (2017): 1-103.

transactions. This development is marked by the number of startups that provide financial services that are packaged using technology. Alt & Puschmann states that FinTech refers to new solutions that show the development of application innovations, processes, products, or business models in the incremental financial services industry¹⁸.

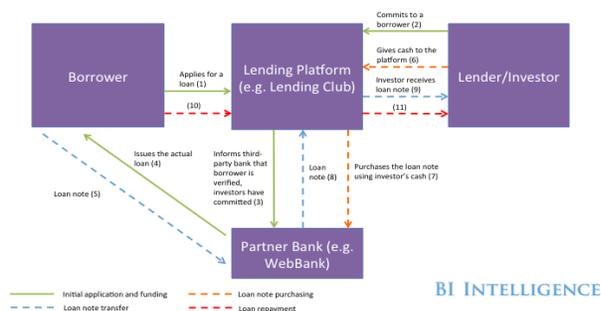
3. Peer To Peer Lending (P2P Lending)

Peer to Peer Lending (P2P Lending) is a financial service system that brings together lenders (investors) with loan recipients (borrowers) in order to enter into a loan and loan agreement, through an electronic digital system using an internet connection. Loan Recipients (borrowers) are people and/or legal entities that have debts due to information technology-based money lending service agreements. Lenders (Investors) are people, legal entities, and/or business entities that have receivables because of information technology-based money lending service agreements. Regulations regarding P2P Lending are regulated in the OJK Regulation (POJK).

P2P Lending was born as a disruptive innovation model dealing directly with established systems namely banking and microfinance. P2P Lending provides an alternative credit/financing as well as investment for the public. P2P Lending provides innovation in the form of planting technology as the main tool for creating a financial environment. Conventional systems will be eroded if they do not change because the current under the globalization of technology has the effect of converting conventional culture into digital culture.

Chart 1: The Concept of Peer to Peer Lending

How Peer-To-Peer Lending Works*



*This is a simplified graphic showing how a loan is processed through a peer-to-peer marketplace – revenue sources such as fees are not included

¹⁸ Rainer Alt and Thomas Puschmann, ‘The Rise of Customer-Oriented Banking – Electronic Markets Are Paving the Way’, December, (2012); 1-24.

Based on the scheme above, in the mechanism/procedure for submitting P2P Lending transactions, the borrower (borrower) needs to upload all required documents, which are related to information related to the borrower (borrower). Documents that must be uploaded include financial statements in a certain period of time, self-identity, and reasons for borrowing money. The borrower's borrowing status may be rejected or accepted, based on an automatic mechanism through robotic lending and manual feasibility. If it is rejected, the borrower can correct everything that causes the rejection. If accepted, the loan interest rate will be determined and the borrower's submission will then be uploaded to the marketplace. The marketplace is a means by which lenders can see all available loan applications.

Then from the investor (lender) side, will be given the right of access to be able to browse the data related to loan applications available, including information on loan applications such as the borrower's financial history, loan objectives, borrower's income, and so on. This is so that the investor (lender) is able to provide an analysis of the feasibility of the estimated investment to be made. If the investor (lender) meets the appropriate loan proposal and agrees to invest some funds, then direct investment occurs when the investor (lender) makes a deposit according to investment objectives investor (lender). The funds invested will return to the investor (lender) every month in the form of installments whose value is the principal debt and accompanied by interest agreed upon previously.

4. Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) has been developed by Davis¹⁹. TAM is one of the most popular research models for predicting the use and acceptance of information systems and technology by individuals. TAM has been extensively studied and verified by various studies that examine individual technology acceptance behavior in a variety of different information systems.

In the TAM model, there are two factors, namely utility (Perceived Usefulness/ PU) and perceptions of ease of use (Perceived Ease of Use/ PEOU) that are relevant to the behavior of using technology, which at that time when the computer was booming. Davis (1989) defines usability (Perceived Usefulness/ PU) is something that is felt as subjective prospective users that using a special application system will improve job performance or life. Perceived Ease of Use

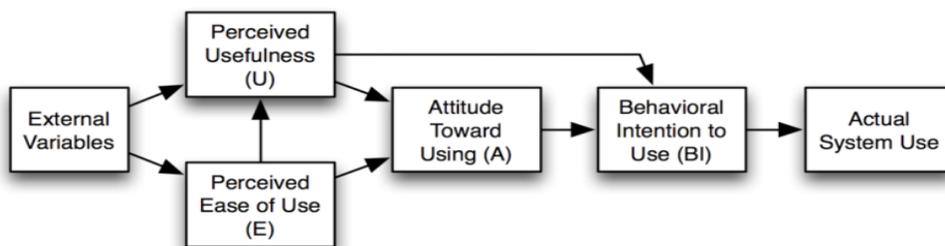
¹⁹ Davis, "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology."

