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The Shaping of CBBE Based on Customer Experience, Product Features, and Digital Information

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ABSTRACT

This study originates from a question regarding what shapes brand strength in the minds of customers, particularly in the context of mortgage products (*Kredit Pemilikan Rumah/ KPR)* offered by the bank. Customer experience, product features, and digital information are considered key interrelated factors. The study involved 100 mortgage customers of the bank and employed a quantitative approach using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that customer experience and product features have a strong influence on customer-based brand equity (CBBE), while digital information did not show a significant direct effect. Product features such as competitive interest rates and an easy application process were found to play a dominant role in shaping brand perception. Furthermore, customer experience influences CBBE indirectly through perceptions of product features. These findings emphasize that brand building is not solely about promotion, but also about delivering real customer experiences, offering clear product value, and implementing effective digital communication strategies.

SARI PATI

Penelitian ini berangkat dari pertanyaan tentang apa yang membentuk kekuatan merek di benak nasabah, khususnya pada produk Kredit Pemilikan Rumah (KPR) di bank. Customer experience, product features, dan digital information dipandang sebagai faktor penting yang saling berkaitan. Studi ini melibatkan 100 debitur KPR bank dengan pendekatan kuantitatif menggunakan metode Partial Least Squares Structural Equation Modeling (PLS-SEM). Hasilnya diketahui bahwa customer experience dan product features berpengaruh signifikan terhadap customer-based brand equity (CBBE), sementara digital information belum menunjukkan dampak langsung yang signifikan. Product features seperti suku bunga bersaing dan proses pengajuan yang mudah terbukti dominan dalam membentuk persepsi merek. Selain itu, customer experience berdampak pada CBBE melalui persepsi terhadap product features. Temuan ini menegaskan pentingnya membangun merek tidak hanya lewat promosi, tapi juga dari pengalaman nasabah, nilai produk yang jelas, dan komunikasi digital yang tepat sasaran.

INTRODUCTION

The banking sector has experienced various important developments in recent year, largely fueled by the rapid growth of digital technology (Otoritas Jasa Keuangan [OJK] / Financial Services Authority, 2025). This shift also extends to consumer financing services, particularly in the area of homeownership loans (Lee & Liu, 2025). As competition among financial institutions continues to intensify, banks are now expected not only to offer competitive products but also to deliver memorable customer experiences (Yang et al., 2024).

In the banking context, customers' memorable experiences with the services they receive are shaped by several factors, including functional service quality, the appearance, and physical environment, and personal touch (Jiang & Lyu., 2024). Customers also evaluate a brand based on their experiences interacting with various products, services, and touchpoints such as advertising and customer service (Lemon & Veerhoef, 2016). Numerous studies have confirmed that customer experience plays a critical role in shaping brand equity. Some even highlight that emotionally engaging experiences and high-quality interactions across digital touchpoints strongly influence the Customer-Based Brand Equity (CBBE) dimensions such as brand loyalty, brand awareness, and brand image (Akdogan et al., 2024).

On the other hand, product features are another crucial aspect that should not be overlooked. Companies need to focus on developing unique and specific features that set their products apart in the eyes of consumers. These are not merely basic functionalities, but additional attributes that enhance product appeal (Celik et al., 2023). In the context of CBBE, relevant and distinctive features can elevate customers' perceptions of a product's quality and image, ultimately fostering greater loyalty to using the product or service.

In addition to the above, how a company distributes information also plays a vital supporting role. Today, digital information has become increasingly relevant as companies adapt to rapid technological developments. The information delivered is expected to be processed in a way that is informative and easy to understand, enabling customers to access product and service details quickly and efficiently. In marketing, the quality and usability of such information significantly influence customer perceptions and engagement, thereby contributing to the development of CBBE (Whyte & Eshraghi, 2025).

CBBE has a substantial impact on a company's overall performance, as a strong brand image leads to greater customer loyalty and continued use of its products or services. Such a positive brand image is typically rooted in memorable customer experiences (Akdogan et al., 2024). In the context of bank's mortgage (Kredit Pemilikan Rumah / KPR) products, debtor loyalty is crucial for enhancing profitability and ensuring the sustainability of the bank's business. Therefore, bank must carefully consider the three variables discussed above in developing strategies aimed at strengthening brand image and loyalty, ultimately driving optimal profitability.

Numerous studies have explored the relationship between customer experience and CBBE, particularly in digital banking services, where emotionally driven brand experiences have been shown to build strong CBBE (Akin & Gurbuz, 2024). In the banking sector, research has also investigated the mediating role of CBBE in marketing activities and firm performance (Akdogan et al., 2024). In the tourism and hospitality industry, there is evidence that highlighting reciprocal relationships across all CBBE dimensions (Huang, 2024).

From these studies, it is evident that CBBE has been examined across various industries, such as banking, tourism, and hospitality. Overall, the literature shows that CBBE is often linked to customer experience, as it shapes brand perception, customer loyalty, and emotional connection with the brand (Akin & Gurbuz, 2024; Huang, 2024).

However, there remains a gap in research that specifically investigates how customer experience, product features, and digital information contribute to the development of CBBE in Indonesia's banking sector. This study aims to address that gap by offering deeper insights. The findings are expected to contribute both theoretically by enriching the existing literature and practically, by supporting

strategic planning efforts, particularly for bank, to stay competitive in the digital era.

THEORETICAL BACKGROUND

Customer Experience

The way customers utilize a product or service across various media channels and the impressions formed during their interactions can be defined as customer experience (CX) (Unal et al., 2025). Throughout these interactions, customers' evaluations of product and service quality are often reflected in the emotions they experience (Gao et al., 2024; Yang et al., 2024). Such emotions arise spontaneously in response to brand offerings, and customers' reactions may subsequently alter their perceptions of the product being offered (Becker & Jaakkola, 2020).

Amid the ongoing wave of digital transformation, the concept of customer experience has evolved into what is known as the omnichannel customer experience (OCX), which emphasizes the importance of creating experiences that are seamless, consistent, and fully integrated across all service channels. OCX represents a holistic perspective of customers' interactions across both physical and digital touchpoints. In the banking industry, the implementation of OCX involves ensuring that customers receive personalized, convenient, and trustworthy services throughout all service networks, whether through digital applications, product information websites, or in-branch visits. The integration of these channels not only enhances customer satisfaction but also strengthens emotional attachment and trust, ultimately contributing to the development of CBBE.

Furthermore, an essential factor in strengthening the omnichannel experience lies in digital branding and digital innovation. Digital branding helps establish a consistent brand identity across digital platforms through meaningful communication and active engagement. Meanwhile, digital innovation emerges from the intersection between digital technology and information systems, enabling improvements in product quality, processes, and services through the effective use of digital tools (Wu & Xu, 2025). In contrast, digital innovation as the implementation of digital technologies in processes aimed at creating value-added novelty (Hund et al., 2021). Furthermore, digital innovation is contextual, as it adapts to the social and cultural dynamics within an organization.

In the banking context, creating customer experiences that are efficient, relevant, and emotionally engaging can be achieved through the integration of digital innovation and strong branding strategies. Customers' emotional responses and subjective perceptions toward a brand may continue to evolve as they interact with products and services across various media channels (Landry et al., 2005). These emotional and perceptual responses are influenced by several factors, including the customers' physical condition, emotional state, and limited use of rational thinking (Rejikumar et al., 2022).

In a digital context, customer experience involving Artificial Intelligence (AI) conversational agents such as chatbots includes perceptions, attitudes, and feelings during the interaction, as well as customer reactions after the service has been delivered (Nicolaescu & Tudorache, 2022). This experience is influenced by various factors including "interactivity, quality of information, accessibility, entertainment, personalization, and communication." (Nicolescu & Tudorache, 2022).

Specifically in the banking industry, customer experience is driven by the functional quality of services, the visual or physical environment, and the personal touch provided during service delivery (Wasan, 2018). Over time, the concept of customer experience has evolved into what is known as holistic customer experience, which encompasses a full range of customer interactions. This includes "cognitive (thinking), affective (feeling), social (relational), and physical responses (comfort and ease)" (Becker & Jaakkola, 2020).

Product Features

Product features refer to the functional or practical value attached to a product, allowing consumers to use, apply, and even own the product in order to meet their needs and preferences (Sabbir, 2025). These features go beyond essential functions. They include unique characteristics that help distinguish one product variant from another while ensuring it still performs as intended (Celik et al., 2023; Diaz et

al., 2024).

From both technical and strategic perspectives, product features can be viewed in terms of scalability, which reflects the ability of a product to deliver better service as demand grows, and protectability, which refers to how well the product can be safeguarded using proprietary technologies or hard-to-imitate know-how (Zhou et al., 2023).

In terms of design, features differ depending on whether the product is utilitarian or hedonic. Utilitarian products focus on function or performance, while hedonic products are designed for pleasure, self-expression, or emotional satisfaction (Park et al, 2022). Utilitarian features are generally objective and directly beneficial. For example, increasing memory capacity (RAM) immediately improves performance. On the other hand, hedonic features emphasize "sensory appeal, emotional experience, and imaginative engagement", all of which contribute to a more enjoyable customer experience (Li et al., 2024).

In the context of artifacts and Software Product Line Engineering (SPLE), product features include distinct capabilities that add value for users or stakeholders by enhancing how the software performs in different contexts (Diaz et al., 2024). Broadly speaking, in the banking industry, product features for loan services may cover elements such as loan purpose, customer profile, collateral requirements, the loan application process, and evaluation procedures, all of which are usually tailored to the target market (Kukk & Levenko, 2024). From a digital perspective, product features can also be evaluated by consumers through online reviews, which often influence purchasing decisions (Lu & Ma, 2025).

Digital Information

Digital information refers to data that has been processed and structured in a way that makes it informative, easy to understand, and stored in electronic formats (Whyte & Eshraghi, 2025; Dourish, 2022; Petter et al., 2018). One of its key characteristics is the ability to be accessed anytime and anywhere, easily searched, updated, and shared (Whyte, 2019a).

In the context of temporary organizations, digital information is often produced through both formal and informal technologies that evolve over time, shaped by the organization's lifespan and the intended outcomes (Whyte & Eshraghi, 2025). How people consume digital information depends on how they interact with various digital media such as computers, smartphones, and tablets (Daoudi et al., 2024). This behavior is also influenced by their adaptability to technology, psychological factors, and the pace of market changes (Lee & Liu, 2025).

Email and blogs are among the digital services that have been rapidly evolving in line with technological advancements (Park et al., 2022). As technology continues to progress, digital information can now be easily disseminated through the internet even commercialized and traded (Keller & Lima, 2021). Moreover, digital information must also be accessible to all users, including those with disabilities (Agabirwe et al., 2025).

Customer-Based Brand Equity (CBBE)

CBBE reflects how strongly consumers recall a brand based on their overall experiences, interactions, and perceptions of it (Sahoo et al., 2025). Previous studies on Customer Experience have consistently highlighted its pivotal role in shaping CBBE (Akin et al., 2024; Sahoo et al., 2024; Huang, 2024). The key factors that shape brand strength can be identified through the emotional engagement and positive interactions that occur between consumers and the brand. Akin et al. (2024) found that enjoyable experiences in internet banking services significantly enhance brand awareness, brand associations, perceived quality, and brand loyalty. Similarly, Sahoo et al. (2024) demonstrated that emotional involvement in digital marketing experiences reinforces brand value, while Huang (2024) emphasized that transforming service quality into a compelling brand image and awareness is essential for maintaining long-term customer loyalty.

In parallel, product features have been recognized as another fundamental determinant of CBBE (Sustacha & Pino, 2024; Shrestha et al., 2023; Nimo, 2023). Perceived smartness or consumers' perception of a product's technological intelligence positively influences all dimensions of CBBE

(Sustacha & Pino, 2024). Complementary findings indicate that perceived quality and customer loyalty toward superior products serve as critical drivers of brand equity (Shrestha et al., 2023; Nimo (2023). Collectively, these studies affirm that innovation and distinctive product attributes form the functional foundation upon which consumers build trust and favorable brand perceptions.

Furthermore, digital information acts as a crucial enabler that bridges customer experience and product features through technology-based interactions (Jiang & Lyu, 2024; Wu et al., 2024). Interactive experiences utilizing augmented reality (AR) significantly strengthen brand awareness, brand associations, and brand loyalty (Jiang & Lyu, 2024; Wu et al., 2024). Such evidence underscores the growing influence of digital technologies in enriching customer experiences and amplifying perceived value.

In conclusion, the synergy among customer experience, product features, and digital information fosters a holistic process for developing strong CBBE. Positive emotional experiences, innovative product attributes, and interactive digital engagements reinforce one another, creating an integrated pathway toward sustainable brand strength and customer loyalty.

Research Hypothesis

Customer Experience has a significant influence on CBBE in bank's mortgage loan product.

Customer experience plays a central role in shaping CBBE, particularly in service-based industries like banking. Customer experience represents the overall impact felt by consumers through their interactions with products, services, and various contact points, including advertisements and customer service (Unal et al., 2025).

Research has shown that customer experience is essentially a subjective psychological response that arises during a customer's interaction with a company (Gao et al., 2024; Becker & Jaakkola, 2020). In digital contexts, this experience includes both emotional and functional dimensions, as well as active engagement through digital channels such as chatbots, websites, or mobile banking apps (Nicolescu & Tudorache, 2022, in Gomes et al., 2025). Factors like ease of access, personalized services, the quality of communication, and the emotional value delivered all contribute significantly to how customers perceive a brand.

A positive experience not only enhances brand loyalty but also strengthens brand associations, two critical components of CBBE (Yang et al., 2024, Dastane et al., 2005). When customers feel valued, supported, and emotionally engaged, they are more likely to develop strong brand perceptions and willingly recommend the product or service to others.

For bank, ensuring that mortgage customers receive a consistent, smooth, and meaningful experience is a key strategy to reinforce the brand's position, especially in an increasingly digital and competitive banking landscape.

Based on this framework, the hypothesis proposed is as follows:

H1: Customer experience serves as a key driver in shaping CBBE

Product Features have a significant influence on CBBE in bank's mortgage loan product.

Product features represent the essential traits of a product that help customers use and enjoy it according to what they need or prefer (Sabbir, 2025). In the banking industry, particularly for mortgage loan services, product features include interest rates, loan tenors, payment flexibility, processing speed, and simplified documentation requirements. These features not only support the functionality of the product but also shape how customers perceive the brand. When a product offers features that are relevant, valuable, and aligned with customer expectations, it helps build stronger brand associations and reinforces brand equity. According to Diaz et al. (2024), features are core elements that define a product's utility and differentiate it from others. Celik et al. (2025) add that additional features beyond the core function can elevate the overall user experience.

In today's digital and highly competitive market, product features are also evaluated through online reviews and shared customer experiences (Lu & Ma, 2025). This highlights how perceptions of product features contribute to dimensions of CBBE such as "brand awareness, brand association, and brand loyalty (Sahoo et al., 2024)." In the context of bank's mortgage products, strong and relevant product features are expected to shape a more positive brand image in the minds of customers.

Based on this explanation, the following hypotheses are proposed:

H2: Product features act as a strategic element that strengthens CBBE

Digital information has a significant influence on CBBE in bank's mortgage loan product.

Digital information refers to data that has been meaningfully processed, structured, and stored in a digital format, making it easy to access, search, update, and share (Whyte & Eshraghi, 2025). In the context of banking services, especially mortgage products, digital information includes various forms of content such as mortgage simulators, terms and conditions, interest rates, promotional programs, and communication channels available on websites, mobile banking apps, and social media.

According to Whyte (2019a, in Whyte & Eshraghi, 2025), the core characteristics of digital information are accessibility, searchability, updatability, and shareability. These qualities are especially important in the digital era, where consumers often conduct independent product research before making purchase decisions. Lee & Liu (2025) highlight that consumer behavior in searching for digital information, especially in the housing market, is shaped by technology adoption, psychological factors, and market dynamics. When digital information is clear, comprehensive, and easy to access, it helps form positive perceptions about the brand and builds consumer trust.

Other studies also suggest that accessing digital content through smartphones and computers (Daoudi et al., 2024), as well as communication platforms like email, blogs, or live chat (Park et al., 2022), contributes to the emotional connection between the brand and the customer. Such interactions have a direct influence on key elements of CBBE, like brand recognition, the associations customers build, and their perception of the brand's quality (Sahoo et. Al., 2024). Therefore, for bank, providing accurate, relevant, and accessible digital information is a critical step in reinforcing mortgage brand equity in the minds of consumers.

Based on the explanation above, the proposed hypothesis is:

H3: Digital information plays a meaningful role in reinforcing CBBE

METHOD

This study relied on primary data collected through a questionnaire distributed using a convenience sampling technique. The survey was conducted online via Google Forms and involved 100 active mortgage customers of Bank BJB, who were currently using the housing loan facility. The selection of Bank BJB as the research context was based on its strong regional presence and leading role in the mortgage market within West Java. Therefore, the findings primarily reflect customer perceptions within this specific institutional and geographical context, which should be considered when interpreting the generalizability of the results. The questionnaire items were developed based on validated references from previously published academic literature, and a five-point Likert scale was applied to assess respondents' levels of agreement with each statement.

To enhance transparency regarding the sample characteristics, a demographic profile of the respondents was also analyzed. The sample consisted of 64 percent male and 36 percent female participants, with the majority (71 percent) aged between 31 and 40 years. Most respondents (71 percent) held a bachelor's degree, followed by 25 percent with postgraduate qualifications. In terms of occupation, 98 percent were private-sector employees, while a small proportion were entrepreneurs or freelancers. The majority of respondents resided in West Java (86 percent),

while others were from Banten, Jakarta, Yogyakarta, and East Java. This demographic breakdown provides transparency and contextual understanding of the respondents in this study.

The data were analyzed using PLS method, and statistical significance was tested through bootstrapping at a 5 percent significance level. Given that this research focuses on banking services, particularly mortgage loans, the constructs were designed around dimensions considered the most relevant and contextually appropriate for this industry. The following dimensions were used: Customer Experience, with dimensions: "affective, behavioral, cognitive, social, and sensory." (Hoang, 2024), Product Features, with dimensions: "scalability, protectability, affordability, flexibility, and transparency." (Zhou & Verburg, 2023), Digital Information, with dimensions: "accessible remotely, shareable, updateable, and searchable". (Whyte & Eshraghi, 2025), CBBE with dimensions: "brand awareness, brand associations, brand loyalty, and perceived quality." (Sahoo et al., 2024)

During the analysis, the R-square values and the path coefficients were considered and applied a five percent level of significance. Data analysis was conducted using the PLS Path Modeling method, with an emphasis on lower-order constructs. This approach made it possible to break down complex constructs into more specific and measurable dimensions, commonly referred to as lower-order constructs (Hair et al., 2024). In this study, the four main variables customer experience, product features, digital information, and CBBE were analyzed through their respective dimensions to maintain clarity and relevance throughout the analytical process.

RESULTS AND DISCUSSION

Descriptive Analysis

Respondents' Gender

Among the 100 respondents who took part in this study, a larger proportion were male, comprising 64 percent of the total. The remaining 36 percent were female. These results indicate that male respondents were more represented in the study compared to their female counterparts.

Respondents' Age

Most of the participants, around 71 percent, were aged between 31 and 40 years. Respondents aged between 41 and 50 years accounted for 19 percent, while the remaining 10 percent were in the 20 to 30 age group. No respondents were under 20 years old or above 50 years old.

Respondents' Education Level

Most respondents, accounting for 71 percent, had completed a bachelor's degree or an equivalent level of education. Another 25 percent had completed postgraduate education or higher. Only 4 percent of respondents had completed senior high school or vocational school. There were no respondents with education levels below high school.

Respondents' Occupation

Almost all respondents in this study worked as employees, making up 98 percent of the total. A small number of respondents were freelancers and entrepreneurs, each accounting for 1 percent. None of the respondents were students, university student, or had other occupational backgrounds outside these categories.

Respondents' Domicile

The majority of respondents resided in West Java, with 86 percent of the total sample. Others were from Banten (6 percent), followed by regions on the island of Java such as DKI Jakarta (4 percent), Yogyakarta (2 percent), and East Java (2 percent). There were no respondents from outside the island of Java.

Most Frequently Used Social Media Platforms

Instagram was the most frequently used social media platform among respondents, with 72 percent indicating it as their platform of choice. TikTok followed with 12 percent, then Facebook with 7 percent, YouTube with 3 percent, and X (formerly Twitter) also with 3 percent. A small portion of respondents (2 percent) reported using other platforms, and only 1 percent indicated that they do not use social media at all.

Frequently Used Digital Property Platforms

According to the survey results, the most widely used digital platform for property information was bank bjb's mortgage products (bankbjb.co.id), chosen by 62 percent of respondents. This was followed by rumah123.com, used by 52 percent and Lamudi.co.id by 18 percent. In addition to these three platforms, 26 percent of respondents reported using other digital platforms to search for property, while one respondent stated that they did not use digital platforms at all.

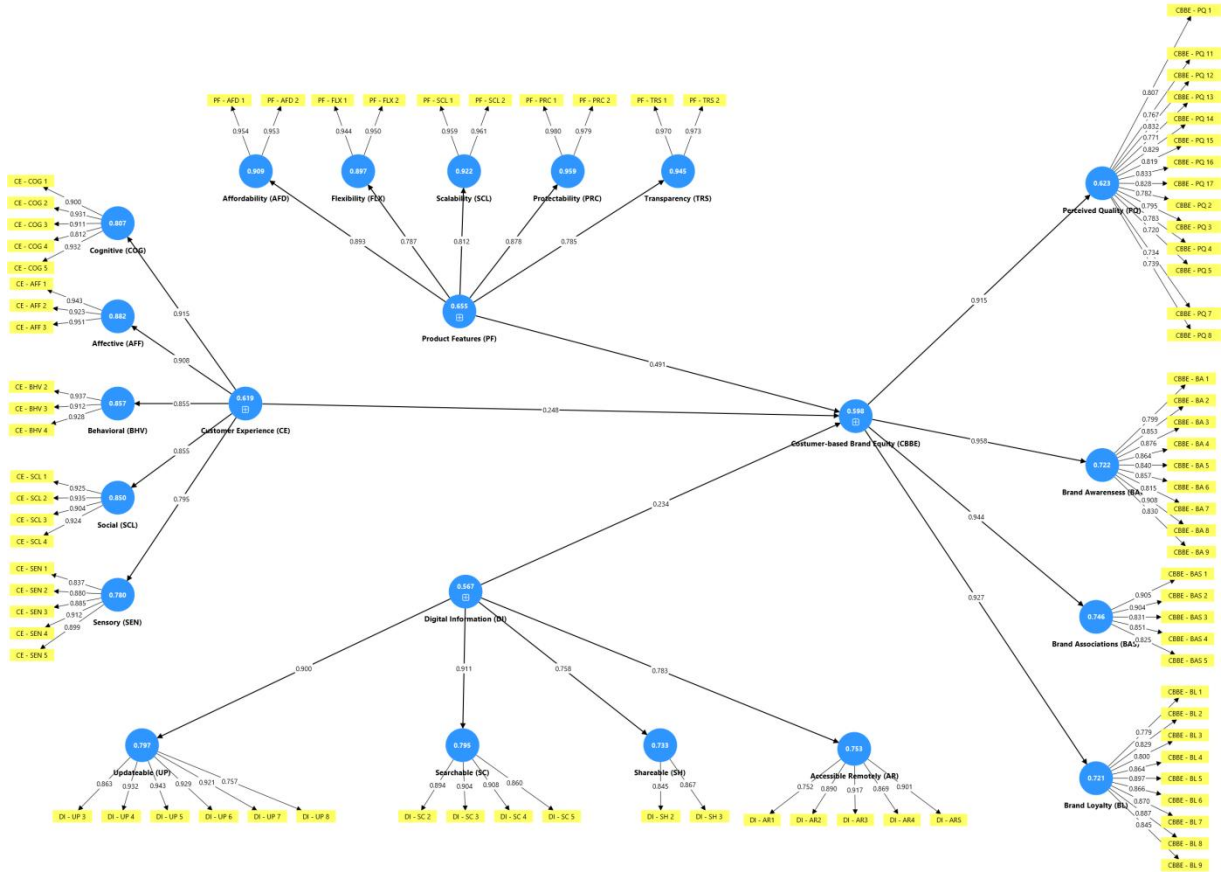

Figure 1. Conceptual Framework

H1: Customer experience serves as a key driver in shaping CBBE

H2: Product features act as a strategic element that strengthens CBBE

H3: Digital information plays a meaningful role in reinforcing CBBE

Table 1. Respondents Profile

Respondents Profile		Frequencies	%
Gender	Male	64	64
	Female	36	36
Age	20 - 30 years	10	10
	31 - 40 years	71	71
	41 - 50 years	19	19
Last Education Level	Senior High School/Vocational School	4	4
	University/College	71	71
	Postgraduate or Higher	25	25
Occupation	Employee	98	98
	Freelancer	1	1
	Entrepreneur	1	1

Domicile	West Java	86	86
	East Java	2	2
	Central Java	0	0
	DKI Jakarta	4	4
	DI Yogyakarta	2	2
	Banten	6	6
Most Frequently Used Social Media	Facebook	7	7
	Instagram	72	72
	X/ Twitter	3	3
	Youtube	3	3
	Tiktok	12	12
	Others	2	2
	None	1	1
Most Frequently Used Digital Property Platforms	Lamudi.co.id	18	18
	rumah123.com	52	52
	bjb KPR (bank.co.id)	62	62
	Others	26	26

Source: processed data by authors (2025)

The survey results show that most respondents were male, making up 64 percent of the total sample, while female respondents accounted for the remaining 36 percent. In terms of age distribution, the majority were between 31 and 40 years old, representing 71 percent. This was followed by 19 percent of respondents aged 41 to 50, and the remaining 10 percent were in the 20 to 30 age group.

Looking at educational background, most participants held a university or college degree, making up 71 percent of the sample. Meanwhile, 25 percent had completed postgraduate education or higher, and only 4 percent had completed their education at the high school or vocational level.

When it comes to occupation, nearly all respondents in this study were employed as full-time workers, accounting for 98 percent. Only a small portion worked as freelancers or entrepreneurs, each making up just 1 percent.

In terms of residence, the majority of respondents lived in West Java, contributing 86 percent of the total. The rest were spread across other regions, including Banten with 6 percent, DKI Jakarta with 4 percent, and both Yogyakarta and East Java with 2 percent each.

For social media usage, Instagram was the most frequently used platform, chosen by 72 percent of respondents. This was followed by TikTok at 12 percent, Facebook at 7 percent, YouTube at 3 percent, and X (formerly Twitter) at 3 percent. Additionally, 2 percent of respondents mentioned using other platforms, while 1 percent stated they do not use social media at all.

As for digital platforms used to search for property information, the most commonly accessed was X KPR's official site (bankX.co.id), used by 62 percent of respondents. Rumah123.com followed with 52 percent, and Lamudi.co.id was selected by 18 percent. Beyond these, 26 percent of respondents reported using other digital platforms when searching for property information.

Model Fit

Table 2. Model Fit

	Saturated model	Estimated model
SRMR	0.07	0.079
d_ULS	1.063	1.063
d_G	0.694	0.694
Chi-square	389.287	389.287
NFI	0.790	0.790

Source: processed data by authors (2025)

To evaluate how well the structural model fit the data, this study referred to multiple indicators commonly used in PLS-SEM, such as SRMR (Standardized Root Mean Square Residual), d_ULS, d_G, Chi-square, and the Normed Fit Index (NFI), as suggested by Hair et al. (2022). These indicators help determine whether the model structure

reasonably reflects the observed relationships in the data.

The analysis shows that the SRMR value for the estimated model was 0.079, slightly higher than the saturated model's value of 0.07. This minimal difference suggests that the model fits the actual data fairly well, with only a small gap between them. Since the SRMR value remains below the recommended threshold of 0.08, it indicates an acceptable model fit.

The d_ULS value for both the saturated and estimated models was 1.063, showing no difference between them. Similarly, the d_G value was 0.694 for both models, implying that the model demonstrates a consistent level of fit across these measures. Although there are no universally agreed-upon cut-off values for d_ULS and d_G, lower and stable values generally reflect a better model fit.

In this model, the Chi-square result reached 389.287 for both the saturated and estimated models, indicating that there was no notable discrepancy between them. This outcome supports the notion that the model fits the data adequately, particularly considering that Chi-square values often increase with larger sample sizes or more complex model structures.

Lastly, both the saturated and estimated models recorded the same NFI value of 0.790. This score suggests that the model's overall fit with the empirical data is moderate but acceptable, especially within the exploratory context of this study.

Although the model has not fully met the criteria for a strong global fit based on the indicators examined, the constructs have demonstrated acceptable levels of validity and reliability. Therefore, the model remains a sound foundation for further analysis within the scope of this study.

Factor Loading Analysis

Most of the outer loading values for the indicators examined in this study were within the acceptable threshold of 0.70 or above and showed statistical significance at the 0.05 level, corresponding to a t-statistic of approximately ±1.96 (Hair & Alamer, 2022). Indicators that did not meet these criteria were removed from the model without applying any additional rotation techniques. This step was taken to maintain the overall quality of the measurement model and to preserve its reliability and validity.

Table 3. Factor Loadings Analysis

Indicator	Outer Loading	Indicator	Outer Loading
CBBE - BA 1	0.799	CE - COG 1	0.900
CBBE - BA 2	0.853	CE - COG 2	0.931
CBBE - BA 3	0.876	CE - COG 3	0.911
CBBE - BA 4	0.864	CE - COG 4	0.812
CBBE - BA 5	0.840	CE - COG 5	0.932
CBBE - BA 6	0.857	CE - AFF 1	0.943
CBBE - BA 7	0.815	CE - AFF 2	0.923
CBBE - BA 8	0.908	CE - AFF 3	0.951
CBBE - BA 9	0.830	CE - BHV 2	0.937
CBBE - BAS 1	0.905	CE - BHV 3	0.912
CBBE - BAS 2	0.904	CE - BHV 4	0.928
CBBE - BAS 3	0.831	CE - SCL 1	0.925
CBBE - BAS 4	0.851	CE - SCL 2	0.935
CBBE - BAS 5	0.825	CE - SCL 3	0.904
CBBE - BL 1	0.779	CE - SCL 4	0.924
CBBE - BL 2	0.829	CE - SEN 1	0.837
CBBE - BL 3	0.800	CE - SEN 2	0.880
CBBE - BL 4	0.864	CE - SEN 3	0.885
CBBE - BL 5	0.897	CE - SEN 4	0.912
CBBE - BL 6	0.866	CE - SEN 5	0.899
CBBE - BL 7	0.870	PF - AFD 1	0.954
CBBE - BL 8	0.887	PF - AFD 2	0.953

CBBE - BL 9	0.845	PF - FLX 1	0.944
CBBE - PQ 1	0.807	PF - FLX 2	0.950
CBBE - PQ 11	0.767	PF - PRC 1	0.980
CBBE - PQ 12	0.832	PF - PRC 2	0.979
CBBE - PQ 13	0.771	PF - SCL 1	0.959
CBBE - PQ 14	0.829	PF - SCL 2	0.961
CBBE - PQ 15	0.819	PF - TRS 1	0.970
CBBE - PQ 16	0.833	PF - TRS 2	0.973
CBBE - PQ 17	0.828	DI - UP 3	0.863
CBBE - PQ 2	0.782	DI - UP 4	0.932
CBBE - PQ 3	0.795	DI - UP 5	0.943
CBBE - PQ 4	0.783	DI - UP 6	0.929
CBBE - PQ 5	0.720	DI - UP 7	0.921
CBBE - PQ 7	0.734	DI - UP 8	0.757
CBBE - PQ 8	0.739	DI - SC 2	0.894
DI - AR 1	0.752	DI - SC 3	0.904
DI - AR 2	0.890	DI - SC 4	0.908
DI - AR 3	0.917	DI - SC 5	0.860
DI - AR 4	0.869	DI - SH 2	0.845
DI - AR 5	0.901	DI - SH 3	0.867

Source: processed data by authors (2025)

Description:

This study refers to the research conducted by Hoang (2025), which identifies five dimensions of customer experience (X1), namely, AFF (Affective), BHV (Behavioral), COG (Cognitive), SCL (Social), SEN (Sensory). Then, the variable of product features (X2), were applied based on the research by Zhou & Verburg (2023), which specifically consists of the following dimension: SCL (Scalability), PRC (Protectability), AFD (Affordability), FLX (Flexibility), TRS (Transparency). Furthermore, the variable of digital information (X3) applied the framework proposed by Whyte & Eshraghi (2025), which comprises of four dimensions: AR (Accessible remotely), SH (Shareable), UP (Updateable), SC (Searchable). Finally, for the variable of CBBE (Y), refers to the research by Sahoo et al., (2024), which identifies four dimensions, explicitly: BA (Brand Awareness), BAS (Brand Associations), BL (Brand Loyalty), PQ (Perceived Quality).

Measurement Model Test

Table 4. Validity (Convergent and Discriminant) and Measurement Items

Code	Measurement	Loading Factor
VARIABLE OF CUSTOMER EXPERIENCE (X1):		
Dimension of Affective (AFF): a = 0.933, CR = 0.957 AVE = 0.882		
AFF 1	I feel emotionally satisfied with the mortgage service I received	0.943
AFF 2	I feel personally appreciated throughout the mortgage application process	0.923
AFF 3	I feel comfortable when interacting with bank staff regarding mortgage services	0.951
Dimension of Behavioral (BHV): a = 0.916, CR = 0.947, AVE = 0.857		
BHV 2	I completed the mortgage application documents as explained by the officer	0.937
BHV 3	I directly ask the staff if there is any mortgage information I do not understand.	0.912
BHV 4	I follow the mortgage application steps as guided by bank officers.	0.928
Dimension of Cognitive (COG): a = 0.940, CR = 0.954, AVE =0.807		
COG 1	The information provided by the mortgage staff is easy to understand	0.900
COG 2	The mortgage application process was explained clearly and understandably	0.931
COG 3	All terms and conditions of the mortgage package were communicated transparently	0.911
COG 4	The risks of the mortgage product were explained in a way that made them easy to understand	0.812

COG 5	I am able to rationally understand all information related to the mortgage service.	0.932
Dimension of Social (SCL): a = 0.941, CR = 0.958, AVE = 0.850		
SCL 1	The bank staff treated me in a friendly manner during the mortgage service process	0.925
SCL 2	The staff showed politeness and professionalism in every mortgage-related interaction	0.935
SCL 3	The mortgage service I received encourages me to recommend it to others	0.904
SCL 4	The mortgage service provided by bank reflects the bank's positive reputation in the public eye.	0.924
Dimension of Sensory (SEN): a = 0.929, CR = 0.947, AVE = 0.780		
SEN 1	I find the branch, website, and mobile app visually appealing and easy to navigate during the mortgage process.	0.837
SEN 2	The physical environment of the branch office (waiting area, service desk, etc.) felt clean and comfortable.	0.880
SEN 3	The consultation room atmosphere (lighting, noise level, temperature) supported a comfortable interaction.	0.885
SEN 4	I find the branch, website, and mobile app visually appealing, neat, and easy to navigate during the mortgage process.	0.912
SEN 5	I find the branch, website, and mobile app attractive, well-organized, and easy to navigate during the mortgage process.	0.899
VARIABLE OF PRODUCT FEATURES (X2)		
Dimension of Affordability (AFD): a =0.900, CR = 0.952, AVE = 0.909		
AFD 1	The interest rate on bank's mortgage is relatively low and competitive.	0.954
AFD 2	The admin and provision fees for this mortgage don't feel like a heavy burden	0.953
Dimension of Flexibility (FLX): a = 0.885, CR = 0.946, AVE = 0.897		
FLX 1	I'm able to choose a mortgage term that really suits my financial situation	0.944
FLX 2	bank offers flexible installment plans that can adjust to my needs	0.950
	Dimension of Scalability (SCL): a= 0.915, CR = 0.959, AVE = 0.922	
PRC 1	To me, bank's mortgage feels different from what other banks usually offer.	0.980
PRC 2	There are unique benefits in bank's mortgage that I don't often see elsewhere.	0.979
Dimension of Protectability (PRC): a = 0.957, CR = 0.979, AVE = 0.959		
SLC 1	This mortgage product seems suitable for a wide range of customers.	0.959
SLC 2	I believe more people would be interested in this mortgage from bank	0.961
Dimension of Transparancy (TRS): a =0.941, CR = 0.972, AVE = 0.945		
TRS 1	The staff explained all the costs and interests clearly, so nothing felt hidden.	0.970
TRS 2	I found the terms and conditions easy to follow and understand.	0.973
VARIABLE OF DIGITAL INFORMATION (X3)		
Dimension of Searchability (SC): a = 0.914, CR = 0.940, AVE = 0.795		
SC 2	This platform helps me understand property information quickly	0.894
SC 3	I find the digital property platform useful for searching information about home purchases.	0.904
SC 4	I find the digital property platform useful for searching home purchase information.	0.908
SC 5	I would prioritize using this platform to get a clearer view of property layouts.	0.860
Dimension of Shareability (SH): a = 0.635, CR = 0.846, AVE = 0.733		
SH 2	I trust home-buying information more when it comes from personal sources like friends, family, or my own experience.	0.845
SH 3	The level of trust in property information sources influences my property choices.	0.867
Dimension of Accessible Remotely (AR): a = 0.916, CR = 0.938, AVE = 0.753		
AR 1	Trust in home purchase information channels influences property choices.	0.752
AR 2	I am willing to submit my home purchase needs online after using a digital property platform.	0.890
AR 3	I am willing to contact a property agent through the website.	0.917

AR 4	I am willing to consult about property-related questions through the website.	0.869
AR 5	I am willing to schedule a home visit through the website	0.901
Dimension of Updateability (UP): a = 0.948, CR = 0.959, AVE = 0.797		
UP 3	The website includes a mortgage calculator feature.	0.863
UP 4	This website provides a tool to calculate taxes.	0.932
UP 5	This website offers clear guidance on the steps in buying, selling, or renting a property.	0.943
UP 6	This website provides downloadable documents available to support property transactions.	0.929
UP 7	This website includes a helpful FAQ section.	0.921
UP 8	I find this platform helpful when I want to better understand property-related information.	0.757
VARIABLE OF CUSTOMER-BASED BRAND EQUITY (Y):		
Dimension of Brand Awareness (BA) a = 0.952, CR = 0.959, AVE = 0.722		
BA 1	When I think about mortgage or vehicle financing products, this bank's name immediately comes to mind.	0.799
BA 2	I'm very familiar with bank's mortgage of auto loan products.	0.853
BA 3	I can easily recognize bank's mortgage of auto loan promotions from their promotional materials	0.876
BA 4	I can clearly tell bank's mortgage of auto loan products apart from those of other banks.	0.864
BA 5	The bank brand is easy to recognize as a provider of home and vehicle financing.	0.840
BA 6	Bank shows a strong commitment to environmental responsibility in delivering its mortgage of auto loan services.	0.857
BA 7	Bank actively supports in social initiatives within local communities.	0.815
BA 8	Bank encourages the use of local products in its operations.	0.908
BA 9	Bank promotes ethical practices in providing its mortgage of vehicle loan services	0.830
Dimension of Brand Association (BAS) a = 0.914, CR =0.936, AVE = 0.746		
BAS 1	Bank's mortgage of auto loan products is known for their reliable service.	0.905
BAS 2	Applying for a mortgage of vehicle loan at bank makes me feel valued as a customer.	0.904
BAS 3	Bank's mortgage of auto loan products offers more flexibility than similar products at other banks.	0.831
BAS 4	Bank prioritizes the rights of its customers.	0.851
BAS 5	Bank actively encourages customers to participate in co-creating service solutions.	0.825
Dimension of Perceived Quality (PQ) a = 0.953, CR = 0.958, AVE = 0.623		
PQ 1	The platform provides relevant website links that enhance my understanding of property information	0.807
PQ 11	The staff handling mortgage of auto loans are easy to talk to.	0.767
PQ 12	Bank officers make me feel appreciated when I use their mortgage of auto loan services.	0.832
PQ 13	Bank's service facilities, including digital ones, make the loan application process easier.	0.771
PQ 14	The professionalism of bank staff leave a strong impression when providing information or assistance	0.829
PQ 15	Bank consistently delivers services as its promised.	0.819
PQ 16	Bank staff communicate clearly and politely when explaining mortgage of vehicle loan processes	0.833
PQ 17	The staff proactively understand and support my specific needs related to mortgage of vehicle loan products.	0.828
PQ 2	I am satisfied with the property news provided by the platform.	0.782
PQ 3	I am satisfied with the latest property market survey information provided by the platform.	0.795
PQ 4	I am satisfied with the platform's function for checking the latest transaction prices around a property.	0.783

PQ 5	I find the property information provided on the website very helpful.	0.720
PQ 7	I find the online home tour video feature on the website very helpful.	0.734
PQ 8	I am satisfied with the features and services offered by the website.	0.739
Dimension of Brand Loyalty (BL) a = 0.951, CR = 0.959, AVE = 0.721		
BL 1	I plan to use bank's mortgage or auto loan products again in the future.	0.779
BL 2	I tend to choose mortgage or auto loan products from bank over those offered by other banks	0.829
BL 3	I am very satisfied with my experience using bank's mortgage of auto loan services.	0.800
BL 4	I would enthusiastically recommend bank's mortgage of auto loan products to others.	0.864
BL 5	I often share my preferences with bank regarding their mortgage of auto loan products.	0.897
BL 6	I regularly provide feedback on how bank can improve its mortgage of auto loan services.	0.866
BL 7	I take part in giving input on how bank delivers its mortgage of vehicle loan services.	0.870
BL 8	I often collaborate with bank to find solutions to any issues I face during the mortgage of auto loan process.	0.887
BL 9	I actively participate when bank invites feedback to improve its mortgage of auto loan services	0.845

Source: processed data by authors (2025)

Discriminant Validity

The discriminant validity of the measurement model was assessed using the Heterotrait-Monotrait Ratio (HTMT) approach, as this method evaluates the extent to which a construct is truly distinct from other constructs based on its indicators. Without such an assessment, overlapping indicators across different constructs may occur. A conservative threshold value below 0.85 is considered adequate. However, in cases where some degree of similarity among construct indicators is expected, a slightly more lenient threshold below 0.90 is still acceptable (Hair et al., 2022).

Table 5. Discriminant Validity

CBBE (Y)	CBBE (Y)	CUSTOMER EXPERIENCE (X1)	DIGITAL INFORMATION (X2)	PRODUCT FEATURES (X3)
CUSTOMER EXPERIENCE (X1)	0.732			
DIGITAL INFORMATION (X2)	0.665	0.527		
PRODUCT FEATURES (X3)	0.828	0.746	0.597	

Source: processed data by authors (2025)

Referring to the Fornell-Larcker analysis results presented in the table, it can be concluded that all constructs have met the requirements for discriminant validity. This is evident from the square root values of AVE, which are higher than the correlations between each construct and the others. For instance, the CBBE construct shows a square root of AVE of 0.732, which is greater than its correlations with customer experience (0.665), digital information (0.665), and product features (0.828). Although the correlation between CBBE and product features is relatively high, it remains slightly lower than the square root of CBBE's AVE, indicating that discriminant validity is still maintained. Similarly, the customer experience construct has a square root of AVE of 0.732, which is higher than its correlations with digital information (0.527) and product features (0.746). Meanwhile, digital information also demonstrates a square root of AVE of 0.694, which exceeds its correlations with other constructs in the model. Therefore, based on the Fornell-Larcker criterion, all constructs in this study demonstrate adequate discriminant validity, confirming that each construct is empirically distinct from the others.

Path Coefficients

Table 6. Path Coefficients

	Path Coefficients
CE (X1) --> CBBE (Y)	0.215
DI (X2) --> CBBE (Y)	0.204
PF (X3) --> CBBE (Y)	0.525

Source: processed data by authors (2025)

Based on the path coefficient analysis, the variable Customer Experience (X1) has a direct positive effect on CBBE (Y), with a coefficient value of 0.215. Although the direction of the effect is positive, its strength is considered moderate, indicating that customer experience plays a meaningful yet not dominant role in shaping CBBE.

The variable Digital Information (X2) also shows a positive effect on CBBE (Y), with a coefficient value of 0.204. This suggests that the availability and quality of digital information contribute to strengthening CBBE, even though the magnitude of this influence is relatively smaller compared to other variables.

Meanwhile, the variable Product Features (X3) demonstrates the strongest positive effect on CBBE (Y), with a coefficient value of 0.525. This finding highlights that product features are the most influential factor in shaping CBBE. The stronger influence of product features indicates that the distinctiveness and quality of products significantly enhance the perceived brand value among customers.

Overall, all three independent variables customer experience, digital information, and product features positively affect CBBE. However, product features (X3) emerge as the most dominant factor, emphasizing their critical role in strengthening brand perception and loyalty.

