BIM Proceedings
Bali International Meeting on Business, Advanced engineering, and Leadership sustainability Impact
BIM University
DOI: 10.xxxxxxxxxxxxxxxxxxxx/

The Influence of Digital Financial Literacy and Risk Perception on Personal Cash Management Decisions Using QRIS: The Moderating Role of Age

Ni Ketut Linda Aryani[1]
[1]Master of Management Program, Faculty of Economics and Business, Universitas Udayana, Denpasar, Indonesia

e-mail: lindaaryani0606@gmail.com

Abstract

This paper looks at the way digital financial literacy and perceived risk relate to cash management among QRIS users in Denpasar City. It also considers whether these relationships differ with age. QRIS makes everyday payments quick and convenient. That convenience, however, can make small purchases easier to overlook and may leave users with less sense of how much they have spent. The analysis is informed by Behavioral Finance, particularly the payment method effect, and focuses on behavior after QRIS has been adopted rather than on the intention to adopt it. A quantitative explanatory design is illustrated with simulated data for 135 Denpasar residents. All respondents are at least 17 years old and had made no fewer than three QRIS payments in the preceding month. Direct effects and age interactions are estimated through Partial Least Squares Structural Equation Modeling. In the simulated estimates, better digital financial literacy is associated with better cash management. Perceived risk has a positive association as well: users who recognize possible transaction and spending problems tend to act more carefully. The two associations are stronger among older respondents. The paper therefore brings financial discipline into the discussion of digital payments and points to a practical need for education and safeguards that suit users at different stages of life.

Keywords: *age moderation, digital financial literacy, personal cash management, QRIS, risk perception*

INTRODUCTION

Indonesia's payment landscape has altered noticeably as internet access, smartphone ownership, and online commerce have expanded. QRIS is one visible part of that change. By allowing customers to pay through a common code across financial platforms, it has become familiar at shops, eateries, tourism businesses, and small enterprises throughout Denpasar. For many residents, using QRIS is no longer an occasional alternative to cash. It is part of the ordinary routine of paying for goods and services, with consequences for how spending is noticed and managed.

Convenience is not financially neutral. With cash, a buyer sees the notes leave their hand; a QRIS payment reduces that physical cue to a few taps on a screen. Behavioral Finance describes the discomfort attached to parting with money as the pain of paying. When that discomfort is muted, the cost of a purchase may feel less immediate. Several small payments can then accumulate without drawing much attention. Impulse purchases become easier, a budget is more readily stretched, and the user may only recognize the total outflow after checking the account. The ability to pay digitally must therefore be accompanied by habits that keep spending visible.

Copyright © 2026, the Author.

DOI: 10.xxxxxxxxxxxxxxxxxxxx/

Research on QRIS and other financial technologies has mostly asked why consumers start using them. Perceived usefulness, convenience, trust, and ease of use consequently appear often in adoption models. That body of work explains an important first decision, but it says less about the habits that follow. Once QRIS is used routinely, the more immediate question is whether users still monitor frequent outflows, keep to a budget, and recognize when convenient payment begins to encourage unnecessary spending.

Digital financial literacy offers one possible explanation for differences in those habits. A person may know how to open an application and scan a code without understanding the fees, the transaction record, or the security implications. More capable users know where to find past payments, secure their PIN and password, and question a code that looks unusual. Such knowledge gives them information they can use before and after a purchase. Perceived risk works from a different direction. Worry about fraud, exposed personal data, a failed transfer, or an unexpectedly high balance reduction can prompt a user to slow down and check. It may discourage adoption in some circumstances, but among existing users it can also encourage care.

Age is relevant because familiarity with technology and experience in managing money do not always develop at the same pace. A younger user may move through a payment application with little hesitation and still be susceptible to promotions or spontaneous purchases. An older user may need more time with the technical steps but approach the purchase itself with greater caution. These tendencies are not universal, yet they provide a reason to expect age to change how knowledge and risk awareness are reflected in cash-management decisions.

The analysis therefore addresses two questions. First, are digital financial literacy and risk perception related to the way Denpasar's QRIS users manage personal cash? Second, does age alter either relationship? Framing the problem in this way places attention on conduct after adoption. It may also give regulators and payment providers a firmer basis for deciding which educational messages and protective features are useful for younger and older users.

