



# DIGITAL FINANCIAL ADOPTION STRATEGY MODERATED BY FINANCIAL LITERACY AT BPR SYARIAH IN EAST JAVA

By

Putri Septi Naulina Hasibuan<sup>1</sup>, Aminullah Assagaf<sup>2</sup>, Sri Handini<sup>3</sup>

<sup>1,2,3</sup>Department of Management Doctoral Program, Universitas Dr. Soetomo, Surabaya

Email: <sup>1</sup>[putriseptinaulina@gmail.com](mailto:putriseptinaulina@gmail.com), <sup>2</sup>[aminullah@unitomo.ac.id](mailto:aminullah@unitomo.ac.id), <sup>3</sup>[srihandini@unitomo.ac.id](mailto:srihandini@unitomo.ac.id)

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## ABSTRACT

The use of technology in the banking sector through Financial Technology (digital finance) is expected to provide convenience in services for the public. However, its implementation still faces challenges due to the low level of public understanding regarding digital finance and investment. This study aims to analyse the influence of risk, ease of use, usefulness, and benefits on attitudes toward the use and adoption of digital finance, with financial literacy as a moderating variable. This quantitative research involved 180 respondents who are customers of BPR Syariah, selected using purposive sampling and the Slovin formula. Data were collected through questionnaires and analysed using SEM-PLS. The results indicate that risk has a negative effect, while ease of use, usefulness, and benefits have positive effects on attitudes toward the use and adoption of digital finance. Nevertheless, attitudes toward the use of digital finance do not significantly affect adoption, and financial literacy is not proven to moderate the relationship. These findings highlight that ease of use, usefulness, and benefits are more dominant factors in encouraging the use of digital finance compared to financial literacy itself.

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## Corresponding Author:

Putri Septi Naulina Hasibuan,

Department of Management Doctoral Program, Universitas Dr. Soetomo

Semolowaru Road, No. 84, Sukolilo Distric, Surabaya City, 60118, Indonesia.

Email: [putriseptinaulinahasibuan@gmail.com](mailto:putriseptinaulinahasibuan@gmail.com)

## 1. INTRODUCTION

The rapid development of technology has significantly transformed the banking industry, shifting from conventional face-to-face services to digital-based services accessible anytime and anywhere (Fajria, 2019). One major innovation is Financial Technology (Fintech) or digital finance, defined by Bank Indonesia (PBI No. 19/12/PBI/2020) as the use of technology in financial systems to generate new products, services, or business models that influence monetary stability, the financial system, and payment efficiency. Fintech not only broadens financial access but also reduces operational costs, enhances efficiency, and accelerates service transformation (Rahmawati et al., 2020).

In the context of Islamic banking, collaboration between BPR Syariah and fintech firms has been expanding, aligned with OJK's initiatives to strengthen financial inclusion in the Islamic finance sector (Octaviano & Mahadi, 2022). Fintech also reaches underserved segments of the market, such as through crowdfunding and peer-to-peer lending services (Cupian & Akbar, 2020). In Indonesia, the value of Islamic digital financial services has reached IDR 41.7 trillion, placing Indonesia fifth globally (Global Islamic Fintech Report, 2021).

Nevertheless, the utilisation of fintech has not been fully accompanied by adequate financial literacy. The 2022 National Survey on Financial Literacy and Inclusion (SNLIK) recorded a financial literacy index of only 49.68%, far below the financial inclusion index of 85.10%. This shows that although financial access is increasing, many people still lack sufficient understanding of risks, benefits, and governance of digital finance (Pratiwi & Saefullah, 2022). This gap presents challenges for BPR Syariah, particularly in East Java, which has 25 BPRS (Purmadani, 2023) and plays a crucial role in MSME financing, Islamic financial education, and digital service development.

Previous studies have shown mixed results regarding factors influencing digital finance adoption. Risk has been found to significantly affect adoption (Wijaya & Susilawati, 2021; Meyliana et al., 2019), while some studies reported negative correlations (Ming et al., 2020). Perceived benefits have been shown to positively influence adoption (Effendy, 2020; Gupta et al., 2023), while user attitudes are influenced by ease of use and usefulness (Winarto, 2022; Baraba & Mahmudi, 2023). Moreover, financial literacy may strengthen the relationship between attitudes and digital finance adoption (Martini et al., 2022).

Based on these considerations, this research is entitled “Digital Finance Adoption Strategy Moderated by Financial Literacy in BPR Syariah of East Java”, with the following objectives: (1) to analyze the effects of risk, ease of use, usefulness, and benefits on attitudes toward digital finance; (2) to examine the effects of risk, ease of use, usefulness, benefits, and attitudes on digital finance adoption; and (3) to test the moderating role of financial literacy in the relationship between user attitudes and digital finance adoption in BPR Syariah of East Java.

Strategic management is the process of integrating strategy formulation, implementation, and evaluation to achieve organisational goals (Fadhli, 2020).

Functional strategy emphasises coordination across organisational functions (marketing, finance, HR, IT) to support business strategy (Pearce & Robinson, 2013).

Risk is a subjective belief about the likelihood of incurring losses in using a product or service (Hasan et al., 2021). Indicators: high risk level, high uncertainty, and lower benefits compared to traditional services (Jain & Raman, 2022).

Ease of use refers to the perception that technology is easy to learn, use, and access (Widiyanti, 2020). Indicators: easy to learn, simplifies tasks, increases user intention, and is easy to operate (Arta & Azizah, 2020).

Perceived usefulness is the belief that technology provides real benefits (Chairunnisah et al., 2021). Indicators: speeds up work, improves performance, increases productivity, effectiveness, makes tasks easier, and is useful (Putra & Husna, 2019).

Benefits are the continuous advantages perceived from technology usage (Ardiansah, 2019; Hossain & Zhou, 2019). Indicators: many advantages, fast usage, usefulness, and higher quality outcomes compared to traditional services (Jain & Raman, 2022).

Attitude consists of cognitive, affective, and conative aspects that influence behaviour (Azwar, 2021). Indicators: favourable, enjoyable, good, useful, and likeable (Ajzen, 2021).

Financial literacy is the ability to manage financial information and make decisions (Nafisah & Susanto, 2024). Indicators: understanding digital finance usage, time periods, and transaction risks (Raut, 2020).

