

Financial Knowledge and Access as Catalysts in the Link between Fintech Adoption and Financial Well-Being of MSMEs

Candy*, Johny Budiman, Dewi Khornida Marheni, Juwita Sulputri, Rhukil Cahyani Amalia, Jonny Chandra, and Anita Rahman

Universitas Internasional Batam

^{1*}Corresponding Authors Email: candy.chua@uib.ac.id

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Abstract

This research investigates how financial technology (fintech) adoption can improve financial well-being through the mediating effects of financial knowledge and financial access. A quantitative method was employed by distributing questionnaires to 200 Micro, Small, and Medium Enterprises (MSMEs) owners and managers in Batam, Indonesia. The results show that fintech adoption significantly improves financial well-being, financial knowledge, and financial access. This suggests that the use of fintech tools enables MSMEs to better manage their finances, access a wider range of financial services, and gain knowledge that enhances their financial decision-making. However, financial knowledge and financial access do not have a significant effect on financial well-being. Furthermore, these two variables do not mediate the relationship between fintech adoption and financial well-being.

Keywords: Financial Well-Being, Fintech Adoption, MSME Actors, Financial Knowledge, Financial Access

Introduction

In the increasingly developing digital era, financial technology plays an important role in realizing a modern economic system. Adopting fintech helps improve financial well-being, especially for *Micro, Small Medium Enterprise (MSMEs)*. Financial well-being is increasingly relevant in today's conditions due to its influence on both socio-economic progress and overall well-being, this aspect is emphasized within the framework of Sustainable Development Goals (SDGs) (Bashir & Qureshi, 2023). This sustainable development includes MSMEs as one of the important roles in improving the economy. According to data from Anastasia (2023), shows that MSMEs hold a vital position in driving Indonesia's economic growth by helping more than 97% of the workforce. The large contribution made by MSMEs to the national economy must be supported by technological facilities that can help the

operational running of the business, however, MSMEs still have to face various challenges in obtaining formal financial services that can hinder the sustainability of their business. This is supported by data shown by the Bank of Indonesia (2022), where limited access to technology, poor financial literacy, and lack of confidence in digital transactions are challenges often faced by MSMEs, thus hampering the development process of their businesses.

Fintech services can be accessed easily, and fintech features are more practical. When more and more people refer to fintech with different financial concepts, people have the opportunity to deepen financial literacy, especially MSME actors (Sharma et al., 2024). The increasing use of fintech by the public makes the public increasingly exposed to many modern financial concepts, such as financial planning, investment, and digital payment services. An assessment carried out by the Financial Services Authority (2024) shows that only 65.43% of Indonesian people have good financial literacy. Research conducted by Cojoianu et al. (2021) revealed that small business actors are the individuals who are most familiar with finance when they deal with fintech applications because they can see direct data from financial leadership activities, but MSME actors often do not understand the digital financial products they driven by insufficient comprehension of financial principles, therefore they could take investments and loans that are risky and cause financial instability and financial unwellness because they are not in balance with their financial capabilities.

Financial knowledge and financial access are factors explored in the financial well-being of MSME actors. In the context of MSME actors, a good understanding of finance for MSMEs helps them to choose the right financial service products for their business needs, understand the risks associated with loans or investments, and manage cash flow more wisely. MSMEs that lack an understanding of financial literacy are at risk of facing financial problems, being trapped in debt that does not provide benefits, or experiencing a liquidity crisis (Sreenu, 2024). Hence, enhancing financial literacy becomes essential for long-term progress so that MSMEs can improve their financial well-being so that they can plan and manage business finances better. Understanding finance must be based on access that makes it easier for MSMEs to interact with fintech. Wider access to digital financial services or fintech makes it easier for MSMEs to obtain financing and manage finances (Sanga & Aziakpono, 2024). This encourages growth and innovation, which in turn supports their financial stability and well-being. With this inclusive access, the financial gap can be reduced, so that MSMEs can participate more actively in the economy.