METHOD

This study uses a quantitative explanatory design to examine the relationships between digital financial literacy, risk perception, and personal cash management, with age included as a moderating variable. Denpasar City was selected as the research setting because QRIS is widely used and has become part of many residents' everyday transactions.

The target population comprises active QRIS users who live in Denpasar City. Because there is no single sampling frame that identifies all QRIS users in the city, respondents are selected through purposive sampling. To qualify, respondents must be at least 17 years old, live in Denpasar, have used QRIS through mobile banking or an e-wallet at least three times during the previous month, and use it for personal purchases. For this manuscript, a simulated dataset of 135 respondents was prepared to illustrate the planned empirical model and analytical procedure.

Responses are obtained through an online questionnaire with five answer points, from strongly disagree to strongly agree. Screening items appear first, followed by questions on respondent background and the three study constructs. The digital financial literacy items ask whether a respondent understands QRIS functions and charges, checks earlier transactions, protects login credentials, and can notice a questionable QR code. Items for perceived risk cover security, privacy, system failure, overspending, and the practice of verifying a payment. Cash management is represented by budgeting, reviewing records, resisting unplanned purchases, setting spending priorities, and controlling account top-ups. Age is obtained from year of birth, converted into years, and entered into the model as a ratio-scale moderator.

Copyright © 2026, the Author.

DOI: 10.xxxxxxxxxxxxxxxxxxxx/

SmartPLS is used to estimate the PLS-SEM model. The analysis first describes the respondents and their answers. It then checks whether the indicators adequately represent their constructs by examining convergent validity, discriminant validity, and reliability. After that, the structural relationships are assessed from collinearity statistics, path estimates, explained variance, effect sizes, and predictive relevance. Two product terms (age with digital financial literacy and age with risk perception) are added to test moderation.

Table 1. Research Variables and Indicators

Variable	Definition	Main Indicators	Scale	Variable
Digital Financial Literacy (X1)	Ability to understand and use digital financial features effectively and securely	Technical understanding, fee awareness, transaction monitoring, security behavior, fraud detection	Likert 1-5	Digital Financial Literacy (X1)
Risk Perception (X2)	Subjective assessment of potential losses and uncertainty in QRIS use	Security risk, privacy risk, system risk, overspending concern, verification habit	Likert 1-5	Risk Perception (X2)
Personal Cash Management (Y)	Actual behavior in planning and controlling daily cash inflows and outflows	Budgeting, record checking, impulse control, spending priority, top-up management	Likert 1-5	Personal Cash Management (Y)
Age (M)	Chronological age reflecting life-cycle stage and financial maturity	Year of birth converted into age	Ratio	Age (M)

RESULTS AND DISCUSSION

The results reported in this section are based on the simulated dataset and are included to show how the proposed model would be analyzed and interpreted in a conference paper. They should be read as an illustration of the analytical framework, not as a substitute for findings from actual fieldwork.

Descriptive Results

The simulated sample includes 135 respondents. The largest group is aged 17-28 years, which is consistent with the generally high familiarity of younger consumers with QRIS. Respondents use both e-wallets and mobile banking, although e-wallets are slightly more common as their main QRIS payment method.

Table 2. Simulated Respondent Profile

Category	Frequency	Percentage
Age 17-28 years	62	45.9
Age 29-44 years	46	34.1

Copyright © 2026, the Author.

DOI: 10.xxxxxxxxxxxxxxxxxxxx/

Age >44 years	27	20.0
E-wallet as main QRIS tool	74	54.8
Mobile banking as main QRIS tool	61	45.2

The mean for digital financial literacy is 4.12 in the simulated data. Respondents thus tend to give favorable assessments of their knowledge of QRIS, attention to security, and use of payment records. Perceived risk averages 3.89. Concern about digital transactions is present, although it is not especially high. Personal cash management has a mean of 3.97. On average, respondents describe themselves as fairly careful with money, but the score also leaves room for lapses in spending control.

Measurement Model Evaluation

The simulated measurement results meet the stated cutoffs. Indicator loadings fall between 0.712 and 0.861, while every construct records an Average Variance Extracted above 0.50. Internal consistency is also adequate: none of the Composite Reliability or Cronbach's Alpha values falls below 0.70.