(PEoU) can be defined as the rate at which prospective users expect ease of use of a special application system.

According to the TAM Model, Perceived Ease of Use (PEoU) and Perceived Usefulness (PU) are the most important determinants of Actual System Use (Actual). Both of these factors are influenced by external variables. The main external factors that are usually manifested are social factors, cultural factors, and political factors. Social factors include language, skills, and conditions of facilitation. Political factors are mainly the impact of the use of technology in politics and the political crisis. The Attitude that is used is related to the evaluation of users about desires (Intention) using certain information system applications. Behavioral intention is a measure of the possibility of someone using the application.²⁰

The first TAM was developed by Davis based on the TRA (Theory of Reasoned Action) model. The TAM model based on the above explanation has 5 main constructs, namely: Perceived Usefulness (PU), Perceived Ease of Use (PEoU), Attitude Toward Using Technology (Attitude), Behavioral Intention to Use (Behavior), and Actual System Use (Actual). The concept illustrations are presented as follows:

Chart 2: The Concept of TAM



The first construct is Perceived Usefulness, hereinafter referred to as PU. PU is

Defined as the extent to which a person believes that using a technology will improve his work performance. Previous research shows that PU is the most significant and important construct that influences Attitudes and Behaviors²¹. There are 6 indicators for measuring utility constructs, namely work more quickly (work quickly), improving performance (job performance), increasing productivity, increasing work effectiveness (effectiveness), facilitating work (makes the job easier) and usefull.

²⁰ *Ibid.* 319-340.

²¹ Jogiyanto, *Sistem Informasi Keperilakuan*.76.

The second construct is the Perceived Ease of Use, hereinafter referred to as PEOU. PEOU is defined as the degree to which people believe that using a technology will be free of effort. This construct influences the constructs of PU, Attitudes, Behavior and Actual System Use of Technology. But the most significant is the effect on PU constructs, while for other constructs the effect is not significant²². There are 6 indicators to measure the construct of PEOU, namely the ease of the system to learn (easy of learn), the ease of the system to be controlled (controllable), interaction with a clear and understandable system, flexibility of interaction (flexibility), easy to be skilled easy to become skillful and easy to use.²³

The third construct is Attitude Toward Using Technology, hereinafter referred to as Attitude. Attitudes can be defined as positive or negative feelings from someone if they have to do the behavior²⁴ In the TAM model, Attitudes influence Behavior and are influenced by PEOU and PU. Jogiyanto also states that in studies that have already been carried out, some show that Attitudes have a positive influence on Behavior, but others also show that Attitudes do not have a significant influence on intention²⁵. Therefore, there is a TAM study that does not include attitude constructs in the model. There are 4 indicators, namely comfort (comfortable), pleasure (joyful), enjoyable and not boring (interesting).

The fourth construct is Behavioral Intention to Use, hereinafter referred to as Behavior. The Behavior has an influence on the Actual System Use of Technology and is influenced by Attitudes and PU. There are 2 indicators to measure Behavior constructs, namely the use of the system to carry out work (carrying out the task), always trying to use and planned utilization in the future.²⁶

The fifth construct is the Actual Technology Use, hereinafter referred to as Actual or usage. In TAM, the use of technology is actually equivalent to the term behavior on TRA but to be used in the context of technology. This construct is directly influenced by Behavior and PU. There are 2 indicators for measuring the construct of using technology, namely the actual frequency and user satisfaction.

²² Ibid. 76

²³ Fred Davis, "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology" 13, no. 3 (1989): 319–340.

²⁴ Ibid. 319-340.

²⁵ Jogiyanto, *Sistem Informasi Keperilakuan*. 76.

