Investigating Fintech Service Adoption using Extended-ECM

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Abstract— This paper aims to investigate the Fintech Service Acceptance on Student in Indonesia. The investigating of the acceptance employs extended-ECM to reveal the student's perception of usefulness, confirmation, and satisfaction in using fintech service. The extend of Expectation–confirmation model (ECM) using technological self-efficacy (TSE) and perceived ease of use is used in this research to investigate the adoption study in fintech area. This research also adds trust factor to fit up the investigation in the area. The 302 questionnaires from respondents are tested using SmartPLS to point significantly factors in the proposed model. The results reveal that the factors in ECM and trust are most powerful in fintech service acceptance study. The interesting result came from TSE as a predicted factor for confirmation and perceived ease of use and not for perceived usefulness. The results have recommendation to developer of fintech application. They must aware to technological self-efficacy of users.

Keywords— fintech, quality factor, satisfaction, acceptance, Indonesia.

I. INTRODUCTION

The growth of financial technology (fintech) during and post Covid-19 pandemic underwent such elevated changes. The users of fintech service naming mobile wallet, mobile banking, and debit/credit card increased significantly in step with the growth of e-commerce use. The adoption of e-commerce and fintech services has increased tremendously in online consumers. In the momentum, the question arises whether MSMEs are ready to take this advantage.

This research proposed the extended-ECM with Technological Self-Efficacy (TSE) and Perceived Ease of Use (PEOU) to investigate the student's acceptance of fintech service. In accordance with fintech research area, trust factor is also added in the model.

The contribution of the research came from TSE and PEOU factors as significant factors integrating with ECM. The contribution is useful to developer and user of fintech service.

II. RELATED WORK

Bhattacherjee [1] proposes original ECM. The other studies by Aslam [2] and Shiau et al. [3] also conducted study using ECM. The studies by Sharma and Sharma [4] and Shiau et al. [3] confirm that satisfaction has positive effect on use behavior. The extended factor TSE was employed by Bailey et al. [5], Shiau et al. [3], and Zhou et al. [6]. TSE has direct effect on perceived useful and confirmation.

Davis [7] proposed original TAM employing perceived ease of use to has direct effect on perceived usefulness and use behavior. In studies of fintech, e-commerce, and mobile banking adoption by Senyo and Osabutey [8], Shaikh et al. [9], Singh et al. [10], Alalwan et al. [11] confirm that perceived ease of use has positively effect on use behavior. Perceived ease of use also has positively effect on perceived usefulness by Singh et al. [12], Candra et al. [13], Hu et al. [14], Bailey et al. [5], and Zhou et al. [6]. Many studies by Senyo and Osabutey [8], Singh et al. [12], Chauhan et al. [15], Kalinic et al. [16], Singh et al. [10], Abrahão [17], Morosan and DeFranco [18], Shiau et al. [3],

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Baabdullah et al. [19], Alalwan et al. [20], Alalwan et al. [11], Alshare and Mousa [21], and Zhou et al. [6] confirmed that Perceived Usefulness has positively effect on Use Behavior.

Trust is necessary factor in fintech adoption study. The studies conduct by Shareef et al. [22], Hu et al. [23], Kaabachi et al. [24], and Yuan et al. [25] confirm the relation of Trust on use behavior.

This study will use ECM and add TSE and Trust to investigate the adoption of fintech service.

III. PROPOSED MODEL AND HYPOTHESIS

By using existing literature on research in the last six years regarding the adoption of e-commerce, mobile apps, and technology adoption, the model offered in this study is compiled as shown in Figure 1.

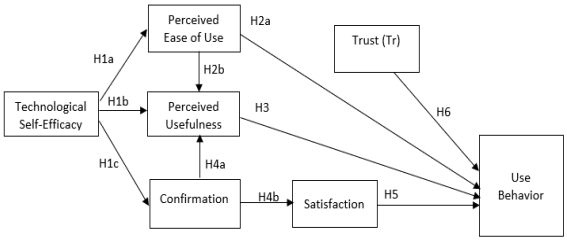

Figure 1. Proposed model

A. The Effect Of Technological Self-Efficacy On Perceived Ease Of Use, Perceived Usefulness, And Confirmation

According to Bailey et al. [5] TSE is user's perception of their ability in mastering use of mobile payments. Bailey has argument that Technological self-efficacy shapes Perceived Ease of Use on his study.

On other studies of fintech use Bailey et al. [5], Shiau et al. [3], and Zhou et al. [6] examine the relation of TSE on Perceived Usefulness. The findings of the results verify that TSE is also the driver of Perceived Usefulness of fintech use.

Shiau et al. [3] conducted study on the positive relation of TSE on Confirmation. Based on the arguments regard to the relation of TSE to other variables, the research proposes:

H1a: Technological (smartphone or computer) self-efficacy will positively affect perceived ease of use of fintech use.

H1b: Technological (smartphone or computer) self-efficacy will positively affect perceived usefulness of fintech use

H1c: Technological (smartphone or computer) self-efficacy will positively affect confirmation of fintech use

B. The Effect Of Perceived Ease Of Use On Perceived Usefulness, And Use Behaviour

TAM model by Davish [7] disclose the relation of perceived ease of use, perceived usefulness and behavioral intention. In studies on fintech, mobile banking, and e-commerce acceptance by Senyo and Osabutey [8], Shaikh et al. [9], Singh et al. [10], Alalwan et al. [11] confirmed that Perceived Ease of Use has effect on use behavior. Other studies by Singh et al. [12], Candra et al. [13], Hu et al. [14], Bailey et al. [5], and Zhou et al. [6] also confirmed that Perceived Ease of Use has effect on Perceived Usefulness. According to the reviews the research proposes:

H2a: Perceived ease of use will positively affect fintech use behavior

H2b: Perceived ease of use will positively affect perceived usefulness of fintech use

C. The Effect Of Perceived Usefulness, Satisfaction, And Trust On Use Behaviour

The many studies on fintech use and banking acceptance reveal the relation of Perceived Usefulness, Satisfaction, and Trust on Use Behavior. The studies conduct by Senyo and Osabutey [8], Singh et al. [12], Chauhan et al. [15], Kalinic et al. [16], Singh et al. [10], Abrahão [17], Morosan and DeFranco [18], Shiau et al. [3], Baabdullah et al. [19], Alalwan et al. [20], Alalwan et al. [11], Alshare and Mousa [21], and Zhou et al. [6] proved

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Perceived Usefulness has positively affect Use Behavior.

Sharma and Sharma [4] and Shiau et al. [3] confirm that Satisfaction has positively affect Use Behavior. Trust also has positively affect Use Behavior according to the studies by Shareef et al. [22], Hu et al. [23], Kaabachi et al. [24], and Yuan et al. [25]. According to the circumstance the research proposes:

H3: Perceived usefulness will positively affect fintech use behavior.

H5: Satisfaction will positively affect fintech use behavior.

H8: Trust will positively affect fintech use behavior.

D. The Effect Of Confirmation On Perceived Usefulness And Satisfaction

Bhattacherjee [1] proposes the ECM theory and defines Confirmation as consumer's perception of service's performance confronted with their original expectations to determine their expectation fulfillment or not. Other studies by Aslam et al. [2] and Shiau et al. [3] also employed ECM model in their studies. Their studies reveal that confirmation has positively affect perceived usefulness and satisfaction. Based on these arguments the research proposes:

H4a: Confirmation will positively affect perceived usefulness of fintech use

H4b: Confirmation will positively affect satisfaction with fintech use.

IV. METHODOLOGY

The study proposes model to investigate fintech service acceptance. The model is examined by 302 questionnaires from high school and university student. The 391 questionnaires were collected and 89 of them are removed by reason on invalid data and some outliers.

The validity test is divided into 2 steps, namely the discriminant validity test and the convergent validity test. After testing the validity of the variables, the next step is the reliability test, carried out using the Cronbach Alpha value and the Composite Reliability value, the threshold of the two values is zero point seven.

After testing the validity and reliability test, the next step is testing the path coefficient by looking at the path coefficient value. Furthermore, a step is to look at the ability of the independent variable to the variance of the variable by using the value of R square. The relationship is said to be strong if the value of R square is greater than zero point twenty six or twenty six percent.

The last step is to test the hypothesis, done by looking at the P price, if the P price is less than zero point zero five then it can be said that the hypothesis can be accepted, otherwise the hypothesis is rejected.

V. DATA ANALYSIS AND DISCUSSION

A. Demographic Of Respondents

The demographics of respondents including age, gender, and education are seen in Table 1.

Table 1. Table Demographics Respondens

Responden (n=320)		
Age:	**Freq.**	**percent**
<15	13	4.3
15-18	136	45.0
19-22	142	47.0
>22	11	3.6
Gender:		
Male	161	53.3
Female	141	46.7
Education:		
High school	143	47.4
undergraduate	159	52.6

Table 1 shows that almost half of respondents are university student and in age range of 19-22 years old and others are high schools' student and in age range of 15 – 18 years old. The respondents also almost have balanced in male and female.

B. Measurement Model Test

1. Convergent validity

The validity of the questionnaires was tested by PLS and the results of outer loading was seen in Table 2.

