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Research Article

A Comparative Analysis of the Fintech Industry and Regulatory Frameworks in Indonesia and Malaysia

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ABSTRACT: The rapid growth of financial technology (fintech), particularly in digital payment services, has revolutionized financial transactions worldwide. Across Asia, Malaysia and Indonesia have emerged as key players in harnessing fintech to enhance financial inclusion, improve efficiency, and modernize their economies. Although they share these objectives, the two countries' development trajectories and regulatory frameworks differ substantially because of variations in their economic structures, levels of technological adoption, and regulatory practices. This study examines the fintech industries of Malaysia and Indonesia, with particular emphasis on their digital payment ecosystems, prevalent payment methods, and regulatory approaches, including frameworks for Islamic fintech. Drawing on an extensive review of academic literature and regulatory policies, this comparative analysis provides insights into strategic decisions that both countries could consider to enhance their fintech ecosystems and regulatory frameworks. The findings may serve as a guide for Indonesian and Malaysian policymakers and industry stakeholders seeking to establish resilient and inclusive fintech ecosystems supported by robust regulatory frameworks.

Keywords: Fintech, Malaysia, Indonesia, Finance, Ecosystem, Regulatory frameworks.

1. INTRODUCTION

Financial technology (hereafter referred to as fintech) is an economic trend that is accelerating in response to the global development of technology and information. The convergence of financial services and technology is not new as the use of digital innovation in the financial sector can be traced back to the 1990s. The rapid expansion of fintech has transformed financial services globally, with Southeast Asia emerging as a key hub for digital financial innovation. Among the leading players in the region, Indonesia and Malaysia have made significant strides in Fintech adoption and development. As of May 2024, Indonesia's mobile FinTech app adoption rate reached 49%, a sharp rise from 9% in 2019, while Malaysia's adoption rate stood at 55%. By 2030, these figures are projected to grow to 64% for Indonesia and 61% for Malaysia, highlighting their expanding role in shaping the region's digital financial ecosystem (DigitalCFO Newsroom, 2024).

Previous studies have examined fintech regulation in Indonesia and Malaysia, including comparative analyses of regulatory and supervisory frameworks across fintech activities (Diniyya, Aulia, & Wahyudi, 2020) and regulations governing specific segments such as equity crowdfunding (Yeon & Putri, 2022). While these studies provide valuable insights into the regulatory environment, there remains scope for a more integrated comparison that considers fintech industry development, digital payment preferences, and regulatory frameworks together. Such an approach is important for understanding the differences between the two fintech ecosystems beyond their regulatory provisions alone.

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Accordingly, this study compares fintech development in Indonesia and Malaysia by examining their industry landscapes, fintech segments, preferred payment methods, and regulatory approaches, including Islamic fintech. By bringing these dimensions together, the study offers a broader comparative perspective on the opportunities and regulatory challenges associated with fintech development in two contrasting Southeast Asian markets.

The paper is organized as follows. After the introduction, the methodology section outlines the approach to data collection and analysis. This is followed by an overview of fintech development in Indonesia and Malaysia, including the fintech landscape, segment composition, and preferred payment methods. The next section examines fintech regulations in both countries, comparing their regulatory frameworks and policies. Finally, the conclusion summarizes the key findings and insights from the comparison of the fintech landscapes in Indonesia and Malaysia.

2. METHODOLOGY

This study employs a qualitative comparative approach using secondary data to examine fintech development and regulatory frameworks in Indonesia and Malaysia. Drawing on document analysis (Bowen, 2009), the study reviews academic publications, industry reports, and regulatory documents published up to 2024. Sources were selected based on their relevance, credibility, and coverage of fintech development, digital payment systems, and regulatory practices. Data were synthesised through thematic comparison, focusing on fintech landscapes, payment preferences, and regulatory frameworks, including Islamic fintech. Following the principles of transparent evidence synthesis (Snyder, 2019), findings were cross-checked against official publications from Bank Indonesia, *Otoritas Jasa Kewangan* (Financial Services Authority), Bank Negara Malaysia, and the Securities Commission Malaysia to strengthen their reliability and consistency.

3. THE DEVELOPMENT OF FINTECH IN INDONESIA AND MALAYSIA

In Indonesia, Bank Papan Sejahtera (BPS) claimed that it was the first bank to offer online transactions through its website in 1997. It reportedly invested US$500 million in this facility to provide customers with general banking services (Widiarty, 2023). In 2006, the fintech landscape in Indonesia was small, with fintech adoption reported at 7% and only six fintech companies operating in the country. Compared with other ASEAN countries, electronic payment use in Indonesia was relatively low. Indonesia's inconsistent approach to foreign investment and its underdeveloped institutions meant that the country was late to develop an indigenous technology industry (Negara & Soesilowati, 2021). In response to these challenges, Bank Indonesia took the initiative to encourage the use of noncash transactions to create a less-cash society. In 2014, as part of the National Non-Cash Movement (GNNT) campaign, Bank Indonesia (BI) urged the public to use cashless payment methods (Safitri & Nainggolan, 2017).

Fintech began to emerge in Indonesia in 2015 and expanded rapidly in 2016, with the number of fintech players growing by 78% over the preceding two years (Khaerunnisa, 2018). Fintech has become an alternative means of conducting transactions because of the efficiency and convenience it offers. Some of the key fintech sectors in Indonesia include payments, lending, retail investment, crowdfunding, and remittances, among others (Rohman, Sugeng, Fitriana, & Aidy, 2023). The number of fintech players in Indonesia increased sixfold over the last decade, rising from just 51 active players in 2011 to 334 in 2022 (Kumar *et al*., 2023).

Among fintech services, e-money transactions in Indonesia have increased significantly from year to year, with a notable increase of approximately 400% in 2019 compared with the previous year (Ciptarianto & Anggoro, 2022). This growth is associated with the introduction of the Quick Response Code Indonesia Standard (QRIS) in August 2019, which accelerated the development of Indonesia's digital payment landscape (Nugroho, 2024). The introduction of QRIS in 2019 proved timely, coinciding with the onset of COVID-19 the following year. Mobile and online wallets recorded the greatest growth among the digital payment methods used during the COVID-19 pandemic. Between 2019 and 2022, the share of online wallets in gross transaction value (GTV) rose from 23% to 28%. This increase contrasted with the trends for cards, domestic payments, and other alternative payment methods (Nugroho, 2024).

In Malaysia, online banking services were introduced in the late 1990s. Initially, these services were available only to selected premier customers, who accessed them through an intranet connected via telephone lines. Maybank launched the first internet banking service available to the public in June 2000, using telephone lines for dial-up access (Bank Negara Malaysia, 2000).