The purpose of this research is to examine how the adoption of fintech affects the financial health of MSMEs, with a focus on the mediating roles of financial knowledge and access to financial services in strengthening this relationship. While fintech adoption has received growing attention, there is still limited empirical evidence on how financial knowledge and financial access mediate its impact, particularly in the context of MSMEs. This study aims to address this gap by exploring the mechanisms through which these factors influence financial outcomes.

Furthermore, the research seeks to support MSMEs in achieving financial stability and well-being, as well as to identify key components that contribute to effective fintech performance. It is also expected to enrich the literature on fintech adoption by offering

deeper insights into the role of financial knowledge and access. By recognizing these as critical mediating factors, this study can provide valuable guidance for policymakers in formulating strategies and regulations that enhance financial knowledge and accessibility for MSMEs, thereby enabling more effective utilization of fintech services.

Literature Review

Fintech Adoption and Financial Well-Being

According to Aftech Indonesia (2021), financial technology (fintech) refers to technological innovations that transform financial services, making them more accessible and convenient for the general population (Hasan et al., 2022). Lidiana et al. (2024) added that fintech has revolutionized personal financial management by integrating technology into services such as digital payments, online lending, investment platforms, and budgeting tools. These technological advancements have led to more efficient financial practices, reduced costs, and enhanced financial literacy among users. Consumers' use of digital payments can increase their satisfaction with their current financial situation (Faisal & Abd Rashid, 2023). In other words, digital payments provide convenience, efficiency, or better control over spending, making consumers feel more satisfied given their financial circumstances. According to Singh et al. (2024), financial well-being and financial literacy have a positive moderating effect on each other fintech usage. Magli et al. (2022) claim that using fintech has a significant impact on financial well-being with controlled actions in terms of saving, thus creating positive net worth. The results by Ahamed and Jafar (2025) also showed that factors such as access to technology, financial knowledge, and convenience directly improve one's financial well-being. A better financial mix also reflects improved financial well-being, highlighting the importance of focusing on key adoption factors to achieve better outcomes. The study by Simba (2025) provides additional support for this, revealing that the use of financial technology has a favourable and noteworthy impact on financial well-being. This means that the higher the use of technology by the community, the higher their financial well-being will be due to the perceived convenience of utilizing technology. With the development of existing evidence, it is expected that *Fintech Adoption* will also provide benefits for MSME actors. Thus, the first theory that was established is:

H₁: Fintech adoption has a positive effect on financial well-being.

Fintech Adoption and Financial Knowledge

Financial knowledge is the ability to solve problems related to money and financial management (Erlangga, 2023). According to Kusuma et al. (2023), financial knowledge can influence a person's financial views and decisions in various financial aspects. Quibra (2024) The study revealed that perceived usefulness did not significantly impact fintech adoption behavior. This outcome may be attributed to other stronger factors like user-friendliness, trust in digital platforms, or social pressure, which play a more crucial role in shaping individuals' choices to embrace fintech services. By adopting fintech, banks can evolve their conventional business models into more technologically advanced frameworks by incorporating innovative technologies into their operations (Lamey et al., 2024). User innovativeness is an intermediary variable between financial literacy and fintech adoption. According to Thottoli et al. (2024), this is because people who possess elevated amounts of innovativeness tend to be more open to new technologies and quicker to adopt technology-based financial solutions, even though their levels of financial literacy vary. Innovativeness serves as a driving factor that influences how financial literacy can increase a person's

willingness to adopt fintech. Furthermore, a research study conducted by Priya and Rao (2024) shows that people are more willing to use fintech solutions if they have greater financial literacy. The study highlighted that an enhanced understanding of financial concepts and tools positively influences one's ability to navigate and utilize digital financial services, ultimately facilitating the adoption of innovative financial technologies and improving overall financial decision-making. Mohapatra et al. (2025) Research indicates that an elevated level of The fintech sector is growing as a result of financial literacy, with financial expertise being essential in encouraging the use and uptake of fintech services. Beyond offering convenience, efficiency, and easy access to financial solutions, the adoption of fintech is strongly driven by individuals' financial understanding (Akhtar et al., 2024).

H₂: Fintech adoption has a significant positive effect on financial knowledge.

Fintech Adoption and Financial Access

Financial access means the capability of people, families, and companies to acquire financial services and goods, including loans and savings accounts, insurance, and investment options that meet their requirements in a secure and cost-effective manner (Firli & Hidayati, 2021). These financial services include both traditional and digital banking, including mobile banking, which is growing rapidly in many countries. Financial access is often considered important to support financial inclusion, which is an effort to ensure that all societal strata have access to financial services, particularly those who lack legitimate banking services or are vulnerable (Wirdiyanti et al., 2023). This states that as more individuals or entities adopt fintech services, there is a significant increase in their capacity to get a range of financial services. This phenomenon occurs because fintech provides a more inclusive, efficient, and affordable alternative compared to traditional financial services (Judijanto et al., 2024). This is also supported by studies carried out by Ratna et al. (2024) revealed that fintech adoption has a favourable effect on financial services by supporting the role of financial knowledge as a mediator. Utilizing fintech service features can help manage finances transparently and avoid financial risks that will ultimately contribute to financial well-being. Recent studies have highlighted the significant role of fintech adoption in enhancing financial well-being. Ariyanti and Marianingsih (2024) revealed that fintech adoption has the most significant positive impact on the MSMEs' financial performance. This impact is related to better financial inclusion and increased access to credit, which in turn improves their operational efficiency and business growth. Ahamed and Jafar (2025) further emphasize that access to technology, financial literacy, and user comfort with fintech have a direct positive impact on financial well-being, with financial literacy acting as a key mediator. Similarly, Gafoor and Amilan (2024) reveal that the impact of fintech adoption is indirect, and mediated by financial knowledge, access, and behavior. These findings underscore the importance of financial literacy and inclusion in maximizing the benefits of fintech for improving financial outcomes.

H₃: Fintech adoption has a significant positive effect on financial access.

Financial Knowledge and Financial Well-Being

Financial literacy is the ability to the capacity to comprehend, evaluate, and handle financial matters efficiently, empowering individuals to make informed decisions and steer clear of potential financial challenges (Panjaitan et al., 2022). Financial capability involves two key components, including understanding financial concepts and effectively utilizing that knowledge to attain financial well-being (Chen et al., 2024). According to Chavali et al. (2021), implementation of financial well-being, such as analyzing and managing expenditures, saving

funds for emergencies, and reaching financial objectives, eventually helps to enhance their financial security. Azizah and Noviani (2024) stated that financial knowledge is an important indicator for predicting positive financial behavior among individuals. This is because people with strong financial acumen are typically better able to manage expenses, make wise investment decisions, and plan their finances for the future more effectively. In the view of Quibra (2024), Financial knowledge goes beyond mere understanding and decision-making abilities in finance. It includes the ability to understand financial concepts, manage financial resources effectively, and make wise decisions regarding savings, investments, and debt management to attain long-term financial stability. Having a healthy financial background, individuals are empowered to have a more significant say in their financial status, and this directly leads to the improvement of financial wellness. Phelps and Metzler (2024) pointed out that having a solid understanding of finances can boost confidence in managing money. This helps to ease financial worries and fosters a greater sense of economic security. Lusardi and Streeter (2023) also pointed out that those who possess a deep understanding of financial matters are the ones most capable of making logical and rational everyday money choices, such as paying off debts and placement of the money in the right place, which have a direct positive relationship with the long-run financial prosperity. Similar conclusions were drawn by Nogueira et al. (2025), who stated that having a solid understanding of finance not only encourages prudent financial behaviour but also teaches individuals how they better control economic pressure. Hence, the more knowledgeable one is about finance, the better one can be at planning and implementing financial strategies for maintaining a balance of life.

H₄: Financial knowledge has a significant positive effect on financial well-being.

