

Building Apartment Developer Satisfaction with Brand Image, Value Co-Creation and Supply Chain Agility along with its Impact on Developer Loyalty Towards Apartment Contractors

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ABSTRACT

Objective: Apartment sector is one of the important real estate sectors of a country. The aim of this research is to analyse the influence of brand image, value co-creation, and supply chain agility on customer satisfaction and its impact on developer loyalty to apartment contractors. The novelty of this research lies in analyzing the influence of brand image, value co-creation, and supply chain agility on customer satisfaction simultaneously in the context of the apartment construction industry.

Design/ methodology/ approach: This research uses a quantitative approach with structured equation modeling using smartPLS. The population of this research is apartment developers in Indonesia.

Findings: The results of this research show that brand image, value co-creation, and supply chain agility have a positive and significant influence on customer satisfaction. This research has theoretical implications for expectancy disconfirmation theory and service dominance logic. The managerial implications of this research are on apartment contractors' strategies for gaining developer satisfaction and loyalty.

Paper type: Research paper

Keyword: *Building Apartment, Developer Satisfaction, Brand Image, Value Co-Creation, Supply Chain Agility, Developer Loyalty, Apartment Contractors*

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I. INTRODUCTION

The property and real estate sector are one of the important sectors of a country. The COVID-19 pandemic in 2020 hit various economic sectors globally, including the property and real estate sectors. In 2023, the global property and real estate sector will begin to show increasing activity (jll, 2024). The apartment sector is a sector that has high growth potential compared to various sectors in property and real estate. The predicted trajectory of the global market for apartments developments suggests a significant growth, with an expected rise from \$64.55 billion in 2022 to \$72.77 billion in 2023, with a compound annual growth rate (CAGR) of 12.7% indicating a potential growth (Markets, 2023). Indonesia is one of the countries that possesses considerable real estate potential within the Asian region, positioning itself as a prominent destination for real estate investment in the Asian market (Deny, 2023). The apartment sector is one of the property sectors in Indonesia that has the best growth potential in the years following the start of the COVID-19 pandemic, where consumers have begun to show increased demand for apartment housing in recent months (Grahadyarini, 2023). The increasing demand for apartments in Indonesia also has the potential for increasing apartment construction projects. An apartment construction project is a construction project financed by the developer as the apartment owner and carried out by the contractor company as the party appointed to work on the project, so that the increase in demand for apartment housing has the potential for apartment developer companies and apartment contractors. Customer loyalty is an important asset that must be owned by companies, especially those engaged in providing services and business to business or B2B, in order to survive and excel amidst competition (Wattoo & Iqbal, 2022). Loyal companies will tend to commit to reuse, then they will also recommend the service to their colleagues, and they will say good

things about the service they use to their colleagues. (Wattoo & Iqbal, 2022; Zhang & Li, 2019). Developer loyalty as a customer is an important asset for apartment contractor companies to thrive and success.

