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RESEARCH ARTICLE **Open Access**

The Impact of E-Satisfaction on E-Loyalty Moderated by Customer Perceived Risk and Skill (Case of Mashhad's Mellat bank)

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Abstract
As the digital landscape continues to reshape the banking industry, understanding the factors influencing customer loyalty in online banking becomes paramount. This study investigates the intricate relationships between e-satisfaction, e-loyalty, and the moderating effects of consumer perceived risk and skill. Drawing on a sample of 168 customers from selected branches of Bank Mellat in Mashhad, statistical analyses were conducted using SPSS and Smart-PLS. The results reveal a direct and positive impact of e-satisfaction on e-loyalty, elucidating the fundamental role of customer contentment in fostering loyalty in the online banking domain. Moreover, the study uncovers a nuanced interplay, demonstrating that the relationship between e-satisfaction and e-loyalty is contingent on the levels of consumer perceived risk and skill. High perceived risk and low skill levels diminish the impact of e-satisfaction on e-loyalty, highlighting the need for tailored strategies for these customer segments. This research contributes to the evolving understanding of e-loyalty dynamics, emphasizing the significance of customization, security, convenience, delivery, communication, and website aesthetics in shaping customers' e-loyalty. The findings provide actionable insights for banking institutions to refine their online platforms, fostering a more personalized, secure, and engaging digital banking experience to enhance customer loyalty.
Keywords: *Perceived risk, Customer Skill, E-satisfaction, E-loyalty, Online Banking, Internet Banking*

Introduction

The exponential growth of online banking has revolutionized the financial landscape, offering convenience and accessibility (Shankar & Rishi, 2020). In today's digital age, online banking has become an essential aspect of financial management for individuals and businesses alike (Jafari Zarmehri et al., 2023). As customers increasingly rely on virtual platforms to manage their finances, understanding the factors that influence their satisfaction and loyalty towards online banking services becomes paramount (Raza et al., 2020).

E-satisfaction, defined as the level of satisfaction a customer experiences when using online banking services, is a critical determinant of e-loyalty (Sasono et al., 2021). A positive online banking experience can lead to increased customer engagement, satisfaction, and a higher likelihood of continued use and recommendation of the bank's services (Garzaro et al., 2021). However, the relationship between e-satisfaction and e-loyalty is not straightforward. Research suggests that consumer perceived risk and skill can moderate this relationship.

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Consumer perceived risk introduces an element of uncertainty into the online banking experience, as customers weigh potential risks associated with virtual transactions. Consumer perceived risk refers to the customer's assessment of the potential negative consequences associated with using online banking services (Chauhan et al., 2019). Concerns about security, privacy, fraud, and financial loss can significantly impact a customer's willingness to use online banking platforms (Khedmatgozar & Shahnazi, 2018).

Consumer skill, on the other hand, reflects the customer's knowledge and skills related to online banking and financial technology (Mbama & Ezepue, 2018). A more knowledgeable and experienced customer may feel more confident and comfortable navigating online banking platforms, reducing their perception of risk and enhancing their satisfaction (Namahoot & Laohavichien, 2018). Concurrently, the diverse levels of skill among online banking users add another layer of complexity. As customers navigate this virtual landscape, balancing the gratification derived from E-Satisfaction against potential risks and leveraging their digital acumen, the process of loyalty formation takes on a multifaceted nature.

The existing literature on e-banking and customer loyalty has primarily focused on the direct relationship between e-satisfaction and e-loyalty, overlooking the potential moderating roles of consumer perceived risk and skill. While studies have extensively examined the positive impact of e-satisfaction on e-loyalty, there is a conspicuous gap in our understanding of how consumer perceptions of risk and skill might influence or moderate this relationship. This research seeks to address this gap by investigating the nuanced interplay between e-satisfaction, e-loyalty, consumer perceived risk, and consumer skill, providing a more comprehensive and contextually relevant understanding of the factors shaping customer loyalty in the realm of online banking. We also examine the moderating effects of consumer perceived risk and consumer skill on the relationship between e-satisfaction and e-loyalty, highlighting how these factors can strengthen or weaken the association. Finally, we provide practical implications for banking institutions to enhance e-satisfaction, reduce perceived risk, and foster customer skill, thereby promoting long-term loyalty and success in the digital banking landscape. As the digital era reshapes the landscape of financial services, comprehending and dissecting the loyalty maze becomes imperative for institutions seeking to not only survive but thrive in the competitive realm of online banking.

Literature Review

The Rise of Digital Banking

Gone are the days of long queues and tedious paperwork at the bank. The rapid advancement of information technology has revolutionized the banking industry, empowering customers with unprecedented access and control over their finances (Yusuf Dauda & Lee, 2015). No longer confined to physical branches, bank accounts are now at our fingertips, accessible through the magic of the internet and mobile technology. This digital transformation has brought about a wave of benefits for both banks and their customers. For banks, online banking platforms offer cost-effective ways to reach a wider audience, streamline operations, and provide a 24/7 service (Rahman et al., 2023). For customers, the convenience is undeniable. Imagine checking your balance, transferring funds, or paying bills, all from the comfort of your couch or while on the go. But the rise of digital banking isn't just about convenience. It's about empowerment. With instant access to account information and financial tools, customers are now more informed and engaged in managing their finances. They can track spending habits, set budgets, and make informed investment decisions, all thanks to the power of technology at their fingertips (Jebarajakirthy & Shankar, 2021).

Of course, the transition to digital banking isn't without its challenges. Concerns over security and privacy remain a top priority for many customers (Damghanian et al., 2016). Banks must prioritize robust security measures, transparent communication, and user-friendly interfaces to build trust and encourage wider adoption (Kaur & Arora, 2020). Despite the challenges, the future of banking is undoubtedly digital. As technology continues to evolve, we can expect even more innovative solutions and personalized experiences for bank customers. From AI-powered financial advisors (Margaret et al., 2023) to blockchain-based transactions (Awotunde et al., 2021), the possibilities are endless. This digital revolution is putting the power of finance directly in the hands of customers, paving the way for a more informed, convenient, and ultimately, more empowering financial future. In fact, the emergence of online banking has revolutionized the financial landscape, offering customers unparalleled convenience and accessibility (Ameme & Wireko, 2016). However, securing enduring customer loyalty in this digital environment necessitates a nuanced understanding of the factors influencing their decisions.

E-Satisfaction in Online Banking

In the fast-evolving landscape of the digital age, online banking reshaping how consumers interact with their banks. Central to the success of online banking services is electronic satisfaction (E-Satisfaction), a multidimensional construct encompassing users' contentment, fulfillment, and overall positive experiences with digital banking platforms (Rupal & Singh, 2023). E-satisfaction, the level of satisfaction customers experiences with online banking services (Sathiyavany & Shivany, 2018). E-satisfaction is grounded in the expectation-confirmation theory (ECT) of information systems, which posits that satisfaction is the result of an alignment between expectations and perceived performance (Pradana, 2022). Studies have extended the ECT framework to the online context, affirming its applicability within the online banking sector (Moradi et al., 2021). High e-satisfaction leads to increased customer loyalty, brand advocacy, and ultimately, revenue growth (Al-Dmour et al., 2019). The literature indicates numerous factors contributing to e-satisfaction, including:

- Service Quality: Service quality in online banking is multi-dimensional, encompassing reliability, responsiveness, and assurance (Malik & Oberoi, 2017).
- Website Design and Usability: Functionality, navigation, and aesthetic appeal of the banking website are crucial for user satisfaction. A user-friendly interface, intuitive navigation, and quick loading times are essential for a positive experience. The technology acceptance model (TAM) suggests that perceived ease of use significantly impacts users' attitudes towards online banking (Dianat et al., 2019).
- Security/Privacy; Perceived security and privacy are paramount in fostering trust in online banking platforms and are strongly associated with e-satisfaction (Aboobucker & Bao, 2018).
- Convenience: The convenience of accessing banking services anytime and anywhere promotes e-satisfaction and is often cited as a primary advantage of online banking (de Oliveira Santini et al., 2018).
- Customer Support: Effective online customer service and support influence e-satisfaction by providing a safety net for users encountering issues. Responsive and helpful customer support, available through multiple channels, builds trust and loyalty (Rahi et al., 2020).
- Transaction efficiency: Easy bill pay, money transfers, and other financial transactions are key to convenience and satisfaction (Arshad Khan & Alhumoudi, 2022).
- Personalization: Tailored recommendations, account insights,

and relevant financial tools enhance user engagement and satisfaction (Albashrawi & Motiwalla, 2019).

Banking institutions can leverage the insights gained from e-satisfaction literature to enhance online service offerings. By focusing on key factors like website usability, security, transaction efficiency, and customer service, banks can cultivate a positive e-satisfaction environment and reap the benefits of loyal and engaged customers. Enhancements informed by customer feedback can lead to improved satisfaction, loyalty, and subsequent advocacy for their services

E-Loyalty in Online Banking

E-loyalty in online banking is a complex and multifaceted concept that has been extensively studied by academics and practitioners. E-loyalty, defined as the willingness to continue using a particular online banking service over time, even in the presence of other alternatives (Terzidis et al., 2013). E-loyalty refers to a customer's commitment to and sustained use of a particular online banking service, often characterized by repeat purchase behavior, positive word-of-mouth, and a willingness to pay more for the service (Al-Agaga & Nor, 2013). In the online banking context, e-loyalty transcends mere repeat purchase behavior, encompassing deep-rooted loyalty manifested in customers' intentions to continue using e-banking services and recommend them to others (Ghane et al., 2011). The multidimensionality of e-loyalty, including attitudinal and behavioral loyalty, is emphasized in the literature, suggesting that it is a composite of cognitive, affective, and conative loyalty components (Lim & Kim, 2020). The rise of fintech and increased digital service offerings have highlighted the need for banks to understand factors that drive loyalty in online contexts.

A plethora of research establishes a positive and significant association between e-satisfaction and e-loyalty in online banking (Amin, 2016; Kesharwani, 2023; Khan et al., 2023). Studies demonstrate that customers who experience ease of use, efficient transactions, and responsive customer support are more likely to derive positive value from the service, leading to increased satisfaction. This positive experience translates into stronger loyalty, manifested through sustained engagement and active recommendation to others (Tzavlopoulos et al., 2019). E-loyalty in online banking is a critical factor for long-term success. By understanding the key factors that influence e-loyalty and implementing effective strategies, banks can cultivate a loyal customer base and thrive in the competitive digital banking landscape.

Perceived Risk in Online Banking

Perceived risk constitutes a crucial determinant in the adoption and usage of online banking services (Marafon et al., 2018). Perceived risk encompasses customers' subjective assessments of uncertainties and potential negative consequences associated with conducting financial transactions in the digital realm. In the context of online banking, perceived risk encompasses concerns about security, privacy, fraud, technology reliability, transactional safety and financial losses (Mutahar et al., 2018). Understanding and addressing these concerns are essential for fostering trust and confidence among users of online banking platforms (Wong & Mo, 2019). Because, perceived Risk is considered one of the primary obstacles to the adoption of internet banking (Gholamian et al., 2021).

Individual and contextual factors contribute to the formation of perceived risk in online banking. Individual Factors include:

- ≠ Technological Savvy: Individuals with greater technological skill tend to perceive lower levels of risk associated with online banking (Kaur & Arora, 2023).
- ≠ Prior Online Banking Experience: Positive past experiences can reduce perceived risk and promote online banking adoption (Hammood et al., 2023).

- Risk Aversion: Individuals with higher levels of risk aversion may be more hesitant to adopt online banking due to concerns about security and financial losses (Roy et al., 2017).

Contextual Factors contribute to the formation of perceived risk in online banking, include:

- Security Measures: Robust security protocols and data encryption can alleviate perceived risk and encourage online banking adoption. Risk perceptions related to transactional safety encompass concerns regarding the security and integrity of financial transactions conducted through online banking channels. Users' perceptions of vulnerability to fraudulent activities, unauthorized transfers, and payment reversals influence their willingness to engage in online banking activities(Xie et al., 2021).
- Transparency and Communication: Clear communication about security measures, data privacy policies, and fraud prevention strategies can foster trust and reduce perceived risk (AlKailani, 2016).
- Brand Reputation: A strong brand reputation can enhance customer confidence and mitigate perceived risk in online banking (Tangmanee & Sritadawut, 2021).
- Technology Reliability: Perceived risk is influenced by uncertainties regarding the reliability and performance of online banking systems. Concerns related to system downtime, technical glitches, and inadequate customer support contribute to consumers' perceptions of technology-related risks (Tiwari & Tiwari, 2020).

Understanding the multifaceted nature of perceived risk in online banking has significant implications for banking institutions, regulators, and policymakers. Strategies aimed at enhancing security, transparency, and user awareness can mitigate perceived risks and foster trust in online banking services (Aboobucker & Bao, 2018).

Results of studies shows that Perceived risk serves as a moderator in the relationship between e-satisfaction and e-loyalty in e-commerce (Casidy & Wymer, 2016; Huy Tuu et al., 2011). Even when customers are satisfied with their online banking experiences, high levels of perceived risk can hinder their loyalty and retention. Perceived risk remains a significant barrier to online banking adoption and customer loyalty. By understanding the factors that contribute to perceived risk and implementing strategies to mitigate it, banks can foster a more secure and trustworthy online banking environment, ultimately driving greater adoption and customer loyalty.

Consumer Skill in Online Banking:

In today's digitalized financial landscape, the role of customer skill in online banking has gained immense importance in shaping customer behavior and satisfaction. Customer skill in online banking refers to the knowledge, skills, and experience that individuals possess in navigating and utilizing online banking platforms (Singh & Srivastava, 2020). Customer skill encompasses various aspects, including understanding the functionalities of the platform, managing financial transactions effectively, and making informed decisions about financial products and services (Mbama et al., 2018). Numerous factors contribute to the development of customer skill in online banking can be categorized into three main groups:

- Personal Factors: Individual characteristics, such as age, education, prior experience with technology, and risk aversion, play a significant role in shaping skill levels (Königsheim et al., 2017).
- Contextual Factors: Factors related to the online banking environment can also influence skill development. These include the intuitiveness of the platform,

online communities, the availability of training resources, and the quality of customer support (Sikdar & Makkad, 2015).

Customer skill in online banking has a profound impact on both individual customers and banks. For customers, increased skill leads to enhanced convenience and efficiency, improved financial literacy, greater control over finances. For banks, enhanced customer skill leads to increased customer satisfaction, reduced customer support costs, and expanded revenue opportunities (Chauhan et al., 2022).

Counteracting the negative influence of perceived risk is the moderating role of consumer skill. Research suggests that customers with greater knowledge and skills related to online banking and financial technology experience lower levels of risk perception and exhibit increased confidence and comfort navigating digital platforms (Kaya et al., 2019). This enhanced skill empowers them to reap the full benefits of online banking, strengthening the positive association between e-satisfaction and e-loyalty.

Conceptual Framework

Several theoretical frameworks provide valuable insights into the complex interplay between e-satisfaction, e-loyalty, and their moderating factors. In the context of e-banking and customer loyalty, several theories have been proposed to explain the dynamics of customer satisfaction and its impact on loyalty. Notably, the Expectancy-Disconfirmation Theory suggests that satisfied customers are more likely to exhibit loyalty behaviors (Rathjens et al., 2023). Additionally, The Technology Acceptance Model (TAM) highlights the crucial role of perceived ease of use and perceived usefulness in influencing technology adoption (An et al., 2023; NazemiBidgoli et al., 2023). Translating this to online banking, user-friendly interfaces and efficient transaction processes contribute to e-satisfaction, ultimately impacting e-loyalty (Marakarkandy et al., 2017). Furthermore, the Theory of Planned Behavior (TPB) posits that attitudes, subjective norms, and perceived behavioral control influence behavioral intentions (Berenji et al., 2024; Cheng, 2019). In the context of online banking, e-satisfaction acts as an attitude, while consumer perceived risk and skill influence perceived behavioral control. This framework sheds light on the interactive nature of these variables in shaping e-loyalty intentions.

Building upon the Expectancy-Disconfirmation Theory, our first hypothesis posits a positive relationship between e-satisfaction and e-loyalty. This is consistent with Kesharwani (2023) and Khan et al. (2023) findings, who demonstrated a direct link between satisfaction and loyalty in the context of online services. Furthermore, drawing from the Technology Acceptance Model, our second and third hypotheses propose that consumer perceived risk and skill moderate the relationship between e-satisfaction and e-loyalty.

Based on the theoretical and research foundations presented in the above, the following conceptual model is proposed in Figure (1) for the upcoming research.

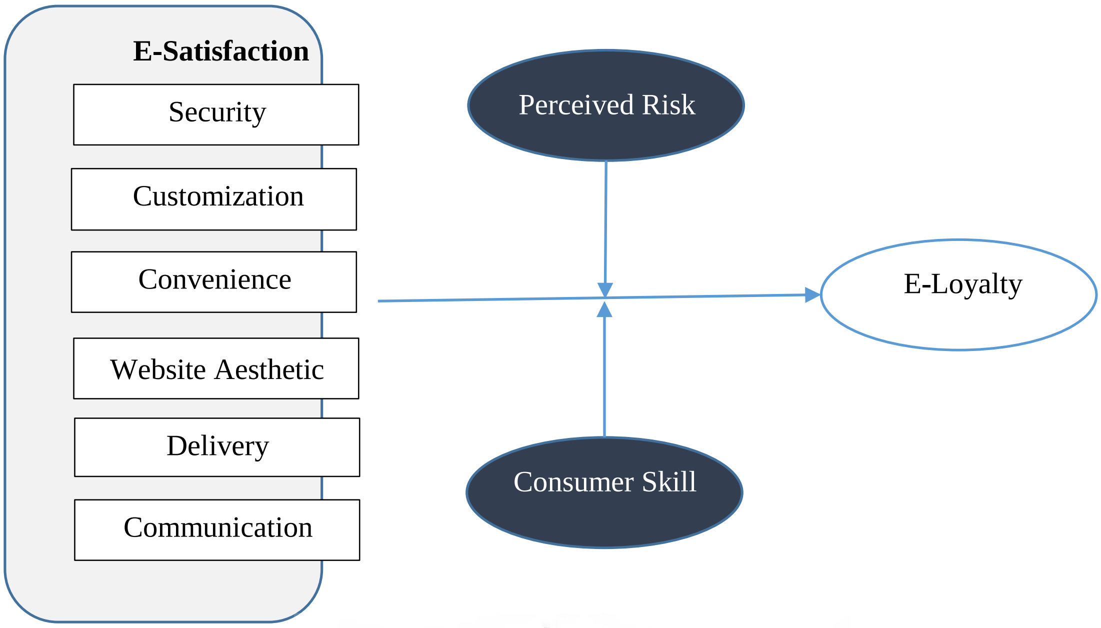

Figure 1. *Research Conceptual Model*

Main Hypotheses:

- ≠ E-satisfaction has a positive and significant effect on e-loyalty in online banking.
- ≠ Perceived risk moderates the relationship between e-satisfaction and e-loyalty in online banking.
- ≠ Customer Skill moderates the relationship between e-satisfaction and e-loyalty in online banking.

Subsidiary Hypotheses:

- ≠ Security has a positive and significant effect on e-loyalty in online banking.
- ≠ Customization has a positive and significant effect on e-loyalty online banking.
- ≠ Convenience has a positive and significant effect on e-loyalty in online banking.
- ≠ Delivery has a positive and significant effect on e-loyalty in online banking.
- ≠ Communication has a positive and significant effect on e-loyalty in online banking.
- ≠ Aesthetic appeal of the website has a positive and significant effect on e-loyalty in online banking.

Research Methodology

This study adopts an applied research approach with a focus on investigating the interplay between electronic satisfaction (E-Satisfaction), electronic loyalty (E-Loyalty), and the moderating factors of consumer perceived risk and skill within the context of online banking. The research design is correlational in nature, aiming to establish relationships between variables. It involves the examination of a conceptual model that incorporates E-Satisfaction, E-Loyalty, consumer perceived risk, and expertise as focal constructs.

The target population consists of customers of Mellat Bank engaged in online banking services. Due to the broad nature of the population, a convenience sampling method is employed (Obilor, 2023). A sample size of 168 participants is chosen, ensuring a representative yet manageable dataset. Data is collected through a structured questionnaire utilizing a 5-point Likert scale. The questionnaire comprises 52 questions designed to measure various aspects related to E-Satisfaction, E-Loyalty, consumer perceived risk, and expertise. The development of the questionnaire involves a rigorous review of relevant literature, expert guidance, and iterative refinement. The measurement scales for e-satisfaction and e-loyalty were derived from the works of Chu et al. (2012). The scale for perceived risk was adapted from Martins et al. (2014). Additionally, the scale for consumer skill was developed by the researcher specifically for this study. The utilization of established scales from prior research ensures a foundation of reliable and validated instruments, while the introduction of a researcher-made scale allows for a tailored assessment of consumer skill in the context of online banking. This combination of adapted and custom scales aims to provide a comprehensive and nuanced evaluation of the factors under investigation in this study.

Ethical considerations are paramount, and participants are ensured confidentiality and informed consent. To ensure the consistency and reliability of the measurement instrument used in this study, the widely adopted and validated method of Cronbach's alpha coefficient is employed. Generally, a Cronbach's alpha of 0.70 or above is considered acceptable for research purposes. Validity is ensured through a comprehensive literature review, and expert consultations.

Statistical analysis of the collected data involves the utilization of advanced tools such as SPSS for descriptive statistics and Smart-PLS (Partial Least Squares) for Structural Equation Modeling. SEM allows for a nuanced examination of the relationships between variables, and PLS is chosen for its flexibility and suitability for complex models (Seyed Mojtaba Moussavi et al., 2022). PLS was chosen as the method for testing hypotheses in this study due to its flexibility, suitability for smaller sample sizes, ability to handle different types of constructs, focus on prediction, and robust inference capabilities through bootstrapping (Hair et al., 2019). This approach aligns with the research objectives and contributes to the comprehensive analysis of the proposed conceptual model.

In addition to assessing the direct relationships between variables, this study incorporates moderation analysis using Partial Least Squares (PLS) to examine how moderating variables influence the strength or direction of these relationships. Specifically, the moderating effects of consumer perceived risk and skill are explored in relation to the relationship between E-Satisfaction and E-Loyalty. Investigates how the relationship between E-Satisfaction and E-Loyalty varies under different levels of consumer perceived risk and skill. For example, it explores whether higher or lower levels of perceived risk amplify or diminish the impact of E-Satisfaction on E-Loyalty. Incorporation of Interaction Terms in Smart-PLS software was utilized for the moderation analysis, incorporating the interaction terms into the extended PLS model. By analyzing the coefficients of the interaction terms, we examined how the relationships between E-Satisfaction and E-Loyalty changed at different levels of consumer perceived risk and skill. In conclusion, the approach of modeling moderating effects via interaction terms in PLS allowed us to systematically explore and quantify the moderating impact of consumer perceived risk and expertise, enhancing the depth of understanding of the dynamics between E-Satisfaction and E-Loyalty in the context of online banking.

Results

In this research, the reliability of the test has been determined using the Cronbach's alpha method. These methods are employed to calculate internal consistency reliability of the measurement instrument.

Table 1.
Questionnaire Reliability Results

Row	Variable	Cronbach's alpha
1	Convenience	0.881
2	Security	0.804
3	Website Aesthetic	0.831
4	Communication	0.877
5	Delivery	0.796
6	Customization	0.841
7	Perceived risk	0.701

Row	Variable	Cronbach's alpha
8	E-satisfaction	0.844
9	e-loyalty	0.930
10	Customer Skill	0.854

Considering that Cronbach's alpha for all questionnaire variables is above 0.70, it can be concluded that the questionnaire enjoys good reliability. In this research, the construct validity of the measurement scales was evaluated using confirmatory factor analysis (CFA). Confirmatory factor analysis is a statistical technique that assesses the degree to which the observed variables (indicators) align with their hypothesized underlying constructs. For factor analysis, we scrutinized two key indicators: factor loadings and t-values of the observed variables. When factor loadings surpassing 0.4 and t-values exceeding 1.96, we concluded that the measurement scale demonstrated validity (Saeed et al., 2022). This rigorous assessment approach ensures that the selected indicators effectively capture the intended constructs and contribute to the robustness and reliability of the study's measurement model. The result of factor analysis was presented in Table 2.

Table 2.
The Result of Confirmatory Factor Analysis

Item	Factor Loading	t value	Item	Factor Loading	t value
Convenience- q1	0/829	24/688	e-loyalty- q27	0/752	23/55
Convenience- q2	0/776	20/337	e-loyalty- q28	0/704	15/306
Convenience- q3	0/834	32/901	e-loyalty- q29	0/673	11/748
Convenience- q4	0/846	30/406	e-loyalty- q30	0/715	14/008
Convenience- q5	0/831	26/622	e-loyalty- q31	0/802	24/701
Security- q6	0/795	13/898	e-loyalty- q32	0/665	14/289
Security- q7	0/888	27/96	e-loyalty- q33	0/784	27/388
Security- q8	0/854	24/861	e-loyalty- q34	0/789	25/534
Website Aesthetic- q9	0/807	20/045	e-loyalty- q35	0/809	27/676
Website Aesthetic-q10	0/878	23/883	e-loyalty- q36	0/785	24/452
Website Aesthetic- q11	0/743	13/041	e-loyalty- q37	0/74	14/773
Website Aesthetic- q12	0/822	20/91	e-loyalty- q38	0/688	12/33
Communication- q13	0/885	40/901	e-loyalty- q40	0/479	1/672
Communication- q14	0/86	37/138	e-loyalty- q41	0/599	11/247
Communication- q15	0/85	27/221	e-loyalty- q42	0/488	6/952
Communication- q16	0/823	24/521	e-loyalty- q43	0/423	2/204
Delivery- q17	0/73	13/561	Perceived risk- q44	0/455	2/602
Delivery- q18	0/743	16/255	Perceived risk- q45	0/486	2/781
Delivery- q19	0/841	31/37	Perceived risk- q46	0/905	5/956
Delivery- q20	0/824	38/534	Perceived risk- q46	0/889	6/073
Customization- q21	0/899	40/625	Customer Skill- q47	0/806	16/383
Customization- q22	0/915	68/99	Customer Skill- q48	0/843	18/932
Customization- q23	0/798	19/186	Customer Skill- q49	0/905	39/086
e-loyalty- q24	0/812	28/307	Customer Skill- q50	0/871	28/950
e-loyalty-q25	0/796	27/269	Customer Skill- q51	0/868	27/653
e-loyalty- q26	0/779	21/661	Customer Skill- 52	0/438	1/962

Due to the fact that all factor loadings exceeded the threshold of 0.4 and the corresponding t-values were above 1.96, we assert that the measurement scale employed in this study possesses construct validity.

For testing the moderating effects of consumer perceived risk and skill, we utilized the approach of "Modeling Moderating Effects via Interaction Terms." Interaction Terms are created by multiplying the scores of the variables involved in the moderation analysis. In our study, we focused on the moderating effects of consumer perceived risk and skill on the relationship between E-Satisfaction and E-Loyalty. This modification allows us to explicitly test whether the impact of E-Satisfaction on E-Loyalty is influenced by different levels of consumer perceived risk and skill. All variables, including the interaction terms, were standardized to ensure comparability and facilitate the interpretation of results. The significance of the interaction terms was assessed to determine whether the moderating variables had a meaningful impact on the relationship between E-Satisfaction and E-Loyalty. Significant t-Values for Main Hypotheses Coefficients are presented in fig2.

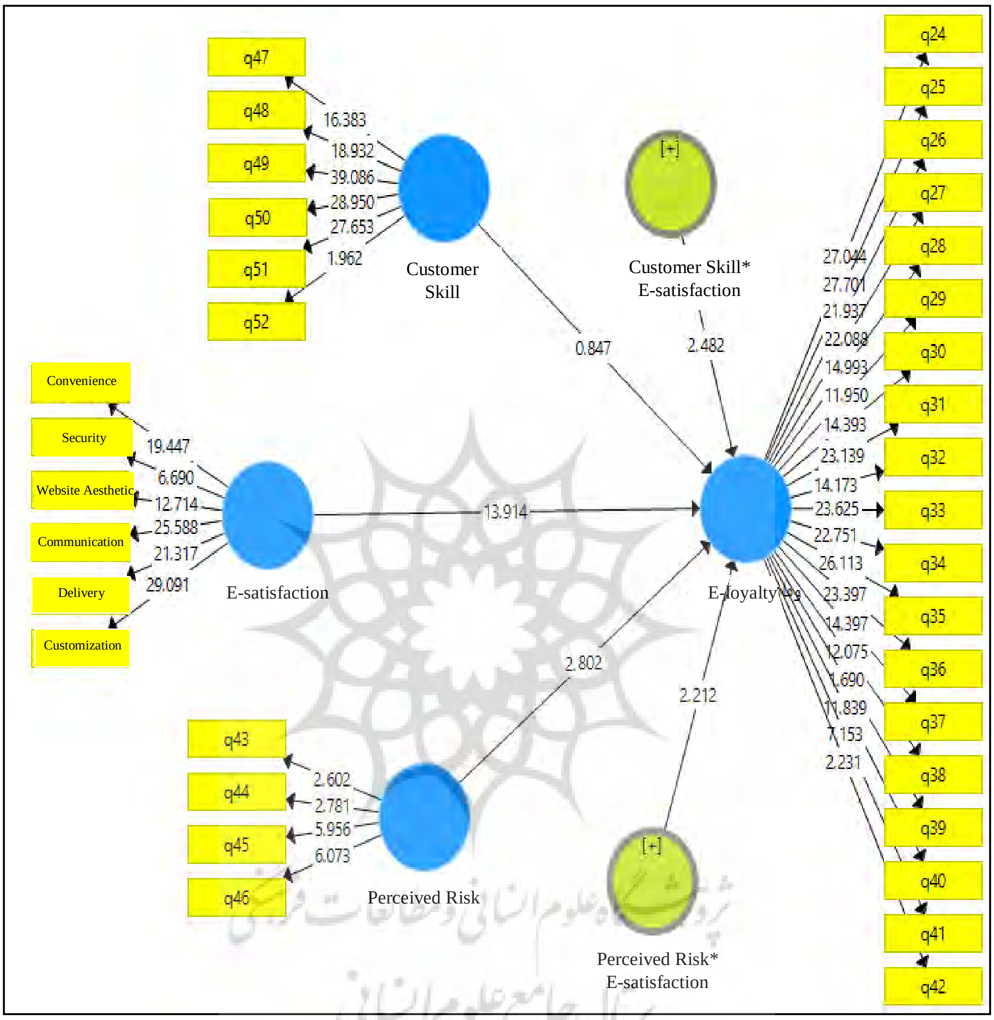

Figure 2. *Structural Model: Significant t-Values for Main Hypotheses Coefficients*

The results of the main hypothesis test and a summary of the findings from the structural equation analysis are presented in Table 3.

