

THE ROLE OF FINANCIAL LITERACY ON FINANCIAL TECHNOLOGY FOR WOMEN ENTREPRENEURS IN INDONESIA

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Abstract: *This study explores the role of financial literacy on technology for women entrepreneurs in Indonesia mainly focused on mobile banking and blockchain technology. Utilizing a correlational research design, data were collected from a sample of 386 women entrepreneurs through a self-constructed Likert-scale questionnaire. The analysis was conducted using path analysis techniques. The findings reveal that financial literacy significantly relationship with mobile payment. Specifically, the direct effect of financial literacy and blockchain technology application was significant. These results underscore the importance of financial literacy in enhancing the effectiveness of mobile payment and blockchain technology application. The study emphasizes the need for comprehensive financial literacy programs to maximize the benefits of technological advancements in the financial sector. Empirical evidence from related literature supports the findings, indicating that higher financial literacy enables better utilization of mobile payment and blockchain technology application. The research provides valuable insights for policymakers and educational institutions aiming to improve financial literacy and leverage mobile payment and blockchain technology application for financial management of women entrepreneurs.*

Keywords: *Financial literacy, Mobile Payment, Blockchain.*

Introduction

The transformation of the financial system can be seen in particular from the role of Financial Technologies in driving systemic change. This transformation of the financial system is developing from a traditional model to a new business model driven by digitalization and financial technology. In Indonesia, the majority of the population, around 64.8%, is now connected to the internet (Pratomo, 2019), so this can be a consideration for the business world, especially small and micro businesses to utilize digital banking services. Although mobile banking and internet banking are widely available, there is a large gap in their utilization, especially among women entrepreneurs. Women entrepreneurs in micro and small businesses tend to have lower levels of education and knowledge regarding digital financial tools, thus preventing them from adopting mobile banking services (Nugroho & Chowdhury, 2015).

The application of financial technology is increasingly important for small and micro entrepreneurs, especially in the context of technological advances in the financial sector (Nugroho et al., 2019). This technology can be in the form of mobile payments and blockchain. This technology has become an important tool for small and micro entrepreneurs in Indonesia, with technological advances in the financial sector having a very important impact on business growth and sustainability (Nugroho et al., 2019). One of the financial technologies used is digital banking services. This service can be used for mobile payments. Nowadays these services are more accessible and offer many benefits for entrepreneurs. However, despite the growth of mobile payment systems, adoption remains very low, especially among women entrepreneurs.

The expanding of Blockchain business applications will becomes more accessible and cost-effective, particularly with the emergence of blockchain-as-a-service (BaaS). Often termed a secure decentralized ledger, blockchain facilitates sequential, peer-to-peer transactions without third-party intervention (Liang et al., 2021). Blockchain offers supply chains the potential to enable trusted entities to safeguard their operations from malicious actors and enhance overall performance. This is the enterprise or permissioned blockchain, an advanced iteration of public blockchains featuring new standards for representing transactions on blocks and governing rules for transactions, which remain immutable; however, access to the network is restricted to authorized individuals (Shen, Dong and Minner, 2022). Enterprise or permissioned blockchains are particularly advantageous for delivering supply chain information to designated participants with varying record and access privileges (Agi and Jha, 2022). They are additionally employed to deter counterfeiting (Pun, Swaminathan and Hou, 2021) as an access layer can be integrated into the network to regulate and manage access while validating blocks. Carson et al. (2018) examined over 90 blockchain use cases across several industries, revealing that immediate applications of blockchain focus on cost reduction in current processes by eliminating intermediaries and decreasing related record-keeping administrative expenses.

Understanding the financial literacy is important for the successful adoption of financial technology systems, particularly for women entrepreneurs. Empowering entrepreneurs with the necessary knowledge financial management tools can lead to greater business efficiency, reduced risks, and improved market reach. Women entrepreneurs in Indonesia presents a clear example of this issue, where socialization programs about financial technology have shown that women entrepreneurs are less likely to use mobile payments compared to their male counterparts, largely due to lower financial literacy levels (Nugroho et al., 2019).

There is a clear gap in understanding how financial literacy simultaneously influences the adoption of both mobile payment and blockchain technologies among women entrepreneurs in

Indonesia. Addressing this gap is critical for developing integrated strategies that promote effective and inclusive FinTech adoption.