Financial Access and Financial Well-Being

Financial inclusion aims to ensure that all people, especially those in disadvantaged economic conditions, can obtain and use safe and affordable financial services. The World Bank emphasizes the importance of financial access as a key to reducing poverty and improving overall economic well-being. According to Alifa and Abid (2025), Multiple studies confirm that financial access positively impacts financial well-being. Having reliable obtaining official financial services enables people to better manage their personal finances, thereby enhancing their overall financial health. Financial access means the ability of individuals, families, and businesses to obtain suitable financial products such as investments, bank accounts, loans, and insurance in a securely and cost-effectively (Pradana, 2024). Obtaining official financial services is essential for economic empowerment, allowing people to save, borrow, and insure against risks. Digital financial services have broadened access, especially in underserved areas, by lowering costs and overcoming infrastructure barriers (Trinh, 2022). Nonetheless, issues like digital literacy, regulation, and trust must be taken care of in order to fully reap the rewards of financial inclusion (Singh et al., 2024). Equitable access supports both individual well-being and wider economic growth. The study by Mir and Bushra (2024) shows that access to financial products and services significantly improves dimensions of financial well-being, including feelings of calm over current financial conditions and optimism about the future, individuals with access to formal financial services tend to have greater control over spending and debt management, which in turn strengthens financial stability. Individuals who possess great financial literacy and extensive financial access are more likely to make well-informed financial decisions, set future goals with careful planning, and navigate financial challenges with resilience. However, a gap in research persists, indicating no direct connection between financial well-being and financial beliefs (Mir & Bushra, 2024).

H₅: Financial access has a significant positive effect on financial well-being.

Financial Knowledge

Research conducted by Lontchi et al. (2023) revealed that fintech adoption among small business actors can increase their financial understanding because it can facilitate access to their daily financial activities. By applying financial technology services, MSME actors can manage finances efficiently, such as monitoring cash flow. Additionally, having a solid grasp of the financial goods and services that are accessible, including the risks involved, and making better financial decisions are two benefits of having financial knowledge and providing the level of insight needed to recognize and prevent potential fraud (Waqas et al., 2023). The use of fintech services, such as electronic payment systems or peer-to-peer lending, helps increase the income of MSMEs, especially for those who have a good level of financial knowledge (Bakashaba et al., 2024). The digital transaction system allows faster and safer transactions by implementing peer-to-peer lending financing, business actors can use access to more affordable and flexible capital compared to traditional loans. According to Rachapaettayakom et al. (2020), MSME actors who understand finance well enable MSME actors to manage their budgets and make good budget plans so that they have an influence on their well-being and financial security. A good understanding of finance can help MSME actors plan and manage their budgets by knowing how to allocate financial resources for their business needs in the long term. Research by Ratna et al. (2024) further supports this, showing that the use of fintech improves financial well-being by bolstering the function of financial knowledge as a mediator. Utilizing fintech service features can help manage finances transparently and avoid financial risks that will ultimately contribute to financial well-being. In keeping with studies by Utami and Sitanggang (2021), demonstrate that the use of fintech would effectively enhance the performance of MSMEs with knowledge of finance as a mediator that allows MSME owners to utilize technology optimally to improve their financial well-being. The results of the previous research above produce a hypothesis that can be developed:

H₆: Fintech adoption has a significant positive effect on financial well-being and is mediated by financial knowledge.

Financial Access

According to the IMF, financial access also contributes to economic growth by making it possible for SMEs to acquire the capital they require to expand. According to The Last Supper (2022) is generally positively related to financial access. Research indicates that the use of financial technology, particularly fintech, has increased access to official financial services, particularly for people and companies that previously had difficulty accessing traditional banking. The flexibility of fintech adoption access is also stated by Yu et al. (2025), that fintech adoption has the ability to overcome or bypass the temporal and spatial limitations that exist in traditional financial services. In other words, traditional financial services are often tied to physical locations and certain operating hours, while fintech, as a digital innovation, can provide access to financial services anytime and anywhere. Wirdiyanti et al. (2023) suggest that fintech access is generally positively related to financial well-being. This is supported by the findings of Ghafoor et al. (2022), which state that advances in digital technology affect small and medium enterprises (SMEs) and low-income families, who can make payments via mobile phones, apply for loans online, get insurance products digitally, and make investments online. The results of the research presented above produce the following hypothesis:

H₇: Fintech adoption has a significant positive effect on financial well-being and is mediated by financial access.