Table 7. Hipotesis Test

	Relationship	Value		Decision	R2	f2
		t-value	p-value			
H1	CE (X1) --> CBBE (Y)	2.006	0.045	Accepted	0.701	0.073
H3	DI (X2) --> CBBE (Y)	2.491	0.013	Accepted	0.701	0.085
H4	PF (X3) --> CBBE (Y)	4.529	0.000	Accepted	0.701	0.387

Source: processed data by authors (2025)

Based on the hypothesis testing results shown in Table 7, several variables were found to significantly influence the formation of CBBE. The first variable, Customer Experience (X1), shows a positive and statistically significant relationship with CBBE (Y), as indicated by a t-value of 2.006 and a p-value of 0.045. Although the significance level is close to the threshold of 0.05, this result confirms that customer experience has a meaningful influence on brand equity formation. The effect size (f^2 = 0.073) indicates a small-to-moderate impact, suggesting that a positive service experience can strengthen customer perceptions of the brand.

Next, the Digital Information (X2) variable also demonstrates a significant and positive influence on CBBE (Y), with a t-value of 2.491 and a p-value of 0.013. The effect size (f^2 = 0.085) further supports this relationship, indicating that relevant, accessible, and high-quality digital information contributes to

building brand equity. This implies that customers increasingly rely on digital information such as online property listings, website transparency, and user-friendly digital features to shape their perception of brand credibility.

Meanwhile, the Product Features (X3) variable has the strongest and most significant impact on CBBE (Y), as reflected by a t-value of 4.529 and a p-value of 0.000. The corresponding effect size ($f^2 = 0.387$) indicates a large effect, showing that product features play a crucial role in strengthening brand equity. This finding emphasizes that distinctive and high-quality product attributes such as competitive loan terms, flexible repayment options, or added-value benefits greatly enhance customers' trust and emotional attachment to the brand.

Overall, the model explains 70.1% of the variance ($R^2 = 0.701$) in CBBE, suggesting that customer experience, digital information, and product features collectively provide substantial explanatory power in understanding brand equity formation.

Based on the results of the hypothesis testing, several conclusions can be drawn regarding the relationships between the variables in this study:

H1 is accepted, meaning that customer experience has a positive and significant influence on CBBE, although its strength remains moderate

H2 is accepted, indicating that digital information significantly contributes to CBBE formation, confirming the growing importance of digital channels in shaping customer perception.

H4 is accepted, demonstrating that product features have the most substantial effect on CBBE, serving as a key driver of brand value and differentiation.

MANAGERIAL IMPLICATION

The results of this study provide a number of strategic insights that could be valuable for bank management, especially in strengthening CBBE. One key takeaway is that customer experience plays a meaningful role in shaping brand perception and emotional attachment, even though its direct influence on CBBE is not the most dominant. This implies that banks need to manage customer experience in a more holistic way not only focusing on the functional aspects of service delivery, but also considering the emotional and social experiences of their customers. In practice, this can be achieved by: (1) providing frontliners with training on the four dimensions of customer experience (emotional, cognitive, behavioral, and sensory), (2) implementing real-time digital feedback systems, and (3) personalizing services through customer data analysis to ensure interactions feel more relevant and meaningful (Becker & Jaakkola, 2020; Kandampully et al., 2023).

Furthermore, banks can also strengthen customer experience through concrete actions such as simplifying the mortgage application process to reduce customer effort, providing personalized financial consultation to assist customers in choosing suitable loan schemes, and improving communication transparency throughout the credit approval process to build greater trust and emotional engagement. These practical steps can help transform service interactions into meaningful experiences that enhance both satisfaction and brand attachment.

The findings of this study indicate that product features are a crucial factor in building Customer-Based Brand Equity (CBBE). This reinforces the assumption that customers' evaluation of product and service excellence can foster brand loyalty and brand associations (Sahoo et al., 2024). In the banking sector, banks should enhance both the functional and emotional value of their products through innovation that aligns with customer needs. Recommended actions include conducting co-creation sessions with key customers to develop features for mortgage and vehicle loan products, communicating the unique value proposition consistently across all promotional channels, and strengthening the digital elements of products to make them more accessible and responsive to customer expectations (Sahoo et al., 2024; Shrestha et al., 2023).

On the other hand, although digital information holds great potential as a communication channel

with wide reach, the findings of this study indicate that it has not yet been fully optimized to build brand equity. Banks are therefore encouraged to develop a content strategy roadmap that includes selecting the most effective digital platforms for each customer segment (for example, Instagram for millennials and LinkedIn for professionals), ensuring consistency in visual identity and brand messaging across all channels, and applying content analytics to evaluate how effectively digital messages influence brand perception (Godey et al., 2016; Wasan, 2018).

Overall, the findings of this study highlight the importance of managing customer experience, developing product feature strategies, and optimizing the use of digital information in strengthening brand perception of bank's products in the eyes of its customers. In addition, these efforts can foster customer loyalty and help build mutually beneficial relationships (Kumar et al., 2018, as cited in Akdogan et al., 2024).

CONCLUSION

Based on the analysis and discussion above, this study concludes that Customer Experience has a direct and positive influence on Customer-Based Brand Equity (CBBE). However, the strength of this influence is relatively modest, indicating that additional efforts are needed to enhance its impact on customers' brand perception. Interestingly, the results also reveal a close relationship between customer experience and how customers perceive product features. Positive service interactions play a meaningful role in shaping customers' perceptions of the quality and value of the bank's offerings.

Unlike earlier expectations, Digital Information does show a positive and statistically significant effect on CBBE, although its influence is relatively smaller compared to other variables. This suggests that while digital information contributes to strengthening brand perception, its strategic potential has not yet been fully optimized. Refinements in content design, message consistency, and interactive communication are needed to make digital platforms more effective in reinforcing brand value.

In contrast, Product Features emerge as the most influential factor in building brand equity. The strong and significant relationship between product features and CBBE highlights that customers' positive evaluations of product quality and benefits are key drivers of trust, satisfaction, and long-term loyalty.

Taken together, these findings emphasize that Customer Experience and Product Features are the core elements in strengthening Customer-Based Brand Equity (CBBE). At the same time, digital strategies must be enhanced to create a more meaningful and integrated contribution to CBBE from the customer's perspective.

Despite providing valuable insights, this study has certain limitations. The sample size of 100 respondents, although adequate for PLS-SEM analysis, remains relatively small and may not fully represent the diversity of mortgage customers in the broader population. Moreover, since the majority of respondents in this study were domiciled in West Java, the findings may reflect regional characteristics that are not entirely generalizable to customers in other areas. Future research could expand the sample to include a larger and more heterogeneous group of respondents across different regions or customer segments, allowing for more representative and generalizable conclusions.

Additionally, future research could explore other potential variables, such as digital innovation, that may act as key determinants of Customer-Based Brand Equity. Specifically, future studies could investigate how digital information functions as a moderating variable that enhances the impact of digital innovation on brand perception. Such research would provide a more comprehensive understanding of how digital transformation contributes to building stronger brand equity in the banking industry.

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