The Moderating effect of Digital and Financial Literacy on the Digital Financial Services and Financial Behavior of MSMEs

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Abstract: The rapid advancement of technology has become an integral part of society. Improved financial technology accelerates and plays a critical role in MSMEs' savings, financing, and investment. The efficient flow of funds from these sectors is vital to the growth and development of the economy. However, despite their benefits, digital finance and financial inclusion have not sufficiently permeated large segments of the population, indicating a gap between the availability, accessibility, and utilization of finance. Despite the benefits of digital financial services, there is a large disparity in one area that is gaining momentum, particularly in financial inclusion and digital finance. These barriers can impede an individual's ability to save, gain access to capital, and invest. The purpose of the study is to determine the extent to which digital financial services impact the savings, financing, and investing behavior of micro, small, and medium-sized enterprise (MSMEs) owners. The study explored a causal research design with moderation analysis to determine the impact of digital financial services and digital and financial literacy on the savings, borrowing, and investing behavior of MSME owners in the Philippines. The result of the study revealed that digital financial services do not stimulate savings, borrowing, and investing of the owners, however, digital and financial literacy significantly influence the financial behavior of the owners. The result of the study adds additional evidence to the existing literature highlighting the role of digital and financial literacy in enhancing the impact of digital financial services on the financial behavior of MSME owners.

Keywords: Digital Financial Services, Financial Technology, MSMEs, Digital Literacy, Financial Literacy.
JEL Classification: D9-D91; O1-O16; O5-O53

INTRODUCTION

Fintech development has facilitated financial services expansion and increased the flow of funds within the country. Recent global advancements in fintech have made digital financial services (DFS) more accessible and affordable, allowing millions of customers to transition from cash to formal digital financial transactions on a secure digital platform (Ozili, 2018). Emerging market economies have increased their investment in fintech innovation, largely due to infrastructure development and regulatory relaxation (Lyons et al., 2021). As a result, people appear to have developed an affinity for digital technology in terms of financial transactions, owing to the expanding opportunities and convenience offered by financial technologies. In effect, the increasing volume of financial transactions within the financial system facilitates economic growth.

Financial services have not only undergone remarkable digitization in recent years but have also engaged with an increasing number of everyday commercial settings, creating new opportunities for inclusive growth (Manyika et al., 2016). Digital financial services have become an integral component of modern society, affecting individuals, businesses, and the government. For instance, during the spread of COVID-19, many businesses innovated and digitalized their operations. The demand for contactless and cashless digital transactions has increased as businesses accelerate and shift their operations to digital financial services (Lyons et al., 2021). Bansal et al. (2018) posited that digital transactions paved the way for the development of business models, which in turn led to the creation of many other digital financial services, such as digital credit and digital investments.

MSMEs' access to savings, investment, and credit is essential to the growth and development of the economy. It is anticipated that the convenience of digital financial services will facilitate the efficient transfer of funds. The use of digital tools is automating and accelerating interactions between financial service organizations and their customers and partners (Pazarbasioglu et al., 2020). This is a result of the growing demand for simple and cost-effective digital channels to consume financial services. Due to this, it has been shown that digital financial services have significant and beneficial effects on various stages of entrepreneurship, including business entry, innovation, and financial performance (Sekabira & Qaim, 2017; Yin, Gong, & Guo, 2019). These benefits include increased access to financial services for individuals and small business owners; and cost savings for banks and fintech providers.

Because of the financial developments that are occurring as a result of the expansion of the economy, micro, small, and medium-sized enterprises (MSMEs) must embrace and keep

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pace with these developments. The transition to mobile-app-based technologies has been cited as one of the strategies SMEs use to adapt to disruptive environmental changes (Ho & Chung, 2020). In particular, mobile apps have become the most convenient way of adapting to the changes. The use of mobile app services has become the most acceptable response to the disruptive changes caused by the COVID-19 pandemic (Singhal et al., 2020; Islam, 2017). Digital financial services have evolved into a critical component of society, affecting individuals, businesses, and the government. The flow of funds from MSMEs' savings, investment, and credit is a robust contribution to the growth and development of the economy. Improved financial technology accelerates and plays a critical role in improving the access and use of finance (Dorfleitner and Roble, 2018). However, digital finance and financial inclusion have not yet reached large portions of the population despite their benefits (G20 Summit, 2013), indicating a disparity between the availability, accessibility, and utilization of funds (Ozili, 2018). Despite the benefits of DFS, there is a significant gap in one area that is gaining momentum, particularly among fintech providers in terms of digital financial inclusion, financial data inclusion, and digital finance (Ozili, 2018). These barriers to financial inclusion can inhibit an individual's ability to save, gain access to capital, and invest. For instance, a study shows that the Philippines lags behind Indonesia, Thailand, Malaysia, and Singapore in terms of personal savings with the bank (ADB2020). Seemingly, the average household appears to have increased savings, but surprisingly lower bank savings. In addition, statistics indicate that MSMEs do not actively participate in saving, borrowing, and investment. According to BSP data in 2021, while there is a significant increase in the use of digital financial services, there is a decline in the savings and loans of MSME from 2019 to 2021. With the convenience of digital financial services, it is anticipated that the flow of funds among MSMEs will increase. However, according to the statistics, digital financial services have not contributed to the flow of funds in terms of MSMEs' participation.

