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Instant Payment Adoption and Merchant Credit Access in Indonesia: Evidence from QRIS Expansion

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Abstract

This article examines whether Indonesia's rapid diffusion of instant payments, proxied by QRIS expansion, can improve merchant credit access and through which channels. Using a systematic literature review of peer-reviewed journal studies, we synthesize evidence on QR-based adoption, merchant persistence, and how transaction data supports MSME financing. The findings converge on four drivers of sustained use: perceived usefulness, ease of use, trust, and facilitating conditions. Interoperability and lower cash-handling and reconciliation frictions strengthen merchant participation and encourage regular, traceable payment flows. Direct evidence on credit outcomes is thinner, but points to a data pathway: frequent and continuous payment trails can reduce information asymmetry and enable cashflow-based assessment, especially for merchants with high transaction intensity and adequate digital readiness. We frame these patterns as an ecosystem link from payment standardization to credit inclusion, emphasizing usage quality and continuity over adoption counts. Overall, QRIS is most credit-relevant when transaction histories are dense, reliable, and responsibly integrated into lending design.

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1. Introduction

Indonesia's retail payments landscape is being reshaped by instant payment rails and interoperable QR-code acceptance that reduce frictions for both consumers and merchants. Across countries, research shows that digital payments diffuse when they lower transaction costs, expand use cases, and align incentives among banks, nonbanks, and merchants, while trust, perceived usefulness, and ease of use remain persistent behavioral drivers of adoption (Patil et al., 2020; Annan et al., 2024; Ramayanti et al., 2024). Within this broader shift, QR-code payments have attracted attention because they can scale acceptance quickly in merchant-heavy ecosystems, particularly where small businesses are constrained by cash handling costs and limited point-of-sale infrastructure (Suebtimrat & Vonguai, 2021).

Indonesia's QRIS (Quick Response Code Indonesian Standard) is a prominent interoperability intervention that standardizes QR acceptance across payment service providers, aiming to make person-to-merchant payments faster, cheaper, and more widely usable for micro, small, and medium enterprises (MSMEs). Empirical studies in the Indonesian context document how users' perceptions of trust, usefulness, social influence, and enabling conditions correlate with QRIS usage intentions and observed payment behavior, reinforcing established technology adoption theories such as Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) variants (Gunawan et al., 2023; Indarningsih & Setyono, 2024). Complementing the demand side, implementation-oriented work highlights how QRIS modes and workflows can reduce settlement and verification frictions for merchants, which is central to daily

operational reliability and continued usage (Mantik, 2021). Taken together, this literature positions QRIS expansion as not only a payment modernization effort, but also an institutional pathway that can formalize merchant cashflows through routine digital records.

A key policy-relevant question is whether instant payment adoption can translate into improved merchant credit access. MSMEs often face structural financing constraints rooted in information asymmetry, thin documentation, and volatile cashflows. Digital payments can partially relax these constraints by producing high-frequency transaction trails that improve screening, monitoring, and repayment design, which the digital payments literature increasingly frames as an information infrastructure rather than merely a transfer mechanism (Annan et al., 2024). Related evidence from firm settings indicates that using digital payment platforms is associated with higher engagement in credit-like arrangements such as trade credit, suggesting plausible channels from payment digitization to financing capacity (Abdulai et al., 2024). For Indonesia, the implication is that QRIS-driven transaction visibility may support cashflow-based lending, embedded finance partnerships, and more accurate risk assessment for small merchants, while also raising questions about data governance, bargaining power, and unequal benefits across firm types.

This article therefore examines the relationship between instant payment adoption and merchant credit access in Indonesia by conducting a systematic literature review focused on evidence relevant to QRIS expansion. By synthesizing findings across payment adoption research, MSME finance, and digital-credit

mechanisms, the study clarifies what is currently known about the pathways linking QRIS-enabled payment data to credit outcomes, where the evidence is strongest, and which gaps remain for future empirical testing. In doing so, the review contributes a structured foundation for Indonesian banking and policy stakeholders seeking to understand how payment interoperability initiatives may shape credit inclusion for merchants, beyond their immediate effects on transaction efficiency (Annan et al., 2024; Ramayanti et al., 2024).

