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A Study of Investor Financial Behavior on Online Trading System in Indonesian Stock Exchange: E-Satisfaction, E-Loyalty, And E-Trust

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A B S T R A C T

The online trading system allows traders to enter orders directly into the system via electronic media immediately and directly. This condition will affect the level of customer satisfaction while increasing customer loyalty. This research examines financial behavior in terms of satisfaction, trust, and loyalty in the use of an online trading system in the Indonesian stock exchange. Data was collected through an electronic questionnaire for the Indonesia Stock Exchange investors using convenience sampling. As many as 255 respondent data were obtained and processed using PLS-SEM (Structural Equation Modeling-Partial Least Square) approach. The results show that financial behavior, e-trust, e-satisfaction have an effect on the creation of e-loyalty of online trading system users in the Indonesia Stock Exchange. This suggests that the online trading system providers must improve their system's perceived satisfaction, including the features of advice and support in making purchasing decisions.

A B S T R A K

Sistem perdagangan online memungkinkan pedagang untuk memasukkan pesanan langsung ke dalam sistem melalui media elektronik dengan segera dan langsung, dan kondisi ini akan mempengaruhi tingkat kepuasan pelanggan sekaligus meningkatkan loyalitas pelanggan. Penelitian ini untuk menguji perilaku keuangan dalam hal kepuasan, kepercayaan dan loyalitas dalam penggunaan system perdagangan online di bursa efek Indonesia. Data dikumpulkan melalui kuesioner elektronik investor Bursa Efek Indonesia menggunakan convenience sampling, sebanyak 255 data responden telah didapat dan diproses menggunakan pendekatan PLS-SEM (Partial Least Square-Structural Equation Modeling). Hasil penelitian menunjukkan bahwa perilaku keuangan, kepercayaan elektronik, kepuasan elektronik berpengaruh pada penciptaan kesetiaan elektronik pada pengguna sistem perdagangan online di Bursa Efek Indonesia. Hal ini menyiratkan bahwa penyedia sistem perdagangan online harus meningkatkan kepuasan yang dirasakan dari sistem mereka termasuk fitur saran dan dukungan dalam membuat keputusan pembelian.

1. INTRODUCTION

Today's rapid technological development has caused many entrepreneurs and companies to change their perspective in doing business. The company's delay in using technology will cause its growth to lag in several aspects, such as efficiency, connectivity, and market expansion. The internet has drastically changed the way companies do their business, including the financial industry and capital markets. Technological developments in this sector quickly changed the dynamics and process of transactions. Customers can choose to use the stockbroker or call the office for a deal. This method is considered to be the most recent in its time. However, by telephone, it can become inefficient due to potential errors in communication, restrictions on customer authentication, and the density of telephone lines in peak trading sessions and costs incurred.

The online trading system allows traders to enter orders directly into the system through electronic media such as laptops, personal

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computers, and cellular phones with internet network support. The online trading system does not necessarily make everything go well. Some obstacles and complaints arose from users, began to have difficulty accessing, features that were less expected, to systems that did not respond when peak transactions. These conditions will affect the level of customer satisfaction. As an effort to increase customer satisfaction, the trading system will be perfected regularly for the convenience of traders. Online relationship quality, which is relationship satisfaction and relationship trust, plays an essential role in strengthening e-loyalty in the quality of website design (Tsai, 2017). Trust in electronic media or e-trust is believed to increase online customer loyalty, so online merchants must expand their shipping area options and types of products to attract new customers and maintain real customer satisfaction, trust, and loyalty (Radionova-Girsa & Lahiža, 2017). Conditions like this will affect the level of customer satisfaction. As an effort to increase the level of customer satisfaction, the trading system will be perfected regularly for the convenience of traders. Evaluation of the application of an online trading system has aims to improve company performance to keep the company competitive against its competitors. This evaluation is needed so that gaps in the system can always be overcome. This gap will be able to have an impact on the company's image. One negative effect is that poor system performance can spread and produce a negative image of the company. Furthermore, this negative image can affect clients' trust, and clients can switch to their competitors, thereby reducing company profits. If the user is not satisfied with the software used, they will look for ways that the system will no longer be used. In e-commerce, loyal customers are considered very important. Customer loyalty is generally associated with satisfaction with service quality. Because of online transactions, trust is a condition for exchange, and satisfaction plays an important role in business continuity.

Belief in electronic media or e-trust is believed to increase online customer loyalty so that online merchants must expand their shipping area options and product types to attract new customers and maintain existing customer satisfaction, trust, and loyalty. The study of trust, commitment, and satisfaction of banking services conducted by Kingshott et al. (2018) using the data from 336 small and medium business customers in the New Zealand banking industry found that the quality of offline and online services affected satisfaction with their e-banking services, which ultimately affects customers' trust and commitment to the service. The level of satisfaction and loyalty using e-commerce media also differs between gender, age, and motivation in its use (Fang et al., 2016). Research related to loyalty, trust, and satisfaction in using information technology and e-commerce media is still developing in various aspects, both from the demographic elements and from the aspects of the industry and human behavior in finance. Nisar and Prabhakar (2017) found a direct relationship between e-service quality, e-satisfaction, and e-loyalty in online shopping. E-satisfaction, e-trust, and e-loyalty positively and significantly influence online repurchase intention (Bulut, 2015). However, an analysis shows that e-commerce still faces challenges compared to offline traders because customers cannot feel and try products, and may eventually choose products they do not want. This condition allows for further study of behavior, especially behavior in the use of technology such as online trading system.

Financial literacy affects individual financial behavior. Financial literacy can be interpreted as financial knowledge to obtain profits from financial transactions. A person with good financial literacy will influence his financial behavior in a positive direction, such as paying bills on time, having savings and investments, and the ability to manage credit cards wisely (Herawati et al., 2018; Lusardi & Mitchell, 2011; Purniawati & Lutfi, 2017). Therefore, financial literacy influences financial behavior (Laily, 2016). Chen and Volpe (2002) show that students with lower financial literacy tend to choose the wrong financial decisions than those who have higher financial literacy. Other findings by Robb and Woodyard (2011) show that good financial behavior subjectively and objectively influences higher levels of financial literacy. Whether one's financial management is wise or not is closely related to individuals' ability and knowledge about concepts in financial literacy. Therefore, financial literacy affects almost all aspects related to planning and spending, including financial behavior.

Financial literacy and Self Efficacy are two factors that play a role in influencing how financial behavior. Self-Efficacy can be understood as an individual's belief about his ability to organize and carry out a series of actions deemed necessary to achieve something desired. Concerning financial behavior, self-efficacy related to finance can be defined as a belief in a person's ability to change financial behavior for the better (Ali et al., 2016; Tang & Baker, 2016). Self-Efficacy or confidence is a key component in Bandura's social learning theory that

characterizes a person's confidence based on his ability to successfully carry out tasks (Bandura, 1977).

Individual confidence in his ability can help achieve the expected results because individuals have confidence in taking action to achieve goals. Someone who is confident sees difficult tasks as a challenge to be met rather than as a threat that must be avoided. Danes and Haberman (2007) show that attitudes in managing funds get an average score higher than that of confidence in making good financial decisions. This shows that self-efficacy affects financial behavior in the future so that way, financial independence helps individuals act and change their financial behavior for the better. Financial behavior in transactions on the stock market is closely related to investors' mindset in investment decisions, savings, and cash management. A study of stock trading activity using brokerage data in Queensland found that men tend to be more confident in financial matters than women. In terms of investing in stocks, buying, and selling of shares by men is 45 percent higher than women (Barber & Odean, 2001). These results indicate that there is a tendency for men to be more confident as decision-makers. Besides, this behavior is also supported by a trading system that is well accommodated in terms of the ease of information obtained and the ease of the investment process. This confidence cannot be separated from environmental support, such as a system that helps in investment activities. The existing researches have examined it separately between loyalty, trust, and satisfaction (Bulut, 2015; Fang et al., 2016) and financial behavior (Barber & Odean, 2001; Herawati et al., 2018).

Satisfaction and trust are related to customer satisfaction, while financial behavior is closely related to decision making. This research has a novelty in combining the concepts of financial behavior in decision making with satisfaction, trust, and loyalty in the use of online trading systems on the Indonesian stock exchange. This is the focus of this research because investment decisions also involve convenience in using investment media. Therefore it is important to know the relationship of satisfaction, trust, and loyalty in the use of the system.

The development of research that focuses on financial behavior is still developing and interesting to study. Research on financial behavior is still little done, mainly related to the satisfaction of electronic media users in decision making. The contribution of this research is the novelty of combining the concepts of financial behavior in decision making with satisfaction, trust, and loyalty in the use of an online trading system that has not been done before, or prior research is only discussed on its own namely financial behavior itself (Barber & Odean, 2001; Easley & Yang, 2015; Fang et al., 2016; Gambetti & Giusberti, 2019; Gurun et al., 2018; Herawati et al., 2018; Nisar & Prabhakar, 2017) and satisfaction, trust, and loyalty itself (Bulut, 2015; Kingshott et al., 2018; Radionova-Girsa & Lahiža, 2017; Tsai, 2017). In this study, trust, satisfaction, and financial behavior are used as variables in the relationship with perceived investor loyalty in the online trading system.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

E-Loyalty

Customer loyalty has been defined as a firm commitment to repurchase or rejuvenate preferred products/services in the future, thus causing the same brand or purchase of the same brand, regardless of situational influences and marketing efforts that have the potential to cause a transition behavior (Oliver, 2009). This general definition seems to apply to e-loyalty as well. Another definition, shorter and more specific, is given by Anderson and Srinivasan, (2003), who define e-loyalty as an attitude that benefits customers to the electronic business, which results in repeat buying behavior. Favorable preferences and attitudes assume customer satisfaction, which is generally considered to be the primary driver of loyalty (Anderson & Srinivasan, 2003; Oliver, 2009), also in online settings (Cho et al., 2002; Gummerus et al., 2004) because it is considered difficult to get loyal customers on the internet (Gommans et al., 2001), satisfaction with traders and their services may be more important online than offline (Kingshott et al., 2018; Shankar et al., 2003). E-commerce itself is still facing challenges compared to offline traders because online customers cannot feel and try the product, so they might choose the product they do not want (Nisar & Prabhakar, 2017). According to Bulut (2015), Zeithaml et al. (1996), e-loyalty indicators are encouraging friends and relatives to do business with the website, saying positive things about the web site to other people, doing more business with the web site in the next few years, recommending the web site to someone who seeks my advice, considering the web site to be the first choice to buy the kind of product, and purchasing online recently.

Financial Behavior

Economic behavior is often a problem in the market. Good behavior tends to make the market stable or lead to growth, unlike the case with behavior classified as deviant from the perspective of decision making. The process of decision making by investors in the market involves a variety of thoughts and underlying factors. These thoughts and factors are sometimes beyond reason. Different thinking can lead to behavioral anomalies in decision making.

