

# “Psychological determinants of customer loyalty: The interplay of satisfaction, trust, and financial security in Ukrainian banks”

## AUTHORS

Yurii Kiiko 

## ARTICLE INFO

Yurii Kiiko (2026). Psychological determinants of customer loyalty: The interplay of satisfaction, trust, and financial security in Ukrainian banks. *Innovative Marketing*, 22(1), 296–314. doi:[10.21511/im.22\(1\).2026.22](https://doi.org/10.21511/im.22(1).2026.22)

## DOI

[http://dx.doi.org/10.21511/im.22\(1\).2026.22](http://dx.doi.org/10.21511/im.22(1).2026.22)

## RELEASED ON

Monday, 30 March 2026

## RECEIVED ON

Tuesday, 13 May 2025

## ACCEPTED ON

Thursday, 19 March 2026

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## JOURNAL

"Innovative Marketing "

## ISSN PRINT

1814-2427

## ISSN ONLINE

1816-6326

## PUBLISHER

LLC “Consulting Publishing Company “Business Perspectives”

## FOUNDER

LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

99



NUMBER OF FIGURES

2



NUMBER OF TABLES

5

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## BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"  
Hryhorii Skovoroda lane, 10,  
Sumy, 40022, Ukraine  
[www.businessperspectives.org](http://www.businessperspectives.org)

**Type of the article:** Research Article

**Received on:** 13<sup>th</sup> of May, 2025

**Accepted on:** 19<sup>th</sup> of March, 2026

**Published on:** 30<sup>th</sup> of March, 2026

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Yuriy Kiiko, Ph.D. in Economics, Head  
of Customer Experience Measurement,  
JSC "PrivatBank", Ukraine.

Yuriy Kiiko (Ukraine)

# PSYCHOLOGICAL DETERMINANTS OF CUSTOMER LOYALTY: THE INTERPLAY OF SATISFACTION, TRUST, AND FINANCIAL SECURITY IN UKRAINIAN BANKS

## Abstract

This study seeks to clarify the psychological mechanism through which trust, perceived financial security, and satisfaction jointly shape customer loyalty in Ukraine's banking sector under heightened uncertainty. Building on the concept of institutional confidence, we conceptualize customers' assurance as a unified latent state in which trust (relational expectation of reliability and integrity) and perceived security (cognitive sense of protection of funds and data) function as tightly interconnected facets rather than independent predictors. Employing Structural Equation Modelling (SEM) on a survey dataset obtained through Computer-Assisted Web Interviewing (CAWI) ( $n = 251$ ), we ascertain that institutional confidence has a direct impact on loyalty ( $\beta = 0.33$ ,  $p < 0.001$ ) and an indirect impact through satisfaction ( $\beta = 0.35$ ,  $p < 0.001$ ), resulting in a cumulative effect of  $\beta = 0.68$ . The model explains 59% of the variance in loyalty. These findings indicate that customer satisfaction functions as the mechanism through which institutional confidence is transformed into customer loyalty. Institutional confidence creates a favorable baseline for evaluating the bank, whereas satisfaction reflects customers' accumulated experience with service delivery; together they explain why confidence results in stable loyalty and recommendation intentions. These findings enhance behavioral finance and relationship marketing views by empirically validating the sequential route "security/trust  $\rightarrow$  satisfaction  $\rightarrow$  loyalty" and by establishing institutional confidence as a higher-order psychological factor of customer loyalty. The results highlight the strategic significance of transparency, data ethics, and protective infrastructure as essential factors for customer retention in crisis-prone settings.

## Keywords

loyalty, satisfaction, trust, security, banking, Ukraine, SEM

## JEL Classification

M31, D12, G21, C38

## INTRODUCTION

Ukraine's retail banking sector has, throughout the period of full-scale war, shown a rare combination of resilience and advanced digital maturity. Remote interactions with banks, instant person-to-person transfers, and modern authentication practices have become routine features of the customer experience. At the same time, this high-tech landscape operates under heightened uncertainty, in which customers place particular weight on the perceived safety of their funds and data, the predictability of banking processes, and the institution's overall reliability.

Rising digital expectations and intensified competition push banks toward more personalized services, while simultaneously raising the bar for transparency and competence, especially when service disruptions occur, markets fluctuate, or atypical events emerge. In such conditions, loyalty acquires tangible managerial value as a stabilizing force for the customer base: continued product use and favorable word-of-mouth



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### Conflict of interest statement:

Author(s) reported no conflict of interest

help sustain banks precisely when external pressures amplify customers' risk sensitivity and reduce their tolerance for errors.

Despite this, loyalty diagnostics in many organizations remain largely reduced to two brief marketing indicators – CSAT and NPS. Although NPS has been widely promoted as a convenient “single-number” metric, scholarly debate highlights its limitations as a universal proxy for loyalty and cautions against oversimplifying the complex mechanisms through which customer commitment develops (Reichheld, 2003; Baehre, 2024). This makes a broader conceptualization of banking loyalty increasingly necessary – one that views it as an outcome of institutional reliability and the accumulated day-to-day experience of interaction, rather than as a narrow snapshot of satisfaction or a stated willingness to recommend.

## 1. LITERATURE REVIEW

Loyalty is a moral principle that guides individuals in determining the “right” course of action when collective and individual interests collide under complex and uncertain conditions (Haidt, 2012). It constitutes a core element of social relations because it generates moral obligations, deepens emotional bonds, and shapes collective identity (Haidt & Joseph, 2004; Hogg & Hains, 1996).

Brand loyalty provides organizations with a sustainable advantage over competitors (Jacoby et al., 1978; Dick & Basu, 1994; Oliver, 2010; Chaudhuri & Holbrook, 2001) and is widely recognized as a fundamental determinant of consumer behavior. Firms that consistently cultivate customers' loyalty to their products and services tend to benefit from higher rates of repeat purchasing (Lam et al., 2004). Moreover, strong loyalty can reduce customer acquisition costs while supporting profitability over time (Reichheld, 2003).

Traditionally, loyalty is conceptualized along two complementary dimensions: attitudinal loyalty-commitment, willingness to recommend, intentions to stay and behavioral loyalty repeat purchases or transactions, share of wallet, and retention (Bandyopadhyay & Martell, 2007; Akhgari & Bruning, 2024). From a managerial perspective, these dimensions have distinct implications. Attitudinal indicators such as willingness to recommend, general favorability, or declared satisfaction capture customers' evaluative stance, yet they do not always translate into actual behavior. Behavioral measures – retention, transaction frequency, share of wallet, and repeat purchasing – reflect observable manifestations of customers' allegiance to a brand or bank.

Recent reviews emphasize that stable loyalty crystallizes through satisfaction but is reinforced by trust and perceived security, which reduce perceived risk and support deliberate, confident decision-making (Mittal et al., 2023; Jafri et al., 2024). Emerging evidence further suggests that institutional signals-such as compliance practices, anti-fraud safeguards, refund guarantees, and rapid incident resolution-help to lower perceived market risk and strengthen relationship stability, thereby creating an institutional foundation for durable loyalty (A. Cardoso & M. Cardoso, 2024; Abdelsalam et al., 2024). In environments where competition for convenience and speed is intense, trust and security operate as meaningful differentiators: by reducing uncertainty and the “cost of error,” they promote behavioral loyalty (e.g., higher usage frequency and cross-product adoption) and positive word-of-mouth (Jafri et al., 2024; Gefen et al., 2003; Pavlou & Gefen, 2004).

Net Promoter Score (NPS), introduced by Fred Reichheld (Reichheld, 2003), is among the most widely recognized and frequently used indicators of customer loyalty. The method is based on a single question – “How likely are you to recommend our bank (product, service) to a friend or colleague?” – answered on an 11-point scale from 0 to 10. Respondents are classified into three groups: promoters (9-10), passives (7-8), and detractors (0-6). The index is calculated as the percentage of promoters minus the percentage of detractors, producing values that range from –100 to +100 (Reichheld, 2006). Owing to its simplicity and managerial interpretability, NPS has been rapidly adopted across industries, including financial services; Bain & Company estimates that approximately two-thirds of Fortune 1000 companies use the metric (Bain & Company, 2020; Keiningham et al., 2007).

Conceptually, NPS is grounded in the notion of behavioural intentions, often treated as a key step linking satisfaction to realized loyalty behavior (Ajzen, 1991). The recommendation question captures an affect-laden motivational component of brand commitment – “affective signal” of allegiance (Reichheld, 2006). A positive response implies not merely approval but a willingness to act on the brand’s behalf by generating word-of-mouth (WOM), which remains one of the most influential customer acquisition channels (Reichheld, 2003; Trusov et al., 2009). For this reason, NPS is commonly interpreted as a behavioral barometer of customer advocacy and supportive intent toward the brand (Reichheld, 2003, 2006).

NPS serves as a standardized managerial metric that allows for swift observation of changes in customer experience and permits comparisons across various channels and organizational divisions (Reichheld, 2006). In banking, NPS may correlate with customers’ evaluations of institutional trustworthiness, enhancing its value as a succinct experience metric (Albarq, 2023).

Notwithstanding its practical appeal, NPS possesses significant methodological constraints due to its single-item format and contextual sensitivity. A systematic review of NPS applications in healthcare indicates that this metric may exhibit inferior content validity compared to more comprehensive patient experience instruments, and that the “willingness to recommend” item might be regarded as inadequately suitable in certain contexts (Adams et al., 2022). Loyalty is a multifaceted construct that includes both attitudinal and behavioral components, making it impossible for a single item to adequately represent its cognitive, affective, and behavioral dimensions (Dick & Basu, 1994; Oliver, 2010).

A secondary line of argument pertains to the predictive validity of NPS. While the index frequently exhibits a substantial correlation with simultaneous satisfaction metrics, the evidence about its capacity to predict future revenue growth or market share is inconsistent and contingent on context (Morgan & Rego, 2006). Evidence on the predictive validity of NPS for sales growth is mixed: some studies report no significant relationship, whereas others find positive associations depend-

ing on context (Baehre, 2024). The literature increasingly advocates for the treatment of NPS not as an isolated metric but as a component of a comprehensive measurement framework, enhanced by CSAT, trust and security assessments, and behavioral metrics, including retention, repeat transactions, and share of wallet (Adams et al., 2022; Mittal et al., 2023).

Contemporary satisfaction theory has moved beyond the classical expectations – confirmation logic and increasingly conceptualizes satisfaction as a cumulative, dynamic construct that integrates cognitive evaluations (e.g., quality and value), affective responses, and experience across multiple service channels. Recent meta-analytic evidence confirms that satisfaction is a robust predictor of a broad range of behavioral outcomes, including retention, positive word-of-mouth (WOM), increased spending, and other performance-relevant indicators (Mittal et al., 2023). At the same time, substantial body of research highlights its mediating function: satisfaction translates upstream evaluative signals, such as service quality, perceived value, and convenience, into stable intentions and enacted loyalty behaviors (Fornell et al., 1996; Berry et al., 2002; Szymanski & Henard, 2001).

In banking, satisfaction is particularly sensitive to the characteristics of digital service delivery—efficiency, ease of use, and, crucially, security. Recent empirical studies indicate that digital security components – protection of data and transactions, transparent authentication procedures, and anti-fraud safeguards – can meaningfully increase satisfaction, which then carries forward into intentions to continue using the service (Chu & Zhan, 2024). Systematic reviews likewise show that perceived security and privacy are among the most consequential antecedents of trust and continued usage intentions in digital financial services (Jafri et al., 2024; Devlin, 2025). At the theoretical level, these findings align with institutional and structural trust perspectives: technological and procedural safeguards reduce uncertainty and perceived risk, thereby strengthening cognition based trust in both the platform and the provider organization (McKnight et al., 2002; Pavlou, 2003; Pavlou & Gefen, 2004). Satisfaction then operates as the key mechanism converting these evaluations into continued use, retention, and other loyalty-rele-

vant behavioral outcomes (Bhattacharjee, 2001), which in service markets also manifests in customers' willingness to support the brand through WOM (Trusov et al., 2009).

Cognitive trust reflects customers' rational assessments of bank's competence and reliability, including evaluations of its digital platform, and is therefore particularly sensitive to perceived structural safeguards: transaction security, data confidentiality, procedural transparency, and mechanisms for preventing and compensating losses. Such safeguards reduce uncertainty and interaction risk, fostering institution-based trust in the service and the organization (McKnight et al., 2002; Pavlou, 2003; Pavlou & Gefen, 2004; Song et al., 2022). Besides, the quality of the information and data underpinning digital banking (accuracy, timeliness, completeness) supports perceptions of service reliability and may strengthen trust, satisfaction, and loyalty in mobile e-banking (Medina-Quintero et al., 2022). Syntheses of fintech-focused reviews likewise confirm that security and privacy are among the most consequential antecedents of trust and subsequent outcomes related to adoption and continued use of digital financial services (Jafri et al., 2024; Devlin, 2025).

Trust in a bank functions as a key relational resource, associated with more favorable evaluations of interactions and stronger propensity to maintain long-term relationships with financial institution. At the same time, in banking loyalty models, trust often serves as an intervening mechanism in the conversion of satisfaction into loyalty: satisfaction strengthens trust, and trust, in turn, increases loyalty (Albaity & Rahman, 2021; Moh. Rahman & Muf. Rahman, 2023; Ryu & Ko, 2020; Lestari et al., 2024). Customers who trust financial institutions are more likely to actively use digital financial services, opening additional channels for engagement and loyalty development (Moh. Rahman & Muf. Rahman, 2023). Under conditions of rapid technological change, trust has become not only an affective asset but also a cognitive one, shaping more positive perceptions and deeper customer involvement (Ryu & Ko, 2020).

Moving from general trust to its banking-specific expression naturally brings the concept of security to the foreground. In banking services, trust and

perceived security jointly constitute a shared cognitive-affective foundation of the customer-institution relationship. Here, security may be defined as customers' evaluation of the bank's capacity to protect transactions, data, and assets through technological and procedural mechanisms that reduce uncertainty and risk. In digital banking, perceived cyber and financial assurances (data protection, access control, anomaly monitoring, incident response) represent one of the key sources of trust in the bank and its digital platform, thereby supporting the stability of customer relationships with the institution (Schneier, 2015; Jafri et al., 2024; Devlin, 2025; Dias et al., 2025).

Higher levels of trust and perceived security are associated with greater satisfaction with banking services, and satisfaction, in turn, represents the most proximal psychological mechanism leading to loyalty (Sathar et al., 2022). Importantly, in digital channels, "security" manifests for customers less as a technical fact than as an experience of control and predictability: comprehensible authentication, transaction safeguards, anti-fraud protection, and transparent incident-response procedures strengthen trust and reduce anxiety that emerges when customers lack a sense of protection (Kaur et al., 2021). From a managerial standpoint, this implies that security technologies, regulatory frameworks, and operational procedures should function as a unified assurance system: it not only reduces objective risks but also sustains customer trust and the robustness of loyalty in contemporary banking (Djunaedi et al., 2023; Purwanto et al., 2020).

The interaction between trust and security becomes particularly salient under heightened uncertainty: when customers perceive an institution as acting predictably and providing a "protected environment" for interaction, their readiness to maintain the relationship and cooperate increases (Tyler, 2006). In fintech and digital banking, systematic reviews consistently show that perceived technical/procedural security and related risk assessments are stable antecedents of trust, while trust is among the most robust predictors of intentions to adopt and continue using services (Jafri et al., 2024; Souiden et al., 2021).

Crucially, “security” in banking operates at two levels: platform level (protection of transactions and data, access control, fraud prevention) and institutional level (formal rules, guarantees, accountability mechanisms, and incident resolution procedures). Together, these reduce uncertainty and form structured expectations about organizational reliability (McKnight et al., 2002; Pavlou, 2003; Pavlou & Gefen, 2004; Gefen, 2000). This dual assurance system (platform mechanisms plus institutional safeguards) logically brings trust and security together into a broader framework of institutional confidence as a foundation for stable intentions and subsequent behavioral outcomes in customers’ interaction with the bank (Gefen, 2000; McKnight et al., 2002; Pavlou, 2003; Pavlou & Gefen, 2004; Devlin, 2025).

In this study, we use the term institutional confidence to denote an integrated state of customer assurance that is conceptually aligned with institution-based trust (in particular, structural assurance and situational normality) and reflects the perception that interactions with the bank are simultaneously predictable and protected due to organizational and external institutional safeguards.

Accordingly, institutional confidence in banking (institutional assurance/institution-based trust) can be defined as an integrated cognitive-affective “background of safety and predictability” in interactions with a financial institution, combining two interrelated facets: trust (expectations of honesty, reliability, and fulfilment of obligations) and security (perceived protection of assets and data, alongside procedural safeguards that reduce risk and uncertainty). Within the logic of structural (institutional) trust, the decisive role is played by structural safeguards – formal rules, guarantees, monitoring and accountability mechanisms – that render organizational behavior predictable from the customer’s perspective (Gefen, 2000; McKnight et al., 2002; Pavlou, 2003; Pavlou & Gefen, 2004). For banks, this implies that trust seldom emerges “on its own”; rather, it is systematically reinforced by both technological-procedural security practices (protection of data and transactions, authentication, anti-fraud systems, incident resolution) and institutional oversight and compliance mechanisms that customers interpret as protection

guarantees. In digital channels, close conceptual counterpart to this state is online trust – the evaluation of a service’s ability to “meet expectations,” the plausibility of its information, and the confidence evoked by the platform (Urban et al., 2009). In institution-based trust frameworks, the institutional component is treated as part of a multidimensional trust system that supports users’ willingness to transact and rely on the provider (McKnight et al., 2002). Contemporary reviews in fintech and banking innovation consistently emphasize that perceived security/privacy and risk evaluations are stable antecedents of trust, while trust remains among the key predictors of intentions to adopt and sustain relationships with financial services (Devlin, 2025; Jafri et al., 2024; Zhang et al., 2023). Practically, this matters because institutional confidence sets the “threshold condition” for positive experience: when customers feel protected and perceive interactions as predictable, service evaluations are more likely to consolidate into satisfaction as an overall summary of experience, which can then become the mechanism through which more enduring loyalty develops.

From an operational management perspective, this implies that satisfaction is not merely a derivative of service quality; in banking, it represents the pivotal psychological channel through which institutional confidence (strengthened by trust and perceived security) translates into behavioral outcomes retention and willingness to recommend. When a bank not only declares but consistently demonstrates standards of security and ethical data practices at the level of processes and communication, it lowers customers’ subjective risk, sustains trust, and raises overall experience evaluations—namely, satisfaction—which is then associated with loyalty (Mittal et al., 2023; Jafri et al., 2024; Ramayanti et al., 2024; Aldboush et al., 2023). Conversely, in service failure situations, clearly defined response procedures and transparent communication can “soften the blow” to overall relationship evaluations, reducing the erosion of satisfaction and customers’ intentions to continue the relationship with the bank (Tax et al., 1998; Gelbrich & Roschk, 2010; Van Vaerenbergh & Orsingher, 2016). In sum, satisfaction occupies a central position in the loyalty formation mechanism, mediating the

influence of institutional confidence – through trust and security – on customers’ long-term behavioral commitment (Mittal et al., 2023; Jafri et al., 2024; Yin & Lin, 2022).

Despite the substantial volume of research on trust, security, satisfaction, and loyalty, the financial services literature often treats these constructs in a fragmented manner and within partially disconnected theoretical traditions. Trust is typically conceptualized as a core psychological mechanism grounded in expectations of reliable and predictable interaction (Rotter, 1980) and is empirically linked to loyalty in service and financial contexts (Coelho & Henseler, 2012). By contrast, security in digital financial services is commonly operationalized as a technical and procedural driver of adoption and use (e.g., data protection and risk reduction) that shapes behavioral intentions via perceived risk and trust. Systematic reviews in the fintech and digital banking domain underscore the importance of the “trust-security” nexus while also noting gaps in explanatory mechanisms and limitations in the generalizability of existing findings (Jafri et al., 2024). In this respect, institutional and structural approaches to trust (e.g., institution-based trust) offer a compelling basis for integrating affective-cognitive trust with structural security assurances into a single framework of customer-institution interaction (Pavlou & Gefen, 2004). However, recent syntheses emphasize that, in fintech and digital banking, fundamental questions remain open regarding the conceptualization of trust, its objects, measurement, and behavioral consequences; that is, there is still a shortage of integrated models that simultaneously explain trust, security, and their downstream effects (Devlin, 2025).

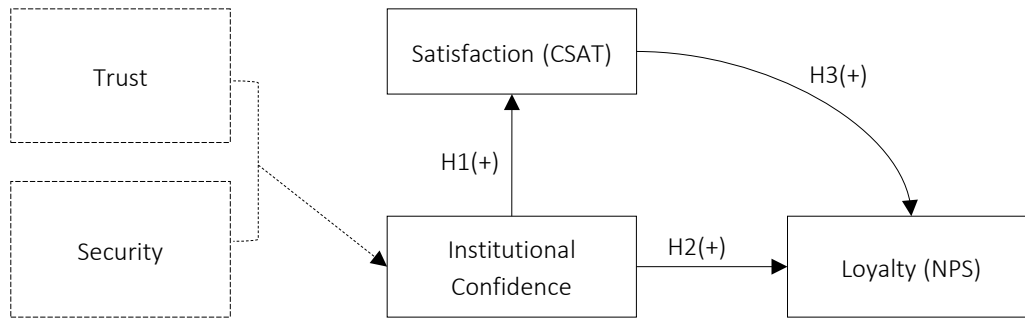
Moreover, within banking research, satisfaction is most often treated either as (a) a direct outcome of service quality and value, or (b) a “standard” mediator in the chain from quality to satisfaction to loyalty (Mittal et al., 2023). Yet in increasingly digitalized banking, a growing share of experience evaluations is driven not only by service attributes but also by expectations of institutional predictability and protection-security and privacy, perceived control, regulatory safeguards, and the absence of data misuse. The mechanism through which structural assurances and trust consoli-

date into satisfaction, and through satisfaction translate into behavioral commitment, remains insufficiently integrated in prevailing explanatory frameworks. Reviews focusing on trust in fintech explicitly call for clarifying the objects of trust, the role of institutional and structural assurance, and the consequences of trust under conditions of digital risk, scandals, and privacy incidents—highlighting a persistent gap between trust/security as an assurance system and customer-level outcomes (Devlin, 2025).

Against this background, integrating NPS into a structural model alongside satisfaction and institutional confidence allows recommendation intention to be decomposed into its psychological determinants and enables an empirical test of the sequential pathway institutional confidence → satisfaction → loyalty (NPS). Within this logic, satisfaction is conceptualized as the pivotal mediator, while institutional confidence represents a foundational precondition for positive behavioral intentions in financial relationships.

Accordingly, the present study empirically examines whether institutional confidence—understood as an integrated resource of predictability and protectedness in customer-bank interaction explains variation in loyalty indirectly through satisfaction, and whether its contribution remains when alternative explanatory pathways typical of service models are considered. To this end, we apply an SEM approach that simultaneously assesses the measurement validity of latent constructs (with trust and security specified as constituent facets of institutional confidence) and estimates direct and indirect effects within a unified causal scheme, including the mediational mechanism institutional confidence → satisfaction → loyalty. Importantly, loyalty operationalized via NPS is treated not as a self-sufficient measure but as an indicator of recommendation intention whose substantive interpretation requires modelling more foundational experience determinants, above all, satisfaction and the trust-security context of interaction (Adams et al., 2022; Dawes, 2023).

The study aims to develop and empirically validate an integrated structural model that explains the effect of institutional confidence – a latent construct formed by trust and perceived security on



Note: “+” indicates hypothesized positive effects.

**Figure 1.** Theoretical model of loyalty formation based on institutional confidence (trust and security) and the mediating role of satisfaction in the banking context

customer loyalty in the banking sector, and to assess both the direct and indirect (via satisfaction) pathways through which this effect unfolds.

Hypotheses:

- H1: *Institutional confidence (an integrated latent construct reflecting the joint contribution of trust and perceived security) is positively associated with customer satisfaction with banking services.*
- H2: *Institutional confidence is positively associated with customer loyalty, operationalized via NPS.*
- H3: *Customer satisfaction mediates the relationship between institutional confidence and loyalty: institutional confidence increases satisfaction, and satisfaction, in turn, strengthens loyalty, producing a statistically significant indirect effect.*

## 2. METHODOLOGY

The survey targeted users of banking services residing in various areas and regions across Ukraine. The study was conducted using the contractor method, augmented by Computer-Assisted Web Interviewing (CAWI) tools. The questionnaire was created using Google resources, and the survey link was distributed online through social networks, messaging platforms, and mobile communication channels.

The poll was conducted anonymously and voluntarily, without the collection of any personal identifiers. All participants granted informed per-

mission by selecting “Yes” after reviewing a concise overview of the study’s aims, data utilization, and their right to withdraw. The final sample of 251 responders surpasses the generally advised minimum of 200 observations for maximum-likelihood structural equation modeling, hence reinforcing the stability of parameter estimations (Kline, 2016). The gender distribution (59% women), age range (18-60 years). The sample covered major regions and key market participants, which supports the relevance of the findings for the study’s aims. All participants utilized contractual retail banking services.

Regarding socio-demographic variables (refer to Table 1), 66% of respondents indicated possessing higher education, and 67% lived in large urban areas. When prompted to identify their principal bank, respondents predominantly cited PrivatBank (44.6%), followed by monobank (22.7%) (Universal Bank), PUMB (9.2%), Oschadbank (5.6%), and Raiffeisen Bank (4.4%); additional mentions included Sense Bank, A-Bank, and other institutions.

We utilize National Bank of Ukraine information on active payment cards as a proxy to benchmark the sample composition against the market structure, reflecting the size of retail customer bases. As of 1 June 2025, the leading five banks by the quantity of active cards were PrivatBank (31.13 million; approximately 53%), Universal Bank (monobank) (9.89 million; approximately 17%), Oschadbank (7.92 million; approximately 13.5%), Raiffeisen Bank (2.39 million), and A-Bank (1.81 million), totaling 58.79 million active cards in the market (National Bank of Ukraine, 2025).

**Table 1.** Social and demographic profile of the sample

Characteristic	Profile	n	(%)
Gender	Female	149	59.4
	Male	102	40.6
Age	19	6	2.4
	20-34	51	20.3
	35-44	100	39.8
	45+	94	37.5
Education	Higher education	166	66.1
	Secondary education	17	6.8
	Academic degree	3	1.2
	Secondary specialized education	65	25.9
Income	High	4	1.6
	Above average	8	3.2
	Below average	70	27.9
	Low	59	23.5
	Average	110	43.8
Size and type of settlement	City (regional centers)	169	67.3
	Town (from 10 thousand inhabitants)	67	26.7
	Urban-type settlement (from 5 thousand)	6	2.4
	Village	9	3.6
Primary bank	Privatbank	112	44.6%
	Monobank (Universal Bank)	57	22.7%
	PUMB (First Ukrainian International Bank)	23	9.2%
	Oschadbank	14	5.6%
	Raiffeisen Bank Aval	11	4.4%
	A-Bank	11	4.4%
	Alfa-Bank Ukraine (renamed Sense Bank)	9	3.6%
	Ukrsibbank	3	1.2%
	Crédit Agricole Bank	3	1.2%
	Other	8	3.2%
Overall		251	100.0

The sample provides broad regional coverage and includes customers of major market participants; therefore, the findings should be interpreted as indicative and suitable for testing the proposed relationships rather than as nationally representative estimates.

The SPSS and R software program was employed to conduct statistical calculations, while MS Excel was employed to process the initial data. The following metrics were employed to assess internal consistency: Cronbach’s Alpha, split-half reliability, and the correlation between the first and second halves of the questionnaire. The hypotheses were tested and the relationships between trust, security, satisfaction, and loyalty were analyzed using Structural Equation Modeling (SEM).

AI-enabled tools (GPT-5.4 and Scite) were used as auxiliary support for (1) identifying and screening relevant scholarly sources, (2) assisting with bib-

liographic exploration, and (3) refining the manuscript’s language, grammar, and academic style. All theoretical decisions, study design, data collection, statistical analysis, interpretation of results, and the formulation of findings, conclusions, and practical/theoretical implications were performed independently by the authors.

### 3. RESULTS

The first step of the empirical analysis was to assess the reliability of the scales used to measure Trust (Q3) and Security (Q4) in the banking context. Table 2 reports the internal consistency indices for each scale, along with the specific items used to operationalize the corresponding latent constructs.

The results indicate a high level of internal consistency across the indicators. Cronbach’s Alpha was 0.87 for the “Sense of Trust” scale and 0.93 for the

**Table 2.** Reliability indicators for the Trust (Q3.1-Q3.3) and Security (Q4.1-Q4.5) scales

Scale items	Cronbach's Alpha	Correlation between forms	Guttman split-half coefficient
<b>Q3 Trust</b>			
Q3.1 On a scale of 1 to 5, how much trust do you have in your primary bank?	0.871	0.726	0.754
Q3.2 On a scale of 1 to 5, how much trust do you have in the employees who serve you at your primary bank?			
Q3.3 On a scale of 1 to 5, how confident are you that your bank will address any issues or complaints promptly and fairly?			
<b>Q4 Security</b>			
Q4.1 On a scale of 1 to 5, how safe do you consider your primary bank to be?	0.932	0.856	0.883
Q4.2 On a scale of 1 to 5, how confident are you that your primary bank will succeed in the future?			
Q4.3 On a scale of 1 to 5, how would you rate the reputation of your primary bank?			
Q4.4 On a scale of 1 to 5, how willing are you to trust your primary bank with large financial transactions?			
Q4.5 On a scale of 1 to 5, how confident are you that your primary bank will protect you from fraudulent transactions?			

“Sense of Security” scale. Besides, the Guttman split-half coefficient was 0.75 and the correlation between the two halves was 0.72, further supporting the stability of the measurement instrument. Taken together, these indices suggest that both scales are internally coherent and capture their intended latent factors effectively.

Accordingly, the internal structure of Trust and Security scales can be considered sufficiently reliable and practically valid for subsequent structural modelling. This provides a sound basis for the next stages of the analysis aimed at estimating the effects of institutional confidence on customer satisfaction and loyalty in the banking context.

Table 3 presents the correlation matrix for the core study variables: loyalty (NPS), satisfaction (CSAT), trust, and perceived security. All correlations were statistically significant ( $p < 0.001$ ), indicating systematic associations among the constructs. The strongest relationship emerged between trust and security ( $r = 0.861$ ), pointing to a very close linkage and suggesting that they may represent complementary facets of a broader common factor. Correlations between satisfaction and trust ( $r = 0.616$ ), as well as satisfaction and security ( $r = 0.555$ ), indicate that customers’ cognitive-affective assurance in a bank is closely associated with more favorable evaluations of service experience. Moreover, the associations of loyalty with Trust ( $r = 0.621$ ) and Security ( $r = 0.586$ ) underscore their likely relevance for sustaining long-term customer

relationships. Taken together, these patterns support the interpretation of trust and security as interrelated dimensions of a more integrative construct-institutional confidence.

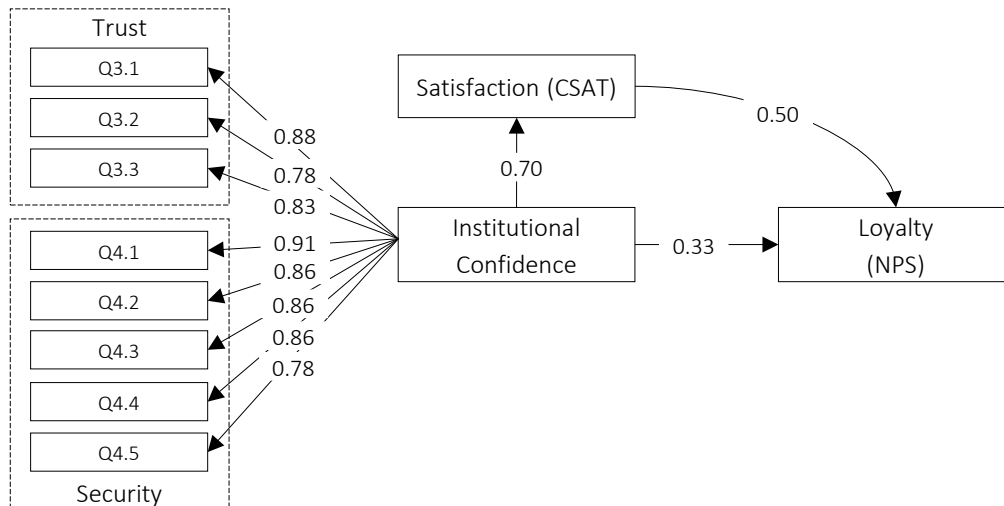
**Table 3.** Descriptive correlations among NPS, CSAT, Trust, and Perceived Security

	NPS	CSAT	Trust	Security
NPS	1.000			
CSAT	0.692**	1.000		
Trust	0.621**	0.616**	1.000	
Security	0.586**	0.555**	0.861**	1.000

Note: \*\*Correlation is significant at the 0.001 level (2-tailed).

To test the hypotheses, we estimated a Structural Equation Model (SEM) in lavaan (R). The model (Figure 2) specified a single latent factor – Institutional Confidence – that integrates two facets, trust and perceived security, treated as constituent components of institutional confidence. The model demonstrated acceptable fit:  $\chi^2(34) = 139.04$ ,  $p < 0.001$ ; CFI = .96; TLI = 0.95; RMSEA = 0.08, 90% CI [0.064, 0.097]; SRMR = 0.033. According to commonly applied criteria (Hu & Bentler, 1999), the model can be considered acceptable.

Table 4 reports collinearity diagnostics based on Variance Inflation Factors (VIF) at both the indicator level (indicator-level VIF) and the structural level (predictor VIF). For the integrated latent construct “Institutional Confidence,” the indicator-level VIF values for indicators ranged from 4.12 to 4.72, indicating moderate shared variance among



**Figure 2.** The Interrelationship between trust, security, satisfaction, and loyalty toward the primary bank

the items operationalizing the trust and security facets. Importantly, all values remained below the threshold of 5, which in SEM practice is often used as a conservative marker of problematic collinearity. Thus, the observed VIF values do not suggest severe multicollinearity, while simultaneously reflecting the substantial commonality among indicators, which is conceptually consistent with interpreting institutional confidence as an integrated “background” of predictability and protectedness in customer-bank interaction. At the structural level, predictor VIF values for the predictors of NPS were 2.04 for both institutional confidence and satisfaction (CSAT), indicating acceptable independence between predictors and no evidence of critical multicollinearity in the structural equation. Overall, the VIF diagnostics support the conclusion that estimating the effects in the proposed pathway Institutional Confidence → CSAT → NPS is not materially compromised by collinearity, and that indicator overlap within Institutional Confidence remains manageable and well below critical levels.

In the estimated model, all indicator loadings on the latent construct were high ( $\beta = 0.75\text{--}0.91$ ) and statistically significant ( $p < 0.001$ ), supporting the construct’s measurement validity and reliability. This allows Institutional Confidence to be interpreted as an integrative construct capturing consumers’ cognitive-affective assurance in the bank’s reliability, stability, and integrity.

With respect to the structural relations, Institutional Confidence exerted a positive effect on Satisfaction ( $\beta = 0.70$ ,  $p < 0.001$ ) and strengthened Loyalty directly ( $\beta = 0.33$ ,  $p < 0.001$ ). Satisfaction, in turn, emerged as a substantial predictor of loyalty ( $\beta = 0.50$ ,  $p < 0.001$ ), functioning as the proximal mechanism linking institutional confidence to customers’ intention to remain with the bank.

Mediation analysis further indicated that the indirect effect of Institutional Confidence on loyalty via satisfaction was statistically significant ( $\beta = 0.35$ ,  $p < 0.001$ ). The total effect of the construct on loyalty was  $\beta = 0.68$ , underscoring its central role in shaping durable customer commitment.

Overall, the structural modelling results support hypotheses *H1-H3*. The latent construct Institutional Confidence, integrating the trust (Q3.1-Q3.3) and security (Q4.1-Q4.5) indicators, exhibited strong factor loadings (0.78-0.91) (Table 5), suggesting that the two facets are reliably represented by a single higher-order index. At the structural level, institutional confidence had statistically significant direct effects on both Satisfaction ( $\beta = 0.70$ ,  $p < 0.001$ ,  $R^2 = 0.49$ ) and Loyalty ( $\beta = 0.33$ ,  $p < 0.001$ ,  $R^2 = 0.59$ ). Besides, satisfaction substantially increased loyalty ( $\beta = 0.50$ ,  $p < 0.001$ ), acting as the key mediator: the indirect effect of institutional confidence on loyalty via satisfaction was  $\beta = 0.35$  ( $p < 0.001$ ), while the total effect reached  $\beta = 0.68$  ( $p < 0.001$ ) (Table 5).

**Table 4.** Collinearity diagnostics (VIF) for measurement indicators and structural predictors

Variable	Items	Indicator level VIF	Predictor VIF (→ NPS)
Institutional Confidence (Trust)	Q3.1	4.62	2.04
	Q3.2	4.67	
	Q3.3	4.54	
Institutional Confidence (Security)	Q4.1	4.12	
	Q4.2	4.66	
	Q4.3	4.72	
	Q4.4	4.58	
CSAT	CSAT (single-item)	–	
NPS	NPS (endogenous)	–	–

**Table 5.** Fit indices for loyalty formation models

Item	β (std. all)	SE	z	p	R <sup>2</sup>
<b>Factor loadings (Institutional Confidence)</b>					
Q3.1 ← Institutional Confidence	0.88	0.02	18.5	< 0.001	0.78
Q3.2 ← Institutional Confidence	0.78	0.03	18.5	< 0.001	0.60
Q3.3 ← Institutional Confidence	0.83	0.07	11.9	< 0.001	0.68
Q4.1 ← Institutional Confidence	0.91	0.04	17.9	< 0.001	0.82
Q4.2 ← Institutional Confidence	0.86	0.03	18.4	< 0.001	0.74
Q4.3 ← Institutional Confidence	0.86	0.03	18.3	< 0.001	0.74
Q4.4 ← Institutional Confidence	0.86	0.04	18.5	< 0.001	0.73
Q4.5 ← Institutional Confidence	0.78	0.07	11.5	< 0.001	0.60
<b>Structural paths</b>					
Satisfaction (CSAT) ← Institutional Confidence	0.70	0.06	12.4	< 0.001	0.49
Loyalty (NPS) ← Institutional Confidence	0.33	0.08	3.9	< 0.001	0.59
Loyalty (NPS) ← Satisfaction	0.50	0.10	4.8	< 0.001	
<b>Indirect and total effects</b>					
Institutional Confidence → NPS (indirect)	0.35	0.08	4.5	< 0.001	
Institutional Confidence → NPS (total)	0.68	0.07	11.2	< 0.001	
<b>Model fit indices</b>					
CFI = 0.95; TLI = 0.94; RMSEA = 0.08 (90% CI [0.06, 0.10]); SRMR = 0.03					

Collinearity diagnostics further indicated no critical issues. Outer VIF values for indicators ranged from 4.12 to 4.72, remaining below the conservative threshold of 5 (Table 4), and the Inner VIF for the predictors of loyalty (institutional confidence and satisfaction) was 2.04, indicating acceptable independence among explanatory variables. Finally, the very high correlation between trust and security ( $r = 0.86$ ) (Table 3) provides additional justification for modelling them as components of a unified construct. Taken together, these results corroborate H1 by showing that institutional confidence, capturing both trust and perceived security, is a statistically significant predictor of customer satisfaction and exerts both direct and indirect effects on customer loyalty.

## 4. DISCUSSION

Our structural model is consistent with the interpretation that the strongest impetus for loyalty is formed through an integrated “security-trust” mechanism: when customers feel that transactions and data are protected and that procedures are dependable, subjective risk declines and trust in the bank as a competent and predictable partner strengthens, which in turn elevates overall satisfaction and willingness to continue the relationship and recommend the bank. This logic is aligned with fintech scholarship, which treats perceived security and privacy as foundational antecedents of trust and usage intentions, and trust as a key transitional

mechanism leading to loyalty outcomes (Jafri et al., 2024; Devlin, 2025).

Accordingly, the discussion shifts from the question of whether trust matters to the question of how banks activate trust at the outset of a relationship-prior to extensive product-use experience. Institution-based trust theory emphasizes that, in early stages, customers rely less on personal experience and more on institutional cues of “normality” and structural safeguards (rules, guarantees, oversight) that render interaction predictable (McKnight et al., 2002; Pavlou & Gefen, 2004). Practically, this implies that first impressions of a bank’s reliability are shaped by visible indicators of protection and risk governance (consumer financial safeguards, incident resolution mechanisms), as well as by communication transparency – an information quality characteristic that strengthens perceived trustworthiness and trust (Tomlinson & Schnackenberg, 2022; McKnight et al., 2002).

Beyond “technical” assurances, trust and institutional confidence are reinforced by reputational and communicative signals, most notably transparency and ethical conduct. Research on organizational transparency shows that openness and the clarity of rules and explanations increase trust by enhancing perceptions of organizational reliability (Schnackenberg & Tomlinson, 2016). Similarly, in banking, Corporate Social Responsibility (CSR) initiatives and a socially responsible stance can function as “soft” markers of reliability and integrity, strengthening favorable attitudes toward the bank and sustaining the chain from trust and confidence to satisfaction and loyalty (Pérez & Rodríguez del Bosque, 2015).

A positive brand experience strengthens brand trust and creates more favorable conditions for loyal behavior, because brand stimuli can elicit affective and cognitive reactions that gradually crystallize into stable evaluations of a brand’s reliability and attractiveness (Brakus et al., 2009; Başer et al., 2016). Emotional bonding with a brand (brand attachment) typically becomes stronger when interaction with the bank is consistent and predictable, supporting a sense of stability and “relational anchoring” (Park et al., 2010; Rempel et al., 1985). In digital environments, comparable mechanisms operate through trust and perceived security: em-

pirical work indicates that different forms of trust (including competence trust) and perceived assurances/protection are associated with online purchase decisions and behavioral intentions (Fu et al., 2023). Social media activities can also operate as channels of reputational signaling: social media marketing can enhance brand trust and, through it, strengthen intentions to repurchase (Gökerik, 2024; Felix et al., 2017). However, within our model, these communication-related drivers were not tested directly; they should therefore be treated as potential higher-order factors that may feed into institutional confidence (the combined state of trust and perceived security), which then translates into satisfaction and willingness to recommend the bank.

The concept of “imported trust,” or trust transfer, refers to the process through which trust in an external agent (an influencer, streamer, celebrity, or platform) becomes a heuristic that reduces uncertainty and partially carries over into trust in the endorsed brand (Stewart, 2003). In social media contexts, this mechanism is amplified because influencers serve as trusted intermediaries, and in live-streaming commerce, trust in the streamer and social presence are statistically associated with purchase intentions (Xie, 2025; Xie et al., 2024). Similarly, in classic celebrity endorsement, trust in the celebrity can enhance advertising and brand credibility, creating a favorable climate for positive attitudes and behavioral intentions (Hussain et al., 2020). Empirical evidence also suggests that celebrity endorsers can influence purchase intentions through brand trust and emotional involvement/attachment (Natalia et al., 2021). Nonetheless, these external communication drivers were not directly tested in the present model; it is therefore most appropriate to interpret them as potential exogenous sources of signals that may strengthen institutional confidence (the joint state of trust and perceived security), which subsequently converts into satisfaction and recommendation intentions.

Once institutional confidence has formed as an integrated evaluation of trust and perceived security, our model indicates that satisfaction becomes the most proximal driver of loyalty intentions, functioning as the primary channel through which confidence translates into willingness to recommend the bank. Importantly, this is not full me-

diation but partial mediation: institutional confidence affects loyalty both indirectly through satisfaction and directly. This configuration shifts attention from pre-contract signals to the post-contract service phase, where daily interactions, transparency of terms and fees, process predictability, and consistent service quality may either confirm or undermine previously established confidence. This pattern is consistent with the service logic in which satisfaction mediates the link between service quality and loyalty (Caruana, 2002). From an expectations-disconfirmation perspective, providing accurate, comprehensible, and complete information about product/service characteristics, limitations, and risks is critical: it reduces the gap between expectations and realized experience, thereby lowering the likelihood of dissatisfaction and subsequent erosion of loyalty (Oliver, 1980; Parasuraman et al., 1985).

It is also important to note that, in service relationships, trust and satisfaction rarely form a linear “once-and-for-all” chain; rather, they function as interrelated components of relationship quality that may reinforce one another as experience accumulates (Garbarino & Johnson, 1999). In our model, institutional confidence (the integrated effect of perceived security and trust) operates as the primary precondition, while repeated everyday service encounters transform this confidence into more stable satisfaction, which then converts into loyalty (NPS). Prior research suggests that, after the post-contract stage, satisfaction may also strengthen trust in return, producing a cumulative dynamic: positive experience increases confidence in the brand, while existing trust facilitates the interpretation of subsequent interactions (Kurniadi & Rana, 2023). Higher trust is likewise associated with stronger affective responses to the brand and behavioral manifestations of loyalty (repeat choice, recommendations), consistent with the “trust/affect → loyalty” logic and with relational exchange mechanisms through which trust translates into value and loyalty (Chaudhuri & Holbrook, 2001; Sirdeshmukh et al., 2002). In banking, the role of emotional attachment is particularly relevant: it may provide a distinct “emotional pathway” to loyalty and can partially buffer temporary fluctuations in satisfaction by reducing the impact of negative impressions from isolated service episodes (Aaker et al., 2004; Levy & Hino, 2016).

Customers who regularly use bank’s services, report positive experience, and display loyal behaviour may, over time, incorporate the bank’s image into their self-concept through self-brand connection and consumer–company identification mechanisms (Escalas & Bettman, 2003; Bhattacharya & Sen, 2003). However, it is more accurate to describe this process not as emotional factors “fully replacing” rational ones, but as a shift in their relative weight as the relationship matures. Early stages are dominated by cognitive evaluations of competence, reliability, and security (cognition-based trust), whereas accumulated positive interactions support the development of affective trust and emotional attachment (McAllister, 1995; Johnson & Grayson, 2005; Park et al., 2010). In terms of trust development, this is consistent with stage-based accounts in which trust evolves over time and is reinforced by repeated interaction (Lewicki & Bunker, 1996), and with brand relationship perspectives suggesting that long-term brand ties may acquire relationship, like qualities in which emotional bonding and identification become increasingly salient (Fournier, 1998). Importantly, given the cross-sectional nature of our model, we did not test the temporal dynamics of the transition from institutional confidence to identification or attachment; this claim should therefore be treated as a theoretical interpretation that warrants longitudinal verification.

Mayer and colleagues’ (1995) model of organizational trust identifies three fundamental components of perceived trustworthiness: ability/competence, benevolence, and integrity (with honesty as a central manifestation) (Mayer et al., 1995). In bank-customer relationships, assessments of bank’s ability and integrity may partly manifest as cognitive assurance about financial security: customers expect that the bank is technically and operationally capable of protecting funds and data and behaves honestly in adhering to rules and obligations. In McKnight and Chervany’s (2001) typology, such judgments correspond to trusting beliefs (especially competence and integrity), while the feeling that “my funds are safe” is also closely aligned with institution-based trust through belief in the presence of structural guarantees and protection mechanisms (McKnight & Chervany, 2001). This provides a basis for treating perceived funds security as an important cognitive compo-

ment of trust formation in banking and helps explain why trust and security often appear tightly linked in empirical models.

A sense of trust and security is a critical precondition for satisfaction, loyalty intentions, and long-term bank-customer relationships. In our results, this is reflected in the central role of institutional confidence (the combined state of trust and perceived security), which creates the foundation for conversion into satisfaction and, ultimately, willingness to recommend. From an applied perspective, this aligns with relationship marketing logic, where trust is viewed as a key mechanism sustaining cooperation under uncertainty (Morgan & Hunt, 1994), and with service exchange models in which trust translates into value and loyalty through consistently high-quality interactions (Sirdeshmukh et al., 2002). Managerial priorities should therefore

shift from promises and initial signals toward post-contract confirmation through transparent terms (including fees and rules), operational reliability, competent support, and a consistently stable customer experience (Garbarino & Johnson, 1999; Berry, 1995). Given that long-term trust and perceived security are shaped by both rational and affective components, a promising direction for future research is to deepen the qualitative dimension of customer experience—particularly the role of personalized advice and relational benefits (confidence and social benefits) in service relationships (Gwinner et al., 1998). It is also important to test the contribution of perceived CSR and perceived fairness of terms to loyalty in financial services (Matute-Vallejo et al., 2011; Pérez & Rodríguez del Bosque, 2015), while taking into account that consumer responses to CSR may be context-dependent (Sen & Bhattacharya, 2001).

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## CONCLUSION

The study aims to develop and empirically validate an integrated structural model of customer loyalty in the banking sector, in which institutional confidence, conceptualized as a latent construct grounded in trust and perceived security, acts as a key driver of loyalty, operating both directly and indirectly through customer satisfaction. The results suggest that customers rarely perceive trust and security as separate cues; rather, they interpret them as mutually reinforcing signals of a reliable financial partner. This sense of confidence establishes a baseline readiness to maintain the relationship with the bank and to view it as a safe and predictable context for managing personal finances.

Customer satisfaction appears as the central mechanism through which institutional confidence is translated into loyalty. The findings are consistent with the logic of the “post-contract” phase: while initial signals of reliability and protection may attract customers and provide an early foundation for trust, sustained loyalty is ultimately strengthened-or weakened-by the cumulative experience of day-to-day interactions. Accordingly, trust and security require ongoing confirmation through service stability, transparent rules and pricing, competent support, predictable processes, and consistently effective problem resolution.

## AUTHOR CONTRIBUTIONS

Conceptualization: Yurii Kiiko.  
 Data curation: Yurii Kiiko.  
 Formal analysis: Yurii Kiiko.  
 Investigation: Yurii Kiiko.  
 Methodology: Yurii Kiiko.  
 Project administration: Yurii Kiiko.  
 Resources: Yurii Kiiko.  
 Software: Yurii Kiiko.

Supervision: Yurii Kiiko.  
 Validation: Yurii Kiiko.  
 Visualization: Yurii Kiiko.  
 Writing – original draft: Yurii Kiiko.  
 Writing – review & editing: Yurii Kiiko.

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