Subsequently, internet banking services became available through other domestic banks, enabling customers to access their accounts and conduct

transactions online. This development was intended to encourage customers to use internet banking rather than ATMs. To harness this potential, the Malaysian government implemented policy measures to increase public awareness of cashless transactions. In 2001, Bank Negara Malaysia (BNM), Malaysia's central bank, introduced the Financial Sector Masterplan (FSMP). Since the introduction of the FSMP, Malaysia's fintech growth rate has been estimated at 30% annually (Rahim, Jaaffar, Sarkawi, & Shamsuddin, 2021).

In Malaysia, 2009 marked a landmark year for the fintech industry when Maybank launched M2UMap, the country's first mobile internet banking service. Other banks and financial institutions soon followed suit (Hamid, Suria, Jasni, & Salleh, 2024). The Securities Commission Malaysia established the Alliance of Fintech Community (aFINity) in 2015 to promote fintech development by fostering collaboration among fintech stakeholders, including innovators, financial institutions, the government, and others. The first equity crowdfunding platform in Malaysia, CrowdPlus, was launched that same year to help start-ups and small and medium-sized businesses secure funding through alternative channels. This initiative aimed to reduce the financial barriers faced by businesses seeking traditional financing through banks (Hamid *et al*., 2024). Malaysia's fintech industry has grown rapidly, with the number of fintech companies increasing by 164% between 2017 and 2022, reaching 612 firms in 2022 (Statistica, 2023).

As in Indonesia, payment transactions have dominated Malaysia's fintech industry, accounting for 22%, followed by lending and e-wallet services, each accounting for 9%. Cashless payments have gained traction, with e-payment transactions increasing by 31.5%, from 7.2 billion in 2021 to 9.5 billion in 2022 (Fintechnews.my, 2023). Various industry-driven initiatives have promoted QR code payments as a cost-effective solution since Malaysia's National QR Standard, DuitNow QR, was introduced in 2019. The number of merchants accepting DuitNow QR has increased significantly, particularly among micro, small, and medium-sized enterprises, reaching 1.6 million in 2022 (Bernama, 2023). Before COVID-19, e-wallet usage was steadily increasing, with penetration averaging 25% each quarter. When COVID-19 struck Malaysia in 2020, e-wallet usage surged to 57%—more than twice the pre-pandemic rate. This rise was largely driven by government e-wallet initiatives, such as e-Tunai (Q1 2020) and e-Penjana (Q3 2020), which offered Malaysians free credit for signing up (Oppotus, 2023). E-wallets have since become a mainstream mobile payment method, with post-pandemic usage averaging 25%, indicating continued consumer preference for digital payments (The Malaysian Reserve, 2021).

Indonesia and Malaysia have taken different paths in fintech development because of their distinct economic and regulatory environments. Indonesia was slow to adopt digital payments but experienced rapid growth after 2015, driven by initiatives such as the National Non-Cash Movement and growing public adoption. Its fintech sector expanded sixfold between 2011 and 2023. Meanwhile, Malaysia was an early adopter, launching internet banking in the late 1990s and mobile banking in 2009, supported by policy initiatives such as the Financial Sector Masterplan and aFINity.

3.1. The Fintech Landscape of Indonesia and Malaysia

Indonesia and Malaysia have distinct population dynamics that shape their respective economic and fintech landscapes (see Table **1**). As of 2022, Indonesia's

Table 1: The fintech landscape of Malaysia and Indonesia

Countries	Indonesia	Malaysia
Population as of 2022 (in million)	280	33
Expected GDP CAGR (2022 -2025)	9%	8%
Middle-class population growth (2016-2020) [1]	30%	25%
Population aged 15-35 years old	31%	34%
Population underbanked or unbanked 2022	81%	28%
Internet Penetration 2022 (%)	76.5%	93.8%
Digital Economy Gross Merchandise Value 2022 (in billion USD)	76.4	21

[1] Middle class is defined as people living in households earning or spending between 10-100 US dollars per person per day (PPP). The 2005 PPP standard is used as a basis to calculate the 2016-2020 middle-class size.

[2] Compound annual growth rate

Sources: YCP Solidiance (2024) and The ASEAN Secretariat (2021).

population stood at approximately 280 million, and its GDP was projected to have a compound annual growth rate (CAGR) of 9% between 2022 and 2025. The country's middle-class population grew by 30% between 2016 and 2020, highlighting a growing consumer base. This vast population includes a significant proportion of young people, with 31% aged between 15 and 35. Indonesia's large, youthful demographic provides a strong foundation for economic growth and innovation, but it also presents challenges to achieving widespread financial inclusion, given that 81% of the population was underbanked or unbanked. Despite Indonesia's lower internet penetration rate of 76.5% compared with Malaysia's, its digital economy recorded a substantial gross merchandise value (GMV) of USD 76.4 billion. This figure covers categories including digital financial services, e-commerce, travel, food, transport, and online media. This reflects Indonesia's larger digital market, consistent with its larger population and growing middle class, despite its lower internet penetration rate.

Malaysia, with a population of 33 million in 2022, had a slightly lower GDP growth rate of 8% over the same period. The 25% growth in Malaysia's middle-class population between 2016 and 2020 indicates a steady increase in purchasing power. Additionally, 34% of Malaysia's population was aged between 15 and 35, offering a favourable demographic for digital innovation in fintech. The country has a relatively higher internet penetration rate of 93.8%. With only 28% of the population being underbanked or unbanked, Malaysia is likely to focus on enhancing digital payment solutions and providing more advanced financial services to a digitally mature audience. Furthermore, its digital economy GMV of USD 21 billion and its growth of 17% in 2022 demonstrate that Malaysia's digital economy remains far behind Indonesia's in terms of market size, suggesting that it still has room for expansion in digital financial services.

The comparison between the fintech landscapes of Indonesia and Malaysia highlights distinct strengths and challenges. Indonesia's large, youthful population and strong GDP growth drive digital expansion, yet financial inclusion remains a major hurdle, with 81% of the population underbanked or unbanked. In contrast, Malaysia, with a smaller but more financially included population, boasts higher internet penetration but faces the challenge of accelerating fintech adoption and expanding its digital financial ecosystem.