²⁶ Christina Gardner and Donald L Amoroso, "Development of an Instrument to Measure the Acceptance of Internet Technology by Consumers" (2004): 1–10.

Table1: Variable Indicators

Variables		Indicators
Perceived Ease of Use	PEoU	easy of learn controllable clear and understandable flexibility easy to become skillful easy to use
Perceived Usefulness	PU	work more quickly job performance increase productivity effectiveness makes job easier useful
Attitude Toward Using	Attitude	Comfortable joyful enjoyable interesting/ boredless
Behavior Intention to Use	Behavior	carrying out the task trying to use
Actual System Use	Actual	Actual Frequencies Customer Satisfaction

5. Data Analysis

a. Structural Model (Inner Model)

Based on the TAM construct, the purpose of this study is to measure the independent variable, namely the Perceived Ease of Use denoted by PEoU, Perceived Usefulness denoted by PU, Attitude toward Using Technology denoted by Attitude, Behavior Intention variable to Use denoted by Behavior and Actual System Use with Actual notation. Based on data processing that has been done, the factor loading is informed as follows:

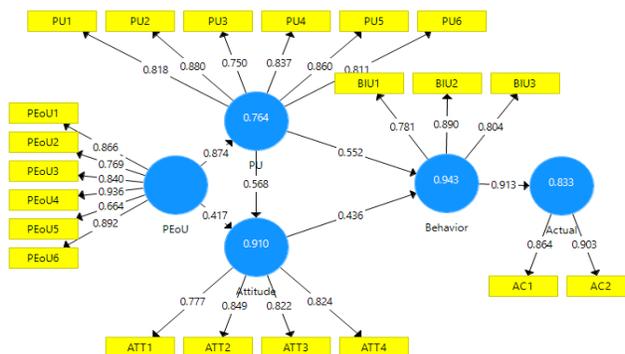


Chart 3: The Research Construct

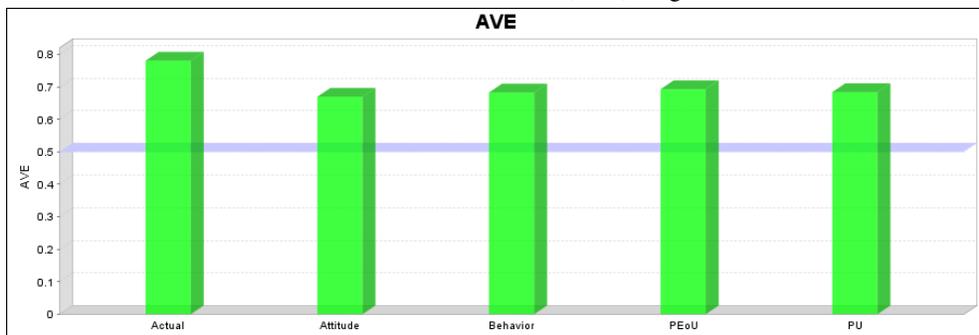
By definition, the loading factor is a large correlation between the indicator and the latent construct. In many social studies, the measurement of a construct is very often done indirectly through its indicators. Indicators with high loading factors have a higher contribution to explain the latent construct. Conversely, on indicators with low loading factors have a weak contribution to explain the latent construct. In most references, a factor weight of 0.50 or more is considered to have validation that is strong enough to explain latent constructs²⁷. Although in some other references it is explained that loading the weakest factor that is acceptable is 0.4.

Based on the results of the tests above, information was obtained that almost all of them had loading factors above 0.4. This means that all indicators have a contribution in explaining the latent construct. Evaluations related to loading factors will be explained in the convergent validity testing section.

b. Model Measurements (Outer Model)

External model measurements can be done by testing Convergent Validity, Discriminant Validity and Unidimensionality. Based on the results of the structural calculations above, to determine the Convergence Validity by looking at the value of loading factors. The result found that all loading factors were more than 0.4, so the external test model was valid. In addition to the value of the loading factor, Convergent Validity can also be seen from Average Variance Extracted (AVE). The following is presented AVE output:

Chart 4: Variance Extracted (AVE) diagram

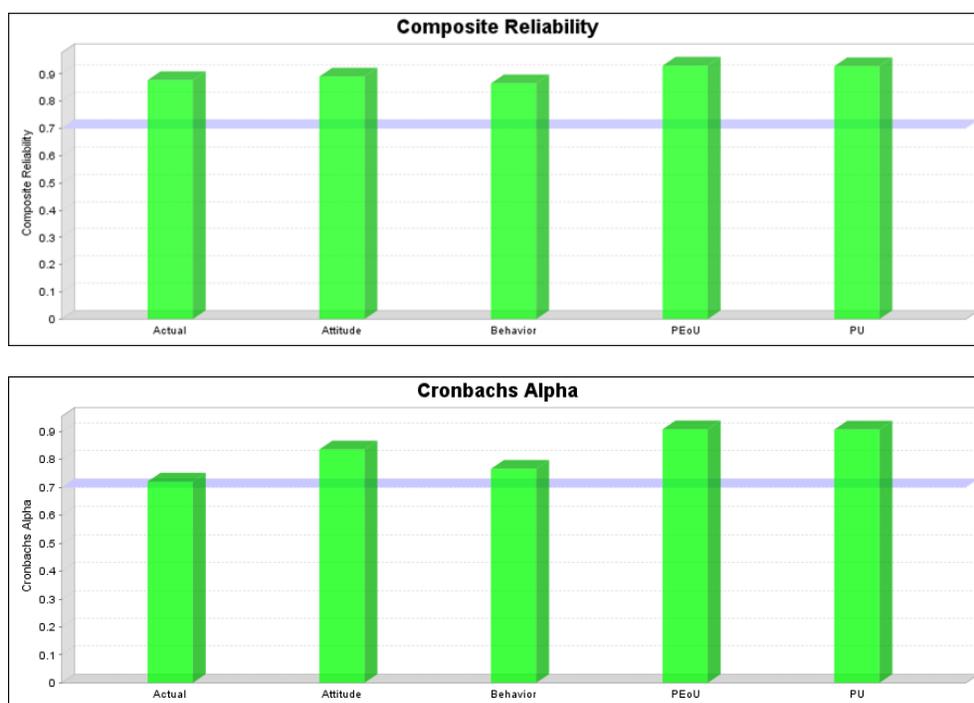


²⁷ Joe F Hair, Marko Sarstedt, and Christian M Ringle, "An Assessment of the Use of Partial Least Squares Structural Equation An Assessment of the Use of Partial Least Squares Structural Equation Modeling in Marketing Research" (2011): 1–24.

Table 2: Average Variance Extracted (AVE)

	AVE
Actual	0,782
Attitude	0,670
Behavior	0,683
PEoU	0,693
PU	0,684

In this study the AVE value of each construct is above 0.5. Therefore there is no problem of convergence validity in the model being tested. To ensure that there are no problems related to measurement, the final step in evaluating the external model is to test the Unidimensionality model. Unidimensionality tests are carried out using Composite Reliability and Cronbach Alpha indicators. For both of these indicators the cut-off point is 0.7.

Chart 5: Composite Reliable Result

The table above shows that all constructs have composite reliability values above 0.7. Therefore, there is no problem of reliability/ Unidimensionality in the specified model.

c. Evaluation of Structural Models (Inner Model)

Evaluation of structural models can be done in three ways. These three ways can be seen through R2, Q2 and Goodness of Fit (GoF). The rule of the thumb of this test is when the values of R2 and Q2 are above 0.6. Based on the results of data processing output, R2 values are presented as follows:

R Square and Adjusted R Square		
	R ²	Adj R ²
Actual	0,833	0,828
Attitude	0,910	0,904
Behavior	0,943	0,939
PU	0,764	0,756

Based on the data above, the result is that the value of R² is above 0.6, so it does not have problems with reliability. The next test is the inner model which is done by looking at the value of Q² (predictive relevance). To calculate Q² the formula can be used:

$$Q^2 = 1 - (1-R1^2) (1-R2^2) (1-R3^2)(1-R3^2)$$

$$Q^2 = 1 - (1-0,828^2) (1-0,904^2) (1-0,939^2)(1-0,756^2)$$

$$Q^2 = 1 - 0,0029$$

$$Q^2 = 0,9971$$

Based on the data above, the results show that the value of Q² is above 0.6, so it does not have problems with the inner model. The final test is to find the value of Goodness of Fit (GoF). GOF values on PLS-SEM must be searched manually by the formula:

$$GoF = \sqrt{\text{average (AVE)} \times \text{average (R}^2\text{)}}$$

$$GoF = \sqrt{0,702 \times 0,856}$$

$$GoF = 0,774$$

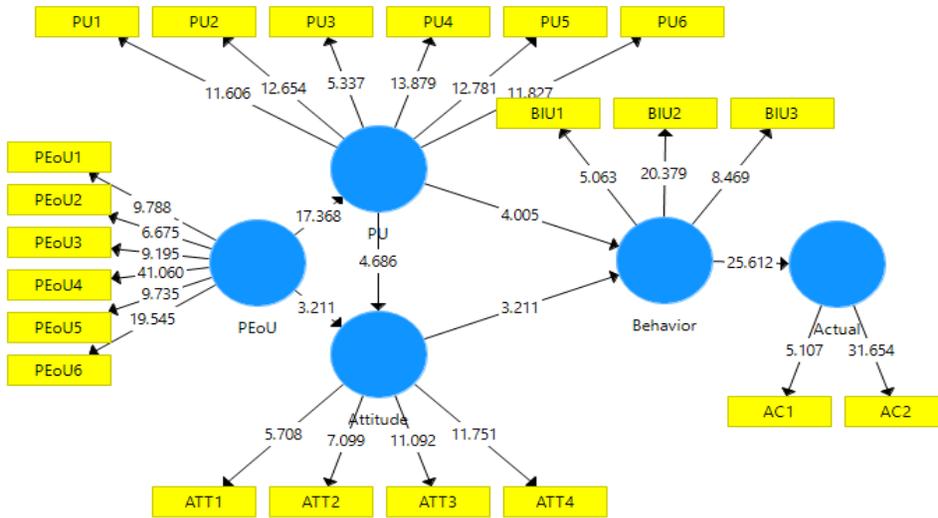
According to Tenenhaus (2015), small values of GOF = 0.1, medium GoF = 0.25 and large GoF = 0.38. From testing R2, Q2, and GoF it can be seen that the model formed is strong because it is worth more than 0.38. So that hypothesis testing can be done.

d. Hypothesis Testing

Partial testing or also called t-test in multiple linear regression analysis aims to determine whether the independent variables partially (individual/ each variable) have a significant influence on the dependent

variable. In this study there were 5 variables, where PEO and PU acted as predictors, Attitude and Behavior as Mediators and Actual System Use (Actual) acted as criteria. The summary of the SEM-PLS regression results is as follows:

Chart 6: Cross Loading Factor



Path Coefficient

	t Stat	P Values
Attitude -> Behavior	3,211	0,001
Behavior -> Actual	25,612	0,000
PEoU -> Attitude	3,211	0,001
PEoU -> PU	17,368	0,000
PU -> Attitude	4,686	0,000
PU -> Behavior	4,005	0,000

Total Effects

	T Stat	P Values
Attitude -> Actual	3,291	0,001
Attitude -> Behavior	3,211	0,001
Behavior -> Actual	25,612	0,000
PEoU -> Actual	11,215	0,000
PEoU -> Attitude	21,594	0,000
PEoU -> Behavior	16,316	0,000
PEoU -> PU	17,368	0,000
PEoU -> PU	11,222	0,000
PU -> Attitude	4,686	0,000
PU -> Behavior	12,515	0,000

Based on the table of calculation results above, it is known that the value of the t-test on each variable has a significant value (P Values < α : 0.05). So it can be concluded that the entire independent variable has an effect on the dependent variable.

Then to test the indirect effect is done by using a theory formulated by Kenny and Baron. According to Kenny and Baron in examining indirect effects three types of variables must be known. These three variables are predictors, criteria and mediators.²⁸

To test the indirect effects can be done through the predictor influence stage to the mediator and mediator to the criteria. The first step is to see whether the predictor has an influence on the mediator. At the stage of the predictor effect on the mediator, it can be seen that PEOU has an effect on PU (P Value < α : 0.05) and Behavior (P Value < α : 0.05).

The next stage tests the direct effect of mediator 1 (PU and Attitude) on mediator 2 (Behavior). The result is that PU has an effect on behavior (P Value < α : 0.05) and attitude has an effect on behavior (P Value < α : 0.05). Finally see the influence of mediator 2 to the criteria, namely behavior to actual system use. It is known that there is a significant effect of behavior on the actual system use (P Value < α : 0.05).

Based on the results of the tabulation of significance using the analysis tool as shown above, it was found that the predictor effect on the mediator was significant, the influence of mediator 1 to mediator 2 was significant and the influence of mediator 2 on the criteria was also significant, the conclusion of the collaboration was quasy mediating. Full mediation (full mediating occurs if there is no significant relationship from the predictor to the mediator and mediator against the criteria).

e. Finding

This study uses the Technology Acceptance Model (TAM) approach which was used in previous studies such as Davis,²⁹ Yousafzai,³⁰

²⁸ Reuben M Baron and David A Kenny, "The Moderator-Mediator Variable Distinction in Social Psychological Research : Conceptual, Strategic , and Statistical Considerations" 51, no. 6 (1986): 1173–1182.

²⁹ Fred Davis, "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology" 13, no. 3 (1989): 319–340.

³⁰ Shumaila Y. Yousafzai, Gordon R. Foxall, and John G. Pallister, *Technology Acceptance: A Meta-Analysis of the TAM: Part 1, Journal of Modelling in Management*, vol. 2, (2007): 251-280.

Kung-Teck,³¹ and Lai.³² TAM provides an explanation that one's intention to use information technology is determined by perceptions of use (Perceived Usefulness/ PU) and perceptions of use (Perceived Ease of Use/ PEOU) that are integrated with an Attitude which then shapes Behavior. TAM is often used and applied to understand a person's attitude toward the use of technology or is used to predict the adoption of the use of information technology, in this case, P2P Lending. The results of the discussion are as follows:

1) Effect of Perceived Ease of Use on Perceived Usefulness and Attitude

Based on the test results it was found that the Perceived Ease of Use had a significant effect on Perceived Usefulness and Attitude. This indicates that the ease of operation of the P2P Lending application affects the usability and attitudes of individuals. According to Davis, the variable Perceived Ease of Use has dimensions that are easy to learn, easy to control, easy to understand, flexible, easy to be expert and easy to use. This means that the P2P Lending platform has all the conveniences for individual use³³.

Then the Perceived Ease of Use will affect the utility variable. This means that all the facilities offered will make the P2P Lending platform useful. The use according to Davis includes work that is easily resolved quickly, improves performance, increases productivity, is effective, makes work easy and very useful.³⁴ In addition, the Perceived Ease of Use also affects one's attitude. This means that the ease of use makes users comfortable in using, being happy in using, enjoying the use and feeling not boring. This study is consistent with the findings made by Yousafzai³⁵ and Kung-Teck.³⁶

³¹ Kung Teck Wong et al., "Understanding Student Teachers' Behavioural Intention to Use Technology: Technology Acceptance Model (TAM) Validation and Testing," *International Journal of Instruction* 6, no. 1 (2013): 89–104.

³² P C Lai, "The Literature Review of Technology Adoption Models and Theories For The Novelty Technology" 14, no. 1 (2017): 21–38.

³³ Fred Davis, "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology" 13, no. 3 (1989): 319–340.

³⁴ Ibid.

³⁵ Yousafzai, Foxall, and Pallister, *Technology Acceptance: A Meta-Analysis of the TAM: Part 1*, vol. 2 (2017): 251-280.

³⁶ Wong et al., "Understanding Student Teachers' Behavioural Intention to Use Technology: Technology Acceptance Model (TAM) Validation and Testing" 6, no. 1 (2013): 89-104.

2) Effect of Perceived Usefulness on Attitude and Behavior

Based on the SEM model, it was found that Perceived Usefulness had an effect on Attitude and Behavior. This indicates that utility variables influence attitudes and habits. The P2P Lending platform according to users greatly helps their financial activities, so most think that the P2P Lending Platform is very useful in managing the business. Therefore, this variable directly will also affect one's attitude. In the previous discussion, it was known that usability will have an impact on comfort, pleasure, enjoyment and eliminate boredom when getting the usefulness of the P2P Lending platform used. In addition, the utility variable also affects behavior by creating habits. This habit can be seen from the easy indicators to solve work problems and always try to use them on every occasion. This is similar to the findings of Yousafzai,³⁷ and Kung-Teck,³⁸ using the TAM Davis model.

