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MODELLING THE APPLICATION OF FINTECH IN INDONESIA

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Abstract

In recent years, FinTech services have emerged in many countries around the world including Indonesia. FinTech service combines financial services and mobile technology to serve the consumer's needs for more effective and efficient financial services. Its market size is also growing which indicates that the service is widely accepted. However, the study on FinTech is still lacking, especially relating to the consumers' behavior in adopting the service. Therefore, the aim of this research is to study the factors that influence consumers in adopting FinTech services by surveying Indonesian consumers. From 250 respondents, there were 204 forms that were filled and returned. By conducting the Structural Equation Modeling (SEM) using Lisrel 8.80 software, all of the consumer's inputs are computed. From this computation, there are three results that can be drawn. First, it revealed that the element of trust generally influences not only the user's satisfaction but also the person's continuance intention. However, the person's satisfaction does not necessarily influence a person's continuance use intention. Second, all factors of convenience, performance, cost advantages, referent network size and perceived complementary, if combined together, have an effect on the user's satisfaction. Third, other factors such as authentication, non-repudiation, confidentiality, privacy protection, and data integrity are also deemed as important elements to consider. Therefore, any Fintech company should take into consideration these factors to win their customers in this market.

INTRODUCTION

The advancement of technology has transformed the world into a digital market that affects the consumer's purchase decision (Wibisurya, 2018; Singh, Gaur & Agarwal, 2017). In the financial industry, the diffusion of smartphones and mobile technology has introduced various services in the market including FinTech. This segment is at the intersection of the financial services and technology sector where technology-focused-start-ups and new market entrants innovate products and services that are currently provided by

the traditional financial service industry (PwC, 2016). With this new service segment, any mobile service on-the-go such as mobile payment, mobile remittance, P2P lending or crowdfunding can be easily performed.

Since its introduction, the FinTech market has grown rapidly with a strong momentum. At the international level, approximately 12 billion dollars have been invested in this sector (Accenture, 2015). Meanwhile based on a PwC report, the FinTech transaction value in the US market has reached up to 7 trillion dollars and about 4 trillion dollars was recorded in the Chinese FinTech market (PwC, 2016). In China, Alipay and Tenpay are the two leading FinTech services but are different entities, in which Alipay is an e-commerce based company while Tenpay is a mobile messenger based company (Chang, Wong & Jeong 2016). As for Indonesia, the FinTech market size merely reached approximately 22.338 million dollars in 2018 (Statista, 2018) with major players such as Go-pay, T-cash, Modalku, Investree and many other players.

Despite its rapid growth in the market, the study of FinTech adoption by consumers is still limited. Therefore, this study is necessary to investigate the motives of Indonesian consumers in adopting the FinTech service. This is especially important due to the required level of risk control and motivation that ensure sustainable usage of FinTech, since it is linked to personal wealth and well-being (Higgins, 1997). Furthermore, considering its high risk by nature, this study is essential to identify the factors that motivate the consumers' adoption of the service which is expected to generate high value for the consumers.

In this study, the Regulatory Focus Theory (RTF) is used to describe the factors motivating consumers in adopting Fintech (Higgins, 1997). These factors are based on both aspects of costs and benefits. The results from this study will be able to assist FinTech companies in promoting their services. Furthermore, the findings will contribute to the body of knowledge in Fintech adoption.

The objectives of this research can be broken down into several questions. First, what factors influence the user's continuance intention of the Fintech? Second, what factors influence the users' satisfaction of the services? Third, what factors influence the users' trust towards the FinTech service? Finally, what motivates the consumers to continually use the service?

LITERATURE REVIEW

Abundant literatures are available on the motives of users in adopting FinTech Service in their daily lives. First, Chuang, Liu & Kao (2016) proposed the Technology Acceptance Model that involves several elements affecting the decision to use FinTech services including the brand and service trust, the perceived usefulness and the ease of use and the behavioral intention to use Fintech Service. This theory can also be further elaborated by referring to another literature by Ryu (2018) using the Regulatory Focus Theory, Promotion-based Benefit Theory, Prevention-based Security Control, and Trust, Satisfaction & Continuance Use Intention. Considering that the two theory resources are not in conflict, this research shall refer to Ryu (2018), since it is in line with the theory as described by Chuang, Liu & Kao, 2016. In general, the strongest factors affecting the users' motivation in

adopting Fintech can be identified from the benefit-risk factors in the FinTech Service features.