Given the preceding context, there appears to be a gap between the use of digital financial services and the financial behavior of MSMEs' owners. The objective of the study is to determine the extent to which digital financial services affect the savings, financing, and investment behavior of MSMEs. A moderation analysis will further examine how digital and financial literacy intervene between the relationship of digital financial services and the financial behavior of business owners. The government and financial institutions may find the study's findings useful for enhancing digital financial services to encourage MSME owners to save, borrow, and invest.

CONCEPTUAL FRAMEWORK

This study is founded on the theories of the Technology Acceptance Model (TAM) and Perceived Behavioral Control (PBC). Research on TAM has identified two primary constructs that predict technology acceptance: perceived usefulness and perceived ease of use (Gerlach et al., 2021). Perceived usefulness is the degree to which a technology is anticipated to enhance the performance of a potential user (Davis, 1989). According to prior research, the use of digital payments aids businesspeople in managing their finances. For instance, According to Prahiawan et al. (2021), digital finance enables business owners to make strategic decisions that result in innovative and well-targeted solutions designed to improve financial performance and business sustainability. According to a previous study, financial technology has provided opportunities for convenient and safe online financial transactions among business owners. Hendiarto et al. (2021) noted that, through technological advancements, MSMEs can seize opportunities to conduct financial transactions anywhere with ease, security, and control.

Perceived ease of use is the amount of effort required to utilize a technology effectively (Gerlach et al., 2021). Technology allows for convenience and low-cost transactions for business owners. One of the advantages of digital financial services is that they provide affordable, convenient, and secure banking services to all members of the economy. Individuals who use digital financial services do not need to go to banks, which saves them time and money. Hodula (2021) made the argument that digital credit platforms can supplement traditional bank credit by meeting credit demand that banks are unable to meet. As argued by Luo et al. (2021) and Sheng (2021), digital finance relieves credit constraints because of the easy availability of online consumer credit. It appears that, with the growth of digital finance, individuals with limited financial knowledge have gained access to financial products and services.

On the other hand, Perceived Behavioral Control (PBC) describes the factors that influence the owners' financial decisions regarding savings, financing, and investment. According to Kijkasiwat (2021), when individuals believe they have control over an action, they are more confident in their ability to achieve the desired results. Balushi et al. (2018) further asserted that a high level of perceived behavioral control should correspond to a greater behavioral intention, as well as increased effort and persistence to achieve the desired behavior. Adapting to this principle, PBC appears to be one of the most influential factors that could influence business owners' savings, financing, and investment decisions. Seemingly, the greater the owner's capacity to adapt to financial technology by controlling their use of digital financial services, the more they can pursue financial objectives. This comports with the owner's saving, financing, and investing behavior.

FINANCIAL TECHNOLOGY

Financial services are undergoing a digital transformation that will involve the integration of financial technology products and services for both customers and fintech providers. The financial technology era has been defined by a rapidly growing financial services market and an increasing number of new suppliers, including mobile network operators, technology companies, and fintech startups (Alliance for Financial Inclusion, 2018, 2020; Anagnostopoulos, 2018; Arner et al., 2015; Tan et al., 2019). With the entry of non-bank financial innovators and fintech providers, the financial services industry has been transformed into one that benefits consumers directly and indirectly. This transformation also applies to emerging market countries, where it enables the establishment of a credible digital alternative to traditional

banks in a number of locations (IFC, 2017). This improved financial technology accelerates and plays a critical role in improving credit availability, mobile and automated teller machine (ATM) use, savings, and simple payment access (Dorfleitner and Roble, 2018). Not only have financial services digitized dramatically in recent years, but they have also become increasingly integrated into everyday commercial settings, generating new opportunities for inclusive growth (Manyika et al., 2016). Fintech has accelerated innovation by enabling individuals to access a broader range of financial products without jeopardizing traditional financial institutions' services. It allows consumers to send and receive money, including cross-border remittances, and pay bills without leaving their home or going to a market or store (Pazarbasioglu et al., 2020). By using cutting-edge technology to make creative, low-cost products, they add to the services offered by traditional carriers by providing faster service, more information, and better customer experiences, which is good for everyone (Lyons et al., 2021). Due to this, the rapid advancement of financial technology has been linked to increasing investment, employment opportunities, income levels, and poverty levels, and that economic progress can only be sustained if a large proportion of the population has access to formal financial services (Umar, 2013). By leveraging massive user bases and scale efficiencies, ecosystems built on platforms such as social networking, retail, and ride hailing have enabled new business models and sparked a new wave of DFS (Pazarbasioglu et al., 2020). For instance, in China and a number of other emerging economies over the past decade, digitization has evolved into broad characteristics that capture the fundamental elements of entrepreneurial activities, such as operating, financing, and investing activities (Chen, 2016). Seemingly, digital payments, e-commerce, and social media have permeated microeconomic lives, fundamentally altering entrepreneurial activities for the majority of businesses.

DIGITAL FINANCIAL SERVICES

The term "Digital Financial Services" refers to financial products and services, as well as technology and infrastructure that enable individuals and businesses to access payments, savings, credit, and investment facilities online, without having to interact physically with a bank or other financial service provider (Pazarbasioglu et al., 2020). DFS provides a range of services, including electronic payments, bill payments, remittances, and online purchases. DFS also provides digital financial advice, which is an umbrella term for investment proposals that, unlike traditional financial advice, are designed to operate with little or no human intervention and are based on algorithms. Consumers can use DFS to transfer funds, pay bills, and pay for goods and services without leaving their homes or visiting a market or store (Pazarbasioglu et al., 2020).

