

Exploring the Viability of Digital-Only Banking: An Empirical Investigation Using the Push-Pull Model

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Abstract: Fintech has the potential to revolutionize the banking industry through various digital channels. Digital-only banking is one such channel emerging as a potential disruptor of traditional banking business models. This study applies the push-pull model as a theoretical framework to examine digital-only banks as an alternative. Our sample consists of 214 respondents assessed using component-based structural equation modeling. The results show that low service quality and inconvenience more than customers' perceived advantage affect digital-only banks as an alternative. This study's findings provide valuable insights into the design of digital-only banking services.

1 INTRODUCTION

The adoption of Internet-based banking services in Taiwan has significantly increased recently. According to the Financial Supervisory Commission of Taiwan (FSC), the number of online banking users in Taiwan reached 16.3 million in 2023 (FSC, 2023). This represents a significant increase from the previous year and is a result of the COVID-19 pandemic, which has accelerated the adoption of online banking services. Taiwanese consumers have turned to online banking and mobile banking apps to manage their finances during the pandemic, resulting in a surge in online banking accounts. The growth in online bank accounts in Taiwan can be attributed to the increasing popularity of digital banking services and the convenience they offer customers.

Most online banks are dependent on the traditional banking system. Specifically, online banks are associated with their parent banks, such as brands, physical branches, and technology infrastructure. However, digital-only banks, also known as Internet-only or virtual banks, operate exclusively through digital channels such as websites, mobile apps, and other online platforms. All banking services are done on the Internet (Windasari et al., 2022).

As Taiwan's most popular mobile instant messaging, LINE has opened a digital-only bank to


extend its business boundaries. However, in a well-developed financial infrastructure island, a fresh Digital-only bank could be an alternative for people still unclear. It is a big challenge for people to accept Digital-only banks as alternative banking services. Therefore, we discuss the following research question (RQ).

RQ1: What factors affect digital-only banks as an alternative for users?

The Push-Pull migration model has been effective in various switching contexts in previous studies (Hou et al., 2011; Hou & Shiau, 2020; Liao et al., 2021; Sun et al., 2017). The model explains how customers switch from one service provider to another, where one provider "pushes" customers to switch while the other "pulls" customers toward its service. This model can also be applied to adopting digital-only banks as an alternative. We aim to address the following RQ.

RQ2: How to categorize these factors into the Push-Pull migration model?

The remainder of this paper proceeds as follows. The next section describes the theoretical background; section three shows the hypotheses; section four presents the methodology; sections five and six show results and discussions.

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2 LITERATURE REVIEW

2.1 Alternative Service

Alternative refers to an option or choice distinct from the mainstream or standard. Alternative service and service switching intention are related constructs in relationship marketing (Hou & Lu, 2023). Alternative service refers to consumers considering and possibly switching to other service providers instead of using their current service provider but could come back to their current preference (Reiter & Matthes, 2021). This can happen when the consumer is dissatisfied with the quality of service or perceives that the alternative service provider offers better values. On the other hand, service switching intention refers to a consumer's intention to switch to an alternative service provider (Hou & Shiau, 2020).

Customers choose an alternative for various reasons, such as dissatisfaction with the current service provider, better offerings by the other provider or technology, or changes in personal circumstances (Bansal et al., 2005). In the context of online game switching, Hou et al. (2011) posited that online game service providers can attract new customers by providing attractive alternative online games. The alternative games need to offer better value propositions, such as more entertainment, better customer services, and lower price or free-to-play. At the same time, incumbent service providers can also try to retain their customers by identifying the factors that drive service alternatives and addressing them to improve customer satisfaction and loyalty.

2.2 Digital-Only Bank

The term Digital-only banks do not have the same meaning as online banks. Online banks mean traditional banks provide their part services by Internet-based system. Digital-only banks are similar to online banks in delivering customer services via the Internet but without physical branches. That is, customers of digital-only banks use all banking services that operate solely online without assistance from any physical branches and staff. Thus, trust and usage habit becomes a big issue for customers (Nel & Boshoff, 2021).