Customer loyalty is one of the important variables not only as an asset for companies but also for the academic world, where the customer loyalty variable is frequently addressed in research across various industries including B2B industries (Ahmed et al., 2023; Hariandja & Vincent, 2022; Wattoo & Iqbal, 2022). The cultivation of customer loyalty is a strategic approach that is suitable for the service industry B2B due to the increased opportunities it presents (Huang et al., 2019). Loyalty from customers can be obtained by companies that can manage customer satisfaction effectively, so that customer satisfaction is an important predictor in achieving customer loyalty (Lee et al., 2019). From an academic perspective, several studies have examined and summarized the role of customer satisfaction as a predictor of customer loyalty in the B2B industrial context (Famiyeh et al., 2018; Hsu et al., 2021). Customer satisfaction in the B2B industry is an emotional response based on customers' perceptions of the quality of the service they receive (Kushwaha et al., 2021). The valuation of consumer experiences when using services or products from a company subsequently forms the company's image in the consumer's mind. This formed image determines whether the consumer will repurchase the product or service (Erkmen & Hancer, 2019). Previous academic research has provided empirical evidence on the influence of brand image on customer satisfaction in various industries (Espinosa et al., 2018; Song et al., 2019). Given these considerations, this study proposes that a good brand image is needed as a predictor for customer satisfaction of developers towards apartment contractors. Another factor taken into account in B2B relationships is the supply chain. Ideally the supply chain is designed with customer needs in mind, so good agility capabilities are needed in the supply chain to increase the value of the company's services to its customers (Gligor et al., 2020). Several previous studies have proven the significant influence of supply chain agility on customer satisfaction (Gligor et al., 2020; Gupta et al., 2019). With these considerations, this research proposes that good supply chain agility is needed as a predictor factor for developer satisfaction in contractors. Good relationships between contractors and developers alone are not enough for development. In building relationships between customers and contractors, developers as customers cannot be seen as playing a passive role, but as active actors in creating value, so that customers must play an active role together with the company in creating experiences and creating shared value, which contractors can do by implementing value co-creation in their relationships with developers (González-Mansilla et al., 2019; Vargo & Lusch, 2004). Several recent academic studies provide empirical evidence that confirms the significant influence of value co-creation on customer satisfaction in various industries (Dewarani & Alversia, 2023; Opata et al., 2021; Woratschek et al., 2020). By reflecting on the arguments and looking at the results of previous academic research, this research proposes value co-creation, brand image and supply chain agility as antecedent variables of customer satisfaction from developers towards apartment contractors.

The role of customer satisfaction as a determinant of customer loyalty has been proven in various academic studies in various industries, including the B2B industry (Wattoo & Iqbal, 2022; Zhang & Li, 2019). Several academic studies also examine the influence of supply chain agility, value co-creation and brand image in shaping customer satisfaction in various industries separately (Gligor et al., 2020; González-Mansilla et al., 2019; Gupta et al., 2019). Although supply chain agility, value co-creation and brand image are important in the B2B industry, only a few studies have examined the influence of supply chain agility, value co-creation and brand image in forming customer satisfaction simultaneously in a research model, let alone research in the context of the apartment construction industry. This research fills the gap in the literature by examining the influence of supply chain agility, value co-creation and brand image in shaping customer satisfaction and its impact on loyalty in the apartment construction industry.

Based on the observed phenomena and research gaps, the primary objective of this study is to examine the influence of supply chain agility, brand image and value co-creation on customer satisfaction and its impact on customer loyalty. To address the main research objective, this study is further divided into two specific research aims: First, to understand the impact of customer satisfaction on customer loyalty; and second, to determine the effect of supply chain agility, brand image and value co-creation on customer satisfaction.

A. Literature Review

1. Customer loyalty

One of the primary objectives of a company's marketing strategy is to achieve competitive advantage through fostering customer loyalty. Loyal customers provide benefits to the company; they will reuse the company's products or services, recommend its services or products to their colleagues, and are less likely to be attracted to competitors, thereby saving on customer retention costs. Customer loyalty has been extensively addressed in academic research, resulting in numerous definitions of customer loyalty over its development. One definition by Subrahmanyam, (2017) states that customer loyalty is the relative strength of an individual's attitude and their repeat patronage as a consequence. According to Souar et al., (2015), customer loyalty is an individual's psychological condition formed from satisfaction and combined with emotional attachment, resulting in a consistent relationship with the seller. Another definition of Customer loyalty refers to the tendency of customers

to engage in purchasing a product or services based on a good experience, positive perceived value, and even if the purchase is not the most logical decision (Wattoo & Iqbal, 2022).

2. Customer Satisfaction

Customer satisfaction is a crucial component in marketing strategies within the service and retail industries, grounded in the expectancy-disconfirmation theory. In academic research, customer satisfaction has been extensively examined. In the academic realm, customer satisfaction is based on the expectancy-disconfirmation theory, where customers form their satisfaction towards a product or service as a result of evaluating the disparity between their expectations of the product or service and their perceptions of their experience with that product or service (Oh, 1999; R.L, 1997). When customers' experiences with a product or service exceed their expectations, their satisfaction evaluation will be positive; however, if their experiences fall short of their expectations for the product or service, their satisfaction will decrease or they may be dissatisfied (Nisar & Prabhakar, 2017). According to Kotler & Keller, (2021), satisfaction refers to an individual's emotional state of contentment or dissatisfaction that arises from evaluating the perceived performance or outcome of a product in relation to their initial expectations. Consumer evaluations in customer satisfaction are largely influenced by consumers' positive or negative attitudes towards their experiences. Customer satisfaction in the B2B industry is an emotional response based on customers' perceptions of the quality of the service they receive (Kushwaha et al., 2021).

Customer satisfaction is considered a primary component in retaining customers, with customer satisfaction measuring the extent to which a company's products meet or exceed customer expectations, enhancing the relationship between clients and service providers, and encouraging repeat purchase behavior from customers (Wattoo & Iqbal, 2022). According to several academic studies, customer satisfaction consistently remains one of the key elements in shaping customer loyalty across various industries (Koay et al., 2022; Nik Ramli Nik Abdul Rashid et al., 2021; Wattoo & Iqbal, 2022). Several academic studies even indicate that customer satisfaction plays a pivotal role for companies to obtain customer loyalty in the B2B industry (Gligor et al., 2020; Huang et al., 2019; Woratschek et al., 2020). Looking at several previous studies and arguments for the importance of customer satisfaction, this research is proposed that.

H1. Customer satisfaction have a positive influence on customer loyalty toward apartment contractor.

3. Value Co-creation

Good relationships and cooperation between companies and customers alone are not enough to produce added value from company services, an active role is needed from customers and companies in their relationships (Sales-Vivó et al., 2021). The value co-creation variable uses service-dominant logic or SD logic as the basic idea of value co-creation, where the core idea of SD logic is rather simple and straightforward. First, marketing activities (and economic activity in general) are best understood as exchanges of services for services, rather than exchanges in terms of goods-for-goods or goods-for-money, then second, value is created together, not created by just one factor only and then delivered (Vargo & Lusch, 2014). Good relationships and cooperation between companies and customers in applying existing resources will produce added value from company services (Sales-Vivó et al., 2021). According to Prahalad and Ramaswamy, value co-creation is a collaborative initiative where providers and customers jointly create value (Leclercq et al., 2016; Prahalad & Ramaswamy, 2004).

Previous studies have proven the influence of value co-creation on customer satisfaction (Gaudenzi et al., 2021; Gligor et al., 2020; Sthapit et al., 2020). Seeing the importance of value co-creation on customer satisfaction from the results of previous research and previous arguments, this research puts forward the following hypothesis.

H2. value co-creation has a significant positive effect as a predictor of customer satisfaction.

4. Brand Image

The brand image of a company is one source of intangible assets that become a competitive advantage for the company, because brand image is an asset that is difficult for competitors to imitate (Alam & Noor, 2020). In its development, there are several definitions regarding the brand image of a company. According to Gray & Balmer, (1998), corporate brand image is related to the mental image of a company that occurs to an individual when the individual interacts with the company logo and/or company name. Meanwhile, according to Gürlek et al., (2017), the definition of corporate brand image is the concrete results of an organization which are expressed through various emotions, opinions, interactions and impressions from company stakeholders regarding the organization, where customers are part of the stakeholders. The perception of consumer experiences when utilizing services or products from a firm subsequently shapes the company's reputation in the consumer's perception, which the perception created by this image has a crucial role in influencing the consumer's decision to make a repeat purchase of the goods or service (Erkmen & Hancer, 2019). Previous academic research has provided empirical evidence on the influence of brand image on customer satisfaction in various industries (Espinosa et al., 2018; Song et al., 2019). Following prior research, this study proposes the following hypotheses.

H3. Brand image has a significant positive effect as a predictor of customer satisfaction.

5. Supply Chain Agility

The main premise of the supply chain is to create and deliver products or services to provide added value for customers (Gligor et al., 2020). The supply chain agility is the additional capability of the supply chain to overcome market uncertainty, competitive pressure from the market by quickly responding to customers (Afraz et al., 2021). In the midst of competition and the current market, supply chain agility has become one of the competitive advantages for a company, where supply chain agility allows the company's supply chain to be flexible and responsive to customer demand, where supply chain agility is built with an orientation to customer needs and desires (Atmaja et al., 2022). Previous academic research provides evidence of the importance of supply chain agility as a competitive advantage, as well as its influence on customer satisfaction (Gligor et al., 2020; Gupta et al., 2019). Looking at the results of previous research and arguments for supply chain agility, this research proposes the following hypothesis.

H4. supply chain agility has a significant effect as a predictor of customer satisfaction.

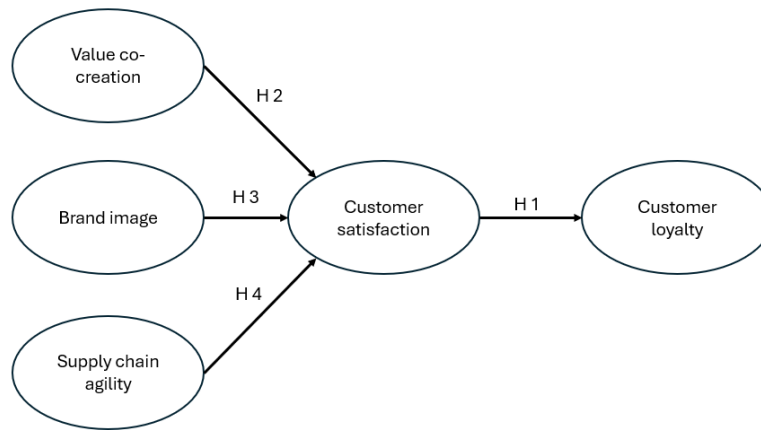


Figure 1. Research model.

II. METHODS

The research populations focus on developer companies that have undertaken the construction of residential apartments developments in Indonesia. The unit analysis is the developer project manager that have more than 5 years' experience as project manager. The survey methodology employed in this study is a cross-sectional design which the data collecting processes occurring between October and December 2023. Data from respondents was collected by means of an online questionnaire administered using Google Forms. The questionnaire for this research was adapted in Indonesian language, as it is the native language of the respondents. A pilot study was carried out before collecting respondent data, with the aim of finding out whether the questionnaire created could be understood by respondents. The pilot study involved a sample of 30 respondents, aiming to assess the comprehensibility of the developed questionnaire among the participants.

The table 1 presents the descriptive analysis of the respondent data that was obtained.

Table 1. Respondent Characteristic

		<i>numbers</i>
<i>Gender</i>	<i>Male</i>	291
	<i>Female</i>	25
<i>Age</i>	20 – 30	
	31 – 40	17

	<i>numbers</i>
41 – 50	120
51 - 60	125
>61	44

According to the descriptive data which presented in Table 1, the age group of 51–60 years comprised the largest proportion of respondents in this research with 40.85% or 125 individuals. This was followed by the age group of 41–50 years with 39.22% or 120 individuals. In contrast, among the respondents, 14.38% or 44 individuals were over the age of 60, followed by 5.56% or 17 individuals who fell within the age bracket of 31 to 40 years. Additionally, Table 1 reveals that males comprised the majority of respondents gender, comprising 291 individuals or 92% of the total, while women constituted 25 individuals or 7.91% of the respondents.

The variables in this research model were adapted from variables used in previous studies. The customer loyalty variable in the research was adapted from customer loyalty from the research by Kittur & Chatterjee, (2021) and Zhang & Li, (2019). Because prior research by Kittur & Chatterjee, (2021) and Zhang & Li, (2019) focuses on B2B industry which relevant with apartment construction industries. The customer satisfaction variable also uses measurement indicators from previous research Gligor et al., (2020) , and Kittur & Chatterjee, (2021). The supply chain agility variable measurement that uses in this research was adapted from Gligor et al., (2020). The brand image variable that used in this research was developed from several prior study in B2B industries that deemed relevant with the context of this study (Alam & Noor, 2020; Balmer et al., 2020; Kaur & Soch, 2018). While value co-creation variable was adapted from prior study that examined value co-creation in B2B industries (Iglesias et al., 2020; Sales-Vivó et al., 2021; Sun et al., 2020).

III. RESULTS AND DISCUSSION

This research uses structured equation modeling partial least squares or SEM-PLS, with SmartPLS to analyze data and research models. This research uses SmartPLS with the consideration that the respondent data from this research is not large, and this research model is exploratory in nature. According to Hair et al., (2019) there are 2 parts in measurement analysis and reporting using SmartPLS, namely: reflective measurement and structural measurement. The first stage in SmartPLS analysis is reflective measurement, where this stage consists of checking loading factors, measuring convergent validity, measuring composites reliability and measuring discriminant validity. The results of statistical testing for loading factor, convergent validity and reliability are displayed in table 1.

Table 1. loading factor, convergent validity and reliability

	<i>Items</i>	<i>Loading factor</i>	<i>CR</i>	<i>AVE</i>
<i>Brand image</i>	<i>item_1</i>	0,944	0,969	0,862
	<i>item_2</i>	0,915		
	<i>item_3</i>	0,943		
	<i>item_4</i>	0,903		
	<i>item_5</i>	0,937		
<i>Customer loyalty</i>	<i>item_6</i>	0,715	0,951	0,764

	<i>item_7</i>	0,902		
	<i>item_8</i>	0,921		
	<i>item_9</i>	0,913		
	<i>item_10</i>	0,926		
	<i>Item_11</i>	0,848		
<i>Customer satisfaction</i>	<i>item_12</i>	0,966	0,980	0,925
	<i>item_13</i>	0,957		
	<i>item_14</i>	0,965		
	<i>item_15</i>	0,959		
<i>Supply chain agility</i>	<i>item_16</i>	0,920	0,974	0,904
	<i>item_17</i>	0,964		
	<i>item_18</i>	0,961		
	<i>item_19</i>	0,957		
<i>Value co-creation</i>	<i>item_20</i>	0,926	0,965	0,848
	<i>item_21</i>	0,942		
	<i>item_22</i>	0,951		
	<i>item_23</i>	0,940		
	<i>item_24</i>	0,840		

The initial phase of the reflective measurement analysis entails doing a loading factor analysis. According to Hair Jr. et al. (2017), the factor loading value measure of the strength of the relationship between the indicator and the construct, with the recommended value for the loading Factor is 0.7. If the value of the loading factor decreases below the recommended threshold or 0.7, it indicates a potential deficiency in the validity of the indicators. As can be seen in Table 1, the loading factor figures for the indicators in this study all exceed 0.7 or above the recommendation, indicating that all variables in the study have good validity. Convergent validity refers to the extent to which a collection of indicators accurately measures and serve a single underlying latent variable. Convergent validity can be exemplified by the utilisation of the average value of the extracted variance (AVE) as a means of expressing this representation (Hair Jr. et al., 2017). The minimum acceptable AVE value is 0.5, this demonstrates sufficient convergent validity, indicating that a single latent variable can account for over 50% of the variability observed in its indicators, on average. The calculation results in Table 1 show that the AVE value of each latent variable is above 0.5, which indicates that the validity of each latent variable can account for over 50% of the variability observed in its indicators, on average. Reliability tests are carried out to prove the accuracy,

consistency and precision of the instrument in measuring a latent construct. To achieve good reliability, the composite reliability or CR value must be greater than 0.70, if it is less than 0.7 then it cannot be said to be reliable (Hair Jr. et al., 2017). The calculation results in Table 1 show that the CR value of each latent variable is above 0.7, which indicates that each of the latent variable is reliable.

The last phase in reflective measurement analysis is discriminant validity test. Discriminant validity is a statistical test in SmartPLS which is carried out to ensure that each latent variable is different from other latent variables in the research model. In SMART-PLS discriminant validity testing is carried out using the Fornell-Larcker criterion test. In the Fornell-Larcker criterion test, the discriminant validity of a research model can be said to be good if the root of the AVE in the construct of a latent variable is higher than the correlation of the latent variable with other latent variables. The results of the discriminant validity test from this study are shown in Table 2.