Fintech

According to Ryu (2018), Fintech services includes the entire scope of financial services and products which are currently served by financial institutions such as mobile payments, mobile remittances, P2P lending and crowdfunding (Lee & Shin, 2018). These types of Fintech are the focus of this study.

Regulatory Focus Theory

The perception of people when making decisions to pursue their goals can be described by using the Regulatory Focus Theory (RFT). Under this theory, the relationship between the motivation of a person and the process in which they pursue their goal can be examined. Through motivation, how one does a task to reach the goal can be studied. Therefore, people usually adopt two different orientations to reach their goals such as prevention and promotion (Higgins, 1997).

Promotion-based and prevention-based people will differ in what motivation to satisfy, what goals and standards to achieve and what types of outcome are important to them. Those who are promotion-based people will focus on positive outcomes while those who are prevention-based people will examine negative outcomes.

The use of RTF to describe consumer and organizational behavior has been presented in previous studies (Lee and Aaker, 2004; Brockner, Higgins, and Low, 2004; Wang and Lee, 2006). Using this RFT, the question posed is why consumers look for pleasure and avoid risk in their actions? In this study, FinTech consumers are assumed as both promotion-based and prevention based ones due to their nature to maximize pleasure and minimize risk.

Promotion-based Benefit Theory

People tend to be motivated when they gain benefits using FinTech services. This fact is similar to the field of information systems in which people apply the benefit belief when they experience the use of IT systems. Therefore, in this study the benefit belief will be applied to allow valuable construction that fits into the component of a promotion-based process.

Some studies have concluded that consumer behavior is influenced by this perceived benefit. The types of benefit can be separated into utilitarian and hedonic benefits (Hirschman & Holbrook, 1982). The utilitarian benefit includes any functional values such as convenience, performance and cost advantages. Meanwhile, the hedonic benefit includes non-functional values covering enjoyment and happiness. Since FinTech services has additional functional value for its users, therefore, the approach of the utilitarian benefit will be applied in this study.

In addition to utilitarian benefits, another type of benefit that should be considered is the network benefit particularly its network externalities. This means that the value gained from a product will create more value for the consumers with the increased number of users and its complementary product or service (Katz & Shapiro, 1985). In FinTech service, consumers

will continue to use this service when they perceive that there is a strong network externality.

In this study, the elements of convenience, performance, and cost advantages will shape the utilitarian benefits, meanwhile the network benefits will refer to the network size and perceived complementary. As a result, several hypotheses are offered as follows:

H1: convenience positively correlates with satisfaction
H2: performance positively correlates with satisfaction
H3: cost advantages positively correlate with satisfaction
H4: referent network size positively correlates with satisfaction
H5: perceived complementary positively correlates with satisfaction

Prevention-based – Security Control

Consumers' behavior in avoiding pain or risk can be explained using the prevention-based process especially in FinTech where security has been its critical challenge since its introduction. It can be ensured that they will not use this service if there is no good security. Therefore, good and reliable security systems with trustable internal privacy policy have been required ever since Fintech was launched as a small bank where many monetary transactions are handled. In order to ensure that requirements are fulfilled, security control is needed. This control consists of authentication, non-repudiation, confidentiality, privacy protection and data integrity. With regard to these concerns, the following are several hypotheses that have been developed:

H6: authentication positively correlates with trust
H7: non-repudiation positively correlates with trust
H8: confidentiality positively correlate with trust
H9: privacy protection positively correlates with trust
H10: data integrity positively correlates with trust

Trust, Satisfaction & Continuance Use Intention

In any technology-based service, consumer behavior towards a certain technology is reflected by trust (Suh and Han, 2003). This trust means the willingness of consumers to be vulnerable by the provider's action based on the expectation that the provider will do any action for the interest of the trustor, irrespective of its ability to monitor or control it. In this study, trust facilitates the relationship between five components of security control and satisfaction as well as five components of security control and continuance use intention. Previous studies showed that trust has impacted the consumer's satisfaction and continuance to use smartphone banking services (Susanto, Chang & Ha, 2016).

Consuming any product or service may provide satisfaction to consumers. Based on this belief, when any product or service meets the consumer's expectation, then they may feel satisfied. This satisfaction level is important to predict the consumers' continuance use intention of any service. Therefore, the relationship between gratification opportunity and continuance use intention will be facilitated by satisfaction. This is important because the decision of consumers to continuously use any service in both post-purchase or post-consumption is determined by this level of continuance use of intention.

H11: trust positively correlates with satisfaction
H12: satisfaction positively correlates with continuance use intention
H13: trust positively correlate with continuance use intention

MATERIALS AND METHODS

This section describes the methodology applied in the study to obtain scientific results from the survey which is divided into several subsections such as measurement items, data collection and data analysis.

Measurement Items

In this study, a questionnaire was developed using previous studies and items for convenience, performance, and cost advantages were adapted from Ha, Kim, Libaque-Sanchez, Chang & Park, 2015. Then, the items for referent network size and perceived complementarity are adapted from Lin and Lu, 2011. Next, for the items covering authentication, non-repudiation, confidentiality, privacy, and data integrity were taken from Suh and Han, 2003. Finally, trust, satisfaction and continuance use intention were adopted from Susanto et. al., 2016. All these items were measured by using the five-point Likert scales.

Data Collection

For data collection, a survey was conducted involving 250 Fintech service users as random respondents in Jakarta, Indonesia. Among these respondents, only 204 respondents completed the survey while 46 forms were discarded as they were incomplete. The questionnaires consisted of 58 items with five levels of the Likert scale where 1= strongly disagree, 2= disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

Data Analysis

This study uses the Structural Equation Modeling (SEM) for data analysis (Schumacker and Lomax, 2010) using Lisrel 8.8 (Wijanto, 2008). To test the thirteen hypotheses described in the abovementioned section, several steps were taken to prove those hypotheses as explained in the following section.

Model specification

This step requires conceptual models based on previous studies. Therefore, for this study, several conceptual models were developed as shown in the following figures which were inspired by the conceptual model from earlier studies (Chang, Wong & Jeong, 2016).

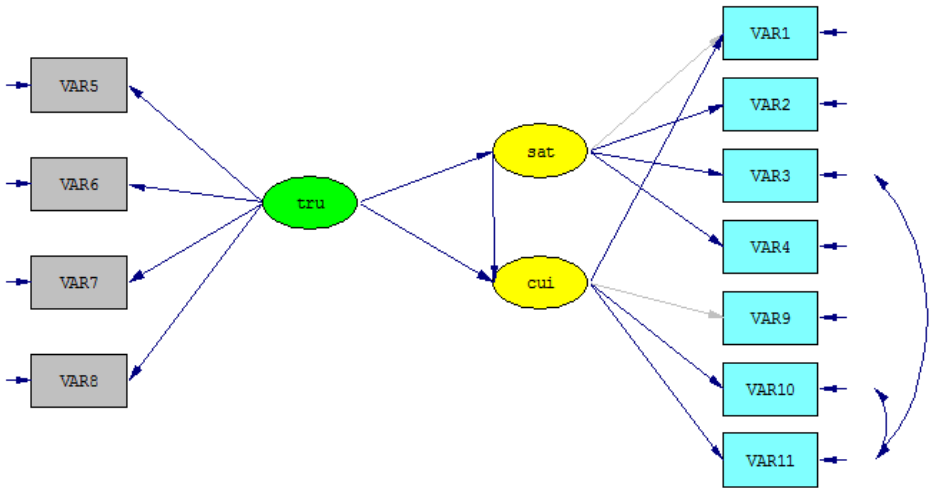

Figure 1. Conceptual model for testing hypotheses H11-13

In this figure, this study is intended to test if there is any evidence that trust influences user's satisfaction (H11), then user's satisfaction influences user's continuance use intention (H12) or trust itself is enough to influence user's continuance use intention (H13). This figure is part of the whole model of the earlier study by Chang, Wong & Jeong (2016) with 11 items from the 58 items of the questionnaire.

