

The Effect Of Effectiveness, Efficiency, And Financial Literacy On The Decision To Use QRIS As A Digital Payment System In Msmes: A Case Study In Surakarta City

Amara Amelia¹Susilanintyas B K² Syahriar Abdullah³

1 Universitas Tunas Pembangunan Surakarta, Surakarta, Indonesia

* E-mail: Amaraamelia33gmail.com

ABSTRACT

The development of digital technology encourages Micro, Small and Medium Enterprises (MSMEs) to adopt a digital payment system (Quick Response Code Indonesian Standard). This study aims to analyze the influence of effectiveness, efficiency, and financial literacy on the decision to use QRIS by MSMEs in the city of Surakarta. The method used is quantitative with a survey approach and purposive sampling techniques to 120 MSME actors. Data were collected through questionnaires and analyzed using multiple linear regression with the help of SPSS 27. The results of the study showed that effectiveness and efficiency had a positive and significant effect on the decision to use QRIS, while financial literacy did not have a positive and significant effect. These findings affirm the importance of increasing financial literacy and the use of effective and efficient technology in encouraging the digital transformation of MSMEs. This research provides strategic recommendations for policy makers and MSME actors to accelerate the adoption of digital payments in order to increase business competitiveness in a sustainable manner and support the growth of the digital economy in Indonesia.

KEYWORDS: Effectiveness; Efficiency; Financial Literacy; QRIS; MSMEs

INTRODUCTION

Rapid advances in the field of technology have encouraged people to start getting to know and adjust to digital-based financial transaction activities (Financial Technology), one of which is when using payment services (Hardiky et al., 2021) Various digital platforms have now taken advantage of financial technology (Fintech) to support the payment process. People have also begun to get used to making payments digitally or without cash in their daily activities. E-money or electronic money is one of the most commonly used non-cash payment instruments (Zusrorny et al., 2023). QRIS (Quick Response Code Indonesian Standard) is one of the non-cash payment methods that is currently increasingly popular in Indonesia. With the QRIS payment system developed by Bank Indonesia, various studies can be conducted to assess the effectiveness of QRIS in encouraging the development of micro, small, and medium enterprises (MSMEs) (Retnowati, 2023).

QRIS, an abbreviation for Quick Response Code Indonesian Standard is a technological breakthrough that is used as a means of payment in digital wallet applications. With one standardized QR Code, business actors or merchants no longer need to provide different QR Codes based on the issuer (Arta Setiawan & Mahyuni, 2020). Some of the factors that are suspected to influence MSMEs to use QRIS include effectiveness, efficiency, and financial literacy. In terms of effectiveness, Effectiveness refers to the achievement of results through the use of technology in a targeted manner. In this context, effectiveness means the extent to which the use of technology can produce outputs

that are in accordance with the intended goals by the user (Susanto et al., 2021). According to Prihartono, effectiveness can be interpreted as the extent to which the goals that have been set have been successfully achieved. Purpose itself refers to the expected condition or situation. Meanwhile, efficiency describes the most optimal ratio between inputs and outputs, or the ratio between inputs and outputs (Mulidya, 2023). Efficiency is also an aspect that needs to be considered, efficiency is Efforts to find methods in carrying out or producing something (without wasting time, energy, and cost), and being able to carry out tasks accurately and thoroughly, function effectively, and efficiently in achieving desired goals (Salim & Nopiansyah, 2023). A good understanding of financial literacy is very important, because the more a person understands it, the more able he will be to assess his investments and manage his finances effectively (Lailatul Fitriyah et al., 2024). Many MSME actors still have limited knowledge, so they lack a long-term vision, which ultimately makes their sustainability performance remain traditional (Rani & Desiyanti, 2024).

Surakarta, which is one of the cities in Central Java Province, is recorded as the city with the highest total QRIS merchants across the province. Based on data from Bank Indonesia in March 2024, Surakarta City has 17,964 MSMEs that are QRIS users, making it the highest in Central Java (Rachmawati et al., 2023). The high number of MSMEs in Surakarta makes this city an object of research related to the implementation of QRIS among these business actors. There are differences in the rate of QRIS adoption among MSME actors; some have implemented QRIS and reaped its benefits, while others are still unsure or have not fully utilized this technology. (Aryawati et al., 2022) In fact, the wider use of digital technology has great potential to help MSMEs in improving operational efficiency, expanding market reach, and strengthening competitiveness at the global level. Many MSME actors in Surakarta are still not educated in using QRIS. Most of them still rely on traditional payment methods, despite efforts from the government to support payment digitalization, including training on the use of QRIS. This shows that there is an information gap that needs to be overcome so that MSMEs' interest in adopting QRIS increases (Marisa, 2020).

Although a number of previous studies have discussed various factors that affect the adoption of information technology, including QRIS, most of the research still focuses on the internal aspects of MSMEs. One of the research gaps that arise lies in the limited measurement of the effectiveness and efficiency of the use of QRIS, which so far has only been based on the subjective perception of MSME actors. Thus, this research is very important to provide a more comprehensive understanding of the direct influence of QRIS on MSME operations. In addition, the perception of financial literacy is also often subjective. This study intends to investigate the effect of effectiveness, efficiency, and financial literacy on the decision to use QRIS in MSMEs. With this research, it is hoped that MSMEs will be more motivated to implement this technology so that they can increase competitiveness in the midst of increasingly fierce market competition. This research also seeks to provide a more in-depth picture of the benefits and challenges in the use of QRIS, so that it can encourage the birth of more optimal policies and programs to support MSMEs, especially in areas where the adoption rate is still low. In addition the findings of this research are anticipated to serve as a guide for the government and related agencies in developing education and empowerment programs that are more effective and on target for MSME actors.

METHODOLOGY

Research methodology

In this study, the researcher applied the quantitative method as the main approach. As explained in his book "Quantitative, Qualitative, and R&D Research Methods", quantitative methods are following positivist philosophical principles and are generally used to research large populations. This study used surveys with questionnaires as a data collection technique. Through the survey method, researchers can reach many respondents, so that the data obtained becomes more representative and relevant to the research objectives. The sampling techniques applied are (Sugiyono, 2020). Nonprobability Sampling, particularly purposive sampling, where the selection of samples is based on specific criteria that suit the purpose of the study. In this context, only MSMEs that have used QRIS for at least 6 months are used as samples. The selection of this technique is in line with the research

focus that wants to highlight the specific characteristics of the population being studied. A total of 120 MSMEs in the Surakarta area, spread across Serengan, Pasar Kliwon, Jebres, and Banjarsari districts, were selected based on the duration and intensity of use of QRIS as a digital means of payment. The research instrument used a Likert scale of 1 to 4, ranging from "strongly disagree" to "strongly agree". The data collected is primary data, and data analysis is carried out using SPSS software version 27.

Analytical Techniques

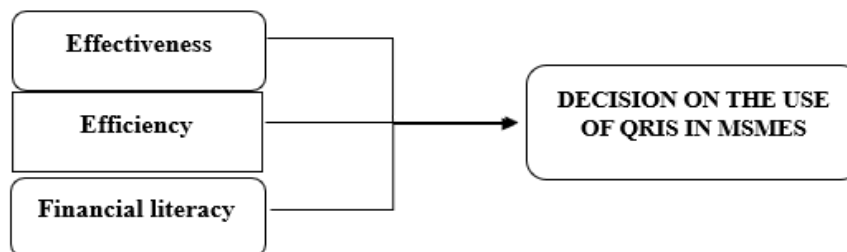
Multiple regression analysis was used as a method to test the data in this study. Before conducting multiple regression analysis, a test was first carried out on classical assumptions, which included normality tests, heteroscedasticity tests, and multicollinearity tests. The normality test itself is carried out through two approaches, namely graphically using Histogram and Normal P-Plot, and statistically using the Kolmogorov-Smirnov test. The distribution of data can be considered normal in graphical analysis if the distribution pattern follows and is around a diagonal line, both in the Histogram and P-Plot views.

According to the Kolmogorov-Smirnov procedure, normal distribution is confirmed when the significance value (sig) exceeds 0.05. The heteroscedasticity analysis was utilized to determine whether residual variance variations occur between observations in the regression structure. Decision-making for the heteroscedasticity test through the Glejser technique depends on significance levels; significance values above 0.05 confirm that the regression model lacks heteroscedasticity complications. Additionally, multicollinearity analysis was conducted to ensure no interdependence exists between independent variables in the regression framework.

The presence of multicollinearity in regression modeling can be determined through Variance Inflation Factor (VIF) measurements. Models are considered multicollinearity-free when tolerance exceeds 0.10 and VIF stays below 10. Following the fulfillment of all classical assumptions, model assessment proceeds using F-testing to determine feasibility. Furthermore, determination coefficient analysis was performed to establish the degree of impact that independent variables exert on dependent variables. The final procedure consists of hypothesis verification via t-testing; acceptance occurs when p-values remain under 0.05 and beta coefficient orientations correspond to those established in the hypothesis development.

Thinking Framework and Hypothesis.

A frame of thought that is structured based on the variables that exist will look like this:



Based on the above framework, the following hypothesis can be formulated:

- H1: Effectiveness has a positive and significant effect on the decision of MSMEs in using QRIS as a digital payment system.
- H2: Efficiency has a positive and significant effect on the decision of MSMEs in using QRIS as a digital payment system.
- H3: Financial literacy has a positive effect on MSMEs' decision to use QRIS as a digital payment system.

RESULTS AND DISCUSSION

After the survey data from 120 respondents has been successfully collected, the next step is to conduct validity testing to ensure the validity of the data. The instrument used is considered to be able to measure the variables in question precisely (Sugiyono, 2020:121). Validity testing can be done through factor analysis or using Pearson correlation. The criterion used is that if the calculated r value is greater than the table r at a significance level of 0.05, then the instrument is declared valid, and vice versa (Ghozali, 2018). Based on the results of this study, all question items have a significance value below 0.05, so it can be concluded that the instrument used is valid.

In addition to validity evaluation, reliability testing was performed in this study to confirm the instrument's capacity to generate precise and consistent data aligned with real-world circumstances (Ghozali, 2018). Reliability assessment relies on Cronbach's Alpha coefficient measurements, whereby instruments achieve reliability status when values exceed 0.60. The test findings indicate that every survey item for the analyzed variables fulfilled the reliability requirements.

Subsequently, normality analysis was implemented to evaluate whether residual data demonstrates normal distribution properties. The determination process utilizes significance values, establishing normal distribution when significance levels surpass 0.05. The one-sample Kolmogorov-Smirnov procedure generated an asymptotic outcome. The next step involves multicollinearity examination, purposed to identify elevated linear relationships among two or more independent variables in the regression structure. Evaluation benchmarks are established through Variance Inflation Factor (VIF) assessments, showing multicollinearity absence when VIF is below 10 and tolerance above 0.10, with contrary results indicating multicollinearity exists.

Table 1. Result of multicollinearity test using the VIF method

Unstandardized coefficient		Standardized coefficients		Collinearity statistics	
Type	B	Std. error	Beta	Tolerance	VIF
(Constant)	16,605	2,181			
Effectiveness (X1)	,040	,114	,046	,435	2,298
Efficiency (X2)	,253	,099	,352	,399	2,505
K(X3) Literacy	,078	,131	-,069	,557	1,796

a. Dependent variable: QRIS

Based on the results of the multicollinearity test listed in table 3 above, it was obtained that the effectiveness variable (X1) had a VIF value of 2.298 which was still below 10, and a tolerance value of 0.435 which was greater than 0.10. For the efficiency variable (X2), the VIF value obtained was 2.505 (<10) and the tolerance value was 0.399 (>0.10). Meanwhile, the digital literacy variable (X3) showed a VIF value of 1,796 (<10) and a tolerance value of 0.557. From these results, it can be concluded that all variables have a VIF value below 10 and a tolerance value above 0.10, so that no symptoms of multicollinearity were found in the data used. Furthermore, a heteroscedasticity test was carried out which aimed to identify possible violations of the assumption of homoscedasticity, by analyzing the pattern of the relationship between residual (error) and prediction value (predictor). Based on the significance value, if $\text{Sig.} > 0.05$, it can be concluded that heteroscedasticity does not occur, while if it is the opposite, heteroscedasticity is indicated. The results of the heteroscedasticity test can be seen as follows.

Table 2.

	Type	Sig.	Information
1	Constan	,162	
	Effectiveness	,754	Heteroscedasticity does not occur
	Efficiency	,552	Heteroscedasticity does not occur
	Financial literacy	,575	Heteroscedasticity does not occur

The analysis presented above reveals that no variables suffer from heteroscedasticity complications, given that all variables show significance values greater than 0.05, thereby

establishing that the data is free from heteroscedasticity. In order to quantify each variable's influence magnitude, multiple linear regression analysis was executed. The results from the multiple linear regression examination are illustrated in the subsequent table:

Table 3. Multiple linier regression		
	Type	B
1	(Constant)	16,605
	Effectiveness	,040
	Efficiency	,253
	Financial literacy	,078

Based on the presentation of the results of the previous regression analysis, several main points can be concluded regarding the influence of effectiveness, efficiency and financial literacy on the decision to use QRIS in MSMEs in the city of Surakarta. First, the effectiveness variable proved to be the most significant and dominant factor driving the decision to use QRIS, followed by efficiency which also contributed significantly but to a lesser degree. Second, financial literacy showed a positive relationship with the decision to use QRIS, but statistically the effect was not significant in this study for MSME actors in Surakarta. Third, no indication of multicollinearity was found in the regression model constructed, so all interpretations given based on these results can be said to be statistically valid.

For the results of the R square value of this study, the value (R^2) = .797 or 79.70%. This means that the contribution that independent variables contribute 79.70% to the dependent variables, while the remaining 20.30% is influenced by other factors that are not studied in this study.

Furthermore, based on the results of the F Test listed in Table 87, a significance value of 0.000 was obtained which was smaller than 0.05. Thus, this research model is declared feasible to use, while the results of the T test in table 89 show that the variables of effectiveness and efficiency have a value of Sig. < 0.05, then H1 and H2 in this study are acceptable, but the variable of financial literacy has a value of Sig. > 0.05, then H3 in this study is rejected.

Table 4. Test F						
	Type	Sum of square	Df	Mean square	F	Sig.
1	Regression	67,131	3	22,377	5,247	,002b
	Residual	497,736	116	4,265		
	Total	561,867	119			

Table 5. Partial Test Hail (T test)								
	Type	B	Std error	Beta	T	Sig.	tolerance	VIVID
1	(Constant)	16,605	2,181		7,615	,000		
	Effectiveness	,040	,114	,046	3,346	,030	,435	2,298
	Efficiency	,253	,099	,352	2,552	,012	,399	2.505
	Financial literacy	,078	,131	-,069	2,591	.006	,557	1,796

The effect of effectiveness on the decision to use QRIS as a digital payment system for MSMEs in the city of Surakarta.

The findings of this study indicate that the effectiveness variable (X1) plays a positive and significant role in influencing the decision of MSMEs in Surakarta City to use QRIS as a digital payment method. This finding is in line with the findings from Maulidya (2022) concluding that the perception of effectiveness also has a positive and significant impact on the behavior of using digital payment systems among MSME actors in a number of major cities in Indonesia. However, in contrast to the findings by research conducted by Ilham Azis Hidayatullah, Rulyanti Susi Wardhani, and Sumiyati (2023) in Pangkalpinang City, it was found that effectiveness did not have a significant influence on interest in using QRIS in MSMEs in the region (T-statistic = 1,335; p-value = 0.182). According to previous researchers, these findings occurred because users have not fully felt the effectiveness of QRIS or have not even paid much attention to the risk aspects of its use.

The effect of efficiency on the decision to use QRIS as a digital payment system for MSMEs in the city of Surakarta.

The results of this study also show that the perception of efficiency affects the decision to use QRIS is statistically significant. Thus, the hypothesis regarding the influence of efficiency on the decision to use QRIS in MSMEs is worthy of acceptance. In addition, the findings in this study are also consistent with the results of previous studies that have been conducted by (Salim & Nopiansyah, 2023), also found that the use of QRIS simplifies the process of non-cash transactions among MSMEs. The efficiency of using QRIS can be seen from transactions that become faster, easier, and more effective. MSME actors who use QRIS admitted that they are satisfied because the transaction process takes place quickly and more efficiently so that consumer waiting time can be minimized. In addition to the support of Nopiansyah's research, a number of other studies in the Indonesian digital economy literature also confirm the significance of efficiency aspects in encouraging the adoption of digital payment technology in the MSME sector. Research by (Leni, 2020). emphasized that the efficiency of the payment system is the most dominant factor in explaining the decision of MSMEs to adopt QR Code as a means of payment. They found that efficiency helps reduce operational costs and increase productivity, because in real applications the payment process becomes shorter, more flexible, and minimizes the risk of recording errors.

The effect of financial literacy on the decision to use QRIS as a digital payment system for MSMEs in the city of Surakarta.

Based on the results of this study, it can be statistically concluded that the perception of financial literacy has a significant influence on the decision of MSMEs in Surakarta City in using QRIS. This finding is in line with the results of research conducted by Febriyani Fitri Rachmawati, Sudarno, and Muhammad Sabandi in (2023) which had the same results in the study, it was found that financial literacy has a positive and significant effect on the use of QRIS (H1 proven). In line with that, other previous research by Lailatul Fitriyah, Arie Setyo Purnomo, and Prasetyo Nugroho (2024), which examined "The Influence of Financial Literacy and Digital Payment (QRIS) on the Sustainable Performance of Madura MSMEs" also showed that the level of financial literacy has a positive and significant impact on the performance of MSMEs. This difference in findings can be caused by several possibilities, such as changes in the dynamics of MSME behavior in different time periods, demographic differences or intervening variables that have not been thoroughly identified in this study, or the existence of other factors that are more dominant in encouraging the adoption of QRIS in MSMEs today. Nevertheless, these differences open up opportunities for further studies to investigate more deeply the variables that influence the decision to use QRIS in MSMEs. Academically, the findings are an absolute antithesis, because the context of location and time, as well as the research design used, can provide a significant difference in results—and this is widely mentioned in the social and financial research literature. (Lailatul Fitriyah et al., 2024)

CONCLUSION/ DISCUSSION

CONCLUSION

Having completed the data analysis, the evidence suggests that:

1. The T-test indicates that all variables, have a significant positive effect on the decision of MSMEs in Surakarta City to use QRIS as a digital payment method.
2. According to the F-test outcomes, all variables jointly produce a significant effect on MSMEs' decisions in Surakarta City regarding QRIS implementation as a digital payment system.
3. According to the R^2 analysis, the variables investigated in this study explained 79.70% of the variation in QRIS adoption decisions, while 20.30% of the variance was due to other factors outside the scope of this research.
4. affect the decision to use QRIS and MSMEs in Surakarta consider that QRIS provides competitive liquidity because transactions are faster, more accurate and easier to document. As for the perception of QRIS efficiency, MSMEs see QRIS as facilitating the non-cash transaction process, MSME actors are satisfied because transactions do not take long and are more efficient, QRIS also helps reduce operational costs and increase productivity, and this QRIS payment system minimizes consumer waiting time and the risk of recording errors.

SUGGESTION

1. Optimizing QRIS Socialization Based on Effectiveness The Government, Bank Indonesia, and payment system service providers are expected to continue to increase socialization and education about the advantages of QRIS, especially in terms of convenience, speed, and real benefits for MSME actors. The emphasis on the effectiveness of QRIS has been empirically proven to be the most significant element influencing usage choices.
2. Development of Systems and Features that Increase Operational Efficiency Advanced innovations are needed that are able to support the efficiency of the use of QRIS in the daily operations of MSMEs. An example is the integration of QRIS with automated financial recording systems, real-time reporting, or digital-based cashier systems that are cost-effective and labor-intensive.
3. Multi-Party Collaboration in Digital MSME Empowerment Cooperation between the government, financial institutions, MSME associations, and local communities is needed in encouraging the adoption of QRIS. This collaboration is important to strengthen the perception that QRIS is not just a transaction tool, but part of the overall digital transformation of the business
4. Researchers in the future are also encouraged to consider using more diverse methodologies or combining qualitative and quantitative approaches, in order to gain deeper insights into the factors that influence MSMEs' decisions to use QRIS as a digital payment system. In addition, the follow-up study can explore other variables that may play a role in the adoption of digital payment technology, as well as consider the time dimension and changes in policies or economic conditions, in order to obtain a more comprehensive picture of the dynamics of QRIS use in the MSME sector.

REFERENCES

- Arta Setiawan, W., & Mahyuni, L. P. (2020). Qris in the Eyes of MSMEs: Exploring the Perception and Intention of MSMEs Using Qris. *E-Journal of Economics and Business of Udayana University*, 9(10), 921–946.
- Aryawati, N. P. A., Mahardika, I. M. N. O., & Wibawa, I. G. J. S. (2022). Persepsi Pengguna QRIS Pada UMKM Di Kota Mataram. *Guna Sewaka*, 1(2), 35–44. <https://doi.org/10.53977/jgs.v1i2.668>
- Come on, N. (2023). The Influence of Perception of Convenience, Risk and Effectiveness on Public Interest Using QR Code-Based Crowdfunding Platforms. *Journal of Comprehensive Islamic Studies*, 1(2), 325–354. <https://doi.org/10.56436/jocis.v1i2.146>

- Ghozali, A. (2018). *Metodologi Penelitian*. Ar-Ruzz Media.
- Hardiky, M. I., Nova, D. K., Rahmadewi, A., & Kustiningsih, N. (2021). Optimalisasi Digital Payment Sebagai Solusi Pembayaran Umkm Roti Kasur. *Jurnal Riset Entrepreneurship*, 4(1), 44. <https://doi.org/10.30587/jre.v4i1.2193>
- Lailatul Fitriyah, Arie Setyo Purnomo, & Prasetyo Nugroho. (2024). Pengaruh Financial Literacy dan Digital Payment (QRIS) Terhadap Kinerja Berkelanjutan UMKM Madura. *EKOMA: Jurnal Ekonomi, Manajemen, Akuntansi*, 4(1), 2146–2164. <https://doi.org/10.56799/ekoma.v4i1.5929>
- Leni, M. (2020). *Electronic Payment System*. Widina Bhakti Persada Bandung.
- Marisa, O. (2020). The perception of ease of use, effectiveness, and risk affects interest in transactions using financial technology. *Journal of Office Administration*, 8(2), 139–152. <http://www.ejournal-binainsani.ac.id/index.php/JAK/article/view/1448>
- Rachmawati, F. F., Sudarno, S., & Sabandi, M. (2023). Pengaruh Literasi Keuangan Dan Lingkungan Sosial Dimoderasi Tingkat Pendidikan Terhadap Penggunaan Qris Pada Pelaku Umkm Di Kota Surakarta. *Jurnal Ekonomi Pendidikan Dan Kewirausahaan*, 11(1), 21–36. <https://doi.org/10.26740/jepk.v11n1.p21-36>
- Rani, G. M., & Desiyanti, R. (2024). Pengaruh Literasi Keuangan, Inklusi Keuangan dan Digital Payment Terhadap Kinerja UMKM Makanan & Minuman di Kota Padang. *EKOMABIS: Jurnal Ekonomi Manajemen Bisnis*, 5(02), 161–174. <https://doi.org/10.37366/ekomabis.v5i02.1403>
- Retnowati, M. S. (2023). Optimization of Qris Virtual Payment Tools as a Supporter of the Islamic Economy for Muslim Msmes Go Digital. *JASIE-Journal of Aswaja and Islamic Economics*, 2(1). <https://www.publikasiilmiah.unwahas.ac.id/index.php/JASIE/index>
- Salim, A. S., & Nopiansyah, D. (2023). Efisiensi Penggunaan Quick Response Code Indonesia Standart (Qris) Terhadap Peningkatan Penjualan Pada Umkm Di Le Garden Palembang Indah Mall. *EKOMBIS REVIEW: Jurnal Ilmiah Ekonomi Dan Bisnis*, 11(2), 1385–1396. <https://doi.org/10.37676/ekombis.v11i2.4028>
- Sugiyono. (2020). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Susanto, H., Wathan, H., & Fadhilah, D. (2021). The Effect of Effectiveness and Risk on Interest in Transactions in Fintech. *Journal of the National Conference and Engineering of the Medan State Polytechnic*, 257–262.
- Zusrony, E., Anzie, L. P., Asti, P., Manalu, G., Permana, I., & Imaliya, T. (2023). EDW Analysis of Perceived Usefulness, Perceived Ease of Use and Perceived Risk on the Interest in Using Digital Quick Response Indonesia Standard (QRIS) Payments in MSME Actors. *E-Business: Scientific Journal of Economics and Business*, 16(1), 200–206. <https://doi.org/10.51903/e-bisnis.v16i1.1211>