2. Literature Review

2.1. Adoption of Instant Payments and QR-Based Mobile Payments

Research on instant payment and QR-based payment adoption consistently emphasizes perceived usefulness, perceived ease of use, trust, and enabling conditions as core drivers of acceptance. Evidence across emerging markets shows that these factors interact with social influence and perceived risk, shaping both intention and actual usage of mobile payment tools (Patil et al., 2020; Suebtimrat & Vonguai, 2021; Ramayanti et al., 2024). In Indonesia specifically, QRIS-related studies using TAM and UTAUT extensions similarly underline the role of facilitating conditions and social influence, suggesting that adoption is not only a consumer preference issue but also a function of readiness, infrastructure, and ecosystem coordination (Gunawan et al., 2023; Indarningsih & Setyono, 2024; Muchtar et al., 2024).

2.2. Merchant Acceptance, Interoperability, and QRIS Expansion

Beyond end-user intention, merchant-side adoption depends on whether QR systems reduce operational frictions in payment acceptance, settlement, and reconciliation, especially for MSMEs that lack sophisticated point-of-sale capabilities. Interoperability is frequently highlighted as a scaling mechanism because it reduces fragmentation across providers and increases the expected transaction volume per merchant, strengthening incentives to maintain acceptance. QRIS implementation work also points to process design and acceptance modes as practical determinants of reliability in daily operations, which is critical for sustained merchant usage (Mantik, 2021). Empirical results from QRIS contexts further suggest that expanded acceptance can reinforce habit formation and normalize cashless transactions, particularly when onboarding support and network effects are strong (Gunawan et al., 2023; Muchtar et al., 2024).

2.3 Digital Payment Trails as an Information Infrastructure for Credit Access

A growing stream of literature frames digital payments as an information infrastructure that can reduce information asymmetry in MSME finance by producing continuous, verifiable cashflow signals. Syntheses of fintech and SME financing research argue that improved data capture and processing can shorten the lending cycle, enhance screening and monitoring, and enable alternative financing models that are better suited to small firms with limited collateral or thin files (Sanga & Aziakpono, 2023). Complementary evidence from fintech lending indicates that alternative-data-driven approaches can expand credit access to underserved small

businesses and potentially improve pricing relative to traditional channels, supporting the plausibility of payment-linked credit mechanisms when transaction histories are informative (Cornelli et al., 2024). In parallel, studies associating digital payment platform adoption with increased trade credit activity suggest that digitization may influence both formal and informal financing channels, reinforcing the idea that payment adoption can have second-order effects on working-capital access (Abdulai et al., 2024).

2.4 Synthesis and Research Gap for QRIS-Linked Merchant Credit Outcomes

Overall, the literature supports a conceptual pathway from QRIS-enabled instant payments to improved merchant credit access via transaction visibility, reduced cash volatility, and better risk assessment, while also implying heterogeneity by merchant size, sector, and digital capability. However, much of the QRIS evidence remains concentrated on adoption intentions and usage behavior rather than credit outcomes, leaving a gap on whether and how QRIS expansion translates into measurable changes in loan approval, pricing, limits, or product choice for Indonesian merchants. This review therefore consolidates what is known across adoption and financing mechanisms, and organizes the evidence base to inform future empirical identification strategies that can credibly link QRIS adoption intensity to merchant credit access (Sanga & Aziakpono, 2023; Annan et al., 2024).

3. Methods

This study applied a systematic literature review (SLR) approach to synthesize peer-reviewed evidence on the relationship between instant payment adoption and merchant credit access in Indonesia, with a specific emphasis on insights relevant to QRIS expansion. A structured search was conducted across major academic databases commonly used in finance, economics, and information systems research (for example, Scopus, Web of Science, and Google Scholar). Search strings combined keywords related to "instant payment" and "real-time payments", "QR payments" and "QRIS", "merchant adoption" and "MSMEs", and "credit access", "SME lending", "alternative data", and "fintech lending", including relevant synonyms and Boolean operators. The review period was restricted to 2020-2024, and only journal articles published in peer-reviewed outlets and written in English or Indonesian were considered.