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Table 2. The Loading Factor Value To Test The Validity Of The Indicator

	Conf	PEU	PU	Sat	TSE	Trust	UB
Con1	**0,891**						
Con2	**0,922**						
Con3	**0,881**						
PEOU1		**0,904**					
PEOU2		**0,891**					
PEOU3		**0,907**					
PU1			**0,919**				
PU2			**0,937**				
PU3			**0,886**				
Sat1				**0,910**			
Sat2				**0,890**			
Sat3				**0,891**			
TSE1					**0,889**		
TSE2					**0,899**		
TSE3					**0,828**		
Tr1						**0,817**	
Tr2						**0,908**	
Tr3						**0,894**	
UB1							**0,771**
UB2							**0,772**
UB3							**0,871**

2. Reliability Test

The consistency of an indicator was tested by the reliability test. They are measured by the value of composite reliability and Cronbach's alpha and the result was seen in Table 3.

Table 3. The Value Of Composite Reliability And Cronbach's Alpha

	Cronbach's Alpha	Composite Reliability
Conf	**0,881**	**0,926**
PEU	**0,884**	**0,928**
PU	**0,902**	**0,939**
Sat	**0,879**	**0,925**
TSE	**0,843**	**0,905**
Trust	**0,853**	**0,906**
UB	**0,800**	**0,847**

Table 3 shows that all constructs have a composite reliability value above 0.7 (reliable).

C. STRUCTURAL MODEL TEST

The measurement model test was done early before structural model test analyzing the structural relationship between the measured variables and their latent variables. They include path coefficients and coefficient of determination test.

The determining of a hypothesis is accepted or not was analyzed using path coefficients and the results can be seen in Table 4 and Figure 2.

Table 4. Hypothesis Analisis

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	P Values	explanation
Conf -> PU	0,207	0,206	0,056	**0,000**	**accepted**
Conf -> Sat	0,759	0,760	0,033	**0,000**	**accepted**
PEU -> PU	0,595	0,595	0,058	**0,000**	**accepted**
PU -> UB	0,144	0,144	0,073	**0,050**	**accepted**
Sat -> UB	0,296	0,296	0,075	**0,000**	**accepted**
TSE -> Conf	0,346	0,349	0,060	**0,000**	**accepted**
TSE -> PEU	0,502	0,502	0,049	**0,000**	**accepted**
TSE -> PU	-0,013	-0,011	0,038	**0,730**	**rejected**
Trust -> UB	0,153	0,160	0,065	**0,020**	**accepted**

The analysis result on Figure 2 shows that almost all of the hypotheses are accepted except for hypothesis 1b. TSE had not significantly affect Perceived Usefulness. The result is not accordance with the studies by Bailey et al. [5], Shiau et al. [3], and Zhou et al. [6].

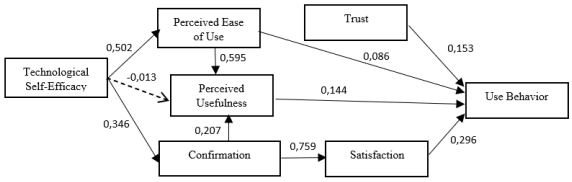

Figure 2. Hypothesis Analysis Result

The hypotheses 1a and 1b were accepted. TSE had significant affect

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Perceived ease of use. The result is in line with the studies by Bailey et al. [5]. The technological self-efficacy had also significant affect Confirmation and the result is accordance with Shiau et al. [3].

The analysis on TAM part of the model shows that hypotheses H2a and H2b were accepted. Perceived ease of use had significant affect use behavior and it is an accordance with study conducted by Senyo and Osabutey [8], Shaikh et al. [9], Singh et al. [10], Alalwan et al. [11]. Perceived ease of use had significant affect Perceived Usefulness and the result is in accordance with Singh et al. [12], Candra et al. [13], Hu et al. [14], Bailey et al. [5], and Zhou et al. [6].

Hypothesis H3 also shows the significantly effect on the relation of Percieved Usefulness and Use Behavior. The result is in accordance the studies by Senyo and Osabutey [8], Singh et al. [12], Chauhan et al. [15], Kalinic et al. [16], Singh et al. [10], Abrahão [17], Morosan and DeFranco [18], Shiau et al. [3], Baabdullah et al. [19], Alalwan et al. [20], Alalwan et al. [11], Alshare and Mousa [21], and Zhou et al. [6].

Confirmation has significant affect Perceived Usefulness and Satisfaction (H4a and H4b). And the result is an accordance with Aslam et al. [2] and Shiau et al. [3].

The last relations on Use Behavior show that Satisfaction and Trust (H5 and H6) were also accepted. The significantly affect Satisfaction on Use Behavior is accordance the studies conducted by Sharma and Sharma [4] and Shiau et al. [3]. Other result, the significantly affect Trust on Use Behavior is accordance the studies conducted by Shareef et al. [22], Hu et al. [23], Kaabachi et al. [24], and Yuan et al. [25].

The results on TSE as a predicted factor for confirmation and perceived ease of use and not for perceived usefulness are interesting for developer of fintech application. They must aware to technological self-efficacy of users.

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