3.2. The composition of the fintech segment in Indonesia and Malaysia

In Indonesia, the fintech industry is among the most heavily funded sectors, alongside e-commerce, and was dominated in 2021 by peer-to-peer (P2P) lending (50%) and e-payments (23%). As shown in Figure **1**, P2P lending's popularity stems from its convenience: loans

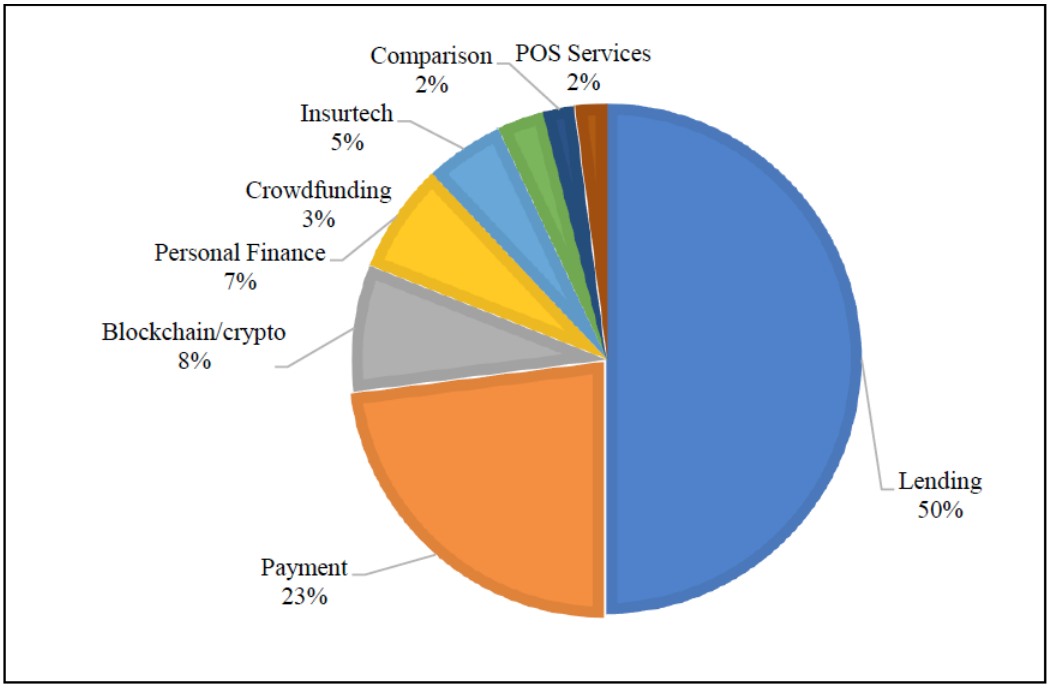


Figure 1: Composition of Indonesia's Fintech Industry by Service Segment (2021).
Source: Medina (2021).

are typically approved and disbursed in less than 24 hours, are small in amount (usually under USD 100), and have short repayment periods of only a few weeks, although they often carry high interest charges (Medina, 2021). However, in 2023, lending's share decreased to an estimated 30%, as digital payments and digital banking gained traction, thereby diversifying the fintech landscape. Despite the decline in its relative share, lending remains a key component of Indonesia's fintech ecosystem, and loan disbursements continue to grow steadily (Fintech News Indonesia, 2023). Although more than 300 fintech companies operate in Indonesia, foreign investors still believe that the industry has not yet fulfilled its potential. One factor contributing to this situation is that 60% of the country's workforce is in the informal sector, while many micro, small, and medium-sized enterprises (MSMEs) have little access to bank financing because they also operate mostly in the informal sector (BDO Global, 2021).

Aside from P2P lending, e-payment (23%) is another important segment within Indonesia's fintech space. With over 60 million active users, digital payment solutions are growing rapidly, supported by high demand for e-wallets and mobile payments. This growth is partly due to efforts to serve the unbanked and underbanked populations across rural areas (BDO Global, 2021). The e-payment segment is dominated by local players, with GoPay, OVO, Dana, and LinkAja being some of the frontrunners in the industry (Fintech News Indonesia, 2023).

In Indonesia's fintech landscape in 2021, the blockchain and cryptocurrency segment held an 8% market share, driven by increasing interest in digital assets and blockchain-based solutions. The personal finance segment, which accounted for 7% of the market, included platforms offering budgeting, savings, and investment tools aimed at enhancing financial literacy and individual wealth management. The insurtech sector, with a 5% share, aimed to broaden access to insurance through digital channels, catering to the country's underserved populations. Crowdfunding, comprising 3% of the market, provided alternative funding sources, especially for small businesses and creative projects. Comparison services, which made up 2% of the market, allowed users to evaluate financial products such as loans and insurance policies to make informed decisions. Lastly, point-of-sale (POS) services also held 2% of the market, supporting digital payment processing for retailers and small businesses looking to modernize their payment infrastructure. These segments together contributed to a diversified fintech ecosystem, thereby addressing various financial needs across Indonesia.

Meanwhile, in Malaysia, the fintech sector exhibits greater diversity across different segments, as demonstrated in Figure **2**. The market is more balanced,

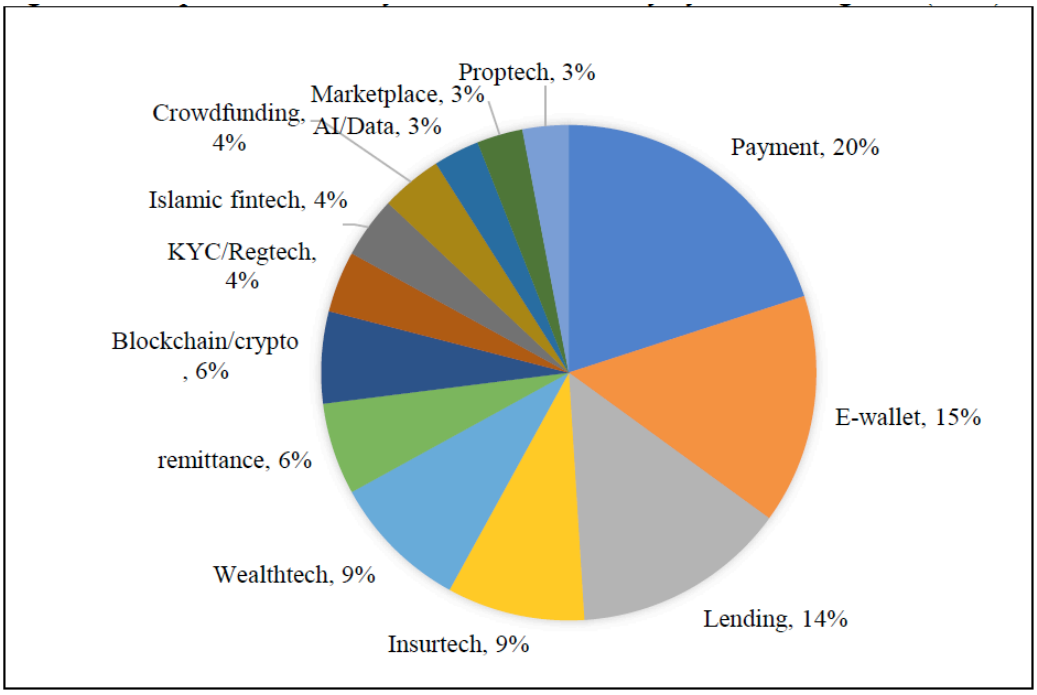


Figure 2: Composition of Malaysia's Fintech Industry by Service Segment (2021).
Source: Medina (2021).

with a strong emphasis on payments, e-wallets, and a variety of other services. Payment services led the market with a 20% share, followed by e-wallets at 15%, and lending at 14%. Payments and e-wallets have become the dominant fintech solutions facilitating daily transactions in Malaysia. Multiple mobile wallets have been launched by non-bank players in Malaysia, particularly fintech startups and major technology companies.