Table 2. Discriminant Validity

	<i>Brand Image</i>	<i>Customer Loyalty</i>	<i>Customer Satisfaction</i>	<i>Supply Chain Agility</i>	<i>Value Co-Creation</i>
<i>Brand Image</i>	0,929				
<i>Customer Loyalty</i>	0,696	0,874			
<i>Customer Satisfaction</i>	0,655	0,673	0,962		
<i>Supply Chain Agility</i>	0,663	0,655	0,751	0,951	
<i>Value Co-Creation</i>	0,648	0,698	0,619	0,647	0,921

The results of the discriminant validity test in Table 3 show that the discriminant validity of the research model is good, indicating that all latent variables in this research are empirically different from one another.

The second phase in the SmartPLS analysis test is the structural test. The structural test consists of 2 steps (Hair Jr. et al., 2017). The first step is the R square test. R square is a statistical test that calculates how much the independent (exogenous) variables together influence the value of the dependent (endogenous) variable. R squared has a number that ranges from 0 to 1 (Hair Jr. et al., 2017). The results of calculating the R square value in this study are shown in Table 3.

Table 3. R Square calculations

<i>Variables</i>	<i>R²</i>
<i>Customer loyalty</i>	0,454
<i>Customer satisfaction</i>	0,618

The next step in structural test analysis using SmartPLS is structural testing. The structural model describes the causal relationship between latent variables which is built based on the substance of the theory. The initial step of structural model testing is carried out using the Bootstrapping procedure in SMART PLS. The next step is to evaluate the structural model by looking at the significance of the relationship between constructs/variables. This can be seen from the path coefficient which describes the strength of the significance of the relationship between latent variables, which is shown in the t test or P value obtained from the bootstrapping process (resampling method). The recommended t value for a relationship to be called significant is 1.96 with 95% confidence. Meanwhile, the recommended P value for a relationship that is said to be significant is 0.05. The results of the structural test calculations are shown in Table 4 and Figure 2.

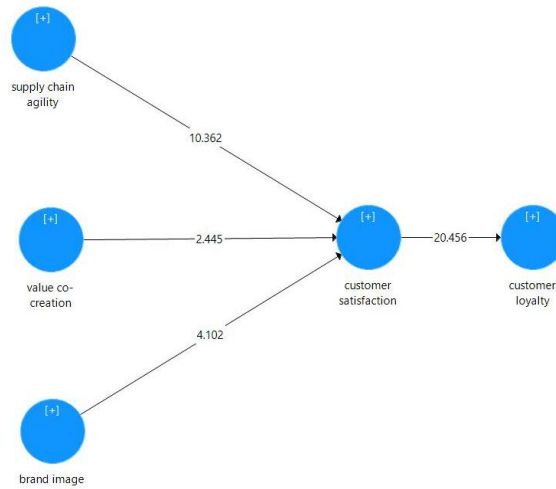


Figure 2. Structural Test Result

Table 4 Structural Test Result

Path	Path coefficient (β)	T values	P Values
H3. brand image -> customer satisfaction	0,224	4,102	0,000
H1. customer satisfaction -> customer loyalty	0,673	20,456	0,000
H4. supply chain agility -> customer satisfaction	0,509	10,362	0,000
H2. value co-creation -> customer satisfaction	0,144	2,445	0,015

The path analysis test of this research began with bootstrapping using 5,000 resamples with a 95% confidence interval (Hair et al., 2019). The results of the t value and P value which calculated through bootstrapping are shown in Table 4 and Figure 3. The analysis revealed that brand image (t-value = 4.102, p value = 0.00), supply chain agility (t-value = 10.362, p value = 0.00), and value co-creation (t-value = 2.445, p value = 0.015) exert a substantial influence on customer satisfaction. More precisely, all of these components exhibited a t-value exceeding 1.96 and a p-value below 0.005, which are the suggested thresholds. Therefore, the structural testing validated hypotheses 2 to 4. The analysis also showed that customer satisfaction also provoked significant influence on customer loyalty (t-value = 20.456, p value = 0.00), which indicate that hypotheses 1 is validated.