Digital-only banks provide all services through mobile platforms, which include opening accounts, depositing and withdrawing funds, loan, and conducting transactions 24/7 from anywhere. It provides customers with a fast, convenient, and cost-effective alternative to traditional brick-and-mortar banks. Digital-only banks expect many changes to the

banking industry and financial markets (Windasari et al., 2022).

However, concerns have been raised about the lack of physical branches and face-to-face customer service. Some countries are still working on creating legal and regulatory frameworks to oversee digital-only banks (Nel & Boshoff, 2021). Despite these challenges, the digital-only banks are growing globally, and some traditional banks are even creating their own digital-only banking brands. This trend highlights the growing importance of digital transformation and innovation in the banking industry and suggests that digital-only banks will continue to be a viable option for customers seeking a more streamlined banking experience.

2.3 Push-Pull Model

The Push-Pull (PP) model was initially developed to study human migration patterns. Its application has since extended to various analyzing switching behavior intentions (Bansal et al., 2005; Jung et al., 2017; Sun et al., 2017). The PP model proposes that both push and pull effects influence individuals' decisions to switch from one provider to another. Push factors, such as dissatisfaction with the current provider, poor quality of service, and inconvenience, create negative perceptions and drive customers away from their current provider. In contrast, pull effects, such as attractive service offerings, perceived advantages of the alternative provider, and convenience, create positive perceptions and attract customers toward alternative providers (Hou et al., 2011; Hou & Shiau, 2020).

In analyzing switching behavioral intentions, the PP model provides a comprehensive framework for identifying and analyzing the underlying factors that drive customer behavior (Hou & Shiau, 2020; Jung et al., 2017). The model recognizes that switching behavior intentions are influenced by push and pull effects, providing a holistic view of the customer's decision-making process. Therefore, the PP model can be helpful for traditional banks to identify the factors that drive customers away from their services and develop strategies to attract and retain customers. On the other hand, PP model also helpful digital-only banks attract new customers by their technology innovation or mobile Apps design.

3 HYPOTHESIS

3.1 Push Effects

Inconvenience. Inconvenience is a critical factor influencing customers’ perceptions of service and intention to switch to an alternative provider. Inconvenience can be defined as the waste of time and effort customers experience while using banking services (Ferreira et al., 2014). The effort minimization aspect of convenience is essential for service providers as it covers saving customers’ cognitive, emotional, and physical activities while purchasing and using a service.

Studies have shown convenience is a significant variable in service-switching contexts (Jebarajakirthy & Shankar, 2021; Keaveney, 1995). Customers are likely to switch to alternative service providers if they perceive that the current provider is inconvenient or does not meet their convenience requirements. Several studies have highlighted the importance of convenience in service-switching contexts, emphasizing the need for service providers to prioritize convenience in their service offerings (Nel & Boshoff, 2020; Vyas & Raitani, 2014). Therefore, it is essential for service providers to understand the factors that contribute to inconvenience and to take steps to minimize inconvenience for their customers (Kim et al., 2020).

Low Service Quality. Scholars define service quality as the degree to which an institution meets customer expectations consistently (Lebdaoui & Chetioui, 2020). Service quality is a critical determinant of customer loyalty, as customers are more likely to remain loyal to a bank if they perceive that it provides high-quality services. In the traditional banks, service quality includes face-to-face and other service channels such as ATMs, online banking, and mobile apps (Windasari et al., 2022). All above factors could affect customers’ perceptions of the quality of services provided. A customer may choose digital-only banks as an alternative due to perceived low service quality from traditional banks.

Service quality plays a crucial role in customers’ switching behavior intentions. Customers are more likely to switch to alternative service providers if they perceive that the current provider does not meet their expectations in terms of service quality (Vyas & Raitani, 2014). Therefore, service providers need to focus on meeting customer expectations consistently and providing high-quality services across all channels to retain customers and prevent them from

switching to alternative providers (Hou & Shiau, 2020). Thus, we hypothesize as follows:

H1: Push effects (inconvenience and low service quality) positively associate with digital-only banks as an alternative.

3.2 Pull Effects

Perceived Advantages. Perceived advantages refer to the efforts, cost, and time savings customers perceive when using digital-only banking services. Hou (2015) perceived advantages are essential factors that attract customers to adopt a new technology or service. In the context of digital-only banks as an alternative, when customers perceive that using a digital-only bank will provide them with costs and time savings, they are more likely to be driven towards adopting the service (Hou & Lu, 2023). More, suppose customers perceive advantages such as ease of use of Apps, higher interest rate, online quick loan, and cost-effectiveness (Windasari et al., 2022). In that case, they are more likely to choose a digital-only bank as an alternative. This is why perceived advantages are associated with a high pull effect. Thus, we hypothesize that:

H2: The pull effect (perceived advantages) positively associated with digital-only banks as an alternative.

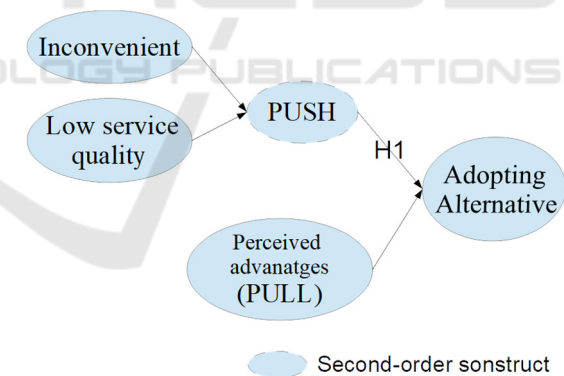


Figure 1: Research model.

4 METHODOLOGY

We developed a survey instrument for our study on Digital-only banks, drawing on prior research. To ensure contextual relevance, we made slight modifications to all questionnaires. The survey comprises four constructs with a total of 15 items.

To measure digital-only banks as an alternative, our dependent variable, we adapted a scale with three items from (Hou & Lu, 2023). We assessed the push

effects of digital-only banks using two factors: inconvenience and low service quality. To measure inconvenience, we used a scale with four items developed by (Ameen et al., 2021). We used a scale with four items to measure low service quality (Vyas & Raitani, 2014). A scale with three items that Hou (2015) developed for perceived advantages, representing the pull effect. All items were measured using a 5-point Likert scale.

To ensure the validity of the questionnaires in the alternative context of digital-only banks, we had two experts from the banking industry review questionnaires before initiating the survey process. Additionally, we conducted a pilot test to evaluate the wording used in the questionnaires before administering them.

For data collection, we conducted an empirical field survey with a subjective selection of participants. Researchers placed messages on Taiwan’s most popular online forum, specifically PTT (<https://term.ptt.cc/>), and invited respondents to participate in the study. As an incentive, we offered each participant a gift certificate worth US\$3 for completing the questionnaire. In total, we collected data from 214 respondents who completed the questionnaire.

5 RESULTS

5.1 Measurement Model

To assess the reliability of the survey instrument, we calculated Cronbach’s alpha coefficient to determine the internal consistency of the constructs. Cronbach’s alpha value of 0.6 or higher is acceptable (Nunnally, 1994). As shown in Table 1, our results indicate that Cronbach’s alpha values for alternative, inconvenience, low service quality, and perceived advantages are 0.91, 0.87, 0.88, and 0.78, respectively. Therefore, the reliability of all constructs is acceptable.

Table 1: Reliability.

Constructs	Cronbach alpha	Composite Reliability
Alternative	0.91	0.87
Inconvenience	0.87	0.90
Low service quality	0.88	0.92
Perceived advantage	0.78	0.93

To evaluate the convergent validity of the measurements, we adopted the criteria proposed by scholars (Fornell & Larcker, 1981). Specifically, we assessed the factor loading and the Average Variance Extracted (AVE). A factor loading of 0.7 or higher and an AVE exceeding 0.5 are considered appropriate indicators of convergent validity. Table 2 demonstrates that all four constructs met these criteria, with factor loadings exceeding 0.7 and AVE values exceeding 0.5. Hence, the convergent validity of our survey instrument is acceptable.

Table 2: Confirmatory factor Analysis.

Constructs	items	Factor loading	AVE
Alternative	3	0.96; 0.97; 0.95	0.92
Inconvenience	4	0.83; 0.92; 0.82; 0.81	0.72
Low service quality	4	0.88; 0.92; 0.87; 0.89	0.71
Perceived advantage	4	0.86; 0.88; 0.92; 0.87	0.67

5.2 Structural Model

Our analysis treated the push construct as a reflective-formative second-order construct with no items. This means the construct was created based on underlying latent variables rather than directly measured using items (Hair et al., 2013).