Other segments included insurtech and wealthtech, each holding 9%, reflecting a growing demand for digital insurance and investment solutions. Remittance services and blockchain/crypto both captured 6%, highlighting the popularity of cross-border transactions and digital assets. Malaysia also prioritized regulatory technology (KYC/Regtech) and Islamic fintech, reflecting its more structured regulatory framework and alignment with Sharia principles, while these segments were less prominent in Indonesia. Additionally, Malaysia's focus on areas like AI/Data analytics and proptech highlights its approach to fostering innovation across a wider range of fintech solutions.

The fintech industries in Indonesia and Malaysia differ in composition, reflecting their market needs and maturity levels. Indonesia's sector is driven mainly by P2P lending and e-payments, supporting its large unbanked population and MSMEs. However, as digital banking and payment solutions grow, P2P lending's dominance is declining. Other segments like blockchain, insurtech, and personal finance are emerging but remain small. In contrast, Malaysia's fintech sector is more diverse, with strong growth in payments, e-wallets, lending, insurtech, and wealthtech. The rise of Islamic fintech, AI/data, and proptech shows expansion beyond basic financial services

3.3. Preferred Payment Methods

Payment methods are a fundamental aspect of fintech, as they represent one of the core services that fintech companies provide to facilitate financial transactions in a digital environment. The development of fintech payment methods in both Indonesia and Malaysia began in the early 2010s. Many preferred payment methods have overtaken cash or traditional transactions, nevertheless, there are slight differences in consumer preferences and the adoption of technology. The Figure **3** below compares the percentage of consumer adoption of various payment methods in Indonesia and Malaysia in 2022. It highlights differences in the use of cash, online wallets, contactless cards, QR code payments, and mobile contactless payments, reflecting unique consumer behaviors and technological adoption in each country.

Although fintech innovation and trends adopted by the banking industry change over time, cash remains the dominant payment method for consumers in Indonesia, accounting for 28% of transactions, compared to 23% in Malaysia. This suggests a greater reliance on physical currency among Indonesian consumers. Malaysia, on the

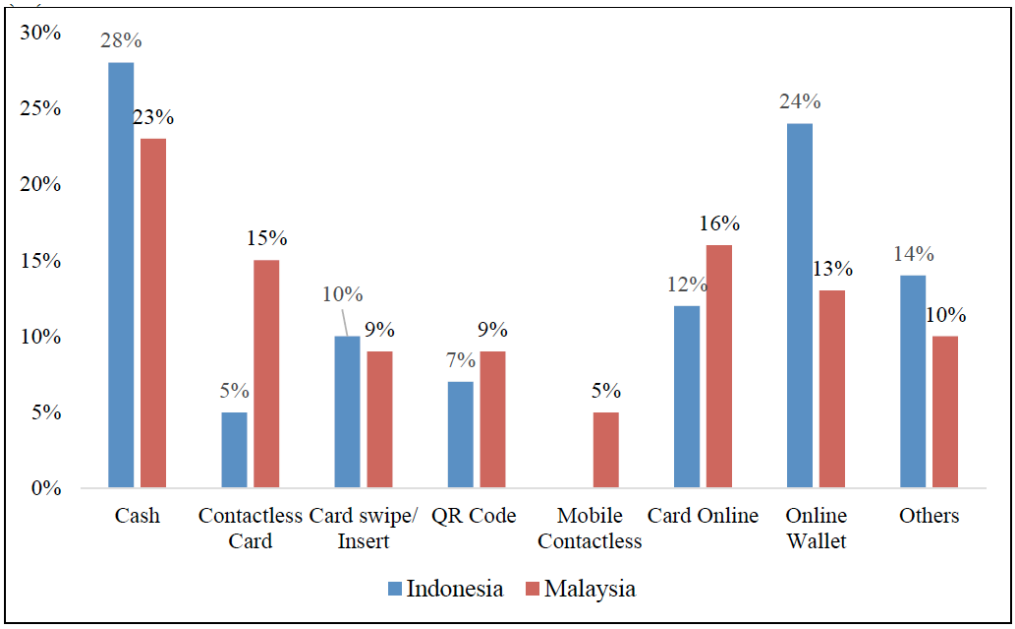


Figure 3: Preferred payment methods adopted by consumers in Indonesia and Malaysia in 2022 (%).
Sources: YCP Solidiance (2024) and The ASEAN Secretariat (2021).

other hand, shows a higher adoption of contactless card payments at 15%, while Indonesia lags behind with only 5% of transactions using this method, reflecting Malaysia's advanced embrace of contactless technology. Both countries have similar usage of traditional card swipe or insert payments, with Indonesia at 10% and Malaysia at 9%, indicating a consistent reliance on these more established payment methods.

QR code payments have gained traction in both countries, though Malaysia has a slight edge at 9% compared to Indonesia's 7%. Additionally, mobile contactless payments, while present in Malaysia at 5%, show no recorded usage in Indonesia, highlighting a gap in mobile payment adoption. When it comes to online card transactions, Malaysia again leads with 16%, compared to 12% in Indonesia, suggesting a more active e-commerce environment. However, Indonesia surpasses Malaysia in the use of online wallets, with 24% of transactions being conducted through such platforms, compared to 13% in Malaysia, likely due to the widespread availability and acceptance of e-wallet services in Indonesia. Lastly, other niche or alternative payment methods are used more in Indonesia (14%) than in Malaysia (10%). Overall, while Indonesia leans towards cash and online wallets, Malaysia's consumers have embraced contactless and card-based transactions more readily, reflecting different technological and cultural dynamics in each market.

More recent developments indicate the continued expansion of QR-based payments in both countries. In Indonesia, QRIS recorded approximately 54.21 million users and 34.68 million registered merchants as of October 2024 (Bank Indonesia, 2024). Similarly, Malaysia recorded 2.6 million registered DuitNow QR acceptance points by the end of 2024, compared with 2 million in 2023 (Bank Negara Malaysia, 2025). Although these indicators are not directly comparable, they demonstrate the continued expansion of digital payment infrastructure in both markets.

Indonesia and Malaysia have distinct population dynamics that shape their respective economic and fintech landscapes. With a nearly equal proportion of 34% to 35% of the population aged 15 to 35, both countries have a favorable demographic for digital innovation in fintech. Although Malaysia has a more digitally connected population, the smaller market size limits the overall value of its digital economy. This creates a demand for high-quality, innovative digital financial services rather than sheer market reach. In contrast, Indonesia's higher digital economy value presents a considerable market for fintech solutions that focus on financial inclusion, such as digital wallets and mobile banking services, aiming to bring financial services to those who have limited access to traditional banking infrastructure.