Screening followed a transparent, staged process. After removing duplicates, titles and abstracts were screened against inclusion criteria: explicit relevance to instant payments and/or QR-based merchant payments; merchant- or MSME-facing context (rather than consumer-only payment studies); and discussion of credit access outcomes or credible mechanisms linking payment usage to financing (for example, transaction data trails, cashflow visibility, screening and monitoring, or embedded/fintech credit channels). Full-text eligibility checks then excluded conceptual pieces without clear analytical contribution, studies outside the review scope, and non-article formats (for example, editorials, book reviews, or practitioner reports). Where studies were not Indonesia-specific, they were retained only when

they provided transferable causal mechanisms directly applicable to Indonesian merchant finance and payment interoperability settings.

For synthesis, key metadata and findings were extracted into a standardized coding template, including study context (country, sector, merchant segment), research design and empirical strategy, measures of payment adoption or intensity, definitions of merchant credit access (approval likelihood, loan terms, limits, product uptake, or alternative financing use), and the direction and strength of reported associations. Thematic synthesis was used to integrate patterns across studies and to develop an evidence-based framework explaining how QRIS-linked instant payment usage may shape merchant credit access through three interrelated pathways: (i) adoption and sustained merchant acceptance, (ii) transaction-record generation and cashflow stabilization, and (iii) lender or platform use of alternative data for screening, monitoring, and product design.

4. Results and Discussion

The reviewed evidence concentrates in three main areas, revealing both where knowledge is mature and where it remains thin. Most studies focus on adoption and usage of QR-based and mobile payments, often modeling intention and continuance behavior. A smaller set addresses merchant-side operational consequences such as acceptance frictions, settlement reliability, and recordkeeping practicality. The smallest and most policy-relevant stream connects digital payments to MSME credit access, typically through information-asymmetry and alternative-data mechanisms rather than direct tests of lending outcomes. This distribution implies that the

strongest conclusions from the SLR relate to the conditions under which QRIS-style instant payment systems diffuse and become embedded in merchant routines, while claims about credit expansion require a more mechanism-based interpretation (Gunawan et al., 2023; Annan et al., 2024; Indarningsih & Setyono, 2024; Muchtar et al., 2024).

A consistent result across the adoption literature is that perceived usefulness, perceived ease of use, trust, and facilitating conditions are the most stable predictors of QR and mobile payment uptake, with social influence frequently strengthening these relationships in dense retail environments (Patil et al., 2020; Suebtimrat & Vonguai, 2021; Ramayanti et al., 2024). Indonesian evidence in QRIS settings broadly aligns with this pattern: intention and actual use rise when users perceive clear transactional benefits, feel confident about security and reliability, and encounter sufficient acceptance points and supportive infrastructure (Gunawan et al., 2023; Indarningsih & Setyono, 2024; Muchtar et al., 2024). Interpreted through the QRIS expansion lens, these findings suggest that scale is not purely a rollout question; sustained usage depends on reinforcing loops where acceptance breadth makes the system more valuable, and rising user demand incentivizes more merchants to remain active.

Merchant-side adoption and persistence emerge as especially important when the research question shifts from payments to credit access. The literature suggests that QR acceptance is more likely to persist when it reduces daily frictions: faster confirmation, lower cash-handling burden, and simpler reconciliation for small operators who typically lack formal accounting systems (Mantik, 2021). Evidence

from Indonesian MSMEs also indicates that using e-payment services is associated with better operational performance outcomes, while highlighting practical obstacles that can suppress consistent utilization intensity (Kilay et al., 2022). For QRIS, interoperability should strengthen these dynamics by reducing fragmentation across payment providers, improving the expected payoff of learning and maintaining QR acceptance for merchants who would otherwise face uncertain demand across multiple apps.

The synthesis becomes more consequential when linking instant payments to merchant credit access. A central mechanism repeated across the digital payments literature is that payment digitization can function as an information infrastructure: it generates frequent transaction traces that can proxy for revenue stability, customer flow, and volatility, which are precisely the dimensions that are hard to observe for micro and small firms with thin documentation (Annan et al., 2024). From this perspective, QRIS expansion matters because it increases the feasibility of cashflow-based assessment, not because QR payments automatically raise profitability. The implication for Indonesian banking is that QRIS-related transaction data can be valuable only when it is sufficiently dense, persistent, and representative of overall sales rather than sporadic or confined to a small subset of customers.