3) Effect of Attitude on Behavior

The attitude in this construct also has an influence on Behavior. This means that the positive attitude generated by users of the P2P Lending Platform will also directly form habits. Individuals who have satisfying experiences related to the use of P2P Lending will form a new habit. This is the same when Indonesians would prefer to choose the Honda brand in buying a motorbike, Aqua in buying mineral water and saying Pepsodent for all toothpaste. In the marketing mix, this attitude will be important in promoting brands, in this case, the P2P Lending platform. This is in accordance with the findings of Kung-Teck³⁹.

4) Effect of Behavior on Actual System Use

The next finding is that the behavior variable influences the Actual System Use variable. This provides information that usage habits will have a broad influence on usage. The Actual System Use indicator is the frequency of use and satisfaction. The explanation is, if individuals feel satisfied with P2P Lending products, they will most likely use it for the long-term (increasing frequency). Even at certain points, indirectly mouth-to-mouth promotion will be carried out automatically because

³⁷ Yousafzai, Foxall, and Pallister, *Technology Acceptance: A Meta-Analysis of the TAM: Part I*, vol. 2 (2007): 251-280.

³⁸ Wong et al., "Understanding Student Teachers' Behavioural Intention to Use Technology: Technology Acceptance Model (TAM) Validation and Testing" 6, no. 1 (2013): 89-104.

³⁹ Ibid. 89-104.

of experience of satisfaction with the products used. It's just that P2P Lending is still a new product in Indonesia so that ideally, this product has the potential to disrupt the conventional microfinance market because it has a disruptive effect. This is consistent with the findings of Davis⁴⁰, Yousafzai⁴¹, Kung-Teck⁴² and Lai.⁴³

CONCLUSION

FinTech has the potential to be a source of new innovations in the financial industry. Its existence is like two swords. The presence of FinTech can be a breath of fresh air for people who are not yet bankable by providing online platform-based loan services. The presence of P2P Lending, for example, will at least help micro-economic growth at the level of MSME entrepreneurs or small consumer financing. However, the other side will be the enemy of traditional market competition which is still controlled by Banking or Microfinance such as BMT. The presence of P2P Lending seems to have the potential to damage the market with the effect of being disruptive. Therefore, this challenge must be immediately responded by banks to be able to compete with the changing times, to be sensitive to the industrial revolution 4.0. This study shows that P2P Lending has begun to be accepted by the public, even though the marketplace is still small. With the TAM approach, it was found that the P2P Lending platform has advantages with ease of use. The ease of use will create an experience that uses good (useful) so that it has an impact on the attitude in using the P2P Lending platform. A continuous attitude will form habits, which will eventually reach a high frequency of use (addiction) and create user satisfaction. At the level of user satisfaction, it means that revenue from P2P Lending is very welcome and enthusiastic for millennials. Generation Z, which is expected to be the largest market, will begin to divert financial activities with technological innovation to achieve effectiveness and efficiency.

⁴⁰ Fred Davis, "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology" 13, no. 3 (1989): 319-340.

⁴¹ Yousafzai, Foxall, and Pallister, *Technology Acceptance: A Meta-Analysis of the TAM: Part 1*, vol. 2 (2017): 251-280.

⁴² Wong et al., "Understanding Student Teachers' Behavioural Intention to Use Technology: Technology Acceptance Model (TAM) Validation and Testing" 6, no. 1 (2013): 89-104.

⁴³ PC Lai, "The Literature Review of Technology Adoption Models and Theories For The Novelty Technology." 14, no 1 (2017): 21-38.

