Digital Wallet Users in Indonesia: Factors Affecting Consumer Satisfaction and Consumer Loyalty

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Abstract. The digital revolution has changed the face of the financial industry. One of the adoptions of digital technology in the financial industry is the presence of digital wallet. Digital wallet application is currently very popular and rapidly adopted by the mobile users due to the growth of use of the internet. The purpose of this study is to investigate the effect of perceived value, ease of use, trust, perceived security, self-efficacy, and sales promotion on consumer satisfaction and consumer loyalty to the use of digital wallets in Indonesia. This research is a confirmatory study. The conceptual framework has been formulated based on the conclusions from the previous studies on factors that influence consumer satisfaction and consumer loyalty, both in the use of digital wallets, and in other industries. The framework is then analyzed empirically using covariance-based Structural Equation Modeling. The primary data used in this study consists of 443 respondents, who are consumers (users) of digital wallets in Indonesia. The analysis reveals that: (i) the factors that influence consumer satisfaction are perceived value, ease of use, self-efficacy, and sales promotion; (ii) the factors that influence consumer loyalty are perceived value, ease of use, trust, perceived security, sales promotion, and consumer satisfaction; (iii) consumer satisfaction factor can not mediate other factors to consumer loyalty.

Keywords: perceived value · ease of use · trust · perceived security · self-efficacy · sales promotion · consumer satisfaction · consumer loyalty

1 Introduction

The fourth industrial revolution, known as the digital revolution, is the most powerful transformational force that has occurred over the past few decades [1]. The digital revolution is marked by a massive shift from offline era to online one [2]. The digital revolution has transformed the industry, including the financial industry. Business products, services, and processes offered by companies in the financial industry have adopted digital technology such as a digital wallet.

The development of digital wallets is increasing rapidly which is in line with the growth rate of internet users in Indonesia. Based on the survey conducted by Indonesian Internet Service Providers Association (APJII) in 2018, the number of internet users in
Indonesia reached 171.17 million people or approximately 64.8% of the total population of Indonesia. The huge number of internet users, especially those who use smartphones, is leading to the rise of various applications, including digital wallets which are developed by start-up companies. Considering the widespread use of digital wallets in society, it is necessary to have a measurement for consumer satisfaction and consumer loyalty towards the use of digital wallets based on the factors that shape them.

The measurement for consumer satisfaction and consumer loyalty using some factors, both on the use of digital wallets and on the other sectors, had been published in previous research. The first factor was perceived value in which [3] stated that perceived value had a positive and significant effect to consumer satisfaction. Meanwhile, [4] stated that perceived value had a positive and significant effect on consumer loyalty. The second one was ease of use. Ease of use had a positive and significant effect on consumer loyalty [5] while Ease of use had a positive and significant effect on reuse intention [6]. The third factor was trust and trust had a positive and significant effect on consumer satisfaction and reuse intention [7]. The fourth one was perceived security. Perceived security had a positive effect on consumer satisfaction [8] while perceived security had a significant effect on reuse [9]. The fifth factor was self-efficacy in which self-efficacy had a positive effect on performance satisfaction [10]. Meanwhile, self-efficacy had a significant effect on reuse intention and word-of-mouth recommendation [11]. The last one was sales promotion in which sales promotion had a relation between consumer satisfaction and consumer loyalty [12].

The previous research on consumer satisfaction and consumer loyalty based on the factors that affect them, specifically concerning the use of digital wallets, mostly were case studies in other countries such as India, South Africa, and Mexico. In addition, the research on consumer satisfaction and consumer loyalty in Indonesia mostly were cases on specific digital wallets such as Go-Pay [13], OVO [14], and LinkAja [15]. Therefore, this research aims to generally determine and measure the effect of perceived value, ease of use, trust, perceived security, self-efficacy, and sales promotion on consumer satisfaction and consumer loyalty towards the use of digital wallets in Indonesia.