Table 3.
The results of the main hypotheses test

Hypotheses	Path Coefficient	t-value	Result
E-satisfaction has a positive and significant effect on e-loyalty in online banking.	0.725	13.914	Confirmed
Perceived risk moderates the relationship between e-satisfaction and e-loyalty in online banking.	0.218	2.212	Confirmed
Customer Skill moderates the relationship between e-satisfaction and e-loyalty in online banking.	0.320	2.482	Confirmed

By examining the t-values of Main Hypotheses, it becomes evident that all path coefficients exceed 1.96. Therefore, with 95% confidence, it can be stated that e-satisfaction has a significant impact on e-loyalty; and this relation is moderated with consumer perceived risk and skill. Significant t-Values for subsidiary hypotheses Coefficients are presented in fig3.

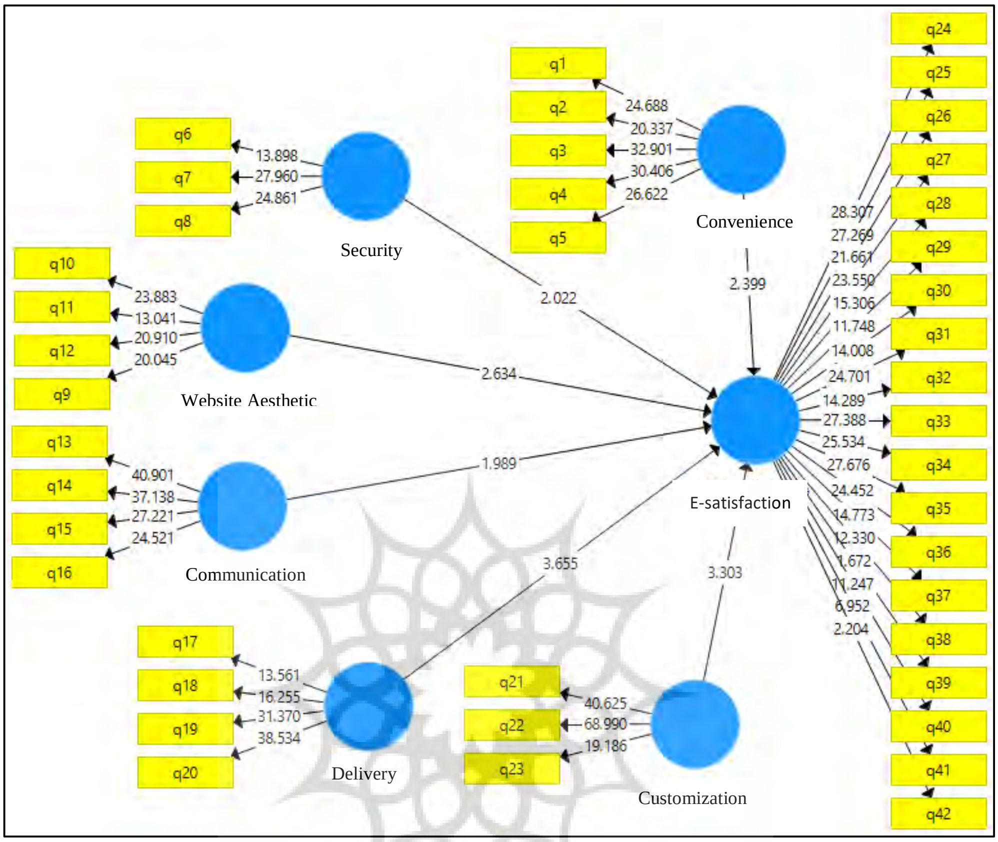

Figure 3. *Structural Model: Significant t-Values for Subsidiary Hypotheses Coefficients*

Table 4 .
The results of the Subsidiary hypotheses test

Hypotheses	Path Coefficient	t-value	Result
Security has a positive and significant effect on e-loyalty in online banking.	0.257	2.022	Confirmed
Customization has a positive and significant effect on e-loyalty online banking.	0.304	3.303	Confirmed
Convenience has a positive and significant effect on e-loyalty in online banking.	0.221	2.399	Confirmed
Delivery has a positive and significant effect on e-loyalty in online banking.	0.302	3.655	Confirmed
Communication has a positive and significant effect on e-loyalty in online banking.	0.166	1.989	Confirmed
Aesthetic appeal of the website has a positive and significant effect on e-loyalty in online banking.	0.198	2.634	Confirmed

Upon scrutinizing the t-values of the subsidiary hypotheses, it becomes apparent that all path coefficients surpass 1.96. Therefore, with 95% confidence, it can be asserted that all subsidiary hypotheses are validated. Security, customization, convenience, delivery, communication, and website aesthetics exhibit a positive and significant effect on the e-loyalty of online banking customers. According to the path coefficients, customization, with a coefficient of 0.304, has the most substantial impact on customers' e-loyalty in online banking. In turn, additional factors influencing e-loyalty include delivery, with a path coefficient of 0.302, security, with a path coefficient of 0.257, convenience, with a path coefficient of 0.221, website aesthetics, with a path coefficient of 0.198, and communication, with a path coefficient of 0.166.