Financial behavior appears in line with the development of the world of business and technology that involves aspects of behavior in making financial and investment decisions. Business actors are human beings who have reason and intuition in decision making so that it involves a little more behavior. Behavioral finance is a science that studies how humans uncover and react to information obtained to make decisions that can optimize the rate of return by paying attention to the risks in it (Ainia & Lutfi, 2019; Lintner, 1998).

Behavioral finance is a scientific discipline in which interdisciplinary interactions are intertwined and continue to integrate so that the discussion cannot be isolated (Ricciardi & Simon, 2000). It can be concluded that financial behavior is the study of how humans take action in making decisions in investing in response to information obtained. Investors do not always behave rationally and do not deviate and can be modeled quantitatively. Investors 'financial behavior in online ordering, for example, closely involves investors' experience in interacting with the system so that satisfaction has an important role in investment decision making, savings, and cash management. Shim et al. (2008) found that reinvestment will occur if investors are satisfied and have a high level of trust in investment companies. Individual investors in Taiwan are very concerned about the accuracy and ease of access to information, while investment experience does not affect trust development. However, individual Taiwanese investors have difficulty trusting their social networks, especially in terms of benevolence-based trust in trusting the financial intermediaries (Yang, 2019). These results concur with Gurun et al. (2018) stating that the trust of investors plays a critical role in the financial intermediation industry. While anxious individual investors tend to save money and avoid investment, they feel high risk while control and returns are low, whereas individuals with high extroversion, independence and self-control are more likely to invest (Dewberry et al., 2013; Gambetti & Giusberti, 2019; Juanchich et al., 2016). In this research, financial behavior related to policies and confidence in investment refers to the four important aspects of good financial management in Herawati et al. (2018) which include the behavior in writing financial planning/budgeting, the behavior of savings and or investing, the behavior of using or expending money, and behavior of evaluating, which, in this case, is related to the evaluation of the use of the budget.

Based on this, the following hypotheses are proposed:

H_1: There is a significant influence of Financial Behavior on e-trust in the use of online trading systems.

H_2: There is a significant influence of Financial Behavior on e-satisfaction in the use of online trading systems.

H_3: There is a significant influence of Financial Behavior through e-satisfaction on e-trust in the use of online trading systems.

E-Satisfaction

According to Hansemark and Albinsson (2004), e-satisfaction is the fulfillment of requirements, goals, or desires reflected in customers' overall attitude towards online merchants, or emotional interaction by respecting what customers expect online with what they get. Also, global policymakers must be sure that customer satisfaction is the primary key to the health of national economic performance (Chen et al., 2014). Customer satisfaction is closely related to interpersonal trust (Geyskens et al., 1996) and is considered an antecedent of trust (Christodoulides & Michaelidou, 2011). The positive effects of satisfaction on trust can also be expected in the online environment, although empirical research in this domain is scarce. The positive impact of customer satisfaction on trust in service providers has been shown for the book industry (Pavlou, 2018). In analogy with these findings, the experience of satisfying customers with specific e-sellers is expected to increase their willingness to do more online purchases of e-sellers, as well as their trust in online media (Teymoori et al., 2016) based on trust. Satisfaction with the system's specific applications will increase trust in the system as a whole (Nisar & Prabhakar, 2017). Online service and offline seem to have differed in results relating to customer loyalty. Shankar et al. (2003) found that loyalty and satisfaction have a reciprocal relationship such that

each positively reinforces the other, and this relationship further strengthened online. A study by Lin and Lekhawipat (2014) shows that satisfied customers are expected to buy back in the future than dissatisfied customers. E-satisfaction is defined as the buyer's satisfaction for his purchase in certain electronic trading companies (Anderson & Srinivasan, 2003). According to Bulut (2015) and Ribbink et al. (2004), the indicators of e-satisfaction are consumers feel happy about the services provided, consumers are satisfied with the company's services, consumers feel happy to make purchases through the website, consumers are satisfied with online purchasing decisions, and consumers feel that the decision to buy online is a wise decision.

Based on this, the following hypotheses are proposed:

H_4: There is a significant influence of E-satisfaction on e-trust in the use of online trading systems.

H_5: There is a significant influence of E-satisfaction on e-loyalty in the use of online trading systems.

H_6: There is a significant influence of E-satisfaction through e-trust on e-loyalty in the use of online trading systems.

E-Trust

Trust is considered another important part of loyalty (Reichheld & Schefter, 2000). Trust is consistently related to the vulnerability of trustees (Bigley & Pearce, 1998; Singh & Sirdeshmukh, 2000) because, without the vulnerability of the trustee to the given trust, trust becomes irrelevant. In business studies, trust is essential for building and maintaining long-term relationships (Geyskens et al., 1996; Singh & Sirdeshmukh, 2000). The commonly used definition of trust is of Moorman et al. (2006), which defines it as the desire to depend on exchange partners where a person has self-confidence. This definition is consistent with existing research, which links trust with "belief in others' intentions and motives" (Lewicki et al., 1998). This research is also repeated by recent research in offline and online services (Cheung & Lee, 2002), which defines trust as "the level of trust or certainty of customers in exchange options." Kimery & McCord (2002) stipulates that E-trust in an E-retailer is when a customer accepts to accept online transactions through positive expectations about future actions. E-trust is the trust given by consumers to buy via the internet. Therefore, E-trust is defined as the level of customer trust in online exchanges or online exchange channels.

Electronic exchange is believed to present many risks to customers (Grabner-Kräuter & Kaluscha, 2003). Trust seems to be very important to create loyalty when the level of risk is felt high. Online purchases are considered risky, because customers do not have direct contact with the company, namely through sales staff or physical stores (Reichheld & Schefter, 2000), and must submit sensitive information, such as credit card numbers, to complete transactions. The absence of interpersonal interactions also shows that online trust is mainly cognitive. It is based on customer judgment about the reliability and ability of traders or exchange channels, and not trust based on ties between individuals. The lack of empirical studies on trust in online exchanges is on the effects of e-trust on investor behavior. Grabner-Kräuter & Kaluscha (2003) also show a lack of studies on trust in e-sellers because many previous studies only investigated website searches, purchase scenario hypotheses, or internet banking. It must be explicitly acknowledged that there are different beliefs, and differences need to be made between one's disposition, the tendency to believe, system-based trust and interpersonal trust (Grabner-Kräuter & Kaluscha, 2003). System-based trust is equal to e-trust and relates to customer trust in buying or searching for goods/services information online. Lack of trust is often cited as an excuse not to buy from online traders (Lee & Turban, 2001). In analogy with traditional loyalty research findings, positive word of mouth (Hollman et al., 1998) can also be expected as a result of trust. However, the lack of e-trust cannot be directly affected by online traders, which can only affect the trust of their e-sellers.

Trader trust is the most widely studied form of trust in online exchanges, while system-based trust has been largely ignored (Grabner-Kräuter & Kaluscha, 2003). E-trust is expected to influence the customer's desire to buy online, but empirical evidence is lacking. A study by Radionova-Girsa and Lahiža (2017) found that e-trust has a significant influence on the use of internet banking, while trust in the bank itself does not affect. Another study by Bilgihan and Bujisic (2015) found that web design features are important for online relationship marketing. Furthermore, both commitment (seller and buyer) were found to be precursors of trust, whereas affective commitment is the precursor of e-loyalty. According to Ribbink et al. (2004), indicators of e-trust are willing to provide personal

information to online companies, willing to provide credit card numbers to online companies, willing to pay in advance for purchases over the internet, view online companies are professionals in their fields, and view online companies will fulfill their promises.

Based on this, the following hypotheses are proposed:

H_7: There is a significant influence of e-trust on e-loyalty in the use of online trading systems.

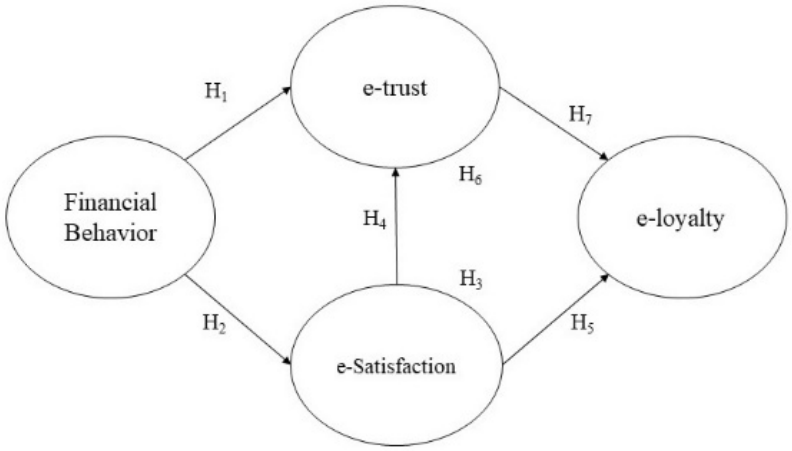

Figure. 1
Conceptual Framework

3. RESEARCH METHOD

This research is an explanatory study with a quantitative approach using PLS-SEM, which explains the relationship between financial behavior, e-satisfaction and e-trust and e-loyalty of investors through an online trading system on the Indonesia Stock Exchange. This research explores research that has been done previously by Bulut (2015), Herawati et al. (2018), Ribbink et al. (2004), Zeithaml et al. (1996) with modifications to the indicators (research instruments) to adjust the object of research on the Indonesian stock exchange's online trading system. The data used are primary data with the technique of collecting data through electronic questionnaires distributed to investors of the Indonesia Stock Exchange through brokerage companies, as many as 326 registered investors. These investors are the target respondents. From 326 registered investors, 255 respondents' data were obtained and used in this study, namely Indonesian Stock Exchange investment actors who use the online trading systems in Indonesia Stock Exchange. The sampling technique used was purposive sampling with certain respondent criteria to obtain the appropriate data for this study. The sample in this study were respondents who were more than 17 years old and had conducted online trading using an online system in the last year. The sample data uses investor data provided by brokerage companies and collected with e-survey questionnaires. Likert scale is used to make the data processable with the answer range of each of the indicators (table 1) between 1 (strongly disagree) - 5 (strongly agree) which are processed using the outer model and inner model by PLS-SEM (Partial Least- Structural Equation Modeling Square) approach and path estimate.

In the hypothesis test, the relationship between latent variables is significant if the value of *p*-value $<\alpha = 0.05$ or t-count> 1.96. While the coefficient of determination there are three criteria, namely, the influence between latent variables is said to be strong if the value of $R^2 > 0.67$; moderate if $0.33 < R^2 \leq 0.67$; weak if the value is $0.19 < R^2 \leq 0.33$ and is said to be very weak if the value of R^2 is ≤ 0.19. Table 2 represents the step analysis in PLS-SEM. Convergent validity is evaluated by examining the outer loadings of the indicator of each construct to determine the average variance extracted (AVE). AVE is a summary indicator of convergence calculated from the variance extracted for all items loading on a single construct and the rule of thumb for adequate convergence is an AVE > 0.50, indicating that more than half of the indicator variance is included in the construct score (Hair Jr. et al., 2017).

Table 1. Measurements Items

Construct	Items	Code	References
Financial Behavior related to policies and confidence in investment using an online trading system	I am writing financial planning/budgeting,	FB1	(Herawati et al., 2018)
	I always savings and or investing,	FB2	
	I always using or expending money, and	FB3	
	I always evaluate the use of the budget.	FB4	
E-satisfaction the experience of satisfying investor with online trading system	I am feeling happy about the services provided.	ES1	(Bulut, 2015; Ribbink et al., 2004)
	I am satisfied with the systems services.	ES2	
	I am feeling happy to make purchases through online trading systems.	ES3	
	I am satisfied with online purchasing decisions.	ES4	
	I feel that the decision to use online systems is a wise decision.	ES5	
E-trust the level of customer trust in online exchanges, or online exchange channels such as online trading system	I will provide personal information to online systems.	ET1	(Ribbink et al., 2004)
	I will provide credit card numbers to online systems.	ET2	
	I feel no problem to pay in advance for purchases over the internet.	ET3	
	Online trading systems are systems that are professional in services.	ET4	
	Online systems will fulfill their promises.	ET5	
E-loyalty a firm commitment to repurchase or rejuvenate preferred products/services in the future	I encourage friends and relatives to do business with the online trading systems	EL1	(Bulut, 2015; Zeithaml et al., 1996)
	I say positive things about the online systems to other people.	EL2	
	I will do more business with the online systems in the next few years.	EL3	
	I would recommend the online systems to someone who seeks advice	EL4	
	I consider this system to be my first choice to buy the kind of product.	EL5	
	I most recently purchased online.	EL6	

Table 2. PLS-SEM analysis

Step of Analysis	Analysis Unit	Rule of thumb
Measurement model evaluation	Indicator reliability: Loading factor	>0.70
	Internal consistency reliability: Composite reliability and Cronbach's alpha	>0.70
	Convergent validity: Average Variance Extracted (AVE)	>0.50
	Discriminant validity: Correlations among l.vs. with sq. rts. of AVEs	< sq. rts. of AVEs
Structural model evaluation	Full collinearity VIF's	<5
	t-statistics	>1.96
	p-value	*P*<0.005

R^2 value	$R^2 > 0.67$; $0.33 < R^2 \leq 0.67$; $0.19 < R^2 \leq 0.33$; R^2 is ≤ 0.19 (Strong, Moderate, Weak, Very Weak)

Source: (Chinn, 1998; Ghozali, 2014; Hair Jr. et al., 2017; Hwang & Takane, 2004; Monecke & Leisch, 2012)

4. DATA ANALYSIS AND DISCUSSION

This study aims to examine the behavior of financial behavior in terms of satisfaction, trust, and loyalty in the use of online trading systems in the Indonesian stock exchange using data from 255 respondents of the Indonesia Stock Exchange investors. Table 3 shows that the most dominant respondents were male (54.9%), aged 27-36 years (36.47%), hold a bachelor degree (46.27%), worked as a private worker (41%), with an income of 3,000,000 - 5,999,999 per month (50.20%), and resides in East Java (42%). The variables used are financial behavior, e-trust, e-satisfaction, and e-loyalty. Data was calculate using *WarpPLS* application with Partial Least Square (PLS) regression method and path estimation.

This method is specifically designed to overcome problems in multiple regression. Technically it aims to produce a model that transforms a set of correlated explanatory variables into a new set of variables that are not mutually correlated. The outer model obtained is then evaluated based on the substantive content model by comparing the relative weight and significance of the weight. The inner model is evaluated by looking at the percentage variance and looking at the R-square value and seeing the magnitude of the structural path coefficient. The stability of these estimates was evaluated using a two-way statistical t-test or p-value through the bootstrapping procedure.

Table 3. Description of Respondents

Demographics	Category	Frequency	Percentage
Gender	Male	140	54.90%
	Female	115	45.10%
Age	17 – 26 years old	30	11.76%
	27 – 36 years old	93	36.47%
	37 – 46 years old	81	31.76%
	More than 46 years old	51	20.00%
Last Education	High School	30	11.76%
	Diploma	55	21.57%
	Bachelor Degree	118	46.27%
	Master Degree	52	20.39%
Profession	Student	30	12%
	Private Employees	104	41%
	Government Employees	28	11%
	Entrepreneur	20	8%
	Professional (Doctor, Teacher, Lawyer, etc.)	37	15%
	Housewife	36	14%
Income per month	Less than 3.000.000 rupiah	45	17.65%
	3.000.000 – 5.999.999	128	50.20%
	6.000.000 – 10.000.000	49	19.22%
	More than 10.000.000 rupiah	33	12.94%
Region	East Java	107	42%
	Central Java	46	18%
	West Java	30	12%

	Jakarta	33	13%
	Banten	9	4%
	Yogyakarta	5	2%
	Bali	4	2%
	Sumatera	7	3%
	Kalimantan	8	3%
	Makassar	3	1%
	Medan	3	1%

Measurement model evaluation

The following are the results of the initial stages of a Partial Least Square regression using WarpPLS Ver.6.

