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Can Digital Currencies End Financial Exclusion in Indonesia? Economic Realities and Policy Ambitions

by Nicola Bilotta

PRODIGEES

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ABSTRACT

Financial technology has been driving financial inclusion worldwide. The development and adoption of digital currencies could be a game-changer to further scale up efforts towards universal financial inclusion. Indonesia is no exception. With millions of people still unserved or unbanked, digital currencies represent a great opportunity. While in theory a digital rupiah and crypto assets could boost financial inclusion, they should be designed and regulate appropriately if such policy goals are to be met. Otherwise, the risk is to further marginalise people already financially excluded from the formal economy and to incentivise the misuse and abuse of digital assets.

keywords

Indonesia | Currency | Digital policy | Financial services

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Introduction

Digitalisation is driving Indonesia's economic development. The empowerment of an efficient system of digital payments is a key underlying factor for the establishment of an inclusive and well-developed digital economy. As a first and fundamental step, the Bank of Indonesia launched the "National Cashless Movement" (GNNT) in 2014. This vision was further advanced with the "Indonesia Payment System Blueprint 2025" (IPS), which aimed at boosting digitalisation in the banking industry through open banking and technology developments. As a result, Indonesia's digital economy and finance is recording remarkable upward trends – such as an increase of 36.9 per cent in e-commerce and 52.6 per cent in fintech lending transactions between 2020 and 2021. Similarly, cashless payments are experiencing a spectacular growth. The usage of the Quick Response Indonesia Standard (QRIS) system, which enhances cashless payment, has doubled. Credit card transactions and e-money usage increased by 20 per cent and 51.6 per cent, respectively, in the same two-year period.[1]

[1] Sally Chen et al., "CBDCs in Emerging Market Economies", in *BIS Papers*, No. 123 (April 2022), https://www.bis.org/publ/bppdf/bispap123.htm.

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In this context of vibrant, quick transformations, a diverse ecosystem – which comprises incumbent financial institutions, start-ups and technology companies – is trying to advance Indonesia's digital payments while targeting the goal of financial inclusion.[2] The rise of digital payment solutions indeed provides a unique window of opportunity to tackle the current 92 million unbanked Indonesians[3] and 62 million small and medium-sized enterprises (SMEs)[4] that are excluded from the formal economy in Indonesia.

Despite the recent developments, the current financial system grounded on commercial bank money face three main challenges when dealing with financial exclusion. First, citizens require a bank account. Poorer people might not access a bank account for several reasons – such as the lack of proper and required documentation, or because they live too far from the closest branch or because the minimum balances or fees are too onerous. The World Bank estimates that only 48.9 per cent of Indonesian owned a bank account in 2018 and only 3.1 per cent had a mobile bank account. Second, despite a growing number of challenger financial actors, incumbent institutions face limited competition, which results in higher service costs. However, the percentage of bank assets held by the three largest banking holding companies in the country dropped from 40.3 per cent in 2014 to 26.7 per cent in 2020.[5] Third, millions of people rely on remittances, which have high transaction costs (it costs 14 US dollars on average to send 200 US dollars home). It is estimated that 7 per cent of the amount sent is eaten up by the exchange rate margin.[6]

While the digital payment industry seems to have been a positive driver of inclusion, the broader range of financial services is still modestly accessible to millions of Indonesians. As acknowledged by the growing literature on central bank digital currencies (CBDCs), a CBDC could ease the development of more inclusive and affordable financial services with additional tools to scale up universal financial inclusion while mitigating the constraints of the current financial system. The Bank of Indonesia asserts that a key policy goal of its digital rupiah would be to address financial inclusion. Yet, risks that a digital rupiah could further marginalise

[2] Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs (transactions, payments, savings, credit, and insurance) and are delivered responsibly and sustainably (point 12 of the Bali Fintech Agenda). See International Monetary Fund, "The Bali Fintech Agenda: A Blueprint for Successfully Harnessing Fintech's Opportunities", in *IMF Press Releases*, No. 18/388 (11 October 2018), https://www.imf.org/en/News/Articles/2018/10/11/pr18388-the-bali-fintech-agenda.

[3] Google, Temasek and Bain&Company, *e-Conomy SEA 2019*, October 2019, p. 45, https://www.bain.com/insights/e-conomy-sea-2019.

[4] Arip Tirta and Prasanti W. Sarli, "Indonesia's SMEs Hold the Key to Growth. How Can They Scale Up?", in *World Economic Forum Articles*, 30 September 2021, https://www.weforum.org/agenda/2021/09/how-can-indonesian-smes-scale-up.

[5] The GlobalEconomy website: *Indonesia: Banking System Concentration Index*, https://www.theglobaleconomy.com/Indonesia/banking_system_concentration.

