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The Effect of Covid-19 Pandemic on the adoption of Internet Banking in Indonesia: Islamic Bank and Conventional Bank Cases

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Abstract: This study aims to examine the effect of perceived usefulness (PU), perceived ease of use (PEU), trust (TR), subjective norm (SN) and attitude (AT) on customer's intentions to adoption Internet Banking (BIN)) at Islamic banks and conventional banks before and during the Covid-19 pandemic in Indonesia. The research model is based on the theory of planned behavior (TPB) and technology acceptance model (TAM). This study involves 213 respondents for Islamic banks and 410 respondents for conventional banks from 25 provinces in Indonesia. The result of data analysis confirms several hypotheses taken from the literature. The results before the Covid-19 pandemic showed that AT, AT, and SN have an influence on BIN in Islamic banks. Meanwhile, in conventional banks, customer AT, PU, SN and TR have influence on BIN. While during the Covid-19 pandemic, it shows that the AT, PU, IB, SN and customer TR have influence on BIN in Islamic banks and conventional banks.

Keywords: Internet banking, Islamic bank, conventional bank, technology acceptance model, theory planed behavior

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1. Introduction

Nowadays banking services are demanded to be faster, easier and more flexible along with the rapid growth of information technology in the globalization era. IB has emerged as the most profitable e-commerce application (Wan, 2017). All banks have introduced IBs to improve customer service and reduce cost (Xue et al., 2011; Rahi, Ghani, and Ngah 2019). In addition, IB will not only benefit banks but will also fulfill customer needs (Shahzad et al., 2017; Rahi dan Ghani 2016).The rapid growth of the internet is changing the way companies connect with their customers, including the banking business (Manzano et al., 2009). The survival of the financial industry, especially banking, will greatly depend on the ability of internet adaptation and the progress of technology. One form of technology adaptation in the banking industry is internet bank (IB) and mobile banking which offer various benefits (Sitorus et al., 2017).

Adaptation of banking technology must at least offer services that support customer activities, offer relevant markets, provide benefits for customers, as well as accessible and easy to use (Walker and Johnson, 2007; Yudha, and Isgiyarta, 2015). In addition, online banking services offer benefits to customers regarding the ease for users to control their bank accounts anytime and anywhere (Howcroft et al., 2002). On the other hand, customers are encouraged to use internet services because they do not need to meet directly with the service providers in person and do not need to deal with other customers (Walker and Johnson, 2006). The same thing was expressed by Kaleem and Ahmad (2008) in their research which found that IB was used to minimize inconvenience, reduce transaction costs and save time. Because of the ease of obtaining information and many other benefits, the use of an online financial system is increasing (Lech, 2012; Choi et al., 2011). By replacing employee functions and physical facilities with information technology, banks do not need to have branch offices so as to reduce operating and fixed costs (Zhao et al., 2008).

Although IB offers various facilities, banking in Indonesia still faces a problem in form of a low adoption rate (Sitorus et al., 2017). Some research results show that the perception of ease of use, security and benefit have a significant influence on the use of IB in Indonesia (Asni et al., 2019; Ronny, 2018; Sitorus et al., 2017; Susanto et al., 2013). The successful use of IB depends on how the customer understands the system. Thus, it is important for banks to find out how customers accept IB services to help find the strategic plans and improve the markets (Fatimah and Suyanto, 2016). However, banks still have problems related to the low willingness of customers to adopt IB regardless of its benefits (Rahi and Ghani, 2019). In addition, banks are required to provide high-quality internet facilities to attract and retain customers (Kandampully et al., 2015; Makanyeza dan Chikazhe, 2017).

This study analyzes customer acceptance of IB at different time periods when a phenomenon or an event occurs, in this case Covid-19. IB makes a positive contribution in integrating the banking activities of a bank with the worldwide banking system in a faster and more effective way. However, the use of IB by customers will depend on the services offered by the banks. In addition, the internet network and customer knowledge about financial technology in the banking sector also influence the use of IB. Referring to a number of studies that have been conducted, it is found that there are substantial changes in the use of IB today. The results of previous studies

indicate that IB adoption depends on the competence, the technical experience and the ability of individuals to operate computers. Therefore, further research is needed to understand the characteristics of customers in using online-based banking services such as IB.

2. Literature Review

2.1 Theoretical Background

The Technology Acceptance Model (TAM) is the most-adopted theory to examine the individual's belief in the acceptance and the use of technology. This is because this theory focuses on the use of information systems originated from the research to validate the acceptance of word processing technology among IBM employees conducted by Davis et al. (1989). In general, TAM has been used in various cross-sector studies including personal computers, telemedicine technology, the World Wide Web (www) and e-commerce. Specifically, in the context of banking technology, several studies such as Celik (2008), Lee (2009), Zhou (2011), Yousafzai and Yani-de-Soriano (2012), Chiou and Shen (2012), Abbad, (2013) and Martins et al., (2014) have applied TAM to examine the acceptance and the use of ATMs, mobile banking and IB.

In some developed countries, the IB adoption has become a widely-discussed topic in the past three decades. The majority of these studies use TAM as a basic model to examine the effect of various factors on AT and behavior intentions to adopt technology (Chang and Cheung, 2001; Wang et al., 2003; Guriting and Ndubisi, 2006; Jahangir and Begum, 2008; Lee, 2009; Alsajjan and Dennis, 2010; Chau and Ngai, 2010; Nor et al., 2010; Chong et al., 2010; Kesharwani and Tripathy, 2012; Giovanis et al., 2012; Kesharwani and Bisht, 2012; Abbad, 2013).

The use of IB has been studied by many researchers in various countries using variables in the form of technological designs (i.e. website design), social factors (i.e. social influence), and online environments (i.e. TR and risk) (Agarwal et al., 2009; Bhatt, 2011; Dash et al., 2011; Dash et al., 2012; Dixit and Datta, 2010; Kalaiarasi and Srividya, 2013; Kesharwani and Bisht, 2012; Kesharwani and Tripathy, 2012; Khare and Singh, 2012; Khare et al., 2010; Khare et al., 2012; Kumra and Mittal, 2004; Mann and Sahni, 2012; Safeena et al., 2010; Safeena et al., 2011; Sharma and Srikrishna, 2014; Varaprasad et al., 2013). In line with that, Kumra and Mittal (2004) conducted a research on the importance of TR in using IB and it is found that social bonding, communication, and behavior significantly influenced the customer TR for using IB.

In another study, Bhatt (2011) applied TPB to investigate customer TR in IB services and found that customer intention to adopt IB was influenced by perceived behavioral control, AT and SN. By modifying TAM, Kesharwani and Tripathy (2012) found that self-efficacy and perceived risk have a significant effect on the behavior of using IB. Following that, Varaprasad et al. (2013) also add several variables such as relative advantage, perceived risk, and constructs of attention. It is found that PU, PEU, perceived risk, and relative advantage are important factors in determining IB adoption. With the TAM modification theory, Kesharwani and Bisht (2012) also found that PEU, PU, perceived risk and social influence have a positive and significant effect on customer intention to adopt IB services (Kalaiarasi and Srividya (2013)

The purpose of this study is to determine the variables that influence the use of IB in Islamic and conventional banks before and during the Covid-19 pandemic in Indonesia. This study also modified TAM and PBC by adding several variables and considering the compatibility with the

problems that occur in Islamic and conventional banks. In addition to that, this study also considers changes in behavior that occurred before and during the Covid-19 pandemic began in February 2020 in Indonesia. The proposed research model is presented in Figure 1, five constructs used in the model include PU, PEU, TR, SN and AT. The combination of TAM and PBC is expected to be able to describe the customer intention of Islamic and conventional banks in adoption of IB.

2.2 Perceived Usefulness (PU)

PU can be defined as the extent to which customers believe that the use of IB service will improve their banking performance or activities (Bashir and Madhavaiah, 2014). Many researchers in the field of information systems have empirically validated the positive influence of PU on AT and intention of using information systems on TAM (Davis, 1989; Venkatesh and Davis, 2000; Venkatesh, 2000; Heryani, Simanjuntak and Maulana, 2020). In addition, some previous studies on IB have provided empirical evidence that PU has a significant positive effect on AT and intention (Celik, 2008; Chau and Ngai, 2010; Cheng et al., 2006; Chiou and Shen, 2012; Lee, 2009, Kaur and Malik, 2019; Vukovic and Pivac, 2019). Previous research has also confirmed that PU mediates the effect of external variables on AT and intentions. Therefore, customers will be more inclined to adopt IB when they consider the use of IB to bring benefits. Based on this review, the proposed hypothesis is as follows:

H1 = Percieved of usefulness has a significant influence on customer interest to adopt IB

2.3 Perceived of Ease of Use (PEU)

PEU can be defined as the level of customer confidence that the use of IB service is easy (Davis, 1989). PEU is the main factor influencing customer intention to adopt information systems (Davis, 1989). Many studies reveal that PEU influences an individual's intention to adopt the information systems (Davis et al., 1989; Venkatesh, 2000; Kaur and Malik, 2019; Heryani, Simanjuntak and Maulana, 2020). Several studies on the use of IB have found that PEU influences customer intentions to use IB (Celik, 2008; Chau and Ngai, 2010; Chiou and Shen, 2012; Giovanis et al., 2012; Lee, 2009, Vukovic and Pivac, 2019). In addition, several studies have found that the PEUof IB will enhance customer intentions to use various transactions (Abbad, 2013; Celik, 2008). Customers find it easy to use IB if the IB menu is uncomplicated, easy to remember and based on the customer needs (Kesharwani and Tripathy, 2012; Lee, 2009, Alalwan et al, 2018). Based on the previous literature, the proposed hypothesis is as follows:

H2 = Perceived of use has a significant influence on customer interest to adopt IB

2.4 Trust (TR)

TR is defined as the customer confidence in the ability of IB services to provide services as expected (Bashir and Madhavaiah, 2014). TR is an important factor in providing confidence to fulfill customer need (Macintosh and Lockshin, 1997; Morgan and Hunt, 1994). TR plays an important role in minimizing risk in the case of conflict between banks and customers (Gefen et al., 2003; Jarvenpaa et al., 1999). Customers prioritize TR in conducting transactions using IB (Ratnasingham, 1998). Risk and TR are inseparable components in decision making (Morrison

and Firmstone, 2000; Manzano et al., 2009; Kesharwani and Bisht, 2012). Further, the bad technology will increase the risk that causes a decrease in the level of satisfaction and willingness of customers to use IB (Roger, 2003; Yuan, et al., 2014,).From this explanation, the hypothesis can be proposed as follows:

H3 = Trust has a significant influence on customer interest to adopt IB

2.5 Subjective Norm (SN)

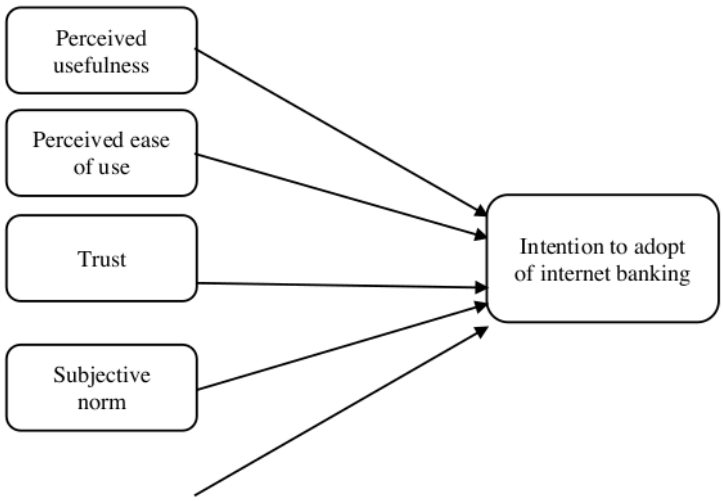
SN is referred to the normative belief of the social environment that motivates individual to perform certain behavior. This aspect specifically applies to social pressures which come from important people considered by an individual (Fishbein and Ajzen, 1975). Cheung (2001) found that social pressure plays an important role in explaining the use of the internet which has been a widely discussed topic. Some researchers emphasize that SN is a factor that needs to take into account for influencing individual AT (Taib et al., 2008). In the study of Liao et al (2007) and Rao and Troshani (2007), they found that SN affects the customer's intention to adopt IB. On the other hand, several researchers such as Lada et al. (2009) found SN to have a direct influence on the intention to consume halal products. Therefore, the hypothesis can be formulated as follows:

H4 = Subjective norm has a significant influence on customer interest to adopt IB

2.6 Attitude (AT)

AT is defined as a tendency to consistently respond in connection with a particular object (Fishbein and Ajzen, 1975). In this study, AT is defined as positive or negative feelings of customers in using IB services. Fishbein and Ajzen (1975) first introduced AT in TRA which is then followed by Davis (1989), stated that AT is a construct in TAM affecting AT which ultimately affects individual intention. AT becomes an inseparable factor in the context of IB because the AT is formed by the customer's belief in risk and security in using IB. The previous researches conducted by Lai and Li (2005), Cheng et al (2006), Suh and Han (2002), Lee (2009) Chiou and Shen, (2012) provide evidence that customer AT influences the intention to adopt IB services. Based on the above explanation, the proposed hypothesis is as follows:

H5 = Attitude has a significant influence on customer interest to adopt IB



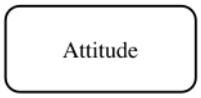


Figure 1. Research Model

3. Methods

3.1. Sample

The structured questionnaire, which consists of three parts, was developed for the purpose of collecting primary data from IB users in Indonesia. The first part of the questionnaire was intended to collect data related to the demographic characteristics of respondents which are gender, religion, age, occupation, education, marital status, income, and bank account. The second part of the questionnaire asked the respondent's interest in using IB before the Covid-19 pandemic. The third part of the questionnaire asked the respondent's interest in using IB during the Covid-19 pandemic.

The measurement instrument, from the second part of the questionnaire, was developed based on a review of the existing literature related to the model of technology utilization and their extensions in the context of using various technologies in general and IB technology in particular. A list of 23 question items in 6 constructs is included in the conceptual model including PU, the PEU, customer TR, SN and customer AT. All items are measured on a Likert-type scale ranging from "1" (strongly disagree) to "5" (strongly agree).

A pilot test was conducted to test the instrument items on a sample of 50 respondents before starting the main data collection process, in order to determine the time needed to complete the questionnaire and to have a complete understanding of the respondents' difficulties in answering each question. The result of this pilot test causes some changes to a few words in order to make it easier for respondents to answer each construct's question.

The analysis is performed using a Partial Least Square-Structural Equation Model (PLS-SEM) technique by SmartPLS software (Ringle, Wende, and Becker, 2015). The advantage of this technique is that it could use abnormal data and explain the differences among the target constructs. PLS-SEM is a two-step process in which the first measurement model is analyzed to check the reliability and validity of the data. Second, an assessment of the structural model is carried out for path analysis and hypothesis testing.

3.2. Sample descriptive

The respondents consist of 213 Islamic bank customers and 410 Conventional bank customers in 34 Provinces in Indonesia. Islamic banks customers are 39.44% of men and 60.56% of women, in which 78.87% of them are 18-25 years old. Meanwhile, for the monthly expenditure, 66.67% of the respondents are spending less than IDR 2,500,000 and 23.00% of them are spending IDR 2,600,000 - IDR 5,000,000. For the educational background, 68.08% of the respondents are having a high school degree and 23.94% of them are having an undergraduate degree. For the

occupation, the majority of respondents (74.18 percent) are students and 14.08% of them are private employees.

Meanwhile, conventional bank respondents consist of 166 men (40.49%) and 244 women (59.51%), while 78.29% of them are 18-25 years old and 10.24% of them are 26-35 years old. For the monthly expenditure, 63.66% of the respondents are spending less than IDR 2,500,000 and 25.66% of them are spending IDR 2,600,000 - IDR 5,000,000. For the educational background, 68.29% of the respondents are having a high school degree and 23.17% of them are having an undergraduate degree. For the occupation, the majority of respondents (66.10%) are students and 18.54% of them are private employees.

Table 1. Composition of Sample Demography

Demography	Notes	Islamic Bank (213 Respondents)		Conventional Bank (410 Respondents)	
		N	%	N	%
Gender	Man	84	39.44	166	40.49
	Woman	129	60.56	244	59.51
Age	18-25 years old	168	78.87	321	78.29
	26-35 years old	22	10.33	42	10.24
	36-45 years old	13	6.10	18	4.39
	46-55 years old	10	4.69	25	6.10
Expense	<Rp 2.500.000-	142	66.67	261	63.66
	Rp 2.600.000 - Rp 5.000.000	49	23.00	104	25.37
	Rp 5.100.000 - Rp 7.500.000	9	4.23	19	4.63
	Rp 7.600.000 - Rp 10.000.000	3	1.41	8	1.95
	Rp 10.100.000 - Rp 12.500.000	2	0.94	5	1.22
	>Rp 12.600.000	9	4.23	13	3.17
Latest Education	Senior High School and equivalent	145	68.08	280	68.29
	Diploma (D3)	3	1.41	15	3.66
	Bachelor(S1)	51	23.94	95	23.17
	Master (S2)	12	5.63	20	4.88
	Doctor (S3)	2	0.94	0	0.00

Occupation	Student	158	74.18	271	66.10
	Civil Officers	11	5.16	29	7.07
	Private Employee	30	14.08	76	18.54
	Entrepreneur	7	3.29	21	5.12
	Housewife	7	3.29	13	3.17

4. Result

4.1 Confirmatory factor analysis, reliability and validity

The loading factor of all constructs is above 0.6 which shows adequate convergent validity among all latent variables (Chin et al., 1998). In Table 2, the result of loading factors of Islamic and conventional banks before and during the Covid-19 pandemic shows that the perceived risk was below 0.6. Although in some other literatures (Sharma, 1996; Ferdinand, 2000) explain that the lowest loading factor that can be accepted is 0.40, a high loading factor indicates a high data variations which will make a strong contribution to explain the latent construction.