This study aims to fill this gap by examining the relationship between financial literacy and the adoption of mobile payment and blockchain technologies among women entrepreneurs in Indonesia. The findings aim to highlight how financial literacy influences mobile payment and blockchain, and to identify strategies for financial literacy to make a decision about mobile payment and blockchain systems as a tool for economic empowerment and growth.

Literature Review

Financial Technology (FinTech) Transformation in the Financial System

The global financial system is undergoing a profound transformation fueled by the rapid advancement of Financial Technologies (FinTech), which are reshaping traditional financial services into more digital, accessible, and efficient models (Gomber, Koch, & Siering, 2018). In Indonesia, this transformation is especially relevant due to rising internet penetration, which reached about 64.8% of the population in 2019 (Pratomo, 2019). Such connectivity creates opportunities for digital financial inclusion, particularly for small and micro enterprises (Philippon, 2016). Innovations like mobile payments, digital banking, and blockchain technology are central to this shift, enabling new business models and financial ecosystems that challenge conventional financial infrastructure (Arner, Barberis, & Buckley, 2016). According to Chen & Nath, (2008) Mobile payment is electronic payment methods in transactions utilizing electronic devices. Typically, mobile payments are categorized into three platforms such as QR Code, One Time Password (OTP), dan Near-Field Communication (NFC) (Johnson et al., 2021). Mobile Payment refers to the method of paying for products or services via a mobile device, such as a smartphone, that utilizes wireless technology and other communication technologies (Dahlberg, Mallat, & Öörni, 2003).

Blockchain is one of financial technology that common in Indonesia. Blockchain a "social" technology because data is stored in a dispersed network of nodes owned by multiple stakeholders who must agree on how it should be accessed, validated, and recorded. The specified, encoded blockchain rules govern the information exchanges and verifications among the nodes. Public permissionless blockchains are almost impossible to tamper with, but permissioned blockchains can be (Zheng et al., 2017). Either additional legal agreements about cooperation, signed by the stakeholders, such as organizations using blockchain, or predefined encoded rewards - cryptographical tokens - through which stakeholders benefit from transacting and/or using blockchain, guarantee the motivation to transact (Zheng et al., 2017).

A cryptographical token is defined as "a string of characters used as an asset type (e.g., cryptocurrency) or unique asset (e.g., personalized usage rights)" (Sunyaev et al., 2021, p. 457) can also help all network players share and distribute rewards and benefits (Freni et al., 2022). Theoretically, a token is a unit of value that can be present in any kind of blockchain. In reality, public permissioned blockchains seldom ever have them, and tokens are mostly utilized in public permissionless blockchains; private permissioned and private permissionless blockchain networks often have neither a token nor token-supported stakeholder connectedness. Consequently, while public permissionless blockchains theoretically promise decentralized connectivity enabled solely by code-based rules, private, public, and permissioned blockchains only enable semi-centralized and distributed connectivity instead of providing decentralized connectivity (Zheng et al., 2017).

Financial literacy

The concept of financial literacy has gained significant attention in both developed and developing countries due to its crucial role in ensuring the effective management of personal finances and the success of micro and small businesses. Financial literacy can be defined as the ability to understand and apply various financial concepts, including managing financial resources, budgeting, investing, and making informed decisions regarding money management (Anshika & Singla, 2022). According to Susan (2020), financial literacy includes five key areas: understanding financial concepts, the ability to communicate financial information, the importance of personal financial management, decision-making abilities, and confidence in planning for future financial needs. These aspects are particularly important for micro-business entrepreneurs, as they help them manage their businesses' finances, make informed decisions, and mitigate financial risks.

Hypothesis Development

Financial literacy as determinant of mobile payment utilization

One of the most critical digital tools for modern entrepreneurs is mobile payments, which have revolutionized how small businesses manage transactions. Mobile payments allow entrepreneurs to conduct business transactions more efficiently, reduce operational costs, and reach broader markets through digital platforms (Sivaramakrishnan et al., 2017). However, the successful adoption of mobile payments among women entrepreneurs often depends on their level of financial literacy. Women entrepreneurs, particularly in developing economies, tend to face higher barriers to financial literacy due to lower levels of education, socio-cultural factors, and access to information (Chaudhry & Nosheen, 2009). As mobile payment platforms become increasingly essential in managing business finances, it is crucial that women entrepreneurs possess the financial literacy needed to evaluate and use these tools effectively.

Women with higher financial literacy are more likely to understand the benefits of mobile payment systems, use them for business transactions, and access new markets (Oggero et al., 2020). Conversely, women with lower financial literacy often struggle to understand the full range of digital financial tools available, which limits their ability to grow their businesses and improve financial management (Nugroho & Chowdhury, 2015). This gap in financial literacy can contribute to the digital divide, where women entrepreneurs are less likely to benefit from the efficiency and cost-effectiveness offered by mobile payment systems. Supported by this evidence, the following hypothesis is proposed:

H1: Financial literacy positively impacts to mobile payment

Financial literacy as determinant of blockchain utilization

Limited prior study has addressed financial literacy in relation to blockchain technology. Numerous studies, like Yau and Wong (2021), elucidate the transformational potential of amalgamating gamification with blockchain technology to enhance financial literacy teaching. Yau and Wong (2021) conducted research aimed at increasing global financial literacy, especially in developing regions. This research shows that financial literacy can utilize advanced technological approaches to create cost-effective and attractive educational tools, which significantly improve financial management skills and knowledge among the community.

Using technology to get rid of information asymmetry and make credit evaluation much better makes the credit gap much bigger. This is especially true for small and medium-sized firms owned and run by women (Kumar et al., 2023). Blockchain technology also makes supply chain processes more transparent and efficient, which makes it easier to trace and verify branded women's products. This helps to make sure that products produced by women entrepreneurs are sourced ethically and not copied (Nwariaku et al., 2024). This technology lets firms work together better and respond more quickly to changes in the market, which helps build trust and adaptability (Thakur, 2023). Radosav et al. (2022) assert that distributed ledger technology could enable asset tokenization, allowing for fractional ownership and thereby expanding financial access for female entrepreneurs.

Women entrepreneurs can trust complicated international exchanges with worldwide partners since the data and numbers they collect can be shared throughout any international supply chain (Sunmola et al., 2025). Bahnas et al. (2024) assert that decentralized architectures reduce the risks linked to single points of failure, hence enhancing the resilience and accessibility of critical infrastructure for entrepreneurs. In recent years, there has been more interest in investigating blockchain technology beyond its first usage in digital currency. This is especially true in areas like education and supply chain management where powerful, unbackable systems are needed (Shuvo & Islam, 2023). This is especially true in places where blockchain technology was first used for digital currencies.

This underlines the important role financial literacy plays in adopting modern technology making it more accessible. In related research, Hasan et al. (2021) investigated analyzing the correlation between individuals' financial knowledge and their access to financial products and services. These findings highlight that increasing financial literacy significantly increases access to financial technology, with significant effects observed for variables such as employment, income level, and basic understanding of banking operations. This research shows that comprehensive financial education is critical for poverty alleviation and economic growth in developing countries.

These studies collectively emphasize the important convergence between innovative technology and financial literacy in advancing financial inclusion. They focus on the importance of tailored educational initiatives and the incorporation of technology in increasing financial literacy and accessibility, which are critical factors in economic progress and personal financial empowerment. The way forward requires additional investigation into the application of blockchain technology and gamification to develop more effective financial education tools, ultimately increasing global financial literacy. Supported by this evidence, the following hypothesis is proposed:

H2: Financial literacy positively impacts Blockchain

Methodology

Sampling Data Collection

This study was conducted to examine the elements that influence mobile payment and blockchain. The financial literacy, as independent variables. This study is an explanation study, which means it evaluates accepted hypotheses. This study used a quantitative approach that included survey techniques.

In quantitative research, each variable is first measured using indicators before being analysed. Since there are 19 indicators in this study, 386 participants are required for a valid sample. employing purposive sampling as a sample method. This study uses women entrepreneurs as its sample population. Women entrepreneurs are a phenomenon in Indonesia, where increasing the number of women entrepreneurs is the most expedient approach to enhance the economy of Indonesia. In order to investigate the women entrepreneurship development, we will first investigate women entrepreneurs operating on a scale ranging from tiny to large. Therefore, the focus of this research is on micro, small, and medium-sized enterprises.