Digital finance adoption refers to the acceptance of technology-based services to improve service quality (Alkhwaldi et al., 2022). Indicators: positive consideration, intention to continue, and future usage (Jain & Raman, 2022).

A conceptual framework is the relationship between one concept and another in the problem being researched (Setiadi, 2013). The conceptual framework for this study is as follows:

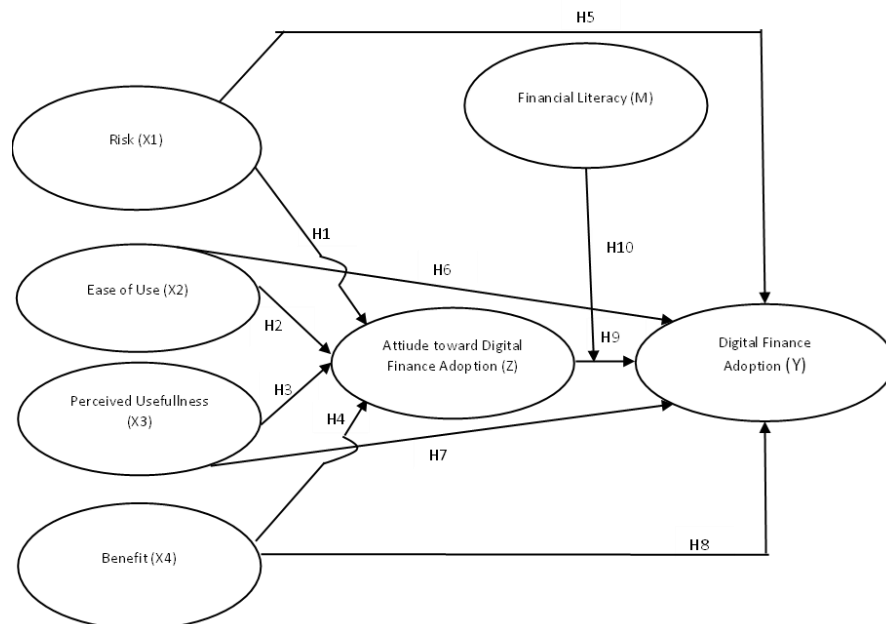


Figure 1: Conceptual Framework



Risk is perceived as the potential loss of using technology. Several studies found a significant negative effect on attitudes and adoption of digital finance (Balcazar & Angel, 2021; Baraba & Mahmudi, 2023), although different results were also reported (Pahlevi et al., 2023).

- H1: Risk affects Attitude Toward Digital Finance Usage.
- H5: Risk affects Digital Finance Adoption.

Ease of use reflects the perception that technology is easy to operate (Widiyanti, 2020). Research shows a significant positive influence on attitudes and adoption (Winarto, 2022; Natsir et al., 2023).

- H2: Ease of Use affects Attitude Toward Digital Finance Usage.
- H6: Ease of Use affects Digital Finance Adoption.

Usefulness relates to the belief that technology improves performance (Putra & Husna, 2019). Previous studies found a significant positive effect on attitudes and adoption (Arta & Azizah, 2020; Shaikh et al., 2020).

- H3: Usefulness affects Attitude Toward Digital Finance Usage.
- H7: Usefulness affects Digital Finance Adoption.

Benefits are understood as the advantages gained from using technology. Prior studies confirmed a significant positive impact on attitudes and adoption (Leong et al., 2020; Gupta et al., 2023).

- H4: Benefits affect Attitude Toward Digital Finance Usage.
- H8: Benefits affect Digital Finance Adoption.

A positive attitude toward technology is believed to encourage adoption, although findings vary (Missiafi & Jaka, 2021; Ezenwafor et al., 2022).

- H9: Attitude Toward Digital Finance Usage affects Digital Finance Adoption.

Financial literacy provides a better understanding of decision-making (Shen et al., 2020) and can strengthen the relationship between attitude and adoption (Martini et al., 2022).

- H10: Financial Literacy moderates the effect of Attitude on Digital Finance Adoption.

## 2. RESEARCH METHOD

This study employs a quantitative approach using a Likert scale questionnaire (1–5). The population consists of 2,606,282 Islamic Rural Bank (BPR Syariah) customers in East Java (OJK, 2024), with a sample of 180 respondents determined using Slovin’s formula and purposive sampling. The variables examined include risk, ease of use, usefulness, benefits, attitude toward usage, financial literacy, and digital finance adoption. Data analysis was conducted using Structural Equation Modelling-Partial Least Squares (SEM-PLS) with SmartPLS 3.28, including validity, reliability,  $R^2$ ,  $Q^2$ , and hypothesis testing through bootstrapping.

## 3. RESULTS AND ANALYSIS

### 3.1. Convergent Validity

Table 1. Convergent Validity

| Variables        | Item  | <i>original sample estimate</i> | <i>P-Values</i> | Information |
|------------------|-------|---------------------------------|-----------------|-------------|
| Risk (X1)        | X1.1. | 0.841                           | 0,000           | Valid       |
|                  | X1.2. | 0.920                           |                 |             |
|                  | X1.3. | 0.803                           |                 |             |
| Convenience (X2) | X2.1  | 0.833                           | 0,000           | Valid       |
|                  | X2.2  | 0.836                           |                 |             |
|                  | X2.3  | 0.802                           |                 |             |
|                  | X2.4  | 0.872                           |                 |             |
| Usefulness (X3)  | X3.1  | 0.677                           | 0,000           | Valid       |
|                  | X3.2  | 0.709                           |                 |             |

| Variables   | Item | <i>original sample estimate</i> | <i>P-Values</i> | Information |
|---|------|---------------------------------|-----------------|-------------|
|   | X3.3 | 0.788                           |                 |             |
|   | X3.4 | 0.711                           |                 |             |
|   | X3.5 | 0.669                           |                 |             |
|   | X3.6 | 0.796                           |                 |             |
| Benefits (X4)   | X4.1 | 0.805                           | 0,000           | Valid       |
|   | X4.2 | 0.842                           |                 |             |
|   | X4.3 | 0.639                           |                 |             |
|   | X4.4 | 0.843                           |                 |             |
| Attitudes towards Digital Finance Usage (Z)             | Z.1  | 0.849                           | 0,000           | Valid       |
|   | Z.2  | 0.882                           |                 |             |
|   | Z.3  | 0.861                           |                 |             |
|   | Z.4  | 0.819                           |                 |             |
|   | Z.5  | 0.730                           |                 |             |
| Financial Literacy (M)                                  | Z.1  | 0.887                           | 0,000           | Valid       |
|   | Z.2  | 0.916                           |                 |             |
|   | Z.3  | 0.901                           |                 |             |
| Digital Finance Adoption (Y)                            | M.1  | 0.856                           | 0,000           | Valid       |
|   | M.2  | 0.867                           |                 |             |
|   | M.3  | 0.751                           |                 |             |
| Attitude Use Digital Finance (Z) * Literacy Finance (M) | Z*M  | 1,580                           | 0,000           | Valid       |

Convergent validity is assessed using outer loadings (loading factors). An indicator is considered valid if the original sample value > 0.60. Table 1 presents the outer loading values for each research variable indicator.