Fintech-enabled digital financial services (DFS) are one of the platforms with the potential to reduce costs, increase speed, security, and transparency, and enable more personalized financial services for people on a massive scale (Pazarbasioglu et al., 2020). It pertains to the delivery of financial services via mobile phones, personal computers, the internet, or cards connected to a secure digital payment system (Ozili, 2018). In this context, mobile money and a high rate of phone adoption fueled the initial wave of digital financial services (Pazarbasioglu et al., 2020). This comprises electronic money issuance and agent networks, as well as the ability to digitally store, transmit, and receive money via mobile phones and the usage of agents such as Cash In, Cash Out (Pazarbasioglu et al., 2020). For example, digital payments, such as bill payments, remittances, and online purchases, are among the many services offered by DFS. Digital financial advice is another service offered by DFS. This service includes investment proposals that, unlike traditional financial advice, are designed to function with no or minimal human intervention. Because of this, customers want digital channels that are easy to use and don't cost much to get financial services. At the same time, digital tools are making interactions between financial services companies and their customers and partners faster and more automated (Pazarbasioglu et al., 2020). The convenience of digital financial services is expected to improve the efficient movement of funds. Based on the foregoing, it appears that fintech and digital financial services have benefited governments, the economy, and both consumers and providers of digital financial services.

MICRO-SMALL, AND MEDIUM ENTERPRISES

According to Aga et al. (2015), SMEs serve as the nucleus for economic growth and development and are significant providers of employment. Additionally, studies indicate that SMEs contribute significantly to economic growth and development by providing employment opportunities for residents, which boosts their household income (Palmarudi & Agussalim, 2013). In this era of globalization, the importance of small and medium-sized enterprises (SMEs) is universal. The current state of the global economy affects the challenges and growth prospects of small and medium-sized enterprises (SMEs) that utilize digital financial services. However, because COVID-19 has posed significant challenges for small businesses in different nations and industries, the use of digital financial services has become a necessity instead of an alternative. Eton et al. (2021) find that digital financial services are critical for SME growth. According to Eton et al., digital financial services simplify MSMEs' transactions by boosting payments to service providers, ATM access, and bank switching.

The level of savings, credit, and investment reveals whether a country's economy is performing well. The financing decisions of SME owners pertaining to savings, credit, and investment can be influenced by operational, mental, social, epistemic, and conditional values (Rakshit et al., 2021). According to Nwodo (2017), savings and investment are prerequisites for many countries' growth and development. For example, Luo et al., (2021) and Sheng (2021) argued that digital finance relieves credit constraints and fuels credit availability for Chinese SMEs.

A transition to mobile-app-based technologies has been cited as one of the strategies SMEs use to adapt to disruptive environmental changes (Ho & Ching, 2020; and Swani, 2020); in particular, mobile apps have become the most convenient way of adapting to the changes. The use of mobile app services has become the most acceptable response to the disruptive changes caused by the COVID-19 pandemic (Singhal et

al., 2020; Islam, 2017). Individuals and small, medium, and large businesses can easily access a wide range of financial products and services (and credit facilities) through digital finance, which contributes to the efficient movement of funds. Due to the many benefits of digital financial services, it is likely that people and business owners will change how they save, borrow, and invest money as a result of digital finance.

Small- and medium-sized enterprises (SMEs) could benefit from mobile applications in the following ways: increased business penetration; increased sales; enhanced cooperation with customers and suppliers; enhanced company image; streamlined operations; and enhanced worker productivity (Rahayu & John, 2016; Talwar et al., 2020; Talwar et al., 2020; Talwar et al., 2020). However, according to studies, developing-country SMEs are lagging in adopting a mobile-app-based business process (MAP) and measuring its sustainability performance (Owoseni & Twinomurinzi, 2018). While small and medium-sized enterprises (SMEs) have benefited from digital technologies in the past, they continue to lag behind larger corporations in terms of adoption. Additionally, small and medium-sized businesses (SMEs) still use digital technologies mostly for basic services, and the adoption gaps are getting bigger as technologies get better (OECD, 2021).

By increasing economic participation, MSMEs can contribute to an equitable and sustainable economic growth (Affandi et al., 2020). However, despite their active involvement in the development of the economy, many MSMEs lack access to financial services (Gregori et al., 2015; Hendiarto et al., 2021). Based on the study of Nwondo et al. (2017), most entrepreneurs are aware of the existence of financial institutions and most of them have been members of these institutions. However, despite the expanding opportunities presented by digital financial services, the increasing prevalence of online borrowing may pose a significant financial challenge. As Luo & Zeng (2020) pointed out, the risk of serious financial problems is rising due to the easy availability of online consumer credit, inflation, and a deteriorating economy (Yue et al., 2021).

FINANCIAL BEHAVIOR

Saving is encouraged to become a habit in human life, making it unquestionably a beneficial activity for dealing with unforeseen family financial problems. Savings behavior consists of two actions that coincide with the act of saving and the perception of future needs, and savings behavior is carried out to face risks if unanticipated problems requiring substantial funds arise (Satsios & Hadjidakis, 2018). It is becoming increasingly evident that under saving is a pervasive problem and that everyone should save more, at least in the form of additional financial assets or investments (Nwodo et al.2017). Madison (1992) views savings as an increasing function of income, and there is a positive relationship between savings and income. So, it is thought that saving can be a key way to increase the amount of money that is available.

Entrepreneurs' consumer credit is crucial at all phases of business development. While numerous studies emphasize the importance of an entrepreneur's personal credit as a source of business liquidity. Hodula (2021) made the argument that digital credit platforms can supplement traditional bank credit by meeting credit demand that banks are unable to meet. Yue et al. (2021) asserted that credit has increased in tandem with the growth of digital platforms. Seemingly, when credit is more accessible, credit consumption increases as well. As argued by Luo et al., (2021) and Sheng (2021), digital finance relieves credit constraints and fuels credit availability for Chinese SMEs. By reducing the information asymmetry between lenders and borrowers and lowering transaction costs, digital financial services have the potential to serve a large number of people who are currently excluded from the traditional financial system (Banna and Alam, 2021; Huang and Wang, 2017; Li et al., 2020; Ren et al., 2018; Xu, 2017). However, the growing use of online borrowing is creating a significant financial problem. For example, Luo & Zeng (2020) noted that the risk of serious financial problems is increasing as a result of the easy availability of online consumer credit. In effect, this burgeoning credit market may result in an increase in the likelihood of financial distress. Lyons et al. (2021) suggest that while the development of fintech may result in increased account accessibility, it may not necessarily lead to an increase in savings and borrowing across the board.

Investment is the transformation of wealth in anticipation of a return or capital gain in the future. A financial instrument used to generate a satisfactory return while assuming risk (Antony & Sebastian, 2022). One of the capabilities of digital financial services is the provision of a financial service via an online platform that enables investors to invest in real-time (Daud et al., 2022). Digital Financial Services provides exclusive opportunities to invest in bonds, mutual funds, and money market funds. Numerous studies indicate that entrepreneurial households with undiversified portfolios share a common characteristic. Powered by machine learning, automated services can also provide investment advice and financial planning services to retail investors and SMBs by extracting their financial and other data.

DIGITAL AND FINANCIAL LITERACY

When considering the implications of digitalization for individual investors, it is necessary to evaluate both digital and financial literacy (Prete, 2022). Morgan et al. (2019) introduced the concept of digital financial literacy, which broadly refers to knowledge about how to use digital financial services (DFS). This includes familiarity with digital financial products and services; awareness of digital financial risks; knowledge of digital financial risk management; and familiarity with consumer rights and redress procedures.

To share the benefits of digital literacy — proficiency in the use of digital platforms and applications is relative to accessing digital financial services. Digital literacy is associated with improved labor market outcomes, is related to socioeconomic status, and is dependent on educational attainment (OECD, 2019). Digital Literacy is observed to be higher in countries with higher use of technology, like Japan and Korea, than Financial Literacy (Prete, 2022). In comparison to financial literacy, the concept of digital financial literacy is more focused on the process of using DFS rather than on broadening one's view of financial knowledge and skills. In

contrast, financial literacy is the capacity to comprehend the fundamentals of economics and finance to make personal financial decisions (Prete, 2022). Financial literacy is defined as the ability to manage and solve financial problems (Daud et al., 2022), as well as the behavior and mindset that influence an individual's financial situation for the better. Financial literacy is a significant factor in the formation of saving behavior (Thung et al., 2012) and is essential to making prudent financial decisions. For example, financial literacy can help individuals avoid financial difficulties, as some authors assert that financial difficulties are not always caused by a lack of income but rather by ineffective financial management (Daud et al., 2022).

However, according to previous research, a lack of digital and financial literacy is among the obstacles to DFS adoption. For instance, digital literacy is contingent upon an individual's knowledge and ability to use technology, whereas financial literacy is contingent upon an individual's knowledge and ability to manage finances (Prete, 2022). According to prior research, internet-based digital payment methods are more prevalent in countries with higher levels of digital literacy and GDP per capita but are unrelated to financial literacy, whereas countries with a larger proportion of the population able to use digital technologies and applications have a higher level of financial literacy (Prete, 2022).

Based on the foregoing literature, the following arguments are raised if Digital Financial Services, Digital Literacy, and Financial Literacy have a significant effect on the financial behavior of the MSME owners, thus, is argued that;

Hypothesis 1. The financial behavior of MSME owners is significantly influenced by digital financial services.

Hypothesis 2. The financial behavior of MSME owners is significantly influenced by digital literacy.

Hypothesis 3. The financial behavior of MSME owners is significantly influenced by financial literacy.

Based on the foregoing, the following arguments are raised if the impact of Digital Financial Services will significantly affect the financial behavior of the owners if intervened by Digital Literacy and Financial Literacy, thus, it is argued that;

Hypothesis 4. Owner's characteristics moderate the relationship between Digital Financial Services and the Financial Behavior.

Hypothesis 5. Digital Literacy moderates the relationship between Digital Financial Services and Financial Behavior.

Hypothesis 6. Financial Literacy moderates the relationship between Digital Financial Services and Financial Behavior.

METHODS

This study uses a causal research design and moderation analysis to investigate how digital and financial literacy intervene in the relationship between digital financial services and the financial behavior of micro, small, and medium-sized enterprise (MSME) owners. A total of 678 MSME owners participated in the online survey facilitated by SurveyMonkey. These business owners are operating in the capital region of the Philippines. The researcher shared a 4-point Likert Scale survey instrument with items pertaining to the uses and access of digital financial services and the behavior of owners toward saving, borrowing, and investing. The data collection instrument contains four sections with scales for the following variables: Digital Financial Services (Access and Use), Digital Literacy, Financial Literacy, and Financial Behavior. The MSME's financial behavior is indicated by savings, borrowing, and investing behaviors.

The researcher employed Pearson's correlation and Baron Kenny's moderation analysis. The regression analysis preceded the Pearson's correlation to test the relationship of each variable. A Pearson correlation analysis was conducted among Digital Financial Services (Access and Use), Digital Literacy, Financial Literacy, and Financial Behavior. Cohen's standard was used to evaluate the strength of the relationships, where coefficients between .10 and .29 represent a small effect size, coefficients between .30 and .49 represent a moderate effect size, and coefficients above .50 indicate a large effect size (Cohen, 1988).

To examine the research question, a multiple linear regression was conducted to assess if independent variable Digital Financial Services, Digital Literacy, and Financial Literacy predict dependent variable Financial Behavior(Savings, Borrowings, and Investing). A multiple linear regression assesses the relationship among a set of nominal, ordinal, or interval/ratio predictor variables on an interval/ratio criterion variable. The following regression equation (main effects model) will be used: Savings behavior, Borrowing Behavior, Investing Behavior = B1*Digital Financial Services 1 + B2*Digital Literacy 2 + B3*Financial Literacy 3 + … + B0, where the Bs are the unstandardized beta coefficients.

The Baron and Kenny (1986) approach to moderation through regression analysis is used to examine if a moderating variable moderates the relationship between an independent variable and a dependent variable. In the first step, a simple effects model was created using linear regression with financial behavior (savings, borrowing, and investing) as the outcome variable and digital financial services as the predictor variable. In the second step, a non-interaction model was created by adding the owner's characteristics, digital literacy, and financial literacy to the predictor in the linear model in step 1 (simple effects model). In the third step, an interaction model was created by adding the interaction between Digital Financial Services and the moderating variables to the predictors in the linear model in step 2 (non-interaction model). Assumptions for linear regression analysis were conducted for the step 3 model (interaction model).

Scale items of each variable were checked for reliability using Cronbach's alpha. The Cronbach's alpha coefficient was evaluated using the guidelines suggested by George and Mallery (2018) where > .9 is excellent, > .8 is good, > .7 is acceptable, > .6 is questionable, > .5 is poor, and ≤ .5 is unacceptable.

Table 1. Reliability Table for Digital Financial Services.

Scale	No. of Items	α	Lower Bound	Upper Bound
Digital Financial Services	7	.89	.88	.90

Scale	No. of Items	α	Lower Bound	Upper Bound
Digital Literacy	10	.92	.91	.92
Financial Literacy	5	.78	.75	.80
Saving Behavior	8	.73	.70	.75
Borrowing Behavior	9	.80	.78	.82
Investing Behavior	9	.89	.88	.90

Note. The lower and upper bounds of Cronbach's α were calculated using a 95.00% confidence interval.

Table **1** presents the results of the reliability analysis. The items for Digital Financial Services, Digital Literacy, Financial Literacy, Savings Behavior, Borrowing Behavior, and Investing Behavior had a Cronbach's alpha coefficient of greater than .70, indicating acceptable reliability.

RESULTS

Table 2. Frequency Table for Nominal Variables.

Variable	*n*	%	Variable	*n*	%
Gender			**Educational Attainment**		
Female	425	63	Post graduate	73	11
Male	250	37	College(level or graduate)	539	80
Missing	0	0.00	Highschool(level or graduate)	63	9
			Missing	0	0.00
Age			**Marital Status**		
35 to 44	133	20	Single	344	51
45 to 54	113	17	Married	310	46
25 to 34	163	24	Widow	10	1
75 or older	4	1	Separated	11	2
18 to 24	202	30	Missing	0	0.00
55 to 64	50	7			
65 to 74	10	1			
Missing	0	0.00			
Business Category			**Industry**		
Microenterprise (Capitalization of P1-3,000,000)	425	63	Distribution and Retail	217	32
Small Enterprise (Capitalization of P3,000,001-15,000,000)	155	23	Food and hospitality related services	173	26
Medium Enterprise (Capitalization of P15,000,001-P100,0000)	95	14	Financial	12	2
Missing	0	0.00	Agriculture	19	3
Age of business			Non-food related services	36	5
Over 10 years	142	21	Manufacturing	37	5
>2-5 years	167	25	Education	9	1
1-2 years	279	41	Others	172	26
>5-10 years	87	13	Missing	0	0.00
Missing	0	0.00			

Note. Due to rounding errors, percentages may not equal 100%.

Frequencies and percentages are presented in Table 2. The most frequently observed category of gender was female (n = 425, 62.96%). The most frequently observed category of educational attainment was college (level or graduate) (n = 539, 79.85%). The most frequently observed age category was 18 to 24 (n = 202, 29.93%). The most frequently observed category of marital status was single (n = 344, 50.96%). The most frequently observed category within the business category was microenterprise (capitalization of P1-3,000,000) (n = 425, 62.96%). The most frequently observed category of industry was distribution and retail (n = 217, or 32.15%). The most frequently observed category of age of business was 1-2 years (n = 279, 41.33%).

Table 3. Pearson Correlation Results Among Digital Financial Services, Digital Literacy, Financial Literacy, Financial Behavior: Saving, Borrow, and Investing.