The researchers utilized Partial Least Squares (PLS) software to test their research hypotheses, as recommended by prior research (Hou et al., 2019). The results are presented in Figure 2, which shows the relationships between the push effect, pull effect, and alternative.

The results are presented in Figure 2. Our findings indicate that the push effect, operationalized by inconvenience and low service quality, had a significant positive association with alternatives, thus supporting H1 ($\beta = 0.371, p < 0.01$). On the other hand, the pull effect, formulated by perceived advantages, had a significant positive association with alternatives, thus supporting H2 ($\beta = 0.286, p < 0.01$).

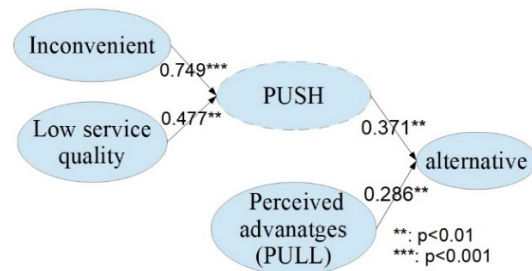


Figure 2: Results.

6 CONCLUSIONS

6.1 Discussion

The study applies the Push-Pull model to investigate the constructs influencing users' consideration of digital-only banks as an alternative. Both push and pull effects significantly affect users' decisions.

Push effects, such as inconvenience and low service quality, make users dissatisfied with their current bank services. Hence, they are more likely to consider digital-only banks as an alternative. On the other hand, pull effects, formulated by perceived advantages, attract users to adopt digital-only banks as an alternative. These factors could include a better user interface to fit the smartphone, innovative features, or a better interest rate (Windasari et al., 2022). By addressing these pull effects, digital-only banks can enhance their appeal to users and increase the likelihood of users considering their services.

Based on the study's findings, it can conclude that the push effect has a more decisive influence than the pull effect on users' consideration of digital-only banks as an alternative. The study found that push factors, such as inconvenience and low service quality, were positively associated with users' consideration of digital-only banks. On the other hand, while pull effects, such as perceived advantages, were also positively associated with users' consideration of digital-only banks, their influence was weaker than push factors. Our findings differ from prior studies that apply the PP model as the theoretical framework (Hou & Shiau, 2020). They found pull effect is stronger than push effect in social media switching context.

This suggests that when users experience push factors, such as inconvenience or low service quality in their current banking service, they are more likely to consider digital-only banks as an alternative option, regardless of the perceived advantages of these digital-only banks. However, perceived advantages still attract users to digital-only banks, particularly when push factors are not present or are not significant enough to prompt users to consider alternative options.

6.2 Academic Implications

The present study's proposal of service alternatives instead of service switching is a novel academic contribution as it extends the existing literature on the Push-Pull (PP) model. The PP model has been widely used to explain the factors influencing consumers' decisions to switch from one service provider to

another. However, the focus has been mainly on switching behavior rather than considering alternatives.

By introducing the concept of service alternative, the present study provides a more nuanced understanding of consumers' decision-making processes in the context of service consumption. This extension of the PP model is valuable as it acknowledges that consumers may not necessarily switch to an alternative service provider but may consider doing so.

6.3 Practice Implications

The purpose of the present study is to apply the Push-Pull model to explain users' alternatives in the context of digital-only banks, which is essential for management policy. Digital-only banks can use these findings to design their services to address users' push factors and enhance their pull effects. For example, traditional banks can improve their services' convenience and service quality to reduce the likelihood of users considering alternatives. Additionally, digital-only banks can highlight the advantages of their services, such as higher interest rates, quick loan services, and all services on Apps, to increase the likelihood of users considering using their services as an alternative.

7 LIMITATIONS

It is vital to acknowledge the limitations of this study. Firstly, the sample size is relatively small and may not be representative of the entire population. Additionally, the study is limited to a specific geographic region and may not be applicable to other regions or countries. Finally, the study only considers three constructs as dimensions and other constructs may provide more insights into the viability of digital-only banking.

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