3.2. Discriminant Validity

Table 2. Discriminant Validity

| Variables                                   | <i>Average Variance Extracted (AVE)</i> |
|---|---|
| Risk (X1)                                   | 0.733                                   |
| Convenience (X2)                            | 0.699                                   |
| Usefulness (X3)                             | 0.528                                   |
| Benefits (X4)                               | 0.619                                   |
| Attitudes towards Digital Finance Usage (Z) | 0.689                                   |
| Financial Literacy (M)                      | 0.813                                   |
| Digital Finance Adoption (Y)                | 0.683                                   |
| Z*M   | 1,000                                   |

The results of the AVE value for the indicator block that measures the construct can be stated to have a good discriminant validity value because the AVE value > 0.5.

To test discriminant validity, use the mark cross-loading. An indicator is said to fulfil discriminant validity if the cross-value loading the indicator on one variable is the largest compared to the other.

Table 3. Cross Loading

|      | X1    | X2    | X3    | X4    | Z     | M     | Y     | Z*M    |
|------|-------|-------|-------|-------|-------|-------|-------|--------|
| X1.1 | 0.841 | 0.391 | 0.559 | 0.597 | 0.485 | 0.355 | 0.551 | -0.167 |
| X1.2 | 0.920 | 0.577 | 0.634 | 0.617 | 0.620 | 0.579 | 0.613 | -0.387 |
| X1.3 | 0.803 | 0.608 | 0.632 | 0.544 | 0.605 | 0.612 | 0.473 | -0.345 |



|           | X1     | X2     | X3     | X4     | Z      | M      | Y      | Z*M    |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|
| X2.1      | 0.544  | 0.833  | 0.561  | 0.565  | 0.524  | 0.568  | 0.453  | -0.114 |
| X2.2      | 0.492  | 0.836  | 0.458  | 0.409  | 0.448  | 0.590  | 0.375  | -0.257 |
| X2.3      | 0.419  | 0.802  | 0.484  | 0.432  | 0.494  | 0.542  | 0.307  | -0.233 |
| X2.4      | 0.586  | 0.872  | 0.554  | 0.506  | 0.584  | 0.724  | 0.482  | -0.392 |
| X3.1      | 0.460  | 0.547  | 0.677  | 0.496  | 0.559  | 0.522  | 0.350  | -0.234 |
| X3.2      | 0.454  | 0.503  | 0.709  | 0.503  | 0.471  | 0.417  | 0.427  | -0.096 |
| X3.3      | 0.589  | 0.579  | 0.788  | 0.657  | 0.634  | 0.642  | 0.545  | -0.375 |
| X3.4      | 0.533  | 0.344  | 0.711  | 0.509  | 0.564  | 0.448  | 0.564  | -0.300 |
| X3.5      | 0.394  | 0.325  | 0.669  | 0.562  | 0.462  | 0.468  | 0.614  | -0.322 |
| X3.6      | 0.645  | 0.427  | 0.796  | 0.640  | 0.568  | 0.467  | 0.573  | -0.231 |
| X4.1      | 0.526  | 0.352  | 0.600  | 0.805  | 0.544  | 0.386  | 0.548  | -0.219 |
| X4.2      | 0.546  | 0.424  | 0.610  | 0.842  | 0.536  | 0.410  | 0.528  | -0.184 |
| X4.3      | 0.540  | 0.585  | 0.573  | 0.639  | 0.633  | 0.699  | 0.468  | -0.431 |
| X4.4      | 0.533  | 0.446  | 0.649  | 0.843  | 0.571  | 0.493  | 0.652  | -0.227 |
| Z.1       | 0.607  | 0.570  | 0.683  | 0.594  | 0.849  | 0.743  | 0.580  | -0.460 |
| Z.2       | 0.560  | 0.476  | 0.668  | 0.638  | 0.882  | 0.697  | 0.588  | -0.516 |
| Z.3       | 0.556  | 0.591  | 0.671  | 0.617  | 0.861  | 0.714  | 0.593  | -0.402 |
| Z.4       | 0.567  | 0.520  | 0.586  | 0.643  | 0.819  | 0.624  | 0.498  | -0.219 |
| Z.5       | 0.477  | 0.386  | 0.481  | 0.533  | 0.730  | 0.499  | 0.447  | -0.202 |
| M.1       | 0.497  | 0.661  | 0.575  | 0.519  | 0.691  | 0.887  | 0.501  | -0.432 |
| M.2       | 0.580  | 0.632  | 0.610  | 0.543  | 0.757  | 0.916  | 0.604  | -0.522 |
| M.3       | 0.557  | 0.685  | 0.654  | 0.648  | 0.704  | 0.901  | 0.617  | -0.400 |
| Y1        | 0.542  | 0.400  | 0.590  | 0.539  | 0.518  | 0.540  | 0.856  | -0.386 |
| Y2        | 0.599  | 0.538  | 0.656  | 0.648  | 0.668  | 0.679  | 0.867  | -0.375 |
| Y3        | 0.425  | 0.242  | 0.510  | 0.554  | 0.409  | 0.326  | 0.751  | -0.053 |
| (Z) * (M) | -0.356 | -0.302 | -0.366 | -0.338 | -0.444 | -0.501 | -0.346 | 1,000  |

The cross-loading value in the Table above shows that each indicator in the research variable has a cross-loading value the biggest on variables that form, compared to with mark cross-loading on other variables. Based on the results obtained, it can be stated that the indicators used in the study have good discriminant validity in compiling their respective variables

### 3.3. Reliability Test

Composite Reliability is the part used to test the reliability value of indicators on a variable. A variable can be declared to meet composite reliability if it has a composite value reliability > 0.70. The following are the composite reliability values for each variable.

Test reliability with composite reliability in one can be strengthened by using the Cronbach's alpha value. A variable can be expressed reliable or fulfil Cronbach's alpha if its own Cronbach's alpha > 0.6. Following this is Composite Reliability and Cronbach's alpha for each variable:

**Table 4. Reliability Test**

| Variables        | Composite Reliability | Cronbach Alpha |
|------------------|-----------------------|----------------|
| Risk (X1)        | 0.891                 | 0.816          |
| Convenience (X2) | 0.903                 | 0.857          |
| Usefulness (X3)  | 0.870                 | 0.821          |
| Benefits (X4)    | 0.865                 | 0.789          |

| Variables                                   | Composite Reliability | Cronbach Alpha |
|---|-----------------------|----------------|
| Attitudes towards Digital Finance Usage (Z) | 0.917                 | 0.886          |
| Financial Literacy (M)                      | 0.929                 | 0.885          |
| Digital Finance Adoption (Y)                | 0.865                 | 0.768          |
| Z*M   | 1,000                 | 1,000          |

Based on the data presented in Table 4 above, it can be seen that the mark composite reliability of all variables studied is  $> 0.70$ . Results. This shows that each variable has fulfilled composite reliability, so it can be concluded that all variables are adequate in measuring variables latent/ construct that can be used in analysis. Based on the test results in the table above, the Cronbach alpha value of each research variable is  $> 0.60$ . Thus, these results show that each variable has met the requirements for the Cronbach alpha value, so it can be concluded that the variables have their own high level of reliability overall.

#### d. Normality Test

Normality test uses skewness and kurtosis as a method to determine whether the data is normally distributed or not. To determine data normality, skewness and kurtosis values must be in the range  $-2.58$  to  $2.58$ . If skewness and kurtosis values are not in the range said, then the data is not normally distributed (Ghozali, 2018). The following are the results of the normality test that have been done:

**Table 5. Normality Test**

| Variables                               | Indicator Items | Excess Kurtosis | Skewness |
|---|-----------------|-----------------|----------|
| <b>Risk (X1)</b>                        | X1.1            | -0.906          | 0.125    |
|   | X1.2            | -0.669          | -0.704   |
|   | X1.3            | -0.743          | -0.686   |
| <b>Convenience (X2)</b>                 | X2.1            | -0.932          | 0.211    |
|   | X2.2            | -0.844          | -0.665   |
|   | X2.3            | -0.771          | -0.691   |
|   | X2.4            | -1,099          | -0.634   |
| <b>Usefulness (X3)</b>                  | X3.1            | -1,027          | 0.146    |
|   | X3.2            | -0.919          | -0.629   |
|   | X3.3            | -1,019          | -0.6     |
|   | X3.4            | -0.853          | -0.609   |
|   | X3.5            | -0.756          | -0.63    |
|   | X3.6            | -0.923          | -0.626   |
| <b>Benefits (X4)</b>                    | X4.1            | -1.137          | 0.123    |
|   | X4.2            | -1,169          | -0.484   |
|   | X4.3            | -0.783          | -0.609   |
|   | X4.4            | -1.006          | -0.551   |
| <b>Attitude Use Finance Digital (Z)</b> | Z.1             | -1,399          | -0.021   |
|   | Z.2             | -0.754          | -0.86    |
|   | Z.3             | -0.694          | -0.852   |
|   | Z.4             | -0.643          | -0.849   |
|   | Z.5             | -0.702          | -0.868   |
| <b>Literacy Finance (M)</b>             | M.1             | -1.268          | -0.199   |
|   | M.2             | 0.229           | -1.195   |
|   | M.3             | 0.257           | -1,231   |
| <b>Adoption Digital Finance (Y)</b>     | Y1              | -1,342          | -0.09    |




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|    |        |        |
|----|--------|--------|
| Y2 | -0.37  | -0.98  |
| Y3 | -0.414 | -1.016 |

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Based on the results of the normality test, it can be known that the overall variables' mark skewness and kurtosis are in the range -2.58 to 2.58, so that the overall variables are normally distributed.

**e. Multicollinearity Test**

Multicollinearity test with the Variance Inflation Factor (VIF) is performed to know whether there is high correlation or perfect correlation between variables in the regression model. VIF is a measure of the amount of multicollinearity in regression analysis. The criteria for making a decision related to multicollinearity testing are that if the VIF value  $\leq 10$ , then stated that no multicollinearity happens. If the VIF value  $\geq 10.1$ , then multicollinearity is stated. The following results testing Multicollinearity that is :

**Table 6. Multicollinearity Test**

|       | VIF   |
|-------|-------|
| X1.1  | 2,337 |
| X1.2  | 2,731 |
| X1.3  | 3,010 |
| X2.1  | 2,652 |
| X2.2  | 3,952 |
| X2.3  | 3,435 |
| X2.4  | 3,784 |
| X3.1  | 2,900 |
| X3.2  | 3,455 |
| X3.3  | 3,935 |
| X3.4  | 4,012 |
| X3.5  | 3,569 |
| X3.6  | 4,357 |
| X4.1  | 2,639 |
| X4.2  | 3,660 |
| X4.3  | 3,464 |
| X4.4  | 3,913 |
| Z.1   | 2,611 |
| Z.2   | 7,142 |
| Z.3   | 5,716 |
| Z.4   | 5,524 |
| Z.5   | 6,995 |
| M.1   | 1,976 |
| M.2   | 3,612 |
| M.3   | 3,673 |
| Y1    | 2,319 |
| Y2    | 4,280 |
| Y3    | 4.114 |
| Z * M | 1,000 |

Based on the results, testing multicollinearity on the known overall indicator, own mark VIF is below 10, so there is no problem with multicollinearity.