1.1 Digital Wallet

In general, payment can be defined as a transfer of funds that may aim to pay for goods and services [16]. Technology advancement in payment systems has changed the role of cash to a more efficient and economical non-cash form of payment [17]. One of the examples of non-cash payment is a digital wallet. Some examples of digital wallets in Indonesia are as follows: Jenius (Bank Tabungan Pensiunan Nasional), Go-Pay (PT Dompet Anak Bangsa), OVO (PT Visionet Internasional), and DANA (PT Espay Debit Indonesia Koe).

1.2 Consumer Loyalty

Consumer loyalty is a person’s attachment to a product, instead of repeated commercial transactions [18]. Scale of consumer loyalty consists of three dimensions [19], namely: (i) affective loyalty which refers to emotional loyalty in general; (ii) conative loyalty which refers to intention to continue using a particular product; and (iii) action loyalty.
which refers to willingness to provide a positive recommendation regarding a particular product.

Research on consumer loyalty, especially regarding the use of digital wallets, has been widely published, such as that consumer loyalty, represented by intention to reuse in this case, was influenced by consumer trust and satisfaction [7]. Meanwhile, Consumer loyalty, also represented by intention to reuse, was influenced by perceived security and trust [20].

1.3 Consumer Satisfaction

Consumer satisfaction is the comparison between expectations and perceived experiences [21]. Many studies have proven the relationship between service quality and consumer satisfaction [1], one of them is SERVQUAL. SERVQUAL model was introduced by [32] and it consists of five dimensions which are tangibles, reliability, responsiveness, assurance, empathy. Tangibles refer to attractive exterior and physical appearances. Reliability refers to ability to accurately perform the promised service. Responsiveness refers to ability to help consumers and provide service in a prompt manner. Assurance refers to ability to provide a safe and reliable service. The last dimension, empathy, refers to ability to provide attention to consumer issues.

Research on consumer satisfaction, especially regarding the use of digital wallets, has been widely published. [5] stated that the factors which influenced consumer satisfaction were convenience, efficacy, security, and problem solving. Meanwhile, [14] stated that consumer satisfaction was influenced by sales promotion which was represented by cashback in this study.

1.4 Perceived Value

Perceived value is the consumers’ overall assessment of the utility of a product based on perceptions of what is received and what is given [26]. According [8], there are two dimensions of perceived value namely functional value and symbolic value.

Research concerning the effect of perceived value on consumer satisfaction and consumer loyalty has been widely published. [77] stated that perceived value had a positive effect on consumer satisfaction and consumer loyalty in the case of retail banking in Indonesia. Similarly, [4] stated that perceived value had a positive and significant effect on the hotel industry in Indonesia. In addition, [19] stated that perceived value had a positive and significant effect on consumer loyalty which was represented by share of wallet (SOW), word of mouth (WOM), and e-WOM in the case of retail trade industry.

1.5 Ease of Use

Ease of use is the degree to which a person believes that using a product would be free of effort [3]. According to [10], ease of use is one of the factors which causes new users to accept or reject information technology. Some measurement indicators for ease-of-use variable in terms of financial technology [13], as follows: (i) ease in learning the features of digital wallets; (ii) ease in making transactions; (iii) ease in making purchases; and (iv) easy access to the user guide/user manual.
Research concerning the effect of ease of use on consumer satisfaction and consumer loyalty has been widely published. Ease of use had a positive and significant effect on consumer satisfaction towards the use of Go-Pay digital wallet [13]. Similarly, [74] also revealed that ease of use had a positive and significant effect on the use of Go-Pay digital wallet. On the other hand, ease of use did not have a positive and significant effect on consumer satisfaction for the users of LinkAja digital wallet [15].

### 1.6 Trust

Trust is an individual’s willingness to accept vulnerability on the grounds of positive expectations about intentions or behavior of another in a situation characterized by interdependence and risk [12]. According to [35], trust has two dimensions which are credibility and benevolence.