Table 3. Simulated Validity and Reliability Results

Construct	AVE	CR	Alpha	Status
Digital Financial Literacy	0.621	0.891	0.847	Reliable
Risk Perception	0.603	0.883	0.834	Reliable
Personal Cash Management	0.644	0.900	0.861	Reliable

The simulated structural model meets the required quality criteria. All collinearity values are below 5.00. The R-square for personal cash management is 0.587, showing that digital financial literacy, risk perception, age, and the interaction terms account for 58.7 percent of its variance. The model therefore has moderate explanatory power.

Hypothesis Testing

The estimated coefficient from digital financial literacy to personal cash management is 0.341 ($t = 4.226$; $p < 0.001$). In the simulated sample, respondents with higher literacy scores also tend to report closer monitoring of payments, firmer control over purchases, and more careful handling of digital balances. This does not mean that knowledge automatically produces restraint. It does, however, indicate that users are better placed to manage cash when they understand the information and controls available in the payment application.

Perceived risk produces a coefficient of 0.287 ($t = 3.514$; $p = 0.001$), which is positive and statistically significant in the simulation. Respondents who are alert to fraud, data privacy, technical errors, and the possibility of overspending report more cautious cash management. Here, risk awareness appears to work as a checkpoint during payment. It can lead the user to confirm the merchant and amount, inspect the completed transaction, or abandon a purchase that is not necessary.

Copyright © 2026, the Author.

DOI: 10.xxxxxxxxxxxxxxxxxxxx/

The interaction between age and digital financial literacy is positive (beta = 0.156; t = 2.281; p = 0.023). The simulated pattern implies that literacy is more strongly associated with cash management at higher ages. A similar pattern is found for perceived risk: its interaction with age is 0.173 (t = 2.467; p = 0.014). Thus, older respondents appear to act on what they know about risk more consistently than younger respondents.

Table 4. Simulated Structural Model Results

Relationship	Beta	t-value	p-value	Decision
X1 -> Y	0.341	4.226	0.000	Supported
X2 -> Y	0.287	3.514	0.001	Supported
X1*M -> Y	0.156	2.281	0.023	Supported
X2*M -> Y	0.173	2.467	0.014	Supported

Discussion

Taken together, the simulated results suggest that QRIS-related financial behavior depends on both what users know and how they perceive risk. Knowing how to scan a QR code is only a basic technical skill. To manage their finances well, users also need to understand fees, review transaction records, protect account access, and notice patterns in their own spending. The positive relationship between digital financial literacy and cash management supports the view that these practical capabilities help users remain disciplined when payments are quick and less tangible.

The perceived-risk result also changes how risk can be understood once QRIS is already part of a person's routine. At that stage, some concern can be useful. It gives the user a reason to confirm payment details and look again at the remaining balance. The age interactions point to another practical distinction. Technical confidence among younger users does not necessarily protect them from spontaneous buying. Older users, meanwhile, appear more inclined to apply both financial knowledge and caution when deciding whether to spend.

A single financial-education message is therefore unlikely to suit all QRIS users. Younger users may respond better to immediate cues, such as a running total of daily spending, a clear payment history, budget limits, or a brief pause before certain purchases. For older users, straightforward instructions should be paired with visible information about privacy, transaction security, and the steps to take when a payment fails or looks suspicious.

CONCLUSION

This paper examines digital financial literacy, perceived risk, and personal cash management among QRIS users in Denpasar, with age included as a moderator. In the simulated results, literacy is positively related to budgeting, payment review, and spending control. Perceived risk is also positively related to cash management. Awareness of a possible error, security breach, or unnecessary purchase seems to give users a reason to check before proceeding. Both associations are stronger at higher ages, which suggests that older respondents make more consistent use of their knowledge and caution.

The study shifts attention from the decision to adopt QRIS toward the financial habits that develop after adoption. It also shows the value of considering age when designing financial education and digital payment features. Since the results in this manuscript are simulated, they need to be tested with data collected from QRIS users in the field. Future studies could also compare cities, age groups, or patterns of QRIS use to determine whether the same relationships

Copyright © 2026, the Author.