**f. Heteroscedasticity Test**

Heteroscedasticity testing can also be used to examine the relationship between research variables. The following are the results of the Inner VIF test :

**Table 7. Inner VIF Test**

|           | Adoption Digital Finance (Y) | Attitude Use Digital Finance (Z) |
|-----------|------------------------------|----------------------------------|
| Risk (X1) | 2,486                        | 2,410                            |



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|                                  |       |       |
|----------------------------------|-------|-------|
| Convenience (X2)                 | 2,479 | 1,828 |
| Usefulness (X3)                  | 3,466 | 3,136 |
| Benefits (X4)                    | 3,038 | 2,808 |
| Attitude Use Digital Finance (Z) | 3,896 |       |
| Literacy Finance (M)             | 4,031 |       |
| Adoption Digital Finance (Y)     |       |       |
| Z*M                              | 1,375 |       |

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Based on the results of the Inner VIF test in Table 8, it can be seen that all independent variables, namely Risk (X1), Ease (X2), Usefulness (X3), and Benefits (X4) on the dependent variable Digital Finance Adoption (Y) and the mediating variable Digital Finance Usage Attitude (Z) have VIF values below the multicollinearity tolerance threshold, which is <5. This indicates that there is no high correlation between the independent variables in the model, so there is no multicollinearity problem that can interfere with the validity of the regression coefficient estimate.

Some rows in the VIF column for the Digital Finance Adoption Attitude (Z) variable appear empty, as variables such as Financial Literacy (M), the dependent variable (Y), and the moderating interaction (Z\*M) are not used as direct predictors of Z. Therefore, their VIFs are not calculated in that context. Instead, these variables only play a role in predicting the Digital Finance Adoption (Y) variable, so their VIF values are only listed in that column.

Thus, it can be concluded that this research model does not contain multicollinearity issues overall. Interpretation of the relationships between variables can be conducted without bias caused by correlations between predictors, strengthening the reliability of the structural model in explaining the influence between variables.

**g. Intervening Variable Test**

Intervening variables, also known as intermediary variables or mediators, are variables that are between independent variables ( free ) and dependent variables ( bound ) in A research. Based on results, testing the hypothesis of known influence intervening variables on connection variables independent of variables dependent, that is :

**Table 8. Intervening Test Results**

| No | Variable Relationship  | Original Sample (O) | t Statistics ( O/STDEV ) | P Value      | Results                |
|----|--|---------------------|--------------------------|--------------|------------------------|
| 1  | Risk (X1) -> Attitude Use Digital Finance (Z) -> Adoption Digital Finance (Y)                  | 0.001               | 0.016                    | 0.987        | Not Significant        |
| 2  | Ease (X2) -> Attitude Use Digital Finance (Z) -> Adoption Digital Finance (Y)                  | 0.001               | 0.018                    | 0.986        | Not Significant        |
| 3  | Usefulness (X3) -> Attitude Use Digital Finance (Z) -> Adoption Digital Finance (Y)            | 0.001               | 0.018                    | 0.985        | Not Significant        |
| 4  | <b>Benefits (X4) -&gt; Attitude Use Digital Finance (Z) -&gt; Adoption Digital Finance (Y)</b> | <b>0.001</b>        | <b>0.017</b>             | <b>0.986</b> | <b>Not Significant</b> |

**h. Inner Model Test**

In this study, the test hypothesis was tested using Partial Least Squares (PLS) analysis with the program Smart PLS. The following is the model image PLS that was submitted.



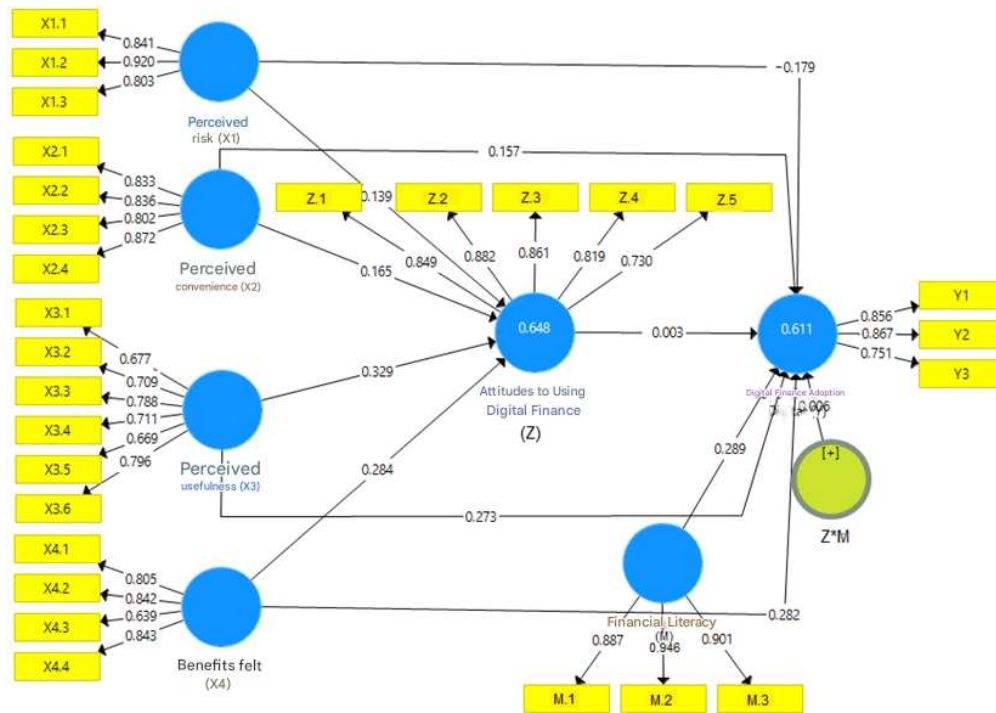


Figure 2: PLS Research Measurement

The inner weight values in Figure 2 above show that the variable Attitude towards Using Digital Finance (Z) is influenced by the variables Risk (X1), Ease (X2), Usefulness (X3), and Benefits (X4). Meanwhile, Adoption of Digital Finance (Y) is influenced by the variables Risk (X1), Ease (X2), Usefulness (X3), Benefits (X4), Attitude towards Using Digital Finance (Z), Financial Literacy (M) and Moderation of Financial Literacy towards Attitude towards Using Digital Finance (Z\*M). The following equality shows the structure of the relationship:

$$Z = -0.139 X_1 + 0.165 X_2 + 0.329 X_3 + 0.284 X_4$$

$$Y = -0.179 X_1 + 0.157 X_2 + 0.273 X_3 + 0.282 X_4 + 0.003 Z + 0.006 M + 0.006 Z*M$$

**i. R-Square**

Change mark R- S square can be used to assess the influence of certain independent latent variables on the dependent latent variable, whether it has a substantive influence. For deep endogenous latent variables structural model that has an R 2 result of 0.75 indicates that the model is “strong”, R 2 of 0.50 indicates that the model is “moderate”, R 2 of 0.25 indicates that the model is "weak" (Ghozali, 2016). As for output PLS, as explained, following:

Table 9. R-Square

|   | <i>R-Square</i> |
|---|-----------------|
| Digital Finance Adoption (Y)                | 0.648           |
| Attitudes towards Digital Finance Usage (Z) | 0.611           |

Based on results testing mark R- S square on so can interpreted that Risk variables (X1), Ease (X2), Usefulness (X3), and Benefits (X4), which influence the Digital Finance Adoption variable (Z), have an R 2 value of 0.648, which indicates that the model is “Moderate”. Then the Risk Variable (X1), Benefits (X4), Attitude towards Using Digital Finance (Z) and Financial Literacy moderation towards Attitude towards Using Digital Finance (Z\*M) have an R 2 value of 0.611, which indicates that the model is “Moderate”.

**j. Q-Square**

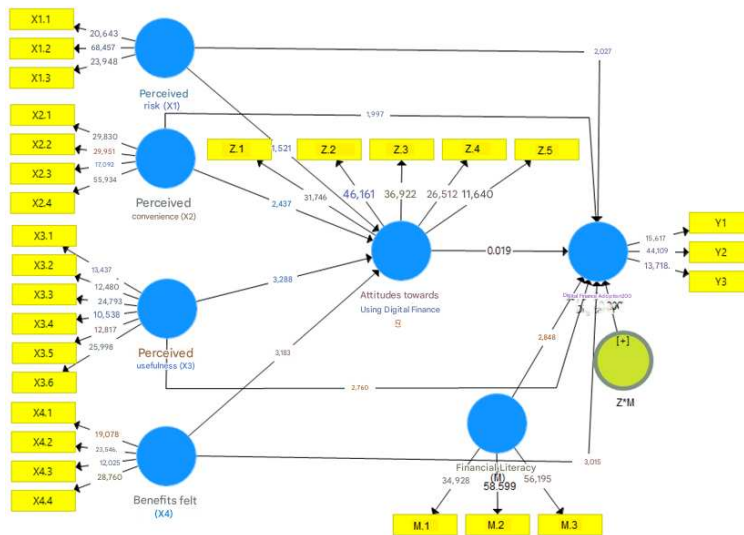
Q-square is a value used to determine how well both predicted models. Q-square can be used for known strength connections for all variables. The Q-square value that is classified as small is 0.02 to ≤ 0.15, classified as currently is 0.15 to ≤ 0.35, and is classified as big is ≥ 0.35. The compliance *model structural* can be seen from Q<sup>2</sup>, as follows:

$$\begin{aligned}
 Q^2 &= 1 - [(1 - R1) * (1 - R2)] \\
 &= 1 - [(1 - 0.648) * (1 - 0.611)] \\
 &= 1 - [(0.352) * (0.389)] \\
 &= 1 - [0.136] \\
 &= 0.864
 \end{aligned}$$

The results of the  $Q^2$  calculation show that the  $Q^2$  value is 0.864, which indicates that it is in the “strong” category. According to Ghozali (2016), the  $Q^2$  value can measure how well the model generates the observed values and parameter estimates. So, the  $Q^2$  value of the predictions made by the model assessed has its own predictive relevance.

**k. Hypothesis Testing**

To answer the research hypothesis can be seen in the following *Bootstrapping* Model Image:



**Figure 3 Bootstrapping PLS Research**

In testing a hypothesis, there are two conditions: if the  $t$ -statistic  $> 1.96$ , then there is a significant influence. While if the  $t$ -statistic  $\leq 1.95$ , which means No, there is a significant influence. Then, for see direction connection variables can be seen from the mark *Original Sample* if the mark *Original Sample* is positive. Hence, the connection between the variables is positive or in the same direction. If the *Original Sample* is worth negative, so connection between variables is negative or opposite direction. Here hypothesis testing results:

**Table 10. Hypothesis Testing Results**

| No | Variable Relationship                               | Original Sample (O) | t Statistics ( O/STDEV ) | P Value | Results         |
|----|---|---------------------|--------------------------|---------|-----------------|
| 1  | Risk (X1) -> Attitude Use Digital Finance (Z)       | -0.139              | 1,521                    | 0.129   | Not Significant |
| 2  | Ease (X2) -> Attitude Use Digital Finance (Z)       | 0.165               | 2,437                    | 0.015   | Significant     |
| 3  | Usefulness (X3) -> Attitude Use Digital Finance (Z) | 0.329               | 3,288                    | 0.001   | Significant     |
| 4  | Benefits (X4) -> Attitude Use Digital Finance (Z)   | 0.284               | 3,183                    | 0.002   | Significant     |
| 5  | Risk (X1) -> Adoption Digital Finance (Y)           | -0.179              | 2,027                    | 0.043   | Significant     |
| 6  | Ease (X2) -> Adoption Digital Finance (Y)           | 0.157               | 1,997                    | 0.046   | Significant     |
| 7  | Usability (X3) -> Adoption Digital Finance (Y)      | 0.273               | 2,760                    | 0.006   | Significant     |



| No | Variable Relationship  | Original Sample (O) | t Statistics ( O/STDEV ) | P Value | Results         |
|----|--|---------------------|--------------------------|---------|-----------------|
| 8  | Benefits (X4) -> Adoption Digital Finance (Y)                    | 0.282               | 3,015                    | 0.003   | Significant     |
| 9  | Attitude Use Digital Finance (Z) -> Adoption Digital Finance (Y) | 0.003               | 0.019                    | 0.985   | Not Significant |
| 10 | Literacy Finance (M) -> Adoption Digital Finance (Y)             | 0.289               | 2,848                    | 0.005   | Significant     |
| 11 | Z*M -> Adoption Digital Finance (Y)                              | 0.006               | 0.200                    | 0.841   | Not Significant |

## 1. Discussion

### 1) Risk and Attitude toward Digital Finance

Risk has a negative, non-significant effect on attitudes toward digital finance ( $t = 1.521 < 1.96$ ;  $\beta = -0.139$ ). This indicates that BPRS customers in East Java do not strongly consider risk in using digital finance, consistent with Pahlevi et al. (2023).