Variable		Digital Financial Services	Digital Literacy	Financial Literacy	Saving	Borrow	Investing
1. Digital Financial Services	Pearson's r	—					
	p-value	—					
2. Digital Lit	Pearson's r	0.625	—				
	p-value	< .001	—				
3. Fin Literacy	Pearson's r	0.204	0.220	—			
	p-value	< .001	< .001	—			
4. Saving	Pearson's r	0.126	0.132	0.254	—		
	p-value	0.001	< .001	< .001	—		
5. Bor-	Pearson's	-0.059	-0.055	-0.174	-0.011	—	

Variable		Digital Financial Services	Digital Literacy	Financial Literacy	Saving	Borrow	Investing
rowing	r						
	p-value	0.124	0.151	< .001	0.775	—	
6. Invest-ing	Pearson's r	0.145	0.172	0.120	0.169	0.122	—
	p-value	< .001	< .001	0.002	< .001	0.002	—

Note. p-values adjusted using the Holm correction.

The result of the correlations in Table **3** was examined using the Holm correction to adjust for multiple comparisons based on an alpha value of .05. A significant positive correlation was observed between Digital Financial Services, Digital Literacy, Financial Literacy, Savings, Borrowing, and Investing behavior. This suggests that as Digital Financial Services increase, Digital Literacy, Financial Literacy, Savings, Borrowing, and Investing behavior tend to increase as well. This indicates a strength in the linear association between two or more continuous variables (Cohen,1988).

Table 4. Results for Linear Regression with Digital Financial Services, Digital Literacy, and Financial Literacy predicting Saving behavior.

Variable	*B*	*SE*	95.00% CI	β	*t*	*p*
(Intercept)	1.66	0.11	[1.45, 1.87]	0.00	15.54	< .001
Digital Financial Services	-0.009	0.03	[-0.06, 0.04]	-0.02	-0.35	.730
Digital Literacy	0.11	0.03	[0.05, 0.17]	0.19	3.66	< .001
Financial Literacy	0.27	0.03	[0.21, 0.32]	0.35	9.68	< .001

Note. Results: F(3,671) = 51.48, p < .001, R2 = .19

Unstandardized Regression Equation: Saving behavior = 1.66 - 0.009*Digital Financial Services + 0.11*Digital Literacy + 0.27*Financial Literacy.

A linear regression analysis was conducted to assess whether digital financial services, digital literacy, and financial literacy significantly predicted saving behavior. The linear regression model results in Table **4** were significant; F (3,671) = 51.48, p.001, R2 =.19, indicating that digital financial services, digital literacy, and financial literacy explain approximately 18.71% of the variance in saving behavior. Saving behavior was not significantly predicted by digital financial services; B =-0.009, t(671) =-0.35, p =.730.Based on this sample, a one-unit increase in digital financial services does not have a significant effect on saving behavior. The result rejects the argument that digital financial services influence the financial behavior of MSME owners. Saving behavior was significantly predicted by digital literacy, B = 0.11, t(671) = 3.66, p.001.This indicates that on average, a one-unit increase in digital literacy will increase the value of saving behavior by 0.11 units. Financial Literacy significantly predicted Saving behavior, B = 0.27, t(671) = 9.68, p < .001. This indicates that on average, a one-unit increase in financial literacy will increase the value of saving behavior by 0.27 units. The result fails to reject the argument that digital and financial literacy influence the financial behavior of MSME owners.

Table 5. Results for Linear Regression with Digital Financial Services, Digital Literacy, and Financial Literacy predicting Borrowing behavior.

Variable	*B*	*SE*	95.00% CI	β	*t*	*p*
(Intercept)	2.61	0.16	[2.30, 2.92]	0.00	16.72	< .001
Digital Financial Services	-0.06	0.04	[-0.13, 0.01]	-0.09	-1.60	.110
Digital Literacy	0.05	0.04	[-0.03, 0.14]	0.07	1.26	.206
Financial Literacy	-0.24	0.04	[-0.32, -0.16]	-0.23	-6.02	< .001

A linear regression analysis presented in Table 5 was conducted to assess whether digital financial services, digital literacy, and financial literacy significantly predicted borrowing behavior. The result of the linear regression model were significant; F (3,671) = 13.98, p.001, R2 =.06, indicating that digital financial services, digital literacy, and financial literacy explain approximately 5.88% of the variance in borrowing behavior. Digital Financial Services did not predict borrowing behavior significantly: B = -0.06, t(671) =-1.60, p =.110. Based on this sample, a one-unit increase in digital financial services does not have a significant effect on borrowing behavior. Borrowing behavior was not significantly predicted by digital literacy; B = 0.05, t(671) = 1.26, p =.206. Based on this sample, a one-unit increase in digital literacy does not have a significant effect on borrowing behavior. Financial literacy predicted borrowing behavior significantly, B = -0.24, t(671) =-6.02, p.001.This indicates that, on average, a one-unit increase in financial literacy will decrease the value of borrowing behavior by 0.24 units.