Table. 2 Loading Factor before and during Covid-19 pandemic

Construct	Item	Before Covid 19		during Covid 19	
		ISB	CB	ISB	CB
PU	The use of IB improves the functions of my banking activity	0.873	0.838	0.92	0.85
	IB enables me to manage my banking activity more efficiently	0.912	0.862	0.866	0.872
	IB enables me to do my banking activity comfortably	0.926	0.909	0.928	0.923
	IB enables me to do my banking activity quickly	0.892	0.837	0.913	0.912
PEU	It is very easy to use IB	0.898	0.86	0.896	0.902
	Learning to use IB is easy	0.935	0.896	0.944	0.891
	Instruction provided on the IB website is clear and understandable	0.918	0.886	0.903	0.915
	I feel that it is easy to remember how to use IB	0.935	0.893	0.928	0.92
TR	I believe that it is always safe to transfer money using IB	0.85	0.857	0.89	0.861
	I believe I can count on transferring money using IB	0.912	0.856	0.875	0.889

	My bank immediately notifies me if there are problems with my transaction	0.774	0.706	0.807	0.751
	I believe that my transaction through IB will always be transparent	0.857	0.825	0.851	0.894
SN	Most of the people who are important to me would think that I should use IB	0.867	0.895	0.925	0.941
	People who influenced me would think that I should use IB	0.892	0.874	0.935	0.951
	People whose opinions I value would think I should use IB	0.894	0.881	0.93	0.94
AT	Using IB service is a good decision	0.931	0.912	0.933	0.924
	Using IB service is a wise decision	0.93	0.885	0.934	0.935
	Using IB service is a positive move	0.915	0.909	0.953	0.932
	I like to use IB service	0.869	0.878	0.889	0.884
BIN	I intend to enhance the use of my IB service in the future	0.893	0.869	0.915	0.899
	I hope my transaction through IB will be enhanced in the future	0.858	0.845	0.902	0.884
	I will encourage my friends and family to use IB service	0.904	0.887	0.9	0.911
	I would highly recommend others to use IB	0.904	0.848	0.923	0.91

Note: ISB, Islamic banking; CB, Conventional Bank

Meanwhile, internal consistency between items or reliability is measured using Cronbach's α, rho A and Composite Reliability. Any value of Cronbach's α, rho A and Composite Reliability which are higher than 0.7 is considered to have good internal consistency (Hair et al., 1998). From Table 3, it shows that the Cronbach's α value for all items is more than 0.7 or can be categorized as reliable. Meanwhile, the values of rho A and composite reliability are also higher than 0.7, which means that all constructs of Islamic and conventional banks before and during the Covid pandemic are reliable. Meanwhile, the Average Variance Extracted (AVE) for a construct must be higher than 0.50 (Fornell and Larcker, 1981).

Tabel. 3 Cronbach's alpha, composite reliability dan average variance extracted (AVE)

	CA	rho_A	CR	AVE

ISB before Covid-19 pandemic				
AT	0.932	0.933	0.952	0.831
BIN	0.913	0.914	0.939	0.792
PEU	0.941	0.941	0.958	0.849
PU	0.923	0.925	0.945	0.812
SN	0.861	0.863	0.915	0.782
TR	0.871	0.878	0.912	0.722
CB before Covid-19 pandemic				
AT	0.918	0.920	0.942	0.803
BIN	0.885	0.886	0.921	0.744
PEU	0.907	0.907	0.935	0.782
PU	0.884	0.887	0.920	0.743
SN	0.860	0.863	0.914	0.780
TR	0.828	0.840	0.886	0.662
ISB during Covid-19 pandemic				
AT	0.946	0.947	0.961	0.861
BIN	0.931	0.932	0.951	0.828
PEU	0.938	0.940	0.955	0.843
PU	0.928	0.931	0.949	0.823
SN	0.922	0.923	0.951	0.865
TR	0.878	0.879	0.916	0.733
CB during Covid-19 pandemic				
AT	0.938	0.939	0.956	0.844
BIN	0.923	0.924	0.945	0.812
PEU	0.928	0.931	0.949	0.823
PU	0.912	0.915	0.938	0.792
SN	0.939	0.941	0.961	0.892
TR	0.871	0.882	0.913	0.724

Note: CA, Cronbach's Alpha; CR, Composite Reliability; AVE, Average Variance Extracted

4.2 Analysis of model structure and hypothesis testing

After fulfilling the reliability and validity requirements, the data is tested to determine the model fit. To test the goodness of fit statistics of the model, the most commonly used measurements are: SRMR, d_ULS, d_G, Chi Square and Normative Fit Index (NFI). Standardized Root Mean Square Residual (SRMR) is used as a measure of goodness of fit to avoid the model specification errors (Henseler et al., 2014). SRMR is defined as the difference between observed and expected correlations in the model and it is used as an absolute measure of the matching criteria. The model is considered goodness of fit when the SRMR value is less than 0.10 or 0.08 (Hu and Bentler, 1998). From the test results, it is found that the SRMR value for Islamic banks before Covid-19 is 0.047 and for conventional banks is 0.049. Meanwhile, during the Covid-19 pandemic, it is found that the SRMR value is 0.050 for Islamic banks and 0.045 for conventional banks. As the value is less than 0.08, it can be said that the model is considered suitable or model fit.

Model fit d_ULS (ie, the squared Euclidean distance) and d_G (ie, the geodesic distance) are bootstrap-based inferential statistics testing to measure the difference between empirical covariance matrix and covariance matrix implied in the composite factor model (Dijkstra and Henseler, 2015). The criteria for the fit models of d_ULS and d_G are that the differences between the correlation matrix implied by the model and the empirical correlation matrix must be insignificant ($p > 0.05$). Conversely, if the difference is significant ($p < 0.05$), the fit model is not fulfilled. From the measurement, it was concluded that the model fit was fulfilled because the values of d_ULS and d_G of Islamic and conventional banks before Covid and during Covid are higher than 0.05 or not significant. The test results before Covid-19 show d_ULS = 0.612; d_G = 0.518 for Islamic banks and d_ULS = 0.655; d_G = 0.366 for conventional banks. Whereas during Covid-19, the test results show d_ULS = 0.687; d_G = 0.677 for Islamic banks and d_ULS = 0.570; d_G = 0.429 for conventional banks.

Normed Fit Index (NFI) is obtained by deducting 1 with the value of Chi^2 from the proposed model divided by the value of Chi^2 from the zero model. The NFI value ranges from 0 to 1. The model can be said to be fit when the NFI value approaches the value of 1 (Lomoller, 1989). From Table 4, it can be seen that the NFI values of Islamic and conventional banks before and during Covid-19 are close to 1 in order to have an acceptable fit model. For Islamic banks, the NFI values before and during Covid-19 are 0.868 and 0.854 respectively. For conventional banks, the NFI values before and during Covid-19 are 0.871 and 0.892.

The next fit model is adjusted R^2 which illustrates the ability of explanatory variables in measuring the customer intention to adopt IB. The value of R^2 for Islamic banks before Covid is 0, 729 which means that the ability of explanatory variables in measuring customer intention to adopt IB is 72.9%. Meanwhile, the value of R^2 of Islamic banks during Covid is 0.798 which means that the ability of explanatory variables in explaining customer intention to adopt IB is 79.8%. Meanwhile, for conventional banks, the value of R^2 before Covid is 0.614 which means that the ability of explanatory variables in explaining the customer intention to adopt IB is 61.4%t. For the conventional bank, the value of R^2 during Covid-19 is 0.689 which means that the ability of explanatory variables in explaining customer intention to adopt IB is 68.9%.

Tabel 4. Fit Model

	SRMR	d_ULS	d_G	Chi-	NFI	Adj R^2

				Square		
ISB before Covid-19 pandemic	0.047	0.612	0.518	655.089	0.868	0.729
CB before Covid-19 pandemic	0.049	0.655	0.366	919.664	0.871	0.614
ISB during Covid-19 pandemic	0.050	0.687	0.677	847.640	0.854	0.798
CB during Covid-19 pandemic	0.045	0.570	0.429	1,053.221	0.892	0.689

From the results of hypothesis testing for Islamic banks before the Covid-19 pandemic, it shows that AT (ß = 0.494, t-stat = 7.164) and SN (ß = 0.223, t-stat = 3,730) have an effect on the customer intention to adopt IB, while PU, perceived risk, PEUand TR have no effect. Meanwhile for conventional banks before the Covid-19 pandemic, it shows that AT, (ß = 0.516, t-stat = 8,664), PU (ß = 0.139, t-stat = 2.137), SN (ß = 0.167, t-stat = 3,647) and TR (ß = 0,120, t-stat = 2,058) have an effect on the customer intention to adopt IB, while PEUand perceived risk have no effect.

Table 5. Hypothesis Test

	Sample Mean (M)	Standard Deviation	T Statistics	P Values	Result
ISB before Covid-19 pandemic					
AT -> BIN	0.494	0.070	7.164	**0.000**	Suported
PEU-> BIN	0.092	0.073	1.263	**0.207**	Not suported
PU -> BIN	0.106	0.072	1.403	**0.161**	Not suported
SN -> BIN	0.223	0.059	3.730	**0.000**	Suported
TR -> BIN	0.055	0.070	0.830	**0.407**	Not suported
CB before Covid-19 pandemic					
AT -> BIN	0.516	0.060	8.664	**0.000**	Suported
PEU-> BIN	-0.027	0.060	0.440	**0.660**	Not suported
PU -> BIN	0.139	0.066	2.137	**0.033**	Suported
SN -> BIN	0.167	0.046	3.647	**0.000**	Suported
TR -> BIN	0.120	0.057	2.058	**0.040**	Suported
ISB during Covid-19 pandemic					
AT -> BIN	0.422	0.071	5.888	**0.000**	Suported
PEU-> BIN	0.116	0.081	1.403	**0.161**	Not suported
PU -> BIN	0.206	0.088	2.380	**0.018**	Suported
SN -> BIN	0.259	0.059	4.460	**0.000**	Suported