Conclusion

In the dynamic landscape of online banking, this study delved into the intricate relationships between various factors and electronic loyalty (e-loyalty) among customers. In this comprehensive exploration of e-loyalty dynamics within the realm of online banking, our study has unearthed crucial insights into the multifaceted relationships that shape customer loyalty in the digital landscape. Our research has provided robust evidence that e-satisfaction significantly impacts e-loyalty in online banking. The finding aligns with previous studies conducted by Sasono et al. (2021), Kesharwani (2023), and (Juwaini et al., 2022). Additionally, other research outcomes suggest that e-satisfaction serves as a mediator in the relationship between e-service quality and e-loyalty, as indicated in studies by Al-Dmour et al. (2019); Khan et al. (2023); Melinda et al. (2023).

Our research shows that the relationship between e-satisfaction and e-loyalty is moderated by consumer perceived risk and consumer skill. The finding aligns with previous studies conducted by Nguyen et al. (2023) and Casidy and Wymer (2016). The incorporation of these moderating factors adds a nuanced layer to our understanding of e-loyalty dynamics. The interplay between e-satisfaction, consumer perceived risk, and skill highlights the complex nature of customer loyalty in the digital banking realm. This result shows that if a customer perceived high.risk,.it’s e-satisfaction doesn’t result in high e-loyalty. Likewise, when a customer's skill in online banking is low, their e-satisfaction does not lead to high e-loyalty.

Through a meticulous examination of path coefficients, it becomes evident that customization emerges as the most influential factor, wielding a significant effect on customers' e-loyalty. Additionally, Delivery, security, convenience, website aesthetics, and communication, in turn, play pivotal roles in shaping e-loyalty, each contributing unique dimensions to the overall customer experience. The path coefficients associated with these factors signify their respective strengths in influencing customers' loyalty in the online banking domain.

In comparison with prior research, these findings contribute novel insights into the moderating role of consumer perceived risk and skill in the e-satisfaction-e-loyalty relationship. The identification of customization as the primary driver aligns with certain existing literature, yet the nuanced interrelationships uncovered provide a deeper understanding of the intricate web of factors influencing e-loyalty. As we navigate the ever-changing landscape of electronic services, banking institutions should leverage these insights to refine their online platforms, ensuring a personalized, secure, and engaging experience for customers. The synthesis of these findings with prior research not only advances our theoretical understanding but also provides actionable guidance for practitioners aiming to cultivate lasting relationships with their digital customer base. The dynamic interplay of factors uncovered in this study emphasizes the need for adaptive strategies in the pursuit of customer loyalty in the evolving digital banking landscape.

By comprehensively examining the existing research on e-satisfaction, e-loyalty, and the moderating effects of consumer perceived risk and skill, this research provides valuable insights for banks seeking to thrive in the online banking arena. By prioritizing user-friendly interfaces, addressing perceived risk through robust security measures, and fostering customer skill through educational initiatives, banks can cultivate an environment conducive to e-satisfaction and ultimately achieve sustainable customer loyalty. The journey towards enduring e-loyalty necessitates a continuous process of innovation, adaptation, and a deep understanding of the dynamic factors influencing customer behavior in the ever-evolving digital banking landscape. Based on the results, several recommendations can be suggested to enhance e-loyalty in online banking:

- Customized Support for High-Risk Customers: Recognize customers with a high perceived risk and tailor support mechanisms to address their concerns. Implement personalized communication strategies, educational materials, or additional security features to alleviate perceived risks and boost e- loyalty.
- Skill Enhancement Programs: Develop initiatives to enhance customers' online banking skills. Offer user-friendly tutorials, interactive guides, or workshops to empower customers with the knowledge and proficiency needed for a satisfying online banking experience, thereby fostering e-loyalty.
- Targeted Communication Strategies: Implement targeted communication strategies based on customers' skill levels. Provide clear and concise instructions for less-skilled users, while offering advanced features and tips for more proficient users. Tailoring communication to users' skill sets can contribute to improved e-satisfaction and subsequent e-loyalty.
- Continuous Improvement in Service Quality: Focus on improving e-service quality, ensuring that online banking platforms are user-friendly, secure, and responsive. Regularly assess and enhance the overall online banking experience to meet evolving customer expectations, thereby positively influencing e-satisfaction and e-loyalty.
- Feedback Mechanisms: Establish effective feedback mechanisms to capture customer sentiments and concerns. Encourage customers to provide feedback on their experiences, addressing any issues promptly. This not only contributes to improving service quality but also enhances overall customer satisfaction and loyalty.
- Promote the Benefits of Customization: Showcase personalized features, adaptive interfaces, and tailored offerings to emphasize the value of customization. Emphasizing these benefits can positively influence e-satisfaction and contribute to increased e-loyalty.

By incorporating these recommendations into strategic planning, online banking providers can cultivate a more satisfying and loyal customer base, ultimately contributing to the success and longevity of their digital platforms.

Acknowledging the constraints inherent in any research, potential limitations may include sample representativeness, generalizability of findings, and inherent biases in self-reported data.

Despite significant progress in understanding the e-satisfaction, e-loyalty, and risk-skill nexus, several avenues for further research remain. Investigating the impact of additional moderating variables such as service quality, social influence, and cultural factors on this relationship presents an intriguing opportunity. Additionally, exploring the role of emerging technologies like blockchain, artificial intelligence, and mobile banking in shaping e-satisfaction and e-loyalty holds immense potential to enhance our understanding of customer behavior in the evolving digital banking landscape.

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