A questionnaire instrument was utilized to gather data, and it was created using the indicators mentioned in earlier studies. All the construct questionnaires employed rensis Likert invented a Likert scale, which was used in this study to combine the data collected from the women entrepreneur through a questionnaire. Each possible response in the questionnaire that will be distributed has a measuring scale. Five response options on the Likert scale indicate how much you agree with the questions posed. 5-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Table 1: Construct of Questionnaire

Construct		Source
5 point Likert scale		
Mobile Payment (Y1)	1: Mobile payment is easy to use	Chen (2018)
	2: Mobile payment gives me up-to-date information	Festa et al. (2022)
	3: Individuals whose viewpoints I respect, prefer that I use mobile payment	
	4: Mobile payment is convenient because I can use it anytime	
	5: Compared to traditional payment methods, mobile payment methods are more convenient	
Blockchain (Y2)	1: Blockchain technology improves transparency	Chen (2018)
	2: Blockchain technology increases trust	Festa et al. (2022)
	3: Blockchain technology reduces risk	
	4: Blockchain technology reduces transaction costs	
	5: Blockchain technology ensures a fast payment	
	6 : Blockchain technology ensures a secure payment	
Financial Literacy (X)	1: I Use authorized, arranged overdraft or line of credit	Swiecka (2019);
	2: Take out a business loan from legal financial service provider	Andriamahery and Qamruzzaman (2022)
	3: I understand the cost and interest of business loan	
	4: Before signing a financial contract, I carefully read its contents	
	5: I know how to seek information for managing my financial	
	6: I have considered my actions in business	
	7: I have sensitivity to risk for my financial future	
	8: I have entrepreneurial behaviour	

Data Analysis

SEM data analysis methods are consistent with the conceptual framework that was established before. The PLS analysis tool is utilized in the SEM study. SEM is employed to evaluate the relationships between the variables, test the hypotheses, and assess the fit of the proposed model. SEM allows for the analysis of both direct effects between the observed variables (financial literacy) and the latent variable (mobile payment and blockchain). The analysis is conducted using PLS software, which is widely used for SEM modelling. The study will first perform a Descriptive Analysis that offers a summary of key demographic data collected from the women entrepreneurs who responded. Next, a Reliability Analysis is undertaken in which Cronbach's alpha is computed to evaluate how consistently each item works within the overall measurement scale. Finally, a Structural Equation Model (SEM) Analysis is carried out, incorporating model testing, hypothesis evaluation, and an assessment of the model's global goodness of fit.

Findings And Discussions

Findings

An overview of the respondents' demographic characteristics is provided in Table 2. These individuals took part in this research. The respondents are women entrepreneur which have business in MSMEs scale. The types of businesses owned include those in the fields of trading business and services business such as restaurant, saloon, laundry etc. For the purpose of gaining an insight of the respondents' backgrounds, a sample frequency distribution was carried out. The respondents' age, level of education, and marital status, were included in this study. The majority of the respondents were aged from 17 to 30 years old (54%), 31 to 44 years old were 31%, 45 to 58 years old were 12% and the minority were greater than 58 years old each accounting for 3% of the respondents. While the female respondents accounted for the all who participated in this study and answered the questionnaire.

The finding also revealed that a higher percentage of respondent's level of education were bachelor degree, and above (43%) senior high school level while the same point (4%) for junior high school and master degree level of education.

Table 2: Demographic Profile of Respondents

Profile	Frequency N=386	Percentage percent	Cumulative percent
Age			
17-30	208	54	54
31-44	119	31	85
45-58	46	12	97
> 58	13	3	100
Education			
Junior high school	15	4	4
Senior high school	167	43	47
Bachelor's Degree	187	49	96
Master	17	4	100
Marital Status			
Single	265	68.65	68.65

Married	103	26.69	95.34
Widow	18	4.66	100

The results of validity and reliability analyses

The model was further examined in terms of reliability and validity. Table 3 presents composite reliability of each construct. Item reliability was evaluated with standard factor loadings and the values of each loading range between 0.706 and 0.827. All factor loadings were above the suggested value (0.5 or ideally 0.7; Hair et al., 2006). Therefore, item reliability was satisfactory. High reliability shows that all the observed variables under a certain latent construct consistently represent the construct, indicating that internal consistency exists among the variables (Hair et al., 2006). All the values are greater than 0.7, and thus composite reliability was satisfactory (Hair et al., 2006).