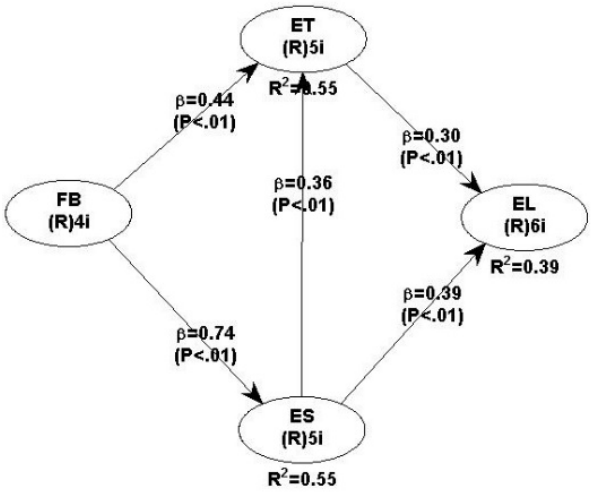

Figure 1. Initial Model PLS-SEM

Table 4. Outer Model

	AVE	Composite reliability
FB	0.696	0.902
ES	0.667	0.908
ET	0.669	0.91
EL	0.43	0.753

Table 5. Loading Factor

	FB	ES	ET	EL
FB1	0.790	0.081	-0.051	-0.039
FB2	0.847	-0.038	0.071	0.037
FB3	0.848	0.191	-0.089	0.066
FB4	0.851	-0.227	0.065	-0.066
ES1	0.942	0.611	0.169	-0.068
ES2	-0.038	0.873	-0.089	-0.056
ES3	-0.214	0.867	0.008	0.107
ES4	-0.128	0.851	-0.205	-0.031
ES5	-0.291	0.850	0.168	0.028
ET1	0.148	-0.034	0.879	-0.091

ET2	0.215	-0.091	0.828	-0.129
ET3	0.287	-0.380	0.788	-0.068
ET4	-0.206	0.126	0.800	0.110
ET5	-0.468	0.386	0.790	0.194
EL1	-0.341	0.537	0.489	0.687
EL2	0.061	0.521	0.122	0.610
EL3	0.214	-0.004	-0.081	-0.255
EL4	0.113	-0.270	-0.172	0.843
EL5	0.291	-0.326	-0.203	0.794
EL6	-0.190	-0.126	-0.036	0.750

Can be seen in the initial model in Figure 1 with the support of Table 4 and Table 5 which shows that the loading value of the EL3 indicator factor of the e-loyalty variable has a value of less than 0.6 that is equal to -0.255 and has the AVE value of the e-loyalty variable also smaller than 0.5 that is equal to 0.43. According to Chinn (1998), an indicator is said to have good reliability if the value is greater than 0.7. The loading factor of 0.5 to 0.6 can still be maintained for a model that is still under development. Based on these criteria, the initial model produced with the AVE value and the loading value is less than 0.6. It needs to be modified by eliminating indicators that have a loading factor value less than 0.6 so that the AVE value is greater than 0.5. Modifications are made by eliminating the EL3 indicator and then repeating the stages of the model formation so that a new model is obtained and the value of AVE and a new loading factor. The following are the new modeling results in Figure 2 with the value of AVE and loading factors in tables 6 and 7.

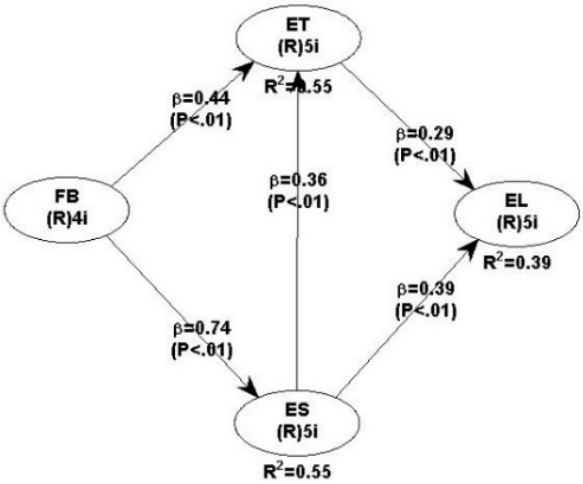

Figure 2. Final Model PLS-SEM

The results in Figure. 2 and Table 6 show that all values of loading factors from indicators have values above 0.7. However, some have a value between 0.6 to 0.7, which is according to Chinn (1998), can still be maintained for a model and AVE values above 0.6 so that these results indicate that the validity criteria have been met. Table 6 also shows the composite reliability value and Cronbach alpha has a value above 0.7 so that this result indicates that the reliability criteria have been met. It can be concluded that all of the indicators can measure e-loyalty variables and financial behavior, e-trust, and e-satisfaction. We also find that the model fits with empirical data, as seen in the Average path coefficient (APC) and Average R-squared (ARS), respectively of 0.443 and 0.494 and significant at 5%. The model also does not contain multicollinearity because the Average VIF (AVIF) of 1,989 is below 5. In table 7, we can see the correlation between indicators with the square root AVE.

As we can see in Table 7, the square root value of AVEs is greater than the correlation value between indicators. This means that all reflective indicators have good convergent and discriminant validity. Square roots of average variances extracted (AVEs) shown on diagonal.