4. REGULATION OF FINTECH IN INDONESIA AND MALAYSIA

In Indonesia, two authorities are responsible for regulating the fintech industry. The first is Bank Indonesia, which, as the central bank, regulates fintech in relation to monetary policies and matters related to payments, including monitoring financial stability. The second is the Financial Services Authority (*Otoritas Jasa Keuangan* or OJK), which regulates fintech companies and products related to financial services, covering digital banking, P2P lending, crowdfunding, insurtech, investment, and market aggregators (Batunanggar, 2019).

In early 2023, the Indonesian government enacted Law No. 4 on Financial Sector Development and Reinforcement (commonly referred to as the P2SK Law or *Pengembangan dan Penguatan Sektor Keuangan*), expanding OJK's regulatory authority. Previously overseeing banking, capital markets, insurance, and other financial services, OJK now also regulates digital financial assets like cryptocurrencies, securities-related derivatives, and the carbon market—areas formerly under the jurisdiction of the Commodity Futures Trading Supervisory Agency (*Badan Pengawas Perdagangan Berjangka Komoditi*, or Bappebti) (Sagrado, Simanjuntak, Kandou, & Alfreda, 2023).

Bank Indonesia has also introduced its first regulation specifically addressing financial technology through BI Regulation Number 19/12/PBI/2017 on the Provision of Financial Technology. This regulation defines fintech as the use of technology in a financial system to generate products, services, technology, and/or new business models that may impact monetary stability, financial system stability, and the efficiency, security, and reliability of payment systems. A fintech provider is defined as any party engaged in fintech activities (Global Business Guide, 2017). The enactment of Law No. 4 of 2023 (P2SK Law) further defines technological innovation in the financial sector to include activities such as payment systems, capital raising, investment management, risk management, cryptocurrencies, and other digital financial services (Rolindrawan, 2023).

Comparable to Indonesia, the fintech sector in Malaysia operates under the supervision of two main government institutions: Bank Negara Malaysia (BNM) and the

Securities Commission Malaysia. As the central bank, Bank Negara Malaysia oversees the banking and insurance industries. It has issued regulations concerning digital currency exchanges, electronic Know-Your-Customer (e-KYC) requirements for fintech companies facilitating remittances, and a regulatory sandbox framework for fintech businesses. The Securities Commission regulates and develops Malaysia's capital market and has issued frameworks for digital investment management, equity crowdfunding, peer-to-peer (P2P) lending, and digital asset exchanges, including those dealing with digital currencies and digital tokens.

In the Malaysian context, there is no statutory 'definition of fintech'. As a result, the existing regulatory framework for the financial services industry also applies to fintech participants (Wong, Tan, & Tan, 2022). There is no specific legislation dedicated solely to governing the fintech sector. Therefore, fintech companies must comply with existing legislation and regulatory frameworks applicable to traditional financial services companies, depending on the nature of their activities and the types of products or services they offer (Gyn, 2022). This framework includes:

- the Financial Services Act 2013 (FSA);
- the Islamic Financial Services Act 2013 (IFSA);
- the Money Services Business Act 2011 (MSBA);
- the Capital Markets and Services Act 2009 (CMSA); and
- Various standards and guidelines issued by Bank Negara Malaysia and the Securities Commission

As such, fintech companies intending to engage in activities such as banking, investment banking, insurance or *takaful*, payment systems, or money-changing and remittance services must comply with the relevant provisions of the Financial Services Act 2013 (FSA), Islamic Financial Services Act 2013 (IFSA), and Money Services Business Act 2011 (MSBA). To apply for a regulatory license, fintech startups must first assess whether their proposed fintech activity falls under the existing regulatory framework. If it does, the relevant legislation, standards, and/or guidelines will apply.

4.1. Guidelines on Electronic Money

Both Indonesia and Malaysia and have embraced electronic money (e-money) to drive financial inclusion, enhance payment efficiency, and support digital economic growth. To support the burgeoning fintech industry regulatory bodies in Indonesia and Malaysia have implemented a range of regulations within their respective scopes of authority (see Table **2**).

In Indonesia, prior to the issuance of BI Regulation No. 20/6/PBI/2018, electronic money was governed by BI Regulation No. 11/12/PBI/2009 on Electronic Money. The 2018 regulation replaced and repealed the 2009 regulation, updating the legal framework to reflect the evolving landscape of digital payments. It introduced stricter controls on capital requirements, licensing, and consumer protection measures. Furthermore, the Payment System Blueprint 2025 outlines a strategic vision for the future of the payment system, focusing on innovation, security, and financial inclusion to support a modern and resilient financial infrastructure.

Similarly, in Malaysia, Bank Negara Malaysia issued the Guidelines on Electronic Money 2008, recognizing electronic money as a payment instrument under the Financial Services Act 2013 (FSA) and the Islamic

Table 2: Comparative Regulation of E-Money in Indonesia and Malaysia

Aspect	Indonesia	Malaysia
Main regulations	• BI Regulation No. 11/12/PBI/2009 on Electronic Money • Regulation No. 20/6/PBI/2018 on Electronic Money • Payment System Blueprint 2025	• Guidelines on Electronic Money 2008 (under FSA 2013 and IFSA 2013) • Policy Document on Electronic Money (E-Money) 2022
Licensing Requirements	• Issuers must obtain a license from BI • Classified into bank-based and non-bank-based providers	• Issuers must obtain approval from BNM • Both banks and non-bank financial institutions can issue e-money
Security & Consumer Protection	• Strict Know Your Customer (KYC) and Anti-Money Laundering (AML) requirements • Enhanced fraud detection mechanisms	• Cybersecurity and fraud prevention policies • Data protection and compliance with AML/ Combating the Financing of Terrorism (CFT) regulations

Sources: Ives, Shone, Cook, Slaughter, and May (2024a), Ives, Shone, Cook, Slaughter, and May, (2024b), and PwC (2023a).

Financial Services Act 2013 (IFSA). These guidelines were later reinforced by the Policy Document on Electronic Money (E-Money) 2022, which provides updated regulatory requirements to enhance security, promote innovation, and ensure consumer protection in the rapidly evolving digital payment landscape.

In Indonesia, e-money issuers are required to obtain a license from Bank Indonesia, which involves a comprehensive regulatory process, including capital requirements, risk management standards, and ongoing supervision (Bank Indonesia, 2009). In contrast, Malaysia requires e-money issuers to obtain approval from Bank Negara Malaysia, which, while still ensuring compliance with regulations, suggests a relatively simpler or less stringent process compared to full licensing (Bank Negara Malaysia, 2022b). This distinction reflects Indonesia's stricter oversight approach, whereas Malaysia provides a more flexible framework for e-money market entry.

Additionally, Indonesia classifies e-money issuers into bank-based providers (issued by licensed banks) and non-bank-based providers (including fintech companies and other private entities) (Bank Indonesia, 2018). On the other hand, Malaysia allows both banks and non-bank financial institutions to issue e-money without a strict classification system (Bank Negara Malaysia, 2008). This means that while Indonesia differentiates issuers based on their banking status, Malaysia provides a more inclusive regulatory framework, allowing a broader range of financial entities to participate in the e-money ecosystem.

In Indonesia, e-money security and consumer protection are reinforced through strict Know Your Customer (KYC) and Anti-Money Laundering (AML) requirements set by Bank Indonesia. E-money issuers must verify user identities and monitor transactions to prevent fraud and money laundering (Bank Indonesia, 2009). Advanced fraud detection, including AI-powered and transaction pattern analysis, further enhances security (Bank Indonesia, 2018). While in Malaysia, under Bank Negara Malaysia's regulations, prioritizes cybersecurity and fraud prevention in e-money transactions. Measures include data encryption, multi-factor authentication, and secure processing (Bank Negara Malaysia, 2008). Additionally, AML and Combating the Financing of Terrorism (CFT) regulations ensure financial transactions comply with global standards, strengthening consumer confidence in Malaysia's digital payment ecosystem (Bank Negara Malaysia, 2022b).

4.2. Regulatory Sandbox

In Indonesia, Bank Indonesia and the Indonesian Financial Services Authority (OJK) have established regulatory sandbox frameworks to enable fintech businesses to test new products and services while ensuring consumer protection, financial stability, and market integrity (Wijaya, 2023). Bank Indonesia first introduced its regulatory sandbox in 2017 through Bank Indonesia Regulation No. 19/12/PBI/2017, which was later replaced by Payment System Service Providers Regulation No. 23/6/PBI/2021 in 2021. Similarly, OJK introduced its own regulatory sandbox through OJK Regulation No. 13/POJK.02/2018 on Digital Financial Innovations in the Financial Services Sector (OJK Reg 13/2018).

Although the P2SK Law now serves as the primary legal framework for implementing the regulatory sandbox, both Bank Indonesia and OJK maintain mechanisms and procedures for its operation within the scope of their respective authorities (PwC, 2023b). However, despite the introduction of the regulatory sandbox, businesses continue to face challenges, such as unclear timeframes for the registration and record-keeping process, a lack of clear consumer complaint mechanisms, and the absence of an appeals process for regulatory sandbox results (PwC, 2023b).

In Malaysia, Bank Negara Malaysia launched the Financial Technology Regulatory Sandbox Framework in 2016, modeled after the UK framework, to create a controlled environment for testing fintech products while regulating and supporting the development of fintech solutions (Yuspin, Aditya, & Nor, 2024). However, early-stage fintech startups faced challenges meeting the eligibility criteria for sandbox participation. To address these challenges, the framework was updated on February 29, 2024, simplifying the eligibility assessment process and committing to respond to applications within 15 days.[1]

A significant enhancement to the updated framework is the introduction of the Green Lane feature. This feature allows financial institutions with strong track records in risk management, governance, and compliance to test

[1] Stage 1: Eligibility assessment
Simplified assessment with the following key changes:
- More facilitative process for applicants to demonstrate value propositions *e.g* without proof-of-concept
- Greater focus on ability of applicants to identify risks appropriately

The Bank endeavors to inform applicants within 15 working days.

innovative solutions more quickly through regulatory flexibility. While the sandbox is open to all financial institutions, fintech companies cannot directly participate in the Green Lane. However, they may collaborate with financial institutions in sandbox projects, subject to Bank Negara Malaysia's approval (Bank Negara Malaysia, 2024).

4.3. Equity Crowdfunding

The equity crowdfunding industry in Indonesia was first officially recognized on 31 December 2018 when the Financial Services Authority (FSA) issued Regulation No. 37/POJK.04/2018 concerning crowdfunding services through information technology-based share offerings, commonly known as equity crowdfunding. In 2020, this regulation was replaced by Regulation No. 57/POJK.04/2020, which aimed to expand the scope of crowdfunding services. Previously limited to "shares" (equity-based securities), the updated regulation now includes "securities," covering not only equity-based securities but also debt-based securities and *sukuk* (Islamic bonds). As a result, Regulation No. 57/POJK.04/2020 uses the term "securities crowdfunding" rather than "equity crowdfunding"(Yeon & Putri, 2022).

While in Malaysia, equity crowdfunding is governed under the Capital Markets and Services Act 2007 (CMSA). Recognizing the financial sector's shift toward the digital era, the Securities Commission of Malaysia introduced a regulatory framework for equity crowdfunding in 2015, making Malaysia the first country in the ASEAN region to implement such a framework (Hui, 2017). The ECF framework was designed to enable startups and small to medium enterprises (SMEs) to raise early-stage financing from a group of investors in addressing the funding gap for SMEs and at the same time ensuring investor protection. Under the framework, only locally incorporated companies and limited liability partnerships (excluding exempt private companies) are eligible to raise capital through ECF platforms.

4.4. P2P Lending

Peer-to-peer (P2P) lending has emerged as a significant alternative financing model, enabling direct lending between individuals and businesses through digital platforms without the involvement of financial institutions as intermediaries. To regulate this growing sector, both Indonesia and Malaysia have established distinct frameworks to ensure transparency, consumer protection, and responsible lending practices as demonstrated in Table **3** below. While Indonesia focuses on ownership limits and lending restrictions, Malaysia prioritizes investor protection and fund management safeguards. A key difference is that Indonesia allows both individuals and businesses to borrow, whereas Malaysia restricts borrowing to registered business entities.

In Indonesia, the Financial Services Authority (OJK) has introduced significant updates to the regulatory framework for P2P lending platforms. The revised regulation, OJK Regulation No. 10/POJK.05/2022 (POJK 10/2022), which took effect on 4 July 2022, replaced the previous OJK Regulation No. 77/POJK.01/2016 (POJK 77/2016) to foster a secure and sustainable P2P lending ecosystem in Indonesia. The updated regulation aims to foster a secure and sustainable P2P lending ecosystem by implementing key changes, including a single-step licensing process, replacing the previous two-step registration. Additionally, the minimum paid-up capital requirement increased to IDR 25 billion (USD 1.7 million) – ten times higher than the previous regulation. Indonesia

Table 3: Comparative Regulatory Framework for P2P Lending, in Indonesia and Malaysia

Regulation	Indonesia	Malaysia
P2P Lending	OJK Regulation No. 77/POJK.01/2016 OJK Regulation No. 10/POJK.05/2022	Capital Markets and Services Act 2007 Guidelines on Recognized Markets (2016)
Licensing Process	Single-step licensing	Operators must be locally incorporated
Minimum capital	IDR 25 billion (USD 1.7 million)	RM 5 million
Foreign Ownership Cap	85%	No specific cap
Investment Limits	Not specified	RM 50,000 for retail investors (no cap for sophisticated/angel investors)
Eligible Borrowers	Individuals & businesses	Sole proprietorships, partnerships, LLPs, private/unlisted public companies
Consumer Protection	Mandatory borrower assessments, risk management, and transparency	Background checks on issuers, trust accounts for funds

Sources: OJK Regulation No. 10/POJK.05/2022 and Guidelines on Recognized Markets (2016).

also imposes a foreign ownership cap of 85% but does not specify an investment limit. Eligible borrowers include both individuals and businesses, allowing a broad range of participants to access P2P financing. To enhance consumer protection, the regulation mandates borrower assessments, stricter risk management practices, and increased transparency requirements to promote responsible lending and prevent predatory practices.

Meanwhile, Malaysia introduced its P2P Financing Framework in 2016 under the Capital Markets and Services Act 2007, establishing a comprehensive regulatory structure to ensure transparency and investor protection. Under this framework, a P2P operator must be a locally incorporated body corporate with a minimum paid-up capital of RM5 million. However, unlike Indonesia, Malaysia does not impose a cap on foreign ownership. To protect retail investors, the framework limits investments to RM50,000 per investor, while sophisticated and angel investors face no cap. Eligible borrowers are limited to business entities, including sole proprietorships, partnerships, LLPs, private limited companies, and unlisted public companies, meaning individual borrowers are not permitted, which is different from Indonesia. Additionally, to enhance consumer protection, background checks on issuers are required, and trust accounts in licensed institutions must be established to ensure secure fund management and compliance with Shariah principles for Islamic investment notes.

4.5. Cryptocurrencies

Cryptocurrency is a form of digital or virtual currency that uses cryptography for security. Cryptocurrencies typically operate on decentralized networks powered by blockchain technology. This means they are not controlled by any central authority, such a government or financial institution.

In Indonesia, the regulatory framework for cryptocurrencies has evolved to balance innovation with financial stability and consumer protection. Initially, in 2017, Bank Indonesia prohibited the use of cryptocurrencies like Bitcoin as payment instruments, citing concerns about potential disruptions to the financial system. However, the Ministry of Trade Regulation No. 99 of 2018 formally authorized crypto asset trading and deemed it lawful. Through the Commodity Futures Trading Regulatory Agency (Badan Pengawas Perdagangan Berjangka Komoditi or BAPPEBTI), the Ministry issued Regulation No. 5 of 2019, which outlined technical provisions for the physical crypto asset market, and Regulation No. 7 of 2020, which specified the list of tradable crypto assets. These regulations classify cryptocurrencies as 'crypto assets', emphasizing their status as commodities rather than legal tender (Sufian, Syahril, & Ghapa, 2024).

The use of cryptocurrency trading applications gained immense popularity in 2021, supported by clearer regulations issued by BAPPEBTI. In 2023, activities related to digital financial assets, including crypto assets, came under the purview of the Financial Services Authority (OJK) and Bank Indonesia, as mandated by Law No. 4 of 2023 on the Financial Sector Development and Reinforcement (P2SK Law). The law acknowledges cryptocurrency as an asset rather than a currency or mode of payment. The P2SK Law stipulates the following:

1. Regulatory and supervisory duties must be transferred to the appropriate authorities within 24 months.
2. Provisions regarding the transition must be established in a Government Regulation within six months after the enactment of the P2SK Law.

However, the relevant Government Regulation has yet to be enacted (Ives *et al*., 2024a).

In Malaysia, the offering and trading of digital assets as securities is regulated by the Securities Commission Malaysia. Under the Capital Markets and Services (Prescription of Securities) (Digital Currency and Digital Token) Order 2019 ("Prescription Order 2019"), digital assets are classified as securities for regulatory purposes, provided they meet the criteria outlined in the order. Since digital assets come in many forms, the Prescription Order 2019 categorizes them into two specific types: digital currency and digital token. At present, both Bank Negara Malaysia and the Securities Commission Malaysia emphasize that digital assets are not recognized as payment instruments and are not legally accepted as legal tender for the exchange of goods and services in Malaysia (Ives *et al*., 2024b).

4.6. Islamic Fintech Regulation

Islamic fintech has emerged as an important segment of the financial technology industry in Indonesia and Malaysia, combining digital financial innovation with *Shariah* principles. In Indonesia, Islamic fintech operates under the supervision of the Financial Services Authority (OJK), supported by Shariah guidance issued by the National *Sharia* Board of the Indonesian Ulema Council (DSN-MUI). Among the key regulatory instruments are

OJK Regulation No. 10/POJK.05/2022 on technology-based joint funding services and Regulation No. 57/POJK.04/2020 on securities crowdfunding. These regulations operate alongside DSN-MUI Fatwa No. 116/2017 on Shariah electronic money and Fatwa No. 117/2018 on Shariah-compliant technology-based financing. The fatwas establish principles governing permissible contracts and prohibit elements such as *riba* (interest), *gharar* (uncertainty), and *maysir* (gambling) in financial transactions (DSN-MUI, 2017; Widayanti & Sari, 2023).

Shariah governance in Indonesia involves both regulatory supervision by OJK and Shariah guidance from DSN-MUI, with Shariah supervisory boards responsible for overseeing compliance within relevant Islamic financial institutions. This arrangement provides a framework for developing Shariah-compliant digital financing and investment products. In terms of market development, OJK reported that Shariah-compliant securities crowdfunding had raised IDR180.34 billion by the end of 2022, comprising IDR167.52 billion through sukuk and IDR12.82 billion through Shariah-compliant shares (Otoritas Jasa Keuangan, 2022). These developments indicate the potential of Islamic fintech to broaden alternative financing opportunities, particularly for micro, small, and medium-sized eerprises.

In Malaysia, Islamic fintech is regulated within the country's established dual financial system. The Islamic Financial Services Act 2013 (IFSA) provides the principal legislative framework for Islamic financial institutions, while the *Shariah* Governance Policy Document 2019 strengthens institutional accountability for *Shariah* compliance. Bank Negara Malaysia's *Shariah* Advisory Council (SAC) serves as the highest *Shariah* authority for Islamic financial institutions under its regulatory jurisdiction, supported by institutional *Shariah* committees responsible for overseeing *Shariah* compliance. Islamic fintech activities in the capital market, including equity crowdfunding and P2P financing, fall under the Securities Commission Malaysia's regulatory framework. The Securities Commission has also introduced initiatives such as FIKRA to support Islamic fintech innovation (Bank Negara Malaysia, 2022a).

Malaysia has demonstrated increasing market participation in *Shariah*-compliant alternative financing. According to the Securities Commission Malaysia (2024), *Shariah*-compliant equity crowdfunding and P2P financing raised RM524.8 million in 2023, accounting for 24% of total funds raised through these platforms, compared with 8% in 2022. This growth reflects increasing participation in Islamic digital financing. Comparatively, Indonesia's framework places considerable emphasis on product-specific *Shariah* guidance issued by DSN-MUI, while Malaysia has a more institutionally integrated *Shariah* governance structure within its Islamic financial regulatory system. Nevertheless, both countries face the challenge of ensuring that technological innovation remains consistent with *Shariah* requirements while supporting financial inclusion and consumer protection.

Table 4: Comparative Overview of Fintech Regulatory Frameworks in Indonesia and Malaysia 2024

Fintech subsector	Indonesia	Malaysia
E-money	Regulated by Bank Indonesia under BI Regulation No. 20/6/PBI/2018, with issuer licensing, capital, and consumer protection requirements.	Regulated by BNM under the FSA 2013 and IFSA 2013, with the E-Money Policy Document 2022 and issuer approval requirements.
Regulatory sandbox	Bank Indonesia and OJK oversee sandbox arrangements within their respective jurisdictions; the P2SK Law 2023 provides an overarching framework.	BNM introduced its sandbox in 2016 and revised it in 2024, including a Green Lane for eligible financial institutions.
Equity crowdfunding	OJK Regulation No. 37/2018 was superseded by No. 57/2020, expanding the framework to securities crowdfunding, including debt securities and *sukuk*.	The Securities Commission Malaysia regulates equity crowdfunding under the CMSA 2007 and its framework introduced in 2015.
P2P lending	OJK Regulation No. 10/2022 governs licensing and risk management; eligible borrowers include individuals and businesses.	The Securities Commission Malaysia regulates P2P financing under the Guidelines on Recognized Markets, with financing available to eligible business entities.
Cryptocurrencies	Not permitted as payment instruments but regulated as crypto assets; the P2SK Law 2023 provides for a transition of supervisory responsibilities.	Digital assets satisfying prescribed criteria are regulated as securities by the Securities Commission Malaysia under the Prescription Order 2019; not legal tender.
Islamic fintech	OJK regulates Islamic fintech activities, with DSN-MUI providing *Shariah* fatwas and guidance.	Islamic fintech falls under relevant BNM and Securities Commission regulations, including applicable Shariah governance requirements.

Sources: Compiled from Bank Indonesia (2018), Bank Negara Malaysia (2022, 2024), Yeon and Putri (2022), PwC (2023b), Ives *et al*. (2024a, 2024b).

4.7. Comparative Analysis of Fintech Regulatory Frameworks in Indonesia and Malaysia

Table **4** summarises the key regulatory differences between Indonesia and Malaysia across six fintech subsectors: e-money, regulatory sandboxes, equity crowdfunding, P2P lending, cryptocurrencies, and Islamic fintech.

The comparison reveals that both countries have established regulatory frameworks to support fintech development while safeguarding financial stability and consumer protection. However, differences are evident in their regulatory structures, licensing requirements, and market participation rules. Indonesia's regulatory framework reflects the need to accommodate a large and rapidly expanding fintech market, while Malaysia's framework operates within a more established financial regulatory environment. These differences highlight how the two countries have adopted distinct regulator approaches despite pursuing similar objectives of promoting fintech innovation and financial inclusion.

Beyond differences in regulatory provisions, the comparison highlights important implications for fintech market development and financial inclusion. In Indonesia, the minimum paid-up capital requirement of IDR 25 billion and the 85% foreign ownership cap for P2P lending operators may create additional entry barriers, particularly for smaller firms and foreign investors (Otoritas Jasa Keuangan, 2022). While these requirements aim to strengthen financial stability and consumer protection, they may also increase compliance costs and limit market participation. Nevertheless, Indonesia's fintech lending sector continued to expand, with outstanding lending reaching IDR 59.64 trillion by December 2023 (U.S. Department of State, 2024). In contrast, Malaysia's P2P financing framework emphasises investor protection and financing access for businesses. By December 2024, equity crowdfunding and P2P financing had collectively facilitated more than RM9 billion in funding for over 20,000 businesses, indicating the growing role of regulated alternative financing in supporting SMEs (Securities Commission Malaysia, 2024).

Regulatory coordination also has implications for cross-border fintech development. The commercial launch of the Indonesia–Malaysia cross-border QR payment linkage in May 2023 demonstrates how interoperability between QRIS and DuitNow QR enables participating financial institutions to facilitate cross-border retail payments (Bank Negara Malaysia, 2023). This initiative provides a concrete example of regulatory cooperation supporting regional payment connectivity. Overall, the findings suggest that fintech regulation involves trade-offs between market accessibility, consumer protection, and financial innovation. However, the observed market developments cannot be attributed solely to regulatory differences, as economic conditions, digital infrastructure, and consumer demand also influence fintech growth.

5. CONCLUSION

This study highlights differences in fintech development and regulatory approaches between Indonesia and Malaysia, reflecting their distinct market conditions, financial inclusion challenges, and regulatory environments. While both countries aim to promote financial innovation and consumer protection, their regulatory priorities differ, particularly in licensing requirements, market participation, and Shariah governance.

For Indonesia, policymakers should prioritise improving regulatory clarity and proportionality, particularly in P2P lending, where capital requirements and foreign ownership restrictions may create barriers for smaller fintech providers and foreign investors. A more proportionate regulatory approach, supported by effective risk-based supervision, could encourage market participation while maintaining consumer protection. Greater coordination between Bank Indonesia and OJK would also help streamline regulatory responsibilities and facilitate innovation. Given Indonesia's substantial underserved population, fintech development strategies should continue to emphasise accessible digital payments and responsible alternative financing, particularly for micro, small, and medium-sized enterprises.

For Malaysia, policymakers should focus on expanding fintech participation and strengthening innovation within its established regulatory framework. Further improvements to regulatory sandbox accessibility, particularly for smaller fintech firms, could encourage the development and testing of innovative financial solutions. Malaysia could also leverage its institutional Shariah governance framework to strengthen Islamic fintech innovation, particularly through Shariah-compliant crowdfunding and P2P financing. For industry stakeholders, greater emphasis on affordable digital financial services and SME financing could help extend the benefits of fintech beyond existing digitally connected users.

At the regional level, both countries should strengthen regulatory coordination to facilitate cross-border payment interoperability, building on the QRIS–DuitNow QR payment linkage. Greater collaboration in regulatory information sharing, consumer protection, and compliance standards could help support cross-border fintech services while reducing regulatory fragmentation. Overall, the findings suggest that effective fintech regulation requires approaches that reflect national market conditions while balancing financial inclusion, innovation, and financial stability.

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CONFLICTS OF INTEREST STATEMENT

The author declares that there are no conflicts of interest related to the publication of this article.

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