Construct validity was examined with regard to convergent validity and discriminant validity (Table 4). Measuring construct validity is critical since construct validity demonstrates whether all indicators actually reflect the latent construct (Hair et al., 2006). Convergent validity indicates if the measured items of a certain construct share a high proportion of explained variance, whereas discriminant validity evaluates whether one construct is truly distinguishable from the other (Hair et al., 2006). Average variance extracted (AVE) was used to evaluate convergent validity. All the values ranged between 0.557 and 0.586 and thus supported good convergent validity since the values were above the suggested value (i.e., 0.5).

Table 3: Composite Reliability Value

	Standardized Factor Loading	Cronbach's Alpha	Composite Reliability
M1	0.716	0.823	0.876
M2	0.739		
M3	0.755		
M4	0.827		
M5	0.784		
B1	0.723	0.852	0.890
B2	0.760		
B3	0.762		
B4	0.733		
B5	0.780		
B6	0.790		
F1	0.743	0.886	0.910
F2	0.706		
F3	0.717		
F4	0.735		
F5	0.757		
F6	0.773		
F7	0.772		
F8	0.766		

Table 4: Average Extracted Variance (AVE)

	Average Variance Extracted (AVE)
Blockchain	0.575
Financial literacy	0.557
Mobile Payment	0.586

The result of structural equation modelling

In evaluating the path coefficient between the constructs, the two stage approaches has been utilized as suggested by Hair et al (2014). After utilizing the PLS algorithm, bootstrapping run to achieve t-values and significance level for each hypotheses path of the model. The structural relationship between exogenous and endogenous constructs are shown in Table 5. The result of bootstrapping (Table 5) shows financial literacy indicate that positive, t-value = 18.806, p-value=0.000 and significant impact on to mobile payment. The t-value and p-value bootstrapping routine using Smart PLS3 with single-tailed test, a significance level of 0.05. hence, the result showed to support the hypothesis 1. This indicates that women entrepreneurs who have good financial literacy are more likely to adopt mobile payment.

Similar to effect of financial literacy and mobile payment, H2 also supported because the result of bootstrapping (Table 5) shows financial literacy indicate that positive, t-value = 20.164, p-value=0.000 and significant impact on blockchain. The women entrepreneurs who have good financial literacy are willing to adopt blockchain.

Table 5: Structure Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Financial literacy -> Mobile Payment	0.627	0.633	0.031	20.164	0.000
Financial literacy -> Blockchain	0.672	0.674	0.036	18.806	0.000

Discussions

This study aimed to examine the relationship between financial literacy and the adoption of mobile payment and blockchain among MSMEs women entrepreneurs, in Indonesia. Analysis results suggest that financial literacy positively and significantly impacts the adoption of mobile payments. Demonstrating a path coefficient of the relationship between financial literacy and mobile payment adoption shows a strong path coefficient (O = 0.627, t = 20.164, p = 0.000). The results presented that financial literacy factors were statistically significant on mobile payment. This figure represents a considerable influence that supports Xu & Zia (2012) claim that who highlight that financially literate individuals are more likely to participate in digital financial services.

To be specific, financial literacy conscious women entrepreneurs are more likely to adopt mobile payment. The results are consistent with previous studies that examined financial literacy of women entrepreneurs to use of mobile payment (Nugroho & Chowdhury, 2015; Oggero et al., 2020). Women show a stronger bend than men toward using digital-pay platforms (Lusardi et al., 2017; Meyll & Walter, 2019; Scheresberg et al., 2020). The same pattern holds for mobile banking, whose use rises noticeably as people post higher scores on financial-literacy exams. Better money know-how thus softens many of the risks tied to mobile pay (Lusardi et

al., 2017; Yakoboski et al., 2018), and our data mirror that trend by linking wider digital uptake to stronger literacy. Women business leaders who understand finance are less likely to let new payment tools harm their wallets. Overall, women turned out to be the heaviest users of both online and mobile pay services (Seldal & Nyhus, 2022). That finding is puzzling because much prior work reports the opposite for mobile apps (Gerpott & Meinert, 2017; Lusardi et al., 2017; Meyll & Walter, 2019; Scheresberg et al., 2020; Yakoboski et al., 2018). The contrast may stem from polling in one of the world's most digitally advanced and gender-equal countries (WEF, 2016, 2020), implying that Indonesian women now command skills that exceed those of many U.S. peers.

Financial literacy was also positively related to blockchain as hypothesized. The link connecting financial literacy to blockchain adoption is notably strong ($O = 0.672$), with a t-statistic of 18.806 and a p-value of 0.000, indicating a statistically significant effect. This suggests that individuals with higher levels of financial knowledge are more likely to engage with complex technologies such as blockchain. This finding aligns with previous research showing that financial literacy enhances an individual's capacity to understand and adopt emerging financial technologies (OECD, 2020; Lusardi & Mitchell, 2014). The results were consistent with Yau and Wong (2021) findings that women entrepreneurs perceive financial literacy as a means to enhance their blockchain adopting. Combining financial literacy with blockchain can increase user confidence and safety in adopting blockchain and decentralized financial services (Glaser et al., 2017). The blockchain technology was pilot projects include lowering operational expenses, reducing payment processing times, mitigating risks, exploring new revenue prospects, and decreasing capital costs. Several factors and forces act as strong drivers of new business starts (Morkunas et al. 2019). Studies show that rising use of financial technology feeds the trend, mainly because these tools reduce dependence on physical cash (Humbani & Wiese, 2018; Kumari & Khanna, 2017).

In summary, these findings underscore the importance of digital literacy in fostering engagement with financial technologies. Users possessing relevant financial knowledge are trained to make informed decisions but also possess adaptability towards new technological changes in finance. Therefore, harnessing technology for educational purposes will widen participation as fintech becomes more embedded into everyday life (OECD, 2020; Lusardi, 2019).

Conclusion

This study aimed to investigate the relationship between financial literacy and mobile payment, financial literacy and blockchain technology among women entrepreneurs in Indonesia. The findings indicate that financial literacy are positively associated with more effective use of both mobile payment systems and blockchain technology. These results suggest that enhancing financial literacy may play a key role in facilitating better understanding and utilization of these emerging financial technologies especially mobile payment and blockchain. The results underscore the potential value of targeted financial literacy of women entrepreneurs in Indonesia aimed at improving broader strategies to enhance technology adoption in the financial sector. It could inform policymakers and educators to provide the best financial literacy for women entrepreneurs. So, the women entrepreneurs easy to maximize the benefits of mobile payment and blockchain technology.

This study is limited to aspects of financial literacy that are not yet specific, so it is not yet clear which aspects are most impactful, and which educational approaches are most effective across

different demographic and cultural settings. It is hoped that further research can better inform policymakers and educators who seek to maximize the benefits of mobile payments and blockchain technology through informed and inclusive financial education programs.

References

- Agi, M. A. N., & Jha, A. K. (2022). Blockchain technology in the supply chain: An integrated theoretical perspective of organizational adoption. *International Journal of Production Economics*, 247, 108458.
- Andriamahery, A., & Qamruzzaman, M. (2022). Do Access to Finance, Technical Know-How, and Financial Literacy Offer Women Empowerment Through Women's Entrepreneurial Development? *Frontiers in Psychology*, 12(January), 1–16.
- Anshika, A., & Singla, A. (2022). Financial literacy of entrepreneurs: A systematic review. *Managerial Finance*, 48(9/10), 1352–1371.
- Arner, D. W., Barberis, J., & Buckley, R. P. (2016). The evolution of fintech: A new post-crisis paradigm? *Georgetown Journal of International Law*, 47, 1271–1319.
- Bahnas, N., Adel, K., Khallaf, R., & Elhakeem, A. (2024). Monitoring and controlling engineering projects with blockchain-base.pdf.
- Carson, B., Romanelli, G., Walsh, P., & Zhumaev, A. (2018). Blockchain beyond the hype: What is the strategic business value. McKinsey & Company. [insights/blockchain-beyond-the-hype-what-is-the-strategic-business-value](https://www.mckinsey.com/industries/blockchain/insights/blockchain-beyond-the-hype-what-is-the-strategic-business-value).
- Chaudhry, M., & Nosheen, F. (2009). Financial literacy among youth: Evidence from Pakistan. *International Journal of Business and Management*, 4(5), 163–171.
- Chen, L., & Nath, R. (2008). Mobile payment acceptance model: A case of mobile credit card. *International Journal of Mobile Communications*, 6(1), 32–52.
- Chen, Y. (2018). Blockchain tokens and the potential democratization of entrepreneurship and innovation. *Business Horizons*, 61(4), 567–575.
- Dahlberg, T., Mallat, N., & Öörni, A. (2003). Consumer acceptance of mobile payment solutions: An exploratory study. *Proceedings of the 36th Annual Hawaii International Conference on System Sciences*.
- Festa, Giuseppe, Sihem Elbahri, Maria Teresa Cuomo, Mario Ossorio, and Matteo Rossi. (2022). FinTech ecosystem as influ-encer of young entrepreneurial intentions: Empirical findings from Tunisia. *Journal of Intellectual Capital*.
- Freni, P., Ferro, E., & Moncada, R. (2022). Tokenomics and blockchain tokens: A design-oriented morphological framework. *Blockchain: Research and Applications*, 3(1), 100069.
- Gerpott, T. J., & Meinert, J. (2017). Financial literacy and retirement planning: Evidence from Germany. *Journal of Pension Economics & Finance*, 16(4), 451–474.
- Glaser, F., Zimmermann, K., Haferkorn, M., Weber, M. C., & Siering, M. (2017). Bitcoin—Asset or currency? Revealing users' hidden intentions. *Proceedings of the 25th European Conference on Information Systems (ECIS)*.
- Gomber, P., Koch, J. A., & Siering, M. (2018). Digital finance and fintech: Current research and future research directions. *Journal of Business Economics*, 87(5), 537–580.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Pearson Prentice Hall.
- Hasan, M., Le, T., & Hoque, A. (2021). How does financial literacy impact on inclusive finance? *Financial Innovation*, 7(1), 40.
- Humbani, M., & Wiese, M. (2018). Financial literacy and financial behavior of small business owners. *Journal of Developmental Entrepreneurship*, 23(1), 1850012.
- Johnson, L. (2021). Cross-border payment systems in Europe: The impact of blockchain. *European Journal of Financial Studies*, 32(2), 98–115.

- Kumar, D., Phani, B. V., Chilamkurti, N., Saurabh, S., & Ratten, V. (2023). Filling the SME credit gap: a systematic review of blockchain-based SME finance literature [Review of Filling the SME credit gap: a systematic review of blockchain-based SME finance literature].
- Kumari, N., & Khanna, P. (2017). The impact of financial literacy on savings: Evidence from India. *International Journal of Economics and Financial Issues*, 7(4), 66–70.
- Liang, T.-P., Kohli, R., Huang, H.-C., & Li, Z.-L. (2021). What drives the adoption of the blockchain technology? A fit-viability perspective. *Journal of Management Information Systems*, 38(2), 314–337.
- Lusardi, A. (2019). Financial literacy and the need for financial education: Evidence and implications. *Swiss Journal of Economics and Statistics*, 155(1), 1–8.
- Lusardi, A., de Bassa Scheresberg, C., & Hasler, A. (2017). Millennial mobile payment users: A look into their personal finances and financial behaviors. GFLEC Insights Report. Global Financial Literacy Excellence Center, The George Washington University.
- Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44.
- Meyll, T., & Walter, A. (2019). Financial literacy and financial behavior: Evidence from a German sample. *Journal of Consumer Affairs*, 53(1), 52–83.
- Morkunas, V. J., Paschen, J., & Boon, E. (2019). How blockchain technologies impact your business model. *Business Horizons*, 62(3), 295–306.
- Nugroho, L., Hidayat, N., Badawi, A., & Ali, A. J. (2019). Socialization of mobile banking and internet banking for micro and small entrepreneur (Gender and business sector perspective–Kemayoran Night Market Community). *ICCD*, 2(1), 419–426.
- Nwariaku, H., Fadojutimi, B., Lawson, L. G. L., Agbelusi, J., Adigun, O. A., Udom, J. A., & Olajide, T. D. (2024). Blockchain technology as an enabler of transparency and efficiency in sustainable supply chains. *International Journal of Science and Research Archive*, 12(2), 1779.
- OECD. (2020). Financial literacy and the digitalisation of financial services. OECD Publishing.
- Oggero, N., Rossi, M. C., & Ughetto, E. (2020). Entrepreneurial spirits in women and men: The role of financial literacy and digital skills. *Small Business Economics*, 55, 313–327.
- Philippon, T. (2016). The fintech opportunity (NBER Working Paper No. 22476). National Bureau of Economic Research.
- Pratomo, Y. (2019, May). APJII: Jumlah pengguna Internet di Indonesia tembus 171 juta jiwa. *Kompas*. <https://tekno.kompas.com/read/2019/05/17/19380027/apjii--jumlah-pengguna-internet-di-indonesia-tembus-171-juta-jiwa>
- Pun, H., Swaminathan, J. M., & Hou, P. (2021). Blockchain adoption for combating deceptive counterfeits. *Production and Operations Management*, 30(4), 864–882.
- Radosav, D., Berković, I., Slavić, A., Čockalo, D., Bakator, M., Milosavljev, D., Gluvakov, V., Palinkaš, I., Terek Stojanović, E., Čockalo, D., Stanisavljev, S., Kreiner, J., & József, P. (2022). Engineering Management and Competitiveness (EMC 2022) - Proceedings.
- Scheresberg, C. d. B., Hasler, A., & Lusardi, A. (2020). Millennial mobile payment users: A look into their personal finances and financial behavior (ADB Working Paper 1074). Asian Development Bank Institute.
- Seldal, S., & Nyhus, E. K. (2022). Financial literacy and financial risk-taking. *Journal of Behavioral Finance*, 23(3), 214–228. <https://doi.org/10.1080/15427560.2021.1964545>
- Shen, B., Dong, C., & Minner, S. (2022). Combating copycats in the supply chain with permissioned blockchain technology. *Production and Operations Management*, 31(1), 138–154.