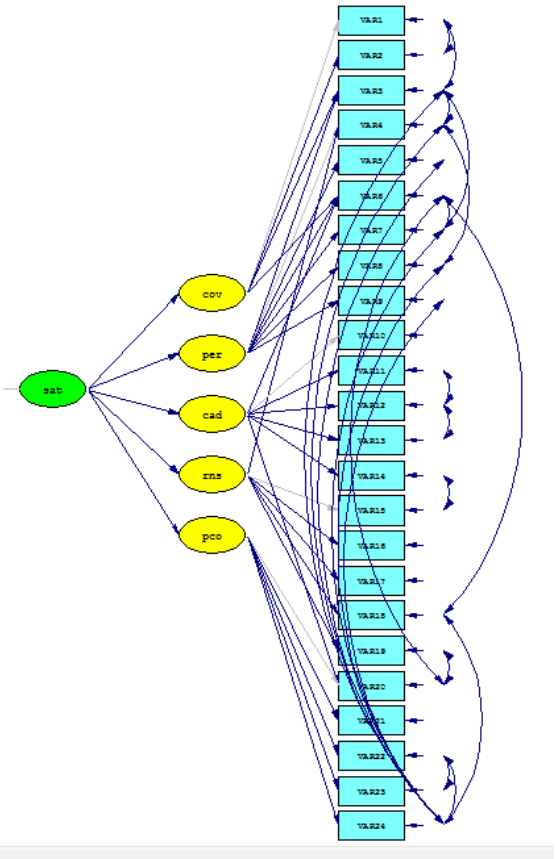

Figure 2. Conceptual model for testing hypotheses H1-5

This model is used particularly to further investigate what factors influence the user's satisfaction. In this part of thestudy, the aim is to prove whether all factors of convenience, performance, cost advantages, referent network size and perceived complementary may jointly or partially influence the users' satisfaction (H1-5).

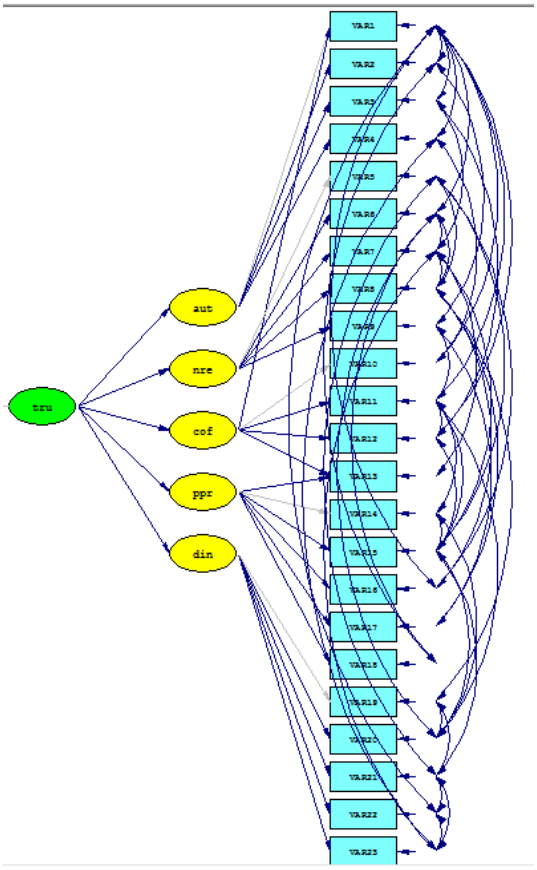

Figure 3. Conceptual model for testing hypotheses H6-10

For testing hypotheses H6-10, this figure is used as the theoretical framework. Using this model, the research study needs to understand whether all of the factors of authentication, non repudiation, confidentially, privacy protection, and data integrity are influencing trust or only partially affecting it.(H6-10).

Model identification

In this step, the study identifies the parameter needed in order to run the conceptual model by inputting the data generated from the survey after proving it to be reliable (Cronbach's alpha is above 0.7) and valid (r >=3.61) using SPSS. The data used for this study is from 204 respondents as previously mentioned.

Model estimation

After inputting the parameters into the Lisrel program, the program uses the data from 204 respondents. The collected data is sufficient because it is above the required 200 samples that is required to test a model with less than 10 variables in the model (Hair, Black, Babin, Anderson & Tatham, 2006).

This is done to estimate the indicators used for model testing as described in the next step.

Model testing

In this step, the program is run to identify the indicators of a good-fitted model with p-value above or equal to 0.05 and a value of the RMSEA either below or equal to 0.08. If these indicators meet these standards then the model can be said fitted, otherwise, the next step is necessary.

Model modification

This step is needed to modify the model if it is not a good fit. After having several iterations, the previously mentioned indicators are evaluated to justify whether the adjusted model is fitted or not. If it is fitted then it can be used, otherwise, the model specification step should be re-done in order to obtain the appropriate fitted model.

Upon fitting the model, the analysis is then processed by using the model in standardized solution mode in order to obtain the r value that proves the abovementioned hypotheses. If the r value is above 0.5 then there is a correlation, otherwise, no correlation is observed.

RESULTS AND DISCUSSIONS

Results from this study will be divided into several sections with regard to the several models used in light of the previous section. These sections are the user's profile, factors influencing user's continuous use intention, factors influencing the the user's satisfaction and factors influencing trust.

User's Profile

From the questionnaire, the users' profile can be described in the following table based on the study of Ryu, 2018.

Table 1.
Profile of Fintech Service Users

Section		Percent
Gender	Male	68.63%
	Female	31.37%
Age	Under 20	14.71%
	20-29	24.51%
	30-39	49.02%
	40-49	9.8%
	50 over	1.96%
Fintech type	Mobile payment	88.24%
	Mobile remittance	9.80%
	P2P lending	0.98%
	Crowdfunding	0.98%

From table 1, most of the respondents are male aged between 30 to 39 years old. From this fact, it can be said that the users of FinTech services are mostly

millennials. Meanwhile, the Fintech types used by the respondents are mostly for mobile payments. This may give some insights. First, the users have not yet properly explored other types of FinTech services and therefore, the providers should be able to promote their services more intensively. Second, it may reflect that the acceptance of users is still limited to mobile payment types.

Factors Influencing User's Continuance Use Intention

The respondents' inputs from the several sections of the questionnaire that includes satisfaction, trust and continuance use intention, its validity and reliability are further tested using the SPSS software. The result shows that Cronbach's alpha is at the level of 0.929 which is above the required 0.70, which means its r values are all above the required value of 0.361. From these indicators, the data can be said to be valid and reliable. After passing the validity and reliability test, then the study continues to run the model using Lisrel as shown in figure 1 to obtain the result as shown in the following figure:

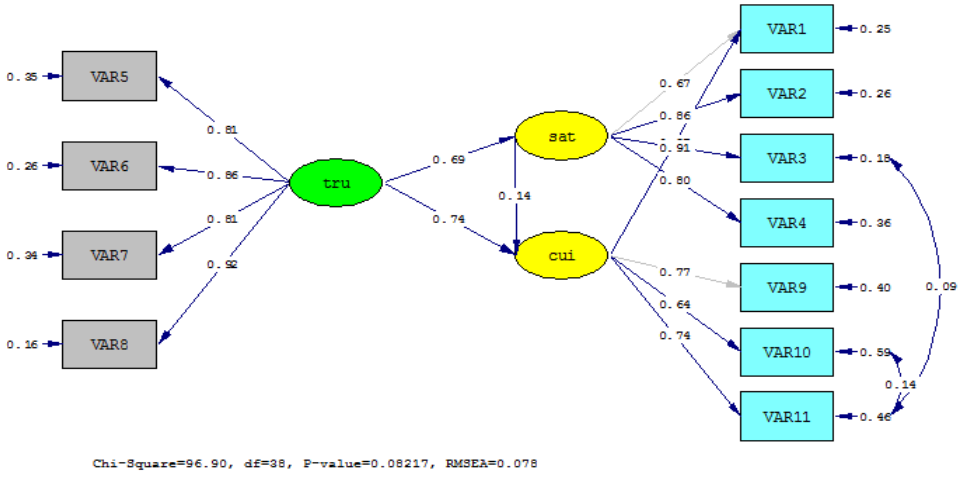

Figure 4. Factors influencing user's continuance use intention (standardized solution)

From the above figure, since the p-value is at 0.08217 which is above the required p-value of 0.05 and RMSEA is at 0.078 which is below the required RMSEA of 0.08 then the model can be regarded as fitted. Therefore, further analysis can take place as follows:

The r-value of the relationship between trust and user's satisfaction (H11) is at 0.69 which is above the required value of r >= 0.5, therefore, it is proven that trust affects the user's satisfaction. Next, the r-value of the relationship between user's satisfaction and continuance intention use is at 0.14 which is below the required r >= 0.5, which means that the users' satisfaction does not influence their continuance use intention (H12). Finally, the r-value of the relationship between trust and continuance intention use (H13) is at 0.74 which is above r >= 0.5 which means that trust itself is enough to influence user's continuance use intention.