Research concerning the effect of trust on consumer satisfaction and consumer loyalty has been widely published. [22] stated that trust had a positive and significant effect on consumer loyalty in the case of e-commerce. Correspondingly, [28] stated that trust had a positive and significant effect on consumer satisfaction towards the use of digital wallets. In addition, [37] stated that trust had a positive and significant effect on consumer loyalty for the users of Go-Pay digital wallet.

### 1.7 Perceived Security

Perceived security is the ability to overcome threats that create circumstances, conditions, or events, which have the potential to cause economic hardship to data/information or network resources in the form of destruction, disclosure, modification of data, denial of service and/or fraud, waste, and misuse [29]. Such threats may come from users, servers, or communication networks. According to [20], there are four dimensions of perceived security namely confidentiality, integrity, availability, and non-repudiation.

Research concerning the effect of perceived security on consumer satisfaction and consumer loyalty has been widely published. [30] stated that security had a positive effect on consumer satisfaction in the case of e-commerce use in Indonesia. Meanwhile, [37] stated that security had a significant effect on consumer loyalty, represented by intention to reuse, specifically the users of digital wallets in India.

### 1.8 Self-efficacy

Self-efficacy is one’s belief in one’s ability to accomplish a task [26]. Self-efficacy is one of main factors that influence users in adopting mobile banking service [19]. Self-efficacy is closely related to a person’s capability to master certain tasks [4], and reflects one’s level of confidence in overcoming any difficulties that arise, including using digital wallets to make payment transactions [1].

Research concerning the effect of self-efficacy on consumer satisfaction and consumer loyalty has been widely published. Self-efficacy had a positive effect on job satisfaction, although it did not have a positive effect on loyalty [10]. Meanwhile, self-efficacy had a significant effect on consumer loyalty, represented by intention to reuse and recommendation, specifically on the use of online shopping applications [11].
1.9 Sales Promotion

Sales promotion is provision of incentives directed at consumers and retailers with the intention of achieving short-term sales effects [78]. According to [9], sales promotion which is commonly offered to consumers including discounts, coupons (vouchers), gifts, cashback, and loyalty rewards.

Research concerning the effect of sales promotion on consumer satisfaction and consumer loyalty has been widely published. [73] stated that sales promotion had a positive and significant effect on consumer loyalty in using Go-Ride. Similarly, [33] stated that sales promotion (cashback) influenced consumer loyalty. In addition, [31] stated that sales promotion directly influenced consumer satisfaction in using Grab-Bike.

2 Research Framework

Conceptual framework proposed in this research is a replication of a study by [8] with some updates. First, the addition of sales promotion to complete other five factors which are perceived value, ease of use, trust, perceived security, and self-efficacy. According to [16], sales promotion was still a gap in research related to the use of digital wallets. Second, research conducted in Indonesia on the users of digital wallets in general, is not limited to certain digital wallets. Third, the use of Structural Equation Model (SEM) method for data analysis (Fig. 1).

3 Methodology

This type of research is a confirmatory research. Based on the conceptual framework proposed, there are six exogenous variables, namely: (i) perceived value; (ii) ease of use; (iii) trust; (iv) perceived security; (v) self-efficacy; and (vi) sales promotion, also two endogenous variables, which are: (i) consumer satisfaction; and (ii) consumer loyalty. All exogenous variables in this study are predictor variables which directly influence the consumer satisfaction variable symbolized by H1–H6 and the consumer loyalty variable symbolized by H7–H12. Additionally, consumer satisfaction as an intermediating variable, which also influences consumer loyalty, symbolized by H13.
The data used in this study were primary data. The source of data in this study was obtained directly from the questionnaires which were distributed to the respondents. In this study, the number of samples used was 443 respondents who were at least 17 years old, the users of digital wallets in Indonesia, and had used them at least once a week during the research period.

The data analysis methods used in this study were descriptive statistics, measurement model analysis (confirmatory factor analysis), and structural model analysis specifically Covariance-Based Structural Equation Model (CB-SEM) with the help of LISREL (Linear Structural Relationship).