Table 6. Moderation Analysis Table with Financial Behavior Predicted by Digital Financial Services Moderated by Gender

Predictor	B	SE	β	t	p
Step 1: Simple Effects Model					
(Intercept)	2.14	0.05	39.25		< .001
Digital Financial Services	0.06	0.02	0.14	3.72	< .001
Step 2: Non-Interaction Model					
(Intercept)	2.06	0.05	38.09		< .001
Digital Financial Services	0.07	0.02	0.15	4.09	< .001
Gender-Male	0.17	0.03	0.24	6.56	< .001
Step 3: Interaction Model					
(Intercept)		2.27	0.02	143.18	< .001
Digital Financial Services	0.04	0.02	0.09	2.01	.045

Gender-Male	0.17	0.03	0.24	6.61	< .001
DigFinServ:Gender-Male	0.07	0.03	0.09	2.02	.044

Moderation analysis was conducted to assess if Gender moderated the relationship between Digital Financial Services and Financial behavior. Mean centering was used for Digital Financial Services. The results of the simple, non-interaction, and interaction models are presented in Table **3**. Gender-Male significantly moderated the effect Digital Financial Services had on Financial Behavior based on an alpha of .05, B = 0.07, t(671) = 2.02, p = .044. This suggests that moving from the Female to Male category of Gender will cause a 0.07 increase in the slope of Financial Behavior on Digital Financial Services. Moderation analysis conducted to other characteristics did not significantly moderate the effect on Financial Behavior. The result failed to reject the argument that owner's characteristic, specifically the gender, moderates the relationship between digital financial services and financial behavior.

Table 7. Moderation Analysis Table with Saving behavior Predicted by Digital Financial Services Moderated by Digital Literacy.

Predictor	***B***	***SE***	**β**	***t***	***p***
Step 1: Simple Effects Model					
(Intercept)	2.67	0.06		46.79	<.001
Digital Financial Services	0.10	0.02	0.20	5.41	<.001
Step 2: Non-Interaction Model					
(Intercept)	2.50	0.07		37.27	< .001
Digital Financial Services	0.002	0.03	0.004	0.08	.937
Digital Literacy	0.15	0.03	0.27	4.81	<.001
Step 3: Interaction Model					
(Intercept)	2.95	0.02		183.07	< .001
Digital Financial Services	0.008	0.03	0.02	0.28	.777
Digital Literacy Digital Literacy	0.17	0.03	0.29	5.15	< .001
DigFinServ:Digital_Lit	0.05	0.03	0.08	1.99	.047

Moderation analysis was conducted to assess if Digital Literacy moderated the relationship between Digital Financial Services and Saving behavior. The results of the simple, non-interaction, and interaction models are presented in Table 7. Table 7 compares the non-interaction model to the interaction model. The Alpha =.05, B = 0.05, t(671) = 1.99, p =.047 indicate that Digital Literacy significantly moderated the impact of Digital Financial Services on Saving behavior. The partial F-test, F(1,671) = 3.96, p =.047, indicates that the interaction model explained significantly more variance than the non-interaction model based on an alpha value of.05. The result explains a significantly greater variance of Digital Financial Services on Savings behavior when moderated by Digital literacy. The result failed to reject the argument that digital literacy moderates the relationship between digital financial services and financial behavior specifically on savings behavior.

Table 8. Moderation Analysis Table with Investing behavior Predicted by Digital Financial Services Moderated by Financial Literacy

Predictor	***B***	***SE***	**β**	***t***	***p***
Step 1: Simple Effects Model					
(Intercept)	1.87	0.10		17.99	< .001
Digital Financial Services	0.15	0.03	0.18	4.64	<.001
Step 2: Non-Interaction Model					
(Intercept)	1.34	0.20		6.54	< .001
Digital Financial Services	0.13	0.03	0.15	3.89	< .001
Financial Literacy	0.16	0.05	0.11	2.96	.003
Step 3: Interaction Model					
(Intercept)	2.32	0.03		92.46	< .001
Digital Financial Services	0.13	0.03	0.15	3.88	< .001
Financial Literacy	0.22	0.06	0.16	3.68	< .001
DigFinServ:FinLiteracy	0.16	0.07	0.10	2.35	.019

Moderation analysis was conducted to assess if Financial Literacy moderated the relationship between Digital Financial Services and Investing behavior. Mean centering was used for Digital Financial Services and Financial Literacy. The results of the simple, non-interaction, and interaction models are presented in Table 8. Table 8 presents a comparison of the non-interaction and interaction models. Financial Literacy significantly moderated the effect Digital Financial Services had on Investing behavior based on an alpha of .05, B = 0.16, t(671) = 2.35, p = .019. The partial F-test, F(1,671) = 5.54, p = .019, indicated that the interaction model explained significantly more variance compared to the non-interaction model based on an alpha of .05. The result failed to reject the argument that financial literacy moderates the relationship between digital financial services and financial behavior. The moderation analysis of insignificant variables was omitted from these results.

DISCUSSION

This study examines the impact of digital financial services on micro, small, and medium-sized enterprise (MSME) owners to explain the disparity between the increase in digital financial services and the decrease in MSMEs' savings and financing. The researcher investigated the moderating effect of digital and financial literacy on the relationship between digital financial services and the financial behavior of MSME owners. On the basis of the findings of the study, it is asserted that digital financial services do not have a significant influence on the financial behavior of the owners of

MSMEs. Despite a rise in the use of digital financial services, business owners' savings, borrowing, and investment have not been stimulated. The result is supported by Lyons et al. (2021), who asserted that while fintech development may lead to an increase in the usage of digital financial services, it may not necessarily lead to an increase in savings and borrowing. Several possible explanations for the study's outcome can be drawn from the literature. On the one hand, digital financial services are utilized for purposes other than saving, borrowing, and investing. According to the OECD (2021), small and medium-sized enterprises (SMEs) primarily utilize digital technologies for basic services. Because of this, digital financial services have become an alternative mobility for business transactions, providing convenience, an expanded network, and a cost-effective platform. However, business owners have committed to using it for productivity rather than financial purposes. Additionally, it can be assumed that digital financial services are not fully utilized by owners for savings, borrowing, and investment. This argument is supported by Ozili (2018), who argues that despite the benefits of financial technology, financial inclusion and digital finance have not yet reached a substantial portion of the population, resulting in disparities in the availability, accessibility, and utilization of funds.