- Shuvo, S. A., & Islam, M. A. (2023). Blockchain Technology: A tool to solve the challenges of education sector in developing countries. *International Journal of Computational Systems Engineering*, 7(3), 1.
- Sivaramakrishnan, S., Srivastava, M., & Rastogi, A. (2017). Attitudinal factors, financial literacy, and stock market participation. *International Journal of Bank Marketing*, 35(5), 818–841.
- Sunmola, F., Baryannis, G., Tan, A., Co, K. T., & Papadakis, E. P. (2025). Holistic Framework for Blockchain-Based Halal Compliance in Supply Chains Enabled by Artificial Intelligence. *Systems*, 13(1), 21.
- Sunyaev, A., Kannengießer, N., Beck, R., Treiblmaier, H., Lacity, M., Kranz, J., Fridgen, G., Spankowski, U., & Luckow, A. (2021). Token economy. *Business & Information Systems Engineering*, 63(4), 457–478.
- Susan, M. (2020). Financial literacy and growth of micro, small, and medium enterprises in West Java, Indonesia. In W. A. Barnett & B. S. Sergi (Eds.), *Advanced issues in the economics of emerging markets* (pp. 39–48). Emerald Publishing Limited.
- Swiecka, B. (2019). 1. A theoretical framework for financial literacy and financial education. In B. Swiecka, A. Grzesiuk, D. Korczak, & O. Wyszowska-Kaniewska (Eds.), *Financial literacy and financial education* (pp. 1–12). De Gruyter.
- Thakur, A. (2023). Market trends and analysis of blockchain technology in supply chain. *Frontiers in Blockchain*, 6.
- World Economic Forum. (2016). Networked readiness index. <http://reports.weforum.org/global-information-technology-report-2016/networked-readiness-index/>
- World Economic Forum. (2020). Global gender gap report 2020. http://www3.weforum.org/docs/WEF_GGGR_2020.pdf
- Xu, L., & Zia, B. (2012). Financial literacy around the world: An overview of the evidence with practical suggestions for the way forward (World Bank Policy Research Working Paper No. 6107).
- Yau, P. C. Y., & Wong, D. (2022). Powering financial literacy through blockchain and gamification: How digital transformation impacts fintech education. In *Lecture Notes in Networks and Systems* (Vol. 358). Springer.
- Yakoboski, P. J., Lusardi, A., & Hasler, A. (2018). Millennial financial literacy and FinTech use: Who knows what in the digital era. Teachers Insurance and Annuity Association of America – Institute (TIAA Institute).
- Zheng, Z., Xie, S., Dai, H., Chen, X., & Wang, H. (2017, June). An overview of blockchain technology: Architecture, consensus, and future trends. In *2017 IEEE International Congress on Big Data (BigData Congress)* (pp. 557–564).