Two further results sharpen this mechanism into testable expectations. First, the broader digital finance evidence indicates that "depth of use" matters: stronger, more sustained utilization of digital financial services is associated with more meaningful easing of SME financing constraints, while shallow adoption delivers weaker credit relevance (Bu et al., 2024). Applied to QRIS, this implies that the

intensive margin of adoption (frequency, continuity, and ticket-size distribution) should be more predictive of credit outcomes than the extensive margin (simply becoming a QRIS merchant). Second, evidence that digital payment platform adoption correlates with changes in trade credit behavior suggests that payments can reshape both formal and informal financing pathways, meaning that the most visible "credit effect" may differ by segment, with some merchants moving toward bank credit and others relying more on supplier or platform-linked financing (Abdulai et al., 2024). This heterogeneity is important in Indonesia because MSME financing often involves layered instruments rather than a single dominant loan product.

The reviewed studies also imply boundary conditions that can explain why credit effects are not uniformly observed and why Indonesia-specific evidence remains limited. Trust and perceived risk influence whether merchants and customers keep using QR payments at a level high enough to generate a reliable history (Patil et al., 2020; Ramayanti et al., 2024). Digital readiness and operating discipline influence the completeness of transaction records and whether merchants can operationalize QR acceptance consistently during peak demand (Trianto et al., 2023). Sector and transaction structure matter because high-frequency merchants can generate abundant data but still face thin margins, while low-frequency merchants may not generate enough observations for robust inference. Finally, the translation from payment history to credit access depends on institutional arrangements around data governance, consent, analytics capacity, and product design, which can differ across banks and fintech partners even when the underlying payment rail is standardized (Annan et al., 2024).

Taken together, the SLR supports a coherent framework: QRIS-linked instant payment adoption can plausibly expand merchant credit access through improved transaction visibility, reduced information asymmetry, and the enabling of alternative-data underwriting, but the evidence base is currently stronger on adoption and operational value than on measured lending outcomes in Indonesia. The most actionable gap for future research is empirical identification that ties QRIS usage intensity to observable credit outcomes (approval, pricing, limits, product switching), while addressing selection effects (digitally capable merchants adopt earlier) and reverse causality (creditworthy merchants may be more likely to adopt and intensify use). This gap is precisely where Indonesian banking research can add value by combining QRIS adoption indicators with administrative lending data or platform transaction histories to test whether, when, and for whom instant payments become a pathway to credit inclusion.

5. Conclusion

This review suggests that QRIS-linked instant payments in Indonesia should be understood as an ecosystem intervention rather than only a faster way to pay. Adoption and continued use tend to strengthen when QR acceptance is easy to maintain in daily operations, when trust and reliability are high, and when the network becomes more valuable as more consumers and merchants participate. In practice, the main gains come from moving routine transactions from cash to reliable, low-friction digital payments that merchants can use daily. Interoperability is not just technical; it reduces fragmentation across providers so small merchants

can serve many customers without juggling multiple systems. Over time, this supports more consistent usage and more stable payment patterns that can strengthen financial inclusion.

The synthesis also points to a plausible pathway from instant payment adoption to improved merchant credit access, mainly through information. When QRIS usage is frequent and sustained, transaction records can make cashflows more visible and consistent, helping reduce information gaps that commonly limit MSME financing. However, the literature is clearer on adoption and operational benefits than on directly measured credit outcomes, which indicates that any credit impact is likely uneven across merchant types and depends heavily on usage intensity rather than mere registration.

Overall, the most important implication is that future research and policy should move from "adoption counts" toward "usage quality". Stronger evidence will come from linking QRIS transaction intensity and continuity to observable credit outcomes such as approval likelihood, pricing, limits, and product switching, while carefully addressing selection effects and reverse causality. For practice, the strongest credit-inclusion potential is likely when QRIS expansion is paired with merchant capability-building and responsible data-use arrangements that allow payment histories to support underwriting and product design.

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