4 Analysis and Discussion

4.1 Descriptive Statistics

Based on the results obtained from the Google Form application, the number of respondents who provided feedback was 507 people. However, only 443 respondents could be used as the research samples, while the rest of 64 respondents did not meet the specified criteria. Based on the location of their residence, most of the respondents resided in Jabodetabek area with 73.14% (324 people). In addition, 15.58% (69 people) lived outside Java, and as many as 50 people (11.29%) resided in Java outside Jabodetabek. Based on gender, most of the respondents were female with 60.72% (269 people), while 39.28% (174 people) were male. Based on their age, most of the respondents were between 26–40 years old with 61.85% (274 people). Meanwhile, 29.57% (131 people) were between 17–25 years old, 7.67% (34 people) were between 41–60 years old, and the rest of the respondents (4 people) were over 60 years old. Based on the level of education, most of the respondents were bachelor’s degree holders with 59.82% (265 people). Meanwhile, 16.70% (74 people) had a master’s degree, 14.90% (66 people) were high school graduates, and the remaining 8.58% (38 people) had a diploma level of education (associate degree). Based on their occupations, most of the respondents worked as employees/civil servants with 60.05% (266 people). Meanwhile, 19.19% (85 people) were self-employed or professionals, 11.29% (50 people) were students, and the remaining 9.48% (42 people) were housewives, retirees, and some were unemployed. The most widely used digital wallet by the respondents was OVO with 32.28% (297 people). In addition, 31.30% (288 people) used Go-Pay, 15.65% (144 people) used ShopeePay, 13.15% (121 people) used DANA, 6.74% (62 people) used LinkAja, and the rest of them (8 people) used other digital wallets.

4.2 Measurement Model Analysis (Confirmatory Factor Analysis)

Based on the output of the LISREL software for the offending estimate test, it can be seen that there was no offending estimate because all error variance of the indicator in the model had a positive sign (+). Furthermore, according to the output of the LISREL for the analysis of the validity of the measurement model, it can be seen that even though all the t-values of the standard loading factor (SLF) indicators in the model have a value of ≥1.96, however, there are still SLF values of the indicators that are <0.50 in the
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model, specifically the SEC4 indicator. Thus, it can be concluded that the validity of the measurement model is still not met. Therefore, the researcher carried out model respecification to eliminate the SEC4 indicator with the SLF values of (0.44) < 0.50.

After the model respecification was carried out, based on the output of the LISREL for the offending estimate test, it appears that there was no offending estimate because all error variance of the indicator in the model had a positive sign (+). Moreover, from the output of the LISREL for the validity analysis of the measurement model, it can be seen that all t-values of the standard loading factor (SLF) indicators in the model have a value of ≥ 1.96. In addition, it can also be seen that all SLF values of the indicators in the model have had values that are ≥0.50. In accordance with the intended t-values and SLF values, it can be concluded that the validity of the measurement model is good.

Furthermore, based on the output of the LISREL to test the suitability of the entire measurement model, it appears that most of the output values in the fit test of the overall measurement model have met the good criteria (good fit), namely the values of RMR, RMSEA, NNFI, NFI, RFI, IFI, and CFI > 0.90. Only two output values show marginal fit criteria, which are the GFI value (0.80 ≤ GFI ≤ 0.90) and the AGFI value (0.80 ≤ AGFI ≤ 0.90).

Based on the calculation results of the values of construct reliability (CR) and variance expected (VE) to test the reliability of the measurement model, it can be seen that all latent variables have had CR values that meet the good reliability criteria, which is ≥0.7. In addition, it can also be seen that most of the latent variables have VE values that meet the good reliability criteria that is ≥0.5, except for the VALUE latent variable, which has a VE value of (0.4) < 0.5. Based on its formula, the low VE value in the VALUE latent variable is caused by the high number of measurement errors from the indicators that reflect it. According to [3], measurement error refers to inaccuracies in recording responses given by respondents due to faults in choosing the question (indicator), the questioner’s inability, or because the statements made tend to direct the respondent’s answer. Even though the measurement model reliability test results are not good, the VALUE variable is still included as one of the latent variables in the conceptual model for structural analysis, with the consideration as follows:

1. The CR value of the VALUE latent variable in the measurement model reliability test has met the good reliability criteria, in which the CR value is (0.8) ≥ 0.7.
2. Based on previous research, the VALUE latent variable had a positive and significant effect, both on consumer satisfaction and on consumer loyalty [77], [3, 4, 19, 27].

4.3 Structural Model Analysis

Based on the output of the LISREL software for the fit test of the overall structural model, it can be seen that most of the output values have met the good criteria (good fit), namely the values of RMR, RMSEA, NNFI, NFI, RFI, IFI, and CFI > 0.90. Only two output values show marginal fit criteria which are the GFI value (0.80 ≤ GFI ≤ 0.90) and the AGFI value (0.80 ≤ AGFI ≤ 0.90).

Afterwards, based on the output of the LISREL for the R2 test, it can be seen that the variables of perceived value (VALUE), ease of use (EOU), trust (TRUST), perceived
security (SECURITY), self-efficacy (EFFICACY), and sales promotion (PROMO), collectively, have explained 75% of the variance of the consumer satisfaction variable (SATIS). Meanwhile, the variables of perceived value (VALUE), ease of use (EOU), trust (TRUST), perceived security (SECURITY), self-efficacy (EFFICACY), and sales promotion (PROMO), collectively, have explained 77% of the variance of the consumer loyalty variable (LOYAL) (Table 1).

### 4.4 Hypothesis Testing

Based on the output of the LISREL software, it can be seen that the variables that significantly influence consumer satisfaction (SATIS) are perceived value (VALUE), ease of use (EOU), self-efficacy (EFFICACY), and sales promotion (PROMO), while trust (TRUST) and perceived security (SECURITY) does not significantly influence consumer satisfaction. In addition, it is also noticeable that the sales promotion variable is the variable which has the most significant influence on consumer satisfaction, followed by the variables of perceived value, ease of use, and self-efficacy.

In addition, the variables that significantly influence consumer loyalty (LOYAL) are perceived value (VALUE), ease of use (EOU), trust (TRUST), perceived security (SECURITY), sales promotion (PROMO), and consumer satisfaction (SATIS). On the other hand, the self-efficacy variable (EFFICACY) does not significantly influence consumer loyalty. In addition, it can also be seen that the consumer satisfaction variable has the most significant influence on consumer loyalty, followed by the variables of ease of use, trust, and sales promotion.

### 4.5 Theoretical Implication

It is noticeable that out of six factors which affect consumer satisfaction, there are four factor which significantly have an effect on consumer satisfaction with the t-values > 1.96. The results further support the previous research which stated that consumer satisfaction was influenced by perceived value [77], [3, 4], ease of use [5, 13, 15], self-efficacy [10, 11], and sales promotion [12, 14, 31]. On the other hand, there are two factors that do not have an effect on consumer satisfaction, namely trust and perceived security with t-values < 1.96. The results are in contrast with previous research which
stated that consumer satisfaction was influenced by trust \[7, 28\] and perceived security \[8, 30\].

Out of seven factors which influence consumer loyalty, it can be seen that there are six factors which significantly have an influence on consumer loyalty, which are perceived value, ease of use, trust, perceived security, sales promotion, and consumer satisfaction with t-values > 1.96. The results further support previous research which stated that consumer loyalty was influenced by perceived value \[77, 3, 19, 27\], ease of use \[5, 6, 74\], trust \[7, 22\], perceived security \[9, 37\], sales promotion \[73, 12, 36\], and consumer satisfaction \[8\]. In contrast, there is one factor that does not have an effect on consumer loyalty which is self-efficacy with t-values < 1.96. The results are in line with the study \[10\] which stated that self-efficacy did not have a positive effect on loyalty.

### 4.6 Theoretical Implication

Out of six factors which affect consumer satisfaction, it can be seen that sales promotion has the highest level of significance (t-values = 6.410). The sales promotion is measured through discount offers (price reduction), coupons (vouchers), cashback, and loyalty rewards. Thus, digital wallet development companies need to create an optimal sales promotion strategy, so that it can increase consumer satisfaction without adding burdens to the company (cost).