A. Discussions

The main objective of this research is to analyze the influence of brand image, value co-creation and supply chain agility on developer satisfaction as a customer, as well as the impact on developer loyalty to apartment contractors. To answer the main objective of the research, four hypotheses were formed which were tested quantitatively.

The results of the SEM test show that the first hypothesis is accepted, where customer satisfaction turns out to have a significant effect on developer loyalty to apartment contractors. The results of this first hypothesis test are in line with several previous academic studies that prove the influence of customer satisfaction on customer loyalty in the B2B industry.(Gligor et al., 2020; Huang et al., 2019; Woratschek et al., 2020). The results of this first hypothesis test contribute to the academic literature by providing empirical evidence that customer satisfaction has a significant and positive effect on customer loyalty in the apartment construction industry. The results of this first hypothesis test indicate that to create and maintain loyalty from developers, apartment contractors must be able to provide services that can satisfy the expectations of apartment developers.

The results of the SEM calculation test also show that hypotheses 2, 3 and 4 are accepted, where the variables brand image, value co-creation and supply chain agility have a significant and positive influence on developer satisfaction as customers of apartment contractors in Indonesia. The results of this hypothesis test are in

accordance with the results of previous research which empirically proves the significant and positive influence of value co-creation on customer satisfaction in the B2B industry (Gaudenzi et al., 2021; Gligor et al., 2020; Sthapit et al., 2020), and are also in accordance with the results of empirical research which proves the influence of brand image on customer satisfaction in B2B industry (Espinosa et al., 2018; Song et al., 2019), and in line with the results of previous research which proves the influence of supply chain agility on customer satisfaction in the B2B industry (Gligor et al., 2020; Gupta et al., 2019). The influence of value co-creation, brand image and supply chain agility on customer satisfaction has actually been widely studied academically in various industries, but previous studies have examined the influence of value co-creation, brand image and supply chain agility on customer satisfaction separately (Espinosa et al., 2018; Gupta et al., 2019; Song et al., 2019). There are only a few studies that examine the influence of value co-creation, brand image and supply chain agility on customer satisfaction simultaneously in 1 research model (Gligor et al., 2020), especially those that examine the apartment construction industry, so the results of this hypothesis test are novel and a separate contribution from this research. to academic literature. The results of this hypothesis test indicate that apartment developers will be satisfied with contractors if the contractor has a good brand image, the contractor is able to work well together and involve developers in solving problems on the project, and the contractor is flexible in their supply chain matters when responding to requests. from developers or addressing changes in the field.

IV. CONCLUSION

1. The implications of this research lie in the theoretical and managerial realm.

There are several theoretical implications of this research. The first implication of this research is in the development of expectancy disconfirmation theory. Expectancy disconfirmation theory is the theoretical root of customer satisfaction, and the results of this research show empirical evidence of the significant influence of brand image, value co-creation and supply chain agility simultaneously on customer satisfaction in the apartment construction industry. The second theoretical implication is in the service dominant logic theory, which is a theory that forms value co-creation. The results of this research show empirical evidence of the significant influence of value co-creation on customer satisfaction in the apartment construction industry.

Apart from implications for the development of theoretical literature, this research also has implications for the managerial side. The results of this research become a strategy for contractor companies to achieve developer satisfaction which has an impact on developer loyalty. The results of this research show that to achieve satisfaction from apartment developers, apartment contractors need to do the following things: first, apartment contractors must build and maintain the brand image of their company. secondly, a good relationship between the contractor and the developer is not enough, the apartment contractor must treat the developer not only as a passive partner, but as an active partner in the relationship and in solving problems. Third, apartment contractors need to have an agile supply chain, where the contractor's supply chain can be flexible and easily adapt to customer demand and situations.

2. Limitations and Future Research

Although this research has implications, it is not free from limitations. The following are several limitations of this research. Firstly, this research is a quantitative research that uses data collection using a cross-sectional method, so one of the limitations of this research is that it is cross-sectional. secondly, this research was created for the context of the apartment construction industry in Indonesia, so the next limitation is in the Indonesian context, future research can use the model from this research for apartment construction in other countries.

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