### 2) Ease of Use and Attitude

Ease of use positively and significantly affects attitudes ( $t = 2.437 > 1.96$ ;  $\beta = 0.165$ ), indicating that simpler, more accessible digital finance encourages usage, aligning with Winarto (2022) and Wulandari et al. (2023).

### 3) Usefulness and Attitude

Usefulness positively and significantly influences attitudes ( $t = 3.288 > 1.96$ ;  $\beta = 0.329$ ). According to Winarto (2022) and Baraba & Mahmudi (2023), customers are more inclined to adopt digital finance if it provides practical benefits.

### 4) Benefits and Attitude

Benefits have a positive, significant effect on attitude ( $t = 3.183 > 1.96$ ;  $\beta = 0.284$ ), showing that perceived advantages, such as efficiency and accessibility, encourage digital finance use, supported by Leonardo (2021) and Bangkit et al. (2022).

### 5) Risk and Adoption

Risk negatively and significantly affects digital finance adoption ( $t = 2.027 > 1.96$ ;  $\beta = -0.179$ ), confirming that higher perceived risk reduces willingness to adopt, consistent with Meyliana et al. (2019).

### 6) Ease of Use and Adoption

Ease of use positively and significantly influences adoption ( $t = 1.997 > 1.96$ ;  $\beta = 0.157$ ). A user-friendly system promotes adoption, aligning with Natsir et al. (2023) and Sukandar & Hermawan (2022).

### 7) Usefulness and Adoption

Usefulness positively and significantly affects adoption ( $t = 2.760 > 1.96$ ;  $\beta = 0.273$ ). Perceived usefulness increases interest in adopting digital finance, supported by Shaikh et al. (2020) and Nurfadilah & Samidi (2021).

### 8) Benefits and Adoption

Benefits have a positive, significant effect on adoption ( $t = 3.015 > 1.96$ ;  $\beta = 0.282$ ), indicating that practical advantages drive adoption, consistent with Amelia & Wibowo (2020) and Gupta et al. (2023).

### 9) Attitude and Adoption

Attitude toward digital finance has a positive but non-significant effect on adoption ( $t = 0.019 < 1.96$ ;  $\beta = 0.003$ ). Traditional customer characteristics, limited digital access, and infrastructure constraints reduce the impact of attitude on actual adoption, aligning with Ezenwafor et al. (2022) and Wulan (2017).

### 10) Attitude, Financial Literacy, and Adoption

Attitude, moderated by financial literacy, positively but non-significantly affects adoption ( $t = 0.200 < 1.96$ ;  $\beta = 0.006$ ). Knowledge alone is insufficient to change behaviour; practical experience, system accessibility, and trust-building are required, partially contrasting with Martini et al. (2023).

## 4. CONCLUSION

The study shows that Risk negatively affects both the attitude toward and adoption of digital finance, while Ease of Use, Usefulness, and Benefits positively and significantly influence both. The attitude toward digital finance does not significantly affect adoption, either directly or when moderated by financial literacy. Theoretical: Confirms the importance of Risk, Ease of Use, Usefulness, and Benefits in shaping attitudes and adoption of digital finance,

while financial literacy alone is insufficient to drive adoption. Practical: BPRS should enhance the security, ease of use, usefulness, and benefits of digital services and educate customers on financial literacy. Strategic: Optimising interface design, accelerating transactions, integrating services, and implementing digital acceleration (AI, IoT, Cloud Computing) can improve both attitude and adoption of digital finance. The study is limited to BPRS in East Java and relies on questionnaires, so results may not be fully generalizable and could be biased by respondents' perceptions.

The recommendations of this study are as follows: for BPRS, it is important to improve transaction systems while enhancing ease of use, usefulness, benefits, and customer literacy; for OJK, the focus should be on providing supportive regulations, incentives, digital sandbox environments, digital skills training for staff, and public digital literacy programs; for customers, efforts are needed to increase digital literacy, remain open to innovations, protect personal data, and provide constructive feedback to the bank; and for future research, it is suggested to expand the geographic scope and explore additional moderating or mediating variables such as technology trust, regulatory support, or risk perception.