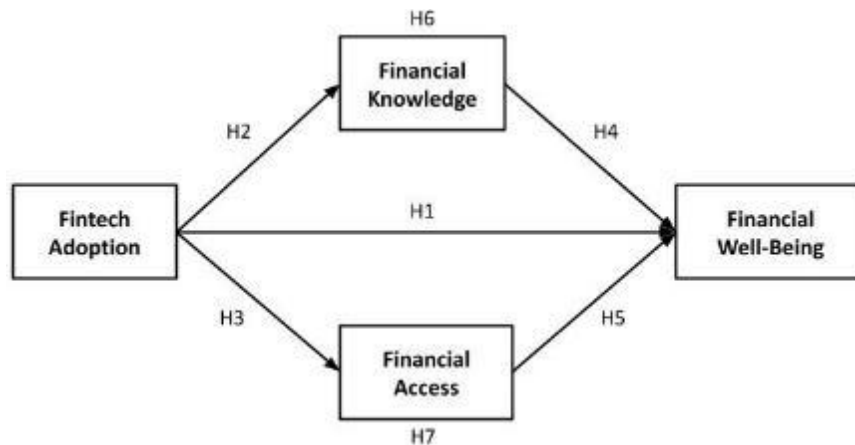


Figure 1. Conceptual Framework

Research Methodology

The study involved 200 MSME actors in Batam City, with data collected over a two-month period (October–December 2024) through an online questionnaire. Items measuring fintech adoption were adapted from Alkhwalidi (2024), financial access and financial knowledge from Gafoor and Amilan (2024), and financial well-being from Smith and Eng (2024), using a 5-point Likert scale.

Descriptive Statistics of Respondent Demographics

Table 1 outlines the demographic and business characteristics of the respondents, including gender, age, education level, business type, e-commerce platform used, and preferred transaction method.

Table 1

Respondent Characteristics

Characteristics	Classification	Frequency	Percentage
Gender	Man	82	41%
	Woman	118	59%
Age	<21 years	22	11%
	21 – 30 years	118	59%
	31 – 40 years	32	16%
	41- 50 years	21	10.5%
	>50 years	7	3.5%
Education level	Elementary/Middle School	38	19%
	High School/Vocational School	156	78%
	Bachelor/Post-Graduate	6	3%
Type of business	Fashion	11	5.5%
	Beauty	5	2.5%
	Culinary	164	82%
E-commerce platform	Gojek (GoFood, GoMart)	107	53.5%
	Grab (GrabFood, GrabMart)	38	11%
	Shopee	22	19%

	Tiktok Shop	6	53.5%
Transaction Method	QRIS	170	85%
	Transfer	82	41%
	Debit/Credit Card	38	19%

Source: Processed Data (2025)

Results

Prior to hypothesis testing, validity and reliability assessments were performed to ensure the outer model met the necessary criteria. All indicators and variables demonstrated satisfactory validity and reliability. The path coefficients test was then conducted to evaluate the effects of the independent variables on the dependent variable. The results are presented in the following table.

Table 2

Path Coefficient

	Original sample	Sample mean	Standard Deviation	T-statistics	P-value	Note
Fintech adoption → financial well-being	0.375	0.355	0.123	3.059	0.002	Accepted
Fintech adoption → financial knowledge	0.590	0.595	0.058	10.197	0.000	Accepted
Fintech adoption → fintech access	0.806	0.805	0.038	21.324	0.000	Accepted
Financial knowledge → financial well-being	0.021	0.017	0.089	0.236	0.814	Not accepted
Financial access → financial well-being	0.186	0.214	0.133	1.396	0.163	Not Accepted

Source: Processed Data (2025)

The test results above show that fintech adoption, financial knowledge, and financial access all significantly improve financial well-being. The first three hypotheses (H_1 , H_2 , and H_3) are accepted. However, the relationships tested in H_4 and H_5 on the effects of financial access and financial knowledge on financial well-being show positive but statistically insignificant results, leading to the rejection of these hypotheses.