On the other hand, financial behavior may be drawn from the inner motivation of the owners and not from the influence of financial technology. For instance, according to the theory of perceived behavioral control, the owners' financial behavior is not based on the ease of doing it but on their ability to make decisions based on their ability and capacity. This notion is in agreement with Kijkasiwat (2021), who argues that a person's behavior depends on behavioral intention, increased effort, and persistence in order to achieve a desired outcome. Moreover, operational, mental, social, epistemic, and conditional values can influence the financing decisions of SME owners regarding savings, credit, and investment, according to Rakshit et al., (2021). This context of the theory poses another possible explanation for why digital financial services did not predict the savings, borrowing, and investing behavior of MSME owners.

On the moderating effect of digital and financial literacy, the study found that digital literacy increased the effect of digital financial services on the saving behavior of MSME owners, whereas financial literacy increased the effect of digital financial services on the investing behavior of MSME owners. According to the study, both digital and financial literacy are factors in the financing decisions of the owners. The results of this study concur with Thung et al. (2012) that financial literacy is a significant factor in an individual's savings behavior. However, the results suggest that financial literacy has no significant impact on the effect of digital financial services on the savings behavior of MSME owners. This implies that financial literacy is not a factor to enhance the relationship between digital financial services and the savings behavior of the owners. In contrast, the study indicates that digital literacy moderates the relationship between digital financial services and savings behavior. The result suggests that the convenience of utilizing digital financial services may increase owners' initiative to save due to their familiarity with and skills in using the technology.

In addition, the findings demonstrated the moderating effect of financial literacy on the investment behavior of business owners. The result is consistent with Umar's (2013) assertion that the rapid development of financial technology has been linked to an increase in investment, but only if the owners utilize the technology. While financial literacy has a direct influence on the financial behavior of MSME owners, it enhances further the impact of digital financial services on the investment behavior of MSME owners.

Surprisingly, digital financial services have no significant effect on their owners' borrowing behavior. The result contradicts Yue et al., who claimed that credit has grown in tandem with the expansion of digital platforms. While the government is increasing opportunities for MSMEs to obtain affordable financing, it is argued that digital financial services have failed to spur the initiative to increase their capital through financing. The process of loan extension is a potential explanation for this behavior. It appears that digital financial services have not fully systematized the process. This argument contradicts Luo et al., (2021) and Sheng (2021), who contend that digital finance alleviates credit constraints due to the availability of online consumer credit. As Hodula (2021) argued, digital credit platforms can supplement traditional bank credit by meeting credit demand that banks are unable to meet. This may not have been accomplished by many financial institutions.

IMPACT OF THE STUDY

Development in financial technology accelerates and plays a crucial role in enhancing financial access and utilization (Dorfleitner and Roble, 2018). It is anticipated that the flow of funds among MSMEs will increase due to the convenience of digital financial services. However, according to the statistics, digital financial services have not contributed to the flow of funds in terms of participation by micro, small, and medium-sized enterprises. The result of the study poses a very challenging disposition about enhancing the flow of funds through digital financial services. Seemingly, the motivation of utilizing digital financial services is to expand productivity and has failed to put into balance the savings, financing, and investing of capital. The failure of digital financial services to stimulate savings, borrowing, and investing may affect the efficiency of the financial system considering the substantial contribution of MSMEs. Since MSMEs contribute a significant proportion of the industry, their participation in the efficiency of the financial system may support the development of the economy.

CONCLUSION

The widespread adoption of convenient digital financial services is expected to increase the flow of capital among micro, small, and medium-sized enterprises. The study aims to substantiate the disparity in the utilization of funds through digital financial services. While financial technology has expanded opportunities for productivity and efficient movement of funds through digital financial services, the result of the study poses a substantial explanation for why there seems to be an imbalance between the use of digital financial services and the saving, borrowing, and investment of MSME owners. Based on the result of the study, digital financial

services have no significant impact on the financial behavior of MSME owners. Digital financial services are primarily utilized to digitize business transactions, such as online payments and purchases. The moderating effect of digital and financial literacy suggests that digital financial services can significantly stimulate the saving, borrowing, and investing behaviors of MSME owners. Digital literacy increased the effect of digital financial services on the saving behavior of MSME owners, while financial literacy increased the effect of digital financial services on the investing behavior of MSME owners. According to the study, owners' financing decisions are influenced by both digital and financial literacy.

RECOMMENDATION

To address the challenges posed by the disparity in the use of digital financial services, it is recommended to revisit the access to finance process and incorporate digitalization into the loan application processing and initiate programs to increase savings and investment. Banks and other financial institutions may highlight savings using digital financial services instead of encouraging payments and spending. Giving motivation to invest and save through expanded financial technology may help MSME owners manage their finances efficiently.

LIMITATIONS OF THE STUDY

The researcher failed to include spending as one of the financial behaviors of MSME owners. This may provide a balanced picture of the owner's savings and spending behavior, demonstrating the MSME owners' greater emphasis on financial management.

CONFLICT OF INTEREST

There is no conflict of interest to be disclosed.

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