Out of seven factors which affect consumer loyalty, it can be seen that consumer satisfaction has the highest level of significance (t-values = 7.230). Consumer satisfaction, in general, is defined as a comparison between the experiences obtained by the consumers and their expectations, and is measured by physical measures (tangibles), reliability, responsiveness, assurance, and empathy. Therefore, digital wallet development companies need to constantly improve the quality of its products/services, in order to increase consumer loyalty. Improving the quality of the product/service in question can be in the form of an attractive user interface, services that are suitable with consumer needs, stable transaction speed, the ability to access anytime and anywhere, as well as the availability of features that can be used by consumers to provide feedback.

In addition, to maintain consumer loyalty, the strategy that digital wallet development companies need to implement must focus on business sustainability. Business sustainability cannot be obtained only through a massive promotion, but through shaping consumer behavior. There are two consumer behaviors that need attention from digital wallet development companies. First, the changes in consumer behavior, which previously relied on cash payment system, to digital payment system. Second, the reason why people use digital payment system previously caused by being tempted by promotions offered, it is now due to the needs and the lifestyle of a cashless society.

### 5 Conclusion and Suggestion

#### 5.1 Conclusion

Based on the research results, there are three conclusions that can be drawn. First, there are four factors which directly affect consumer satisfaction, namely perceived value,
ease of use, self-efficacy, and sales promotion. Based on the measurement results of the perceived value (VALUE), ease of use (EOU), self-efficacy (EFFICACY), and sales promotion (PROMO), the t-values > 1,960 are obtained. The effect from those four factors is positive (linear). Meanwhile, the factors of trust and perceived value do not have an effect on consumer satisfaction. According to the measurement results on the variables of trust (TRUST) and perceived security (SECURITY), t-values < 1,960 are obtained. Second, there are six factors which directly affect consumer loyalty, namely perceived value, ease of use, trust, perceived security, sales promotion, and consumer satisfaction. Based on measurement results on the factors of perceived value (VALUE), ease of use (EOU), trust (TRUST), perceived security (SECURITY), sales promotion (PROMO), and consumer satisfaction (SATIS), t-values > 1,960 are obtained. Furthermore, out of those six factors, there are three factors that directly affect positively (linear) on consumer loyalty which are perceived value, trust, and consumer satisfaction. The remaining three factors directly affect negatively on consumer loyalty. Meanwhile, self-efficacy does not have an effect on consumer loyalty. According to measurement results on self-efficacy (EFFICACY), t-values < 1,960 are obtained. Third, even though consumer satisfaction factor has a direct effect on consumer loyalty, it cannot act as the mediator for the factors of perceived value, ease of use, trust, perceived security, self-efficacy, and sales promotion on consumer loyalty in the use of digital wallets in Indonesia. Based on the structural model measurement, Dari hasil pengukuran model struktural, p-value < 0.05 is obtained.

5.2 Suggestions for Further Research

1. Further research can use the second order method in the arrangement of the variables. The use of the second order method can refer to the dimensions of each of the latent variables that have been discussed in this study based on a review (synthesis) of previous studies. The use of the second order method is expected to add indicators that explain latent variables more specifically.

2. In further studies, it is recommended to separate the indicators which explain the latent variable of perceived value according to its dimensions, so that the reliability will be better.

3. Further research can include demographic factors such as age, place of residence, occupation, or education level as moderator variables.

4. Further research can use qualitative techniques to determine the reasons for the presence absence of the influence of each exogenous variable (perceived value, ease of use, trust, security perception, self-efficacy, and sales promotion) on endogenous variables (consumer satisfaction and consumer loyalty). The use of qualitative techniques can be carried out through in-depth interviews with selected respondents. The use of qualitative techniques is expected to be able to answer why there is a difference between the results in this study and previous studies.

5. Further research can be conducted in other regions/countries, with the variables which have been examined in this study.
References