Table 6. Variables, Loading Factor, Composite Reliability, Cronbach Alpha, and AVE

Variables	Indicator	Mean	Standard Deviation	Loading	AVE
Financial Behavior CR=0.902 CA=0.854	I am writing financial planning/budgeting,	4.302	0.747	0.790	0.696
	I am always savings and or investing,	4.067	0.823	0.847	
	I am always using or expending money, and	4.259	0.786	0.848	
	I always evaluate the use of the budget.	4.004	0.786	0.851	
E-satisfaction CR=0.908 CA=0.871	I am feeling happy about the services provided.	4.071	0.717	0.611	0.667
	I am satisfied with the systems services.	4.314	0.707	0.873	
	I am feeling happy to make purchases through online trading systems.	4.169	0.704	0.867	
	I am satisfied with online purchasing decisions.	4.396	0.673	0.851	
	I feel that the decision to use online systems is a wise decision.	4.216	0.673	0.850	
E-trust CR=0.910 CA=0.876	I will provide personal information to online systems.	4.004	0.781	0.879	0.669
	I will provide credit card numbers to online systems.	4.059	0.769	0.828	
	I feel no problem to pay in advance for purchases over the internet.	3.831	1.015	0.788	
	Online trading systems are systems that are professional in services.	4.078	0.861	0.800	
	Online systems will fulfill their promises.	4.078	0.722	0.790	
E-loyalty CR=0.833 CA=0.748	I encourage friends and relatives to do business with the online trading systems	4.420	0.658	0.688	0.508
	I say positive things about the online systems to other people	4.184	0.711	0.609	
	I would recommend the online systems to someone who seeks advice	4.114	0.850	0.844	
	I consider this system to be the first choice to buy the kind of product	4.027	0.801	0.802	
	I most recently purchased online	3.996	0.853	0.757	

Table 7. Correlations among l.vs. with sq. rts. of AVEs

	FB	ES	ET	EL
FB	0.834	0.73	0.695	0.566
ES	0.73	0.817	0.638	0.573
ET	0.695	0.638	0.818	0.531
EL	0.566	0.573	0.531	0.713

Structural model evaluation

The next stage of the PLS-SEM analysis is the structural model evaluation stage. At this stage, we will see the results of VIF's full collinearity, p-values, R square values, and path coefficients to directly or indirectly get the effects of each variable. Based on table 8 we can see the adjusted R square values for e-satisfaction, e-trust, and e-loyalty are 0.547, 0.542, and 0.385 with R square values of 0.548, 0.545, and 0.39 with p-values respectively <0.005 (<0.001). The model also does not show multicollinearity because the VIF values are all below 5. The predictive values of ES, ET, and EL are good because they have positive values above zero. R-square values are in the interval of 0.33 to 0.67, so that the influence between variables is moderate.

Table 8. Full collinearity VIFs and R-squared coefficients

	Full VIFs	R squared	Adj. R squared	Q-squared	P-value
Financial Behavior	2.720				
E-Satisfaction	2.441	0.548	0.547	0.552	<0.001
E-Trust	2.143	0.545	0.542	0.543	<0.001
E-Loyalty	1.647	0.39	0.385	0.386	<0.001

Based on table 8 we can see the adjusted R square values for e-satisfaction, e-trust, and e-loyalty are 0.547, 0.542, and 0.385 with R square values of 0.548, 0.545, and 0.39 with p-values respectively <0.005 (<0.001). The model also does not show multicollinearity because the VIF values are all below 5. The predictive values of ES, ET, and EL are good because they have positive values above zero. R-square values are in the interval of 0.33 to 0.67, so that the influence between variables is at a moderate level.

The indirect effect of Financial Behavior (FB) to E-Trust (EL) through E-Satisfaction (ES) is 0.263 and significant at 5% with an effect size of 0.184 (medium). At the same time, the influence of E-Satisfaction (ES) to E-Loyalty (EL) through E-Trust (ET) is 0.103 significant at 5% and effect size 0.061 (weak).

Table 9. Path Analysis and Hypothesis Test

Path	Coefficients	P-Value	Effect Size	Conclusion
Financial behavior➔E-Trust	0.436	<0.001	0.304	Supported
Financial behavior➔E-Satisfaction	0.74	<0.001	0.548	Supported
Financial behavior➔E-Satisfaction➔E-Trust	0.263	<0.001	0.184	Supported
E-Satisfaction➔E-Trust	0.355	<0.001	0.241	Supported
E-Satisfaction➔E-Loyalty	0.393	<0.001	0.230	Supported
E-Satisfaction➔ E-Trust➔E-Loyalty	0.103	<0.001	0.061	Supported
E-Trust➔ E-Loyalty	0.291	<0.001	0.160	Supported

The effect of financial behavior on e-trust was found to be significant, with coefficients 0.436 and p-value <0.001. Based on these findings, hypothesis 1 is accepted, which means that there is a significant and positive effect of financial behavior on e-trust. Therefore, the investor's financial behavior can increase the e-trust of the online trading system in the Indonesian Stock Exchange. This shows that the online trading system of the Indonesia Stock Exchange has been able to facilitate the wishes of investors in financial management, making it easier for investors to make transactions and investors feel confident enough in the system. They are willing to provide financial information to the system. Investors also believe that online trading systems are systems that are professional in services (table 6). The results of this study confirm the results of the study by Gurun et al. (2018); Yang (2019) that the financial behavior of investors facilitated by the online trading system fosters trust in the system. The results obtained on the stock exchange also show the same results as research in the financial intermediaries' industry because of the need for advice in considering investment decisions.