BIBLIOGRAPHY

- Aaron, Meyer, Francisco Rivadeneyra, and Samantha Sohal. "Fintech: Is This Time Different? A Framework for Assessing Risks and Opportunities for Central Banks." *Bank of Canada Staff Discussion Paper*, vol.10, 2017.
- Alt, Rainer, and Thomas Puschmann. "The Rise of Customer-Oriented Banking – Electronic Markets Are Paving the Way," vol. 2, 2012.
- APJII. "Buletin APJII." *APJII*. Jakarta, November 2016.
- Arner, Douglas, Janos Barberis, and Ross Buckley. "The Evolution Of Fintech: A New Post-Crisis Paradigm?" *University of New South Wales Law Research Series* 047, 2015.
- Baron, Reuben M, and David A Kenny. "The Moderator-Mediator Variable Distinction in Social Psychological Research : Conceptual, Strategic, and Statistical Considerations" vol. 51, no. 6, 1986.
- Commission, Productivity. *Digital Disruption: What Do Governments Need to Do? Productivity Commission Research Paper*. Edited by Peter Harris. Canberra, 2016.
- Davis, Fred. "Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology" vol. 13, no. 3, 1989.
- Gardner, Christina, and Donald L Amoroso. "Development of an Instrument to Measure the Acceptance of Internet Technology by Consumers", 2004.
- Garvey, Kieran, Bryan Zhang, Deborah Ralston, Kong Ying, Rodney Maddock, Hung-Yi Chen, Edward Buckingham, Yianni Katiforis, Luke Deer, and Tania Ziegler. *Cultivating Growth: The 2nd Asia Pacific Region Alternative Finance Industry Report*, 2017.
- Hair, Joe F, Marko Sarstedt, and Christian M Ringle. "An Assessment of the Use of Partial Least Squares Structural Equation An Assessment of the Use of Partial Least Squares Structural Equation Modeling in Marketing Research", 2011.
- Jogiyanto. *Sistem Informasi Keperilakuan*. Yogyakarta: Andi, 2008.
- Kreis, Dirk, Temme Henning, and Lutz Hildebrandt. *PLS Path Modeling: A Software Review*. Berlin, 2006.
- Lai, P C. "The Literature Review of Technology Adoption Odels and Theories For The Novelty Technology", vol. 14, no. 1, 2017.

- Ma, Qingxiong, and Liping Liu. "The Technology Acceptance Model." *Advanced Topics in End User Computing*, no. 4, 2011.
- Istiqamah, M. "Analisis Struktur Modal Perbankan Syariah Di Indonesia Tahun 2011-2015", *Jurnal Penelitian*, vol.14, no.2. 2017.
- Nam, Kiheung, Zoonky Lee, and Bong Gyou Lee. "How Internet Has Reshaped the User Experience of Banking Service?" *KSII Transactions on Internet and Information Systems*, vol. 10, no. 2, 2016.
- Nizar, Muhammad Afdi. "Teknologi Keuangan (Fintech) : Konsep Dan Implementasinya Di Indonesia." *Warta Fiskal*, no.5, 2017.
- Prasetyo, Joko, Supriyanto, Sukardi, Budi. "Penguatan Financial Performance dan Poverty Reduction Melalui Literasi Keuangan di Industri Keuangan Non Bank (IKNB) Syariah pada Masyarakat Jawa Tengah" *Journal of Finance and Islamic Banking*, Vol. 2, No. 2, 2019.
- Sukirno, Sadono. *Ekonomi Pembangunan: Proses, Masalah Dan Dasar Kebijaksanaan*. Medan: Borta Gorat, 1976.
- Wahyuningtyas, Yuli, Inge Graef, and Peggy Valcke. "How Google and Others Upset Competition Analysis: Disruptive Innovation and European Competition Law.", 2014.
- Widiartanto, Yoga Hastyadi. "Pengguna Internet Di Indonesia Capai 132 Juta." *Kompas.Com*. 2016
- Wijaya, Reynold. "'P2P Lending' Sebagai Wujud Baru Inklusi Keuangan." *Kompas.Com*, 2016.
- Wong, Kung Teck, Rosma bt Osman, Pauline Swee Choo Goh, and Mohd Khairezan Rahmat. "Understanding Student Teachers' Behavioural Intention to Use Technology: Technology Acceptance Model (TAM) Validation and Testing." *International Journal of Instruction* 6, no. 1, 2013.
- Yousafzai, Shumaila Y., Gordon R. Foxall, and John G. Pallister. *Technology Acceptance: A Meta-Analysis of the TAM: Part 1. Journal of Modelling in Management*. Vol. 2, 2007.