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## REFERENCES

- [1] Ajzen, I. (2021). *The theory of planned behaviour: Reactions and reflections*. Routledge.
- [2] Alkhwaldi, A., Hasan, R., & Abdullah, M. (2022). Adoption of digital finance services in Islamic banking: Evidence from Southeast Asia. *Journal of Islamic Accounting and Business Research*, 13(4), 567–585. <https://doi.org/10.1108/JIABR-04-2021-0102>
- [3] Amelia, R., & Wibowo, T. (2020). Determinants of digital finance adoption in Indonesia. *Indonesian Journal of Banking and Finance*, 15(2), 145–160.
- [4] Ardiansah, F. (2019). The benefits of financial technology in modern banking. *Journal of Economics and Business Studies*, 7(1), 34–49.
- [5] Arta, R., & Azizah, S. (2020). *Perceived ease of use in digital financial services*. Jakarta: Pustaka Digital.
- [6] Azwar, S. (2021). *Psikologi sikap: Teori dan pengukuran*. Yogyakarta: Pustaka Pelajar.
- [7] Balcazar, C., & Angel, P. (2021). Risk perception and digital finance adoption. *International Journal of Financial Studies*, 9(3), 56–71. <https://doi.org/10.3390/ijfs9030056>
- [8] Bangkit, R., Putri, D., & Santoso, B. (2022). Digital finance usage in rural banking: Empirical evidence from Indonesia. *Journal of Financial Innovation*, 8(2), 101–116.
- [9] Bank Indonesia. (2020). *Peraturan Bank Indonesia No. 19/12/PBI/2020 tentang fintech*. Jakarta: Bank Indonesia.
- [10] Baraba, A., & Mahmudi, F. (2023). Attitude and perceived usefulness in fintech adoption. *Asian Journal of Business Research*, 13(1), 77–92.
- [11] Chairunnisah, C., Putri, A., & Hasanah, F. (2021). Perceived usefulness and technology adoption in Islamic banking. *Journal of Islamic Finance Research*, 4(2), 45–60.
- [12] Cupian, C., & Akbar, M. (2020). Crowdfunding and P2P lending in Indonesia: Expanding financial access. *Asian Economic Journal*, 34(3), 211–228.
- [13] Effendy, A. (2020). The effect of perceived benefits on fintech adoption. *Journal of Digital Banking*, 5(1), 23–36.
- [14] Ezenwafor, J., Uchenna, I., & Oluchi, N. (2022). Attitude-behaviour gap in digital finance adoption. *African Journal of Economics and Finance*, 10(1), 87–102.
- [15] Fadhli, M. (2020). *Manajemen strategik: Konsep, proses, dan implementasi*. Bandung: Alfabeta.
- [16] Fajria, L. (2019). Digital transformation in the Indonesian banking sector. *Indonesian Journal of Banking*, 14(2), 112–125.
- [17] Financial Services Authority (OJK). (2024). *Statistik BPR Syariah di Indonesia*. Jakarta: OJK.
- [18] Ghozali, I. (2016). *Structural equation modelling: Metode alternatif dengan partial least squares (PLS)* (2nd ed.). Semarang: Badan Penerbit Universitas Diponegoro.
- [19] Ghozali, I. (2018). *Aplikasi analisis multivariate dengan program IBM SPSS 25* (9th ed.). Semarang: Universitas Diponegoro.
- [20] Global Islamic Fintech Report. (2021). *State of Islamic digital finance 2021*. Kuala Lumpur: Thomson Reuters.
- [21] Gupta, S., Sharma, R., & Kumar, A. (2023). Exploring benefits and adoption of fintech services. *International Journal of Bank Marketing*, 41(5), 105–123.
- [22] Hasan, R., Alhassan, M., & Zain, S. (2021). Risk perception in financial technology adoption. *Journal of Risk Finance*, 22(4), 312–328.



- [23] Leonardo, P. (2021). Customer perception of digital finance benefits. *Journal of Financial Services Research*, 19(3), 177–193.
- [24] Martini, F., Rahmawati, D., & Lestari, S. (2022). Moderating role of financial literacy in fintech adoption. *International Journal of Finance & Banking Studies*, 11(2), 44–61.
- [25] Meyliana, M., Putra, H., & Santoso, I. (2019). Risk and adoption of digital financial services in Indonesia. *Journal of Economic Policy and Research*, 8(2), 23–37.
- [26] Ming, L., Yeo, T., & Tan, W. (2020). Negative perception of fintech risk and adoption behaviour. *Asian Journal of Finance and Accounting*, 12(3), 50–68.
- [27] Missiafi, & Jaka, T. (2021). User attitude and digital finance adoption in rural areas. *Journal of Digital Innovation*, 6(1), 34–50.
- [28] Nafisah, S., & Susanto, H. (2024). *Literasi keuangan digital untuk masyarakat modern*. Surabaya: Inovasi Press.
- [29] National Survey on Financial Literacy and Inclusion (SNLIK). (2022). *Laporan survei literasi dan inklusi keuangan Indonesia 2022*. Jakarta: OJK.
- [30] Natsir, A., Putri, R., & Hakim, L. (2023). Ease of use and adoption of Islamic fintech services. *International Journal of Islamic Banking and Finance*, 15(1), 101–120.
- [31] Nurfadilah, A., & Samidi, M. (2021). Perceived usefulness and digital finance adoption. *Journal of Finance and Banking Innovation*, 9(2), 75–90.
- [32] Octaviano, M., & Mahadi, A. (2022). Collaboration between BPR Syariah and fintech companies in Indonesia. *Journal of Islamic Finance*, 8(3), 231–248.
- [33] Pahlevi, F., Rahman, H., & Dewa, I. (2023). Risk perception and digital finance adoption: Evidence from East Java. *Journal of Banking and Finance Research*, 11(2), 55–70.
- [34] Pearce, J. A., & Robinson, R. B. (2013). *Strategic management: Formulation, implementation, and control* (12th ed.). New York: McGraw-Hill Education.
- [35] Pratiwi, N., & Saefullah, A. (2022). Financial literacy and digital finance adoption in Indonesia. *Journal of Financial Literacy and Inclusion*, 3(1), 12–25.
- [36] Purmadani, D. (2023). *Profil BPR Syariah di Jawa Timur*. Surabaya: Lembaga Kajian Keuangan Syariah.
- [37] Putra, Y., & Husna, I. (2019). Perceived usefulness and digital banking adoption in Indonesia. *Asian Journal of Economics and Banking*, 8(2), 44–60.
- [38] Rahmawati, D., Fitriani, S., & Nugroho, Y. (2020). Digital financial services and operational efficiency. *Journal of Financial Technology*, 4(1), 19–34.
- [39] Raut, R. (2020). Financial literacy and decision-making in digital finance. *International Journal of Financial Studies*, 8(2), 41–55.
- [40] Setiadi, N. (2013). *Metodologi penelitian kuantitatif dan kualitatif*. Jakarta: Kencana.
- [41] Shaikh, A., Ahmed, R., & Khan, S. (2020). The effect of usefulness on fintech adoption. *Journal of Digital Banking and Finance*, 5(3), 67–84.
- [42] Sukandar, D., & Hermawan, A. (2022). Factors influencing digital finance adoption in Indonesia. *Journal of Banking Technology*, 10(1), 34–50.
- [43] Widiyanti, D. (2020). Ease of use and acceptance of digital banking. *Journal of Management and Technology*, 12(2), 77–91.
- [44] Wijaya, H., & Susilawati, E. (2021). Risk factors in digital finance adoption. *Journal of Economic and Financial Research*, 7(2), 101–118.
- [45] Winarto, S. (2022). Behavioural perspective on digital finance adoption. *Journal of Digital Finance Research*, 6(1), 23–39.
- [46] Wulan, R. (2017). Determinants of digital banking adoption in emerging markets. *Asian Journal of Finance*, 9(1), 88–102.
- [47] Wulandari, T., Fadilah, M., & Ardi, R. (2023). Digital finance adoption and ease of use in Indonesia. *Journal of Islamic Banking Innovation*, 11(1), 55–72.

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