From the above analyses, it can be said that the trust factor mutually reinforces the user's satisfaction and the continuance use intention.

Therefore, any FinTech companies should promote the trust element in order to secure its consumers' continuance use intention, otherwise it may lose its consumers.

Factors Influencing User's Satisfaction

The next issue is to investigate the factors that influence the user's satisfaction. In this analysis, the validity and reliability of the user inputs are tested by using the SPSS software. The Cronbach's alpha is at the level of 0.902 which is above the required 0.70 value while the r values are all above the required value of 0.361, therefore, the data is valid and reliable. After passing the test, then the Lisrel program is run to gain the results as shown in the following figure.

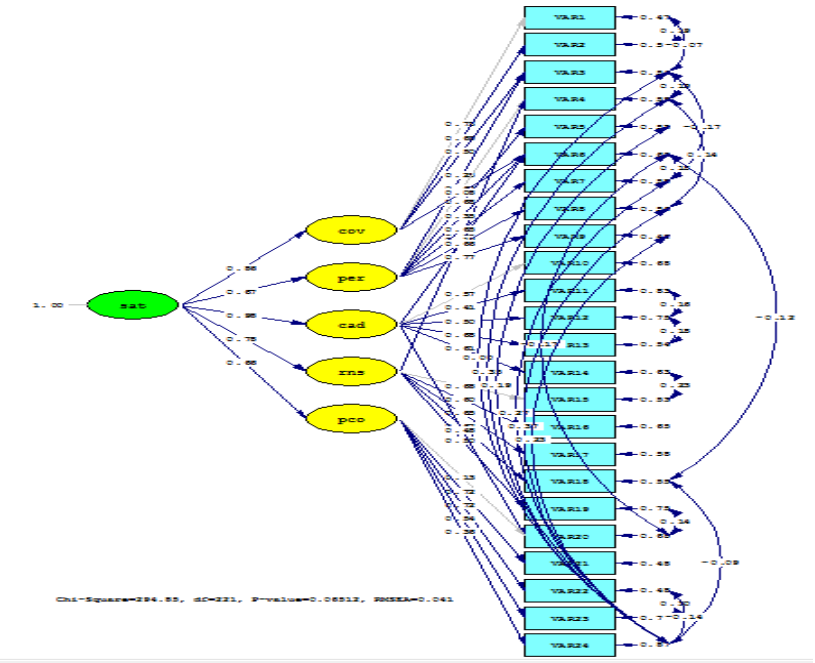

Figure 5. Factors influencing user's satisfaction (standardized solution)

Figure 5 shows that the p-value is at 0.06512 which is above the required p-value of 0.05 and the RMSEA is at 0.41 which is below the required RMSEA of 0.08. Therefore, the model can be said to be fitted and it can be analyzed with result as follow:

All factors of convenience (r = 0.88 above r = 0.5), performance (r = 0.67 above r = 0.5), cost advantages (r = 0.95 above r = 0.5), referent network size (r = 0.75 above r = 0.5) and perceived complementary (r = 0.66 above r = 0.5) are jointly influence the user' satisfaction (H1-5).

Factors Influencing User's Trust

The final analysis in this study is to investigate the factors influencing the user's trust. For this purpose, the validity and reliability of the user inputs are again tested by using the SPSS software. The results show that the Cronbach's alpha is at the level of 0.909 which is above the required value of 0.70 while the r values are all above the required value of 0.361. Therefore, the data is valid and reliable. After passing this test, the Lisrel program is again run to obtain the results as shown in the following figure.

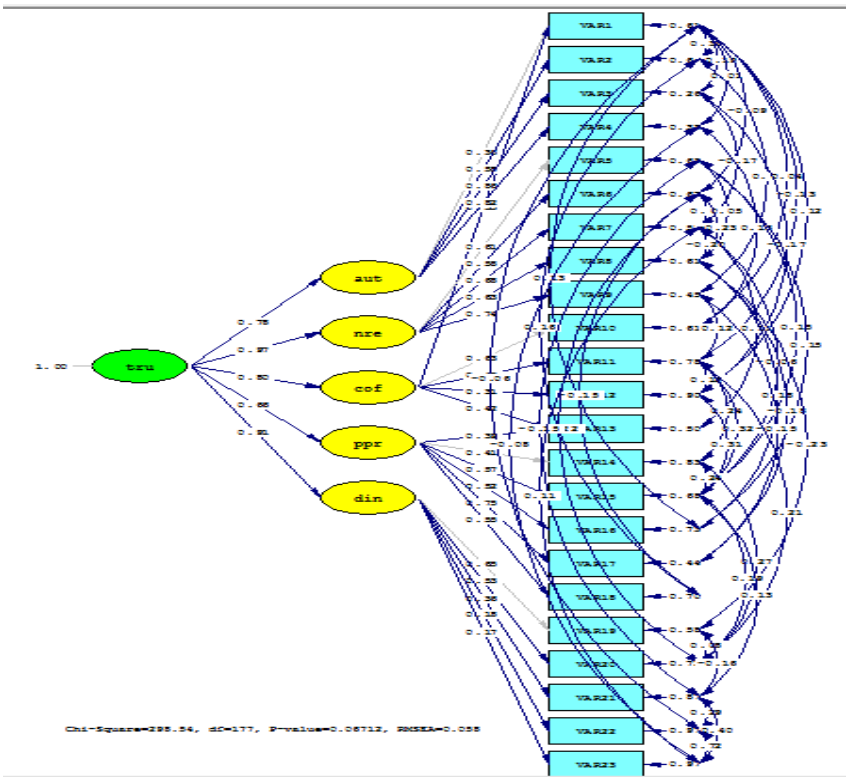

Figure 6. Factors influencing user's trust (standardized solution)

The above figure shows that the p-value is at 0.06712 which is above the required p-value of 0.05 and the RMSEA is at 0.58 which is below the required RMSEA of 0.08. Therefore, the model can be said to be fitted and it can be analyzed with result as follows:

For testing hypotheses H6-10, this figure is used as the theoretical framework. Using this model, this study analyzes whether all the factors of authentication, non repudiation, confidentially, privacy protection, and data integrity jointly influence the trust towards the services or only partially affect them (H6-10).

From this result, it can be said that all factors of authentication (r = 0.78 above r = 0.5), non repudiation (r = 0.97 above r = 0.5), confidentiality (r = 0.80 above r = 0.5), privacy protection (r = 0.66 above r = 0.5) and data integrity (r = 0.81 above r = 0.5) jointly influence the user's satisfaction (H1-6).

CONCLUSIONS

This study has generated several interesting findings that may contribute to the knowledge of FinTech services in general and for the Fintech industry in Indonesia specifically.

First, this study has reveled that trust generally influences not only the user's satisfaction but also the user's continuance use intention. On the other hand, the user's satisfaction does not influence the person's continuance use intention. In other words, a person uses any Fintech's service mainly because he or she trusts the platform but not necessarily because of the satisfactory service. Therefore, any Fintech company should maintain the trust of its consumer to ensure their continuance use intention. However, this does not mean that any company can ignore the satisfaction factor since consumers

are expected to continue using the service and therefore FinTech services should first win the consumer's trust. Since the consumer's trust is an important element, it can also be understood from the users' profile why most of people prefer using mobile payment while other types of Fintech services have limited users especially in Indonesia, since mobile payment is more mature than other types of Fintech services.

Second, this study also has confirmed that all factors of convenience, performance, cost advantages, referent network size and perceived complementary jointly affect the user's satisfaction which is similar to the results from earlier studies.

Third, in order to gain the consumer's trust it is essential that all factors of authentication, non repudiation, confidentially, privacy protection, and data integrity should also be carefully taken into consideration in line with the results from previous studies of the same subject.

However, this study may have some limitations such as the limited number of samples and the types of the Fintech used. Therefore, for future research, it would be beneficial if the user's profile can be expanded to gain deeper insight and a broader perspective.

In conclusion, in order to further develop FinTech services in Indonesia, the FinTech service providers should consider these findings since it is proven that the trust element is more important than the satisfaction factor in retaining consumers. However, as explained above, this does not necessarily mean that satisfaction factor is not important but it is also a key issue to ensure the consumers' continuance use of the FinTech services. This is very important especially since the users of FinTech in Indonesia are not as many as those in other countries.

Therefore, penetrating the market for the FinTech consumers and making them trust the services by providing as many benefits as possible -such as offering effective and efficient systems- still needs hard work to fulfill the demand if compared to the services in other countries. However, this does not mean that this is impossible to achieve. Those who intend to penetrate the Indonesian market should be able to prove that their services are trustworthy and do not pose any risk in terms of their financial interest. Once this trust can be built then they should pursue to satisfy their consumers although in this study there is no direct proof that satisfaction may drive the consumers' continuance use intention because in this field, the trust factor plays a special role in retaining their customers. This is especially important because no company would ever want the customers to leave them since a huge investment is at stake. Based on the findings of this study, it is hoped that Fintech companies would be able to take the necessary steps in planning their market development for the Indonesian market.

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REFERENCES

Accenture. (2015). Future of FinTech and Banking. https://www.accenture.com/us-en/insight-future-fintechbanking.aspx.

Brockner, J., Higgins, E. T. & Low, M. B. (2004). Regulatory focus theory and the entrepreneurial process. *Journal of Business Venturing*, *19*(2), 203-220.

Chang, Y., Wong, S. F. & Jeong, S-P. (2016). *What motivates Chinese Consumers to Adopt FinTech Services: A Regulatory Focus Theory*. ICEC 2016.

Chuang, L. M., Liu, C. C. & Kao, H. K. (2016). The adoption of FinTech service: TAM perspective. *International Journal of Management and Administrative Sciences*, 3(7), 1 – 15.

Ha, Y. W., Kim, J., Libaque-Saenz, C. F., Chang, Y. and Park, M. C. (2015). Use and gratifications of mobile SNSs: Facebook and KakaoTalk in Korea. Telematics and Informatics, 32(3), 425-438.

Hair, J. F., Black, B., Babin, B., Anderson, R. E. & Tatham, R. L. (2006). *Multivariate Data Analysis*. USA: Pearson Education Limited.

Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist*. 52(12), 1280.

Hirschman, E. C. & Holbrook, M. B. (1982). Hedonic consumption: emerging concepts, methods and propositions. *Journal of Marketing*, *46*(3): 92–101.

Katz, M. L., & Shapiro, C., (1985). Network externalities, competition, and compatibility. *The American Economic Review*, *75*(3), 424-440.

Lee, A. Y. & Aaker, J. L. (2004). Bringing the frame into focus: the influence of regulatory fit on processing fluency and persuasion. *Journal of Personality and Social Psychology*, *86*(2), 205-218.

Lee, I. & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions and challenges. *Business Horizon*, *61*(1), 35-46.

Lin, K. Y. & Lu, H. P. (2011). Why people use social networking sites: An empirical study integrating network externalities and motivation theory. *Computers in Human Behavior*, *27*(3), 1152-1161.

PwC. (2016). FinTech. http://www.pwc.com/us/en/financialservices/fintech.html.

Ryu, H. S. (2018). What Makes Users Willing or Hesitant to Use Fintech?: The Moderating Effect of User Type. *Industrial Management and Data Systems*. 118(3), 541 – 569.

Ryu, H. S. (2018). Understanding Benefit and Risk Framework of Fintech Adoption: Comparison of Early Adopters and Late Adopters.

Proceedings of the 51st Hawaii International Conference on System Sciences, 3864-3873.

Statista. 2018. Fintech in Indonesia. https://www.statista.com/outlook/295/120/fintech/indonesia#marketStudy

Schumacker, R. E. & Lomax, R. G. (2010). A Beginner's Guide to Structural Equation Modeling (3rd ed.). New York: Taylor and Francis Group, LLC, 209-220.

Singh, G., Gaur, L. & Agarwal, M. (2017). Factors influencing the digital business strategy. *Pertanika Journal of Social Sciences & Humanities*, 25(3), 1489-1500.

Suh, B. & Han, I. (2003). The impact of customer trust and perception of security control on the acceptance of electronic commerce. *International Journal of Electronic Commerce*, *7*(3), 135-161.

Susanto, A., Chang, Y. & Ha, Y., (2016). Determinants of continuance intention to use the smartphone banking services: An extension to the expectation-confirmation model. *Industrial Management & Data Systems*, *116*(3), 508-525.

Wang, J. and Lee, A.Y., (2006). The role of regulatory focus in preference construction. *Journal of Marketing Research*, *43*(1), 28-38.

Wibisurya, I. (2018). The effect of digital marketing implementation through location based advertising on customer's purchase intention. *Binus Business Review*, *9*(2), 153-161.

Wijanto, S. H. (2008). *Structural Equation Modeling (SEM) dengan LISREL 8.8*. Yogyakarta: Graha Ilmu.