TR -> BIN	-0.004	0.063	0.034	**0.973**	Not suported
CB during Covid-19 pandemic					
AT -> BIN	0.362	0.077	4.678	**0.000**	Suported
PEU-> BIN	0.063	0.062	1.007	**0.314**	Not suported
PU -> BIN	0.180	0.075	2.459	**0.014**	Suported
SN -> BIN	0.264	0.060	4.467	**0.000**	Suported
TR -> BIN	0.081	0.076	0.992	**0.322**	Not suported

From the results of hypothesis testing for Islamic banks during the Covid-19 pandemic, it shows that (ß = 0.422, t-stat = 5.888), PU (ß = 0.206, t-stat = 2.380), and SN (ß = 0.259, t-stat = 4,460) have an effect on the customer intention to adopt IB, while PEU, perceived risk and TR have no effect. Meanwhile for conventional banks during the Covid-19 pandemic, it shows that AT (ß = 0.362, t-stat = 4.678), PU (ß = 0.180, t-stat = 2.459), and SN (β = 0.264 t- stat = 4,467) have an effect on the customer intention to adopt IB, while PEUand perceived risk have no effect.

5. Discussion

This study attempts to understand the customer intention to adopt IB in Indonesia before and during the Covid-19 pandemic by integrating two theories which are TPB and TAM. The result shows that before and during the Covid-19 pandemic, AT of Islamic and conventional banks has a significant positive effect on customer intention to adopt IB. These results are consistent with the research of Lai and Li, (2005); Cheng et al. (2006); Suh and Han, (2002); Lee, (2009); Chiou and Shen, (2012) who reveal that AT determines the customer intention to adopt IB.

Meanwhile, PEU in Islamic and conventional banks before and during the Covid-19 have no significant positive effect on customer intention to adopt IB. These results contradict the original TAM model and other research findings such as Cheng et al. (2006), Suh and Han (2002), Wang et al. (2003). Celik, (2008), Chau and Ngai, (2010), Chiou and Shen, (2012), Giovanis et al. (2012) and Lee, (2009). These results indicate that before and during the Covid-19 pandemic, the customers of Islamic and conventional bank found it difficult to use IB.

PU of conventional banks before and during the Covid-19 pandemic is found to have a significant positive effect on customer intention to adopt IB. This finding is similar to the original TAM model and consistent with the research of Cheng et al. (2006) and Suh and Han (2002). On the other hand, PU of Islamic banks have a significant effect on the use of IB during Covid-19, but no significant effect before that. This shows that Islamic bank customers feel more benefits of IB during Covid-19 pandemic, compared to before the Covid-19 pandemic. This is in accordance with the research of Chiou and Shen (2012); McKechnie et al. (2006) and Bashir and Madhavaiah (2014).

SN in Islamic and conventional banks before and during the Covid-19 pandemic significantly influenced the customer intention to adopt IB. From these results, it can be said that the people closest to the customer environment also influence the intention of Islamic and conventional bank customers to use IB. This result is in line with the research of Shih and Fang (2004),

Yousafzai et al. (2010), and Lee and Kim (2019). However, the result is not in line with the research conducted by Kholid (2019), which found that social factors or the influence of the closest people have no effect on the intention of millennial customers in using digital banks.

Customer TR of Islamic banks before the Covid-19 pandemic did not affect the customer's intention to adopt IB. Likewise, during the Covid-19 pandemic, customer TR of Islamic and conventional banks have no effect on the use of IB. Meanwhile, conventional banks prior to the Covid-19 pandemic shows that TR influenced the customer intention to adopt IB. This result is supported by the research of ; Sharma and Sharma, (2019); Bashir and Madhavaiah, (2015). This shows that the Covid-19 pandemic reduced customer confidence in Islamic and conventional banks to use IB.

6. Managerial implications.

IB is utilized by customers to make it easier to meet the needs of customers and banks (Simintiras et al., 2014). A study revealed that respondents who are mostly young generation have the potential to utilize IB (Dwivedi and Irani, 2009; Irani et al., 2009). The dynamic character of young people requires the management of banks to implement effective marketing strategies to increase the use of IB by customers (Meuter et al., 2005). As most of the young people are students who have the ability to use the internet, it is not difficult for them to utilize the IB facilities provided by banks (Akinci et al., 2004; Alalwan et al, 2018). IB facilities could not only help the customer in term of business transaction, but also help them to save time and energy (Laukkanen et al., 2009; Gumussoy, 2016).