Greater utilization of fintech services is associated with improved individual financial well-being. Specifically, higher levels of fintech adoption—such as the use of digital wallets, online investment platforms, digital lending services, and personal finance management applications—are linked to better financial conditions. These findings are consistent with Magli et al. (2022), who reported that fintech usage positively affects financial well-being by promoting controlled saving behavior and contributing to positive net worth. As empirical evidence continues to grow, fintech adoption is also expected to offer substantial advantages for Micro, Small, and Medium Enterprises (MSMEs), particularly by improving access to financial services, enhancing financial management, and supporting business growth.

The results also indicate a substantial positive correlation between fintech adoption and financial knowledge. This finding aligns with previous research by Ratna et al. (2024), who argued that fintech enhances financial understanding through greater transparency and easier access to information. Thottoli et al. (2024) further noted that individuals who are more innovative and open to technology tend to improve their financial literacy through fintech. Similarly, Cojoianu et al. (2021) emphasized that fintech helps business actors become more familiar with day-to-day financial practices and data. Hence, fintech serves not only as a tool for transactions but also as a medium for financial education and capacity-building among MSMEs.

The relationship between fintech adoption and financial access also shows a significant positive effect. These results align with prior findings by Wirdiyanti et al. (2023), who demonstrated that fintech simplifies access to official financial services such as insurance, loans, and digital transactions. Judijanto et al. (2024) added that digital services offer more efficient and inclusive alternatives to traditional banking. Additionally, Yu et al. (2025) emphasized fintech's strength in overcoming time and location barriers, allowing MSMEs to access financial services anytime and anywhere. These findings underscore the critical role of fintech in promoting financial inclusion and reducing structural barriers for small businesses.

There is a positive but statistically insignificant relationship between financial well-being, financial access, and financial knowledge. This finding contradicts the study by Azizah and Noviani (2024), who reported a significant positive effect. Their research highlighted financial knowledge as a key predictor of positive financial behavior, noting that individuals with strong financial acumen are typically better at managing expenses, making sound investment decisions, and planning for the future. In other words, while higher financial knowledge is often associated with better financial well-being, the empirical results in this study do not provide strong enough statistical evidence to support a meaningful relationship. This implies that financial literacy alone may not be the decisive factor in determining financial well-being; other variables likely play a more influential role.

While prior studies such as Alifa and Abid (2025) and Pradana (2024) emphasize that good financial access enables individuals to manage their finances better and improve financial well-being, this study found no statistically significant correlation between financial access and financial well-being. This suggests that, within the context of this research, access to financial services alone is insufficient to drive improvements in financial well-being. Other factors, such as financial literacy or the ability to utilize financial access effectively, may be more critical. Therefore, efforts to promote financial inclusion should not only focus on expanding access but also on enhancing financial awareness and skills to ensure that access translates into tangible improvements in financial well-being.

An indirect effect analysis was conducted to evaluate the influence of the independent variable on the dependent variable through the mediating variable. The results are presented in the following table.

Table 3
Indirect Effect

			Original sample	Sample mean	Standard Deviation	T-statistics	P-value	Note
Fintech adoption → financial knowledge → financial well-being			0.150	0.173	0.109	1.383	0.167	Not Accepted
Fintech adoption → financial access → financial well-being			0.012	0.010	0.053	0.235	0.814	Not Accepted

Source: Processed Data (2025)

To determine how well the model describes the cumulative effect of the independent components on the dependent variable, the r-square assessment is used. A strong influence is indicated by a value of 0.70, a moderate effect by a value of 0.50, and a weak influence by a value of 0.25.

Table 4
R Square

Variable	R ²	R ² Adjusted
Financial Knowledge	0.650	0.648
Financial Access	0.348	0.345
Financial Well-being	0.302	0.291

Source: Processed Data (2025)

Conclusions

This study confirms that although fintech adoption significantly enhances financial access and knowledge, its impact on financial well-being remains insignificant. This highlights the need for further efforts to fully leverage technology in improving overall financial well-being. Additionally, limitations related to sample size and focus on specific types of businesses restrict the findings' generalizability. Consequently, it is advised that future studies incorporate a greater variety of business sectors and consider additional factors such as financial behavior and government policies that may strengthen positive effects on financial well-being. Developing more effective financial literacy education strategies is also crucial to reinforce the connection between financial well-being and financial literacy.

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