The effect of financial behavior on e-satisfaction was found to be significant, with coefficients 0.74 and p-value <0.001. Based on these findings, hypothesis 2 is accepted, which means that there is a significant and positive effect of financial behavior on e-satisfaction. Therefore, the financial behavior of the investor can increase the e-satisfaction of the online trading system in the Indonesian Stock Exchange. These results indicate that the Indonesian stock exchange online trading system has provided good services to investors, and investors are satisfied with the service system. The system has provided support in purchasing transaction decisions. The results of this study confirm the research by Bulut (2015); Gurun et al. (2018); Ribbink et al. (2004), which shows that financial behavior in the online trading system affects the creation of investor satisfaction.

The effect of financial behavior on e-trust through e-satisfaction was found to be smaller than the direct effect of financial behavior on e-trust with

coefficients of 0.263 and 0.436. However, this mediation was significant (p-value < 0.001), so hypothesis 3 was rejected. The findings of this study confirm the results of studies by Radionova-Girsa & Lahiža (2017), which shows that financial behavior in utilizing the internet in the online trading system affects trust directly while the effect is smaller if through satisfaction.

The effect of e-satisfaction on e-trust was found to be significant, with coefficients 0.355 and p-value <0.001. Based on these findings, hypothesis 4 is accepted, which means that there is a significant and positive effect of e-satisfaction on e-trust. Therefore, an increase in e-satisfaction of the investor can increase the e-trust of the online trading system in the Indonesian Stock Exchange. This shows that investors are satisfied with the online trading system, which underlies the willingness to provide financial information to the system. These results are in line with research conducted by Bulut (2015); Ribbink et al. (2004) show that investor satisfaction influences trust in utilizing online trading systems on the stock exchange.

The effect of e-satisfaction on e-loyalty was found to be significant, with coefficients 0.393 and p-value <0.001. Based on these findings, hypothesis 5 is accepted, which means that there is a significant and positive effect of e-satisfaction on e-loyalty. Therefore, an increase in e-satisfaction of the investor can increase the e-loyalty of the online trading system in the Indonesian Stock Exchange, like the results of research by Bulut (2015).

The effect of e-satisfaction on e-loyalty (direct) was found to be greater than the indirect effect of e-satisfaction on e-loyalty through e-trust with coefficients of 0.393 and 0.103. However, this mediation was significant (p-value < 0.001), so hypothesis 6 was rejected. The findings of this study confirm the results of studies conducted by Bulut (2015); Ribbink et al. (2004), which shows the effect of investor satisfaction on the online trading system that affects the system's compared to trust first and then loyalty.

The effect of e-trust on e-loyalty was found to be significant, with coefficients 0.291 and p-value <0.001. Based on these findings, hypothesis 7 is accepted, which means that there is a significant and positive effect of e-trust on e-loyalty. Therefore, an increase in the e-trust of the investor can increase the e-loyalty of the online trading system in the Indonesian Stock Exchange. As seen in table 6, investor confidence in the system will increase investor loyalty so that investors will recommend and encourage their colleagues or friends to use the online trading system, especially related to trading transactions on the Indonesian stock exchange. These results are in line with the study results by Bulut (2015) and different from the results of research by Nisar & Prabhakar (2017). Investors tend to trust the online trading system more, and, in the end, they are loyal to keep using the media.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

Based on the results of research that has been obtained can be concluded that financial behavior variables, e-trust, e-satisfaction have a significant effect on the e-loyalty of online trading system users of the Indonesia Stock Exchange.

Second, while the relationship between financial behavior, e-trust, e-satisfaction, and e-loyalty proved significant, it was considered that the main determinant of e-loyalty was e-satisfaction. Although research from Bulut (2015) shows that e-trust plays a more important role than e-satisfaction, this study reveals that e-satisfaction has an important role in e-loyalty as in research by Lin & Lekhawipat (2014). This is what gives an additional theoretical contribution to the existing research and proves that investors' financial behavior influences satisfaction, trust, and loyalty in using the online system, hence expanding the theory regarding investor behavior on online trading.

The findings of this study can have implications for practitioners. The results reported that there are four factors - financial behavior, e-trust, e-satisfaction, and e-loyalty - those that influence users using the online trading system. Traders pay attention to satisfaction as a signal to intend to repurchase and financial behavior in second place. Therefore, the online trading system on the Indonesian stock exchange must first focus on the perceived satisfaction of their system, including the features of advice and support in making purchasing decisions. Trading on the stock market requires clarity of information and ease of information, and the results of such studies can indicate that user satisfaction has shown the ease and clarity of obtaining information, although this still requires more in-depth research.

The suggestion that can be given related to this research is on developing trust. There are several ways to develop trust in online trading system users. The first is developing a safer payment system that does not make early payments for transactions, data security, and privacy policies. Users have felt quite satisfied with the services provided by the stock exchange, and it is just that still found that the desire

of users who are less facilitated such as information about savings that have been made and evaluation of the use of funds during trading that needs attention in the online trading system of the Indonesian stock exchange.

This research has shown that users regard e-satisfaction as an important antecedent of repurchase intentions. Therefore, the online trading system should be able to provide additional features to users who want to develop their financial management with features such as self-organizer to facilitate the management of investments and funds owned.

This study has several limitations. First, research data is collected through respondents who respond to e-questionnaires distributed through brokerage companies. Thus, this research may not represent all users of the Indonesian stock exchange's online trading system. The future of research can collect data from different electronic buyers, such as through system user discussion forums and cross-cultural studies to be carried out. Second, this research is focused on three factors that influence e-loyalty by adding financial behavior models as factors that are considered to determine the use of the system. Future research can develop a more detailed model that can explain more factors related to financial behavior. The use of other approaches is also suggested in the effort to develop this research so that more renewable research is achieved, which can overcome the limitations that exist.

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