Indonesian banks can also use social media to conduct socialization in a more persuasive, advanced and economic way. Indeed, social media like YouTube, Facebook, and Twitter show a higher level of accessibility because everyone can easily access this application. (Hwang and Kim, 2007; Berthon et al., 2012). As per January 2020, a research revealed ten main social media in Indonesia which are Youtube (132 million users), WhATApp 125 million users), Facebook (122 million users), Instagram (120 million users), Line (89 million users), Twitter (78 million users) million), FB Messenger (71 million users), BBM (57 million users), LinkedIn (50 million users), and Pinterest (4 million users). This fact shows that social media has been used by all Indonesian people in 2020. Thus, using social media applications to promote the adoption of IB will help Indonesian banking to reach more banking customers. This shows that the use of the internet to help customers is an inseparable part of the demands of modern human life that wants everything to be fast, cheap and easy (Irani et al., 2009; Lassar et al., 2005).

Problems experienced by customers of Islamic and conventional banks during the Covid-19 pandemic are the difficulties faced in using IB. Thus, bank management should not merely facilitating customers with IB, but also facilitating customers to be willing and able to use IB. (Chen et al., 2014). Banks must improve the facilities needed to optimize the use of IB. For this reason, IB should not only provide online banking facilities but also simplify online access, provide a variety of menus to suit customer needs, and launch more attractive features. Initially, banks need to concentrate on providing IB channels compatible with other common technologies used by customers. At the same time, banks needs to convince them that using these channels is not much different from other technologies (Simintiras et al., 2014).

Finally, this study shows that the ease of use of IB and customer confidence in IB are two factors that do not affect the customer intention to adopt IB in Islamic and conventional banks during the Covid-19 pandemic. There are several recommended strategies that can be implemented by banks to increase the use of IB and customer confidence related to the use of IB (2009; Poon, 2008; Simintiras et al., 2014; Yousafzai et al., 2005). As discussed earlier, banks must improve customer knowledge in order to understand the use of IB easily (Laukkanen et al., 2008; Simintiras et al., 2014). Banks must also train their customers on how they can safely use online channels and how they can overcome any suspicions and/or hacks related to their accounts (Alalwan et al., 2018). Banks also need to help their customers understand that IB is not free from unexpected risks due to uncertainty (Zhou, 2012). Therefore, as suggested by Laukkanen et al. (2008), using an innovative modification strategy is more applicable in this case.

Bank innovation modification strategies are highly recommended to take advantage of advances in biometric technology by using tools to identify customer authentication, such as fingerprints, voice tags, and iris recognition (Laukkanen et al., 2008; Poon, 2008; Simintiras et al., 2014). The application of biometric technology using iris recognition to verify each transaction will provide further simplicity and a safe way to approach bank accounts rather than using traditional password methods (Laukkanen et al., 2008; Poon, 2008). Other strategies that could be more useful in reducing perceived risk include a money back guarantee policy in case of fraud as well as increasing structural guarantees to prevent hacking and piracy (Gan et al., 2006 Simintiras et al., 2014; Yousafzai, Pallister, and Foxall, 2015).

7. Conclusion, limitation dan recommendation

The data for this study consisted of 213 Islamic bank customers and 410 Conventional bank customers. The findings show that this research successfully predicted the intention of customers to use IB. The results show that all TPB constructions (AT and SN) significantly predicted customer intention in Islamic and conventional banks before and during the Covid-19 pandemic. In the case of the TAM construct, it was identified that the PEU is not found to have a significant effect on the intention of customers of Islamic and conventional banks to use IB. Meanwhile, before the Covid-19 pandemic, PU of Islamic banks has no effect on the intention of customers, but PU has the effect on the conventional banks before and during the Covid-19 pandemic. Furthermore, an insignificant relationship is found between TR (TR) and customer intention to use IB, which shows that customers still consider using IB as a risky platform. Thus, the current study is able to contribute to the management of Islamic banks and conventional banks to make policy strategies to improve IB technology socialization and innovation to customers.

The method used in this study is the quantitative methods. The use of quantitative methods can limit the ability of current research to look more closely by clarifying more problems related to the intentions and behavior of Indonesian customers using IB. Therefore, future studies are suggested using quantitative and qualitative methods to get a more detailed explanation of the results of this study. This research concentrates on customers who have used IB in Islamic and conventional banks, and does not include other types of customers who defer, against, and reject IB. However, studying such customers can help to have a further understanding of the main obstacles that hamper the acceptance of IB. In addition, this research focuses entirely on the customer perspective without any perspective of the bank. Therefore, this can be a limitation for this study as it could not give a comprehensive picture to clarify the main aspects related to the successful implementation and adoption of IB from both parties; customers and banks.

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