DOI: 10.xxxxxxxxxxxxxxxxxxxx/

hold in different settings.

ACKNOWLEDGEMENTS

The author thanks the academic supervisor, the Master of Management Program at Universitas Udayana, and everyone who supported the preparation of this manuscript.

REFERENCES

[1] A. Akhmal and M. Lutviani, "Model Perilaku Pengguna Aplikasi QRIS dan Hubungannya Terhadap Impulsive Buying," *Jurnal Lentera Bisnis*, vol. 13, no. 2, pp. 150-165, 2024.
[2] S. Anisah and E. Amaniyah, "Pengaruh Literasi Keuangan, Risiko Transaksi dan Kemudahan Terhadap Minat Penggunaan QRIS Pada UMKM," *Journal of Accounting and Finance Management*, vol. 5, no. 1, pp. 22-35, 2024.
[3] Bank Indonesia, *Laporan Perekonomian Provinsi Bali Februari 2024*, Bali: Kantor Perwakilan Bank Indonesia Provinsi Bali, 2024.
[4] R. Chandra, "Digital Payment Adoption in Southeast Asia," *Journal of Fintech Studies*, vol. 5, no. 2, pp. 44-59, 2024.
[5] M. S. Featherman and P. A. Pavlou, "Predicting e-services adoption: A perceived risk facets perspective," *International Journal of Human-Computer Studies*, vol. 59, no. 4, pp. 451-474, 2003.
[6] Fitriyani and Y. H. Afrizal, "Use of Cashless Payment and Its Implications for Impulsive Buying: Examining Consumer Behavior Patterns in the Digital Era in E-Commerce," *Jurnal Sentralisasi*, vol. 13, no. 1, pp. 45-58, 2024.
[7] I. Ghozali and H. Latan, *Partial Least Squares: Konsep, Teknik dan Aplikasi menggunakan Program SmartPLS 3.0 untuk Penelitian Empiris*, Semarang: Badan Penerbit Universitas Diponegoro, 2021.
[8] J. F. Hair, G. T. M. Hult, C. M. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, 2nd ed., Thousand Oaks, CA: Sage Publications, 2019.
[9] A. F. Hayes, *Introduction to Mediation, Moderation, and Conditional Process Analysis*, 2nd ed., New York, NY: Guilford Press, 2020.
[10] A. Kurniawan, "Adoption Barriers of QRIS in Indonesian Traditional Markets," *Indonesian Journal of Economics*, vol. 12, no. 1, pp. 22-35, 2024.
[11] K. T. Kustina, N. P. A. Sulasmi, P. P. R. A. Dewi, and G. D. Prena, "Perilaku Keuangan Generasi Milenial di Kota Denpasar: Pengaruh Literasi Keuangan, Adopsi Fintech Payment, Impulsive Buying dan Financial Self Efficacy," *Jurnal KRISNA: Kumpulan Riset Akuntansi*, vol. 16, no. 2, pp. 200-215, 2025.
[12] OECD, *OECD/INFE 2020 International Survey of Adult Financial Literacy*, Paris: OECD Publishing, 2020.
[13] D. Prelec and G. Loewenstein, "The red and the black: Mental accounting of savings and debt," *Marketing Science*, vol. 17, no. 1, pp. 4-28, 1998.
[14] M. W. Putra, "Pengaruh Perceived Benefits dan Trust Terhadap Minat Menggunakan QRIS dengan Financial Literacy sebagai Variabel Moderasi pada Gen X dan Generasi Milenial," *Jurnal Cendekia Ilmiah*, vol. 3, no. 2, pp. 112-125, 2024.
[15] A. Rahman, "Age Factors and Fintech Usage in Indonesia," *Journal of Consumer Studies*, vol. 4, no. 2, pp. 33-48, 2023.
[16] S. Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*, Bandung: Alfabeta, 2019.
[17] S. Wijaya, "Technology Acceptance Model in QRIS Adoption," *Journal of Business Innovation*, vol. 11, no. 1, pp. 66-80, 2023.
[18] D. Wulandari and P. Surya, "Security Perception and Trust in QR Payment Adoption," *Journal of Electronic Commerce Review*, vol. 8, no. 1, pp. 72-89, 2024.

Copyright © 2026, the Author.