[6] Stephen Cecchetti and Kim Schoenholtz, "The Stubbornly High Cost of Remittances", in *VoxEU*, 27 March 2018, https://cepr.org/node/362681.

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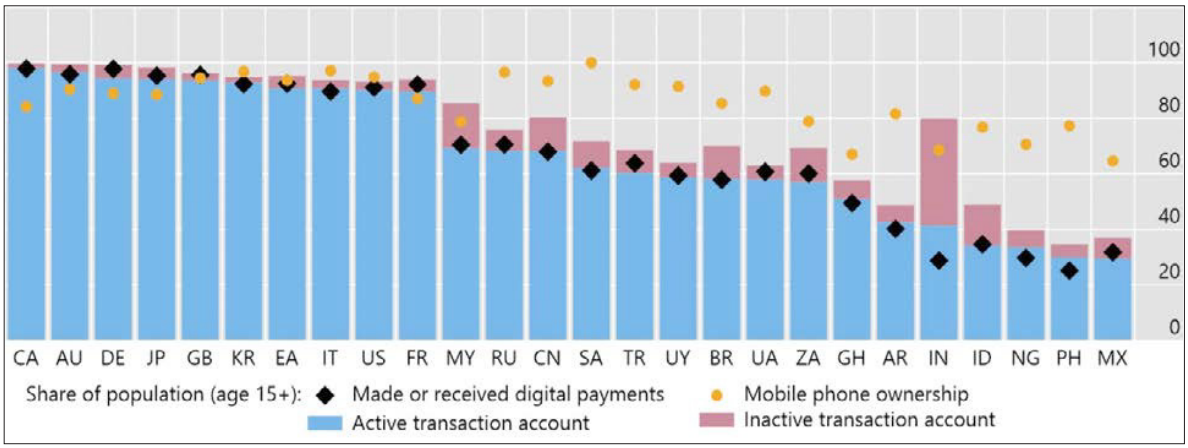
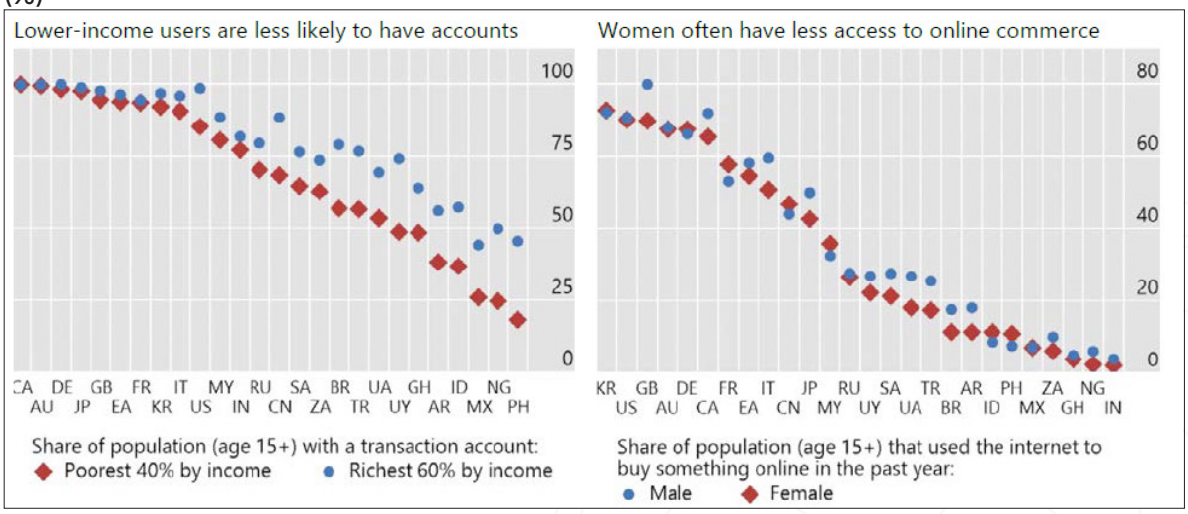
people already financially excluded still exist.

Figure 1 | Account access, mobile phone ownership and use of digital payments (%)



Note: For EA, simple average of the member countries. Data for 2017.
Source: Raphael Auer et al., "Central Bank Digital Currencies: A New Tool in the Financial Inclusion Toolkit?", in *FSI Insights*, No. 41 (April 2022), p. 5, https://www.bis.org/fsi/publ/insights41.htm.

Figure 2 | Access to accounts by income and access to online commerce by gender (%)



Note: Data for 2017.
Source: Raphael Auer et al., "Central Bank Digital Currencies: A New Tool in the Financial Inclusion Toolkit?", cit., p. 7.

On the other side of the spectrum of digital currencies, crypto assets[7] are often suggested as means to address structural deficiencies of existing financial systems. Crypto assets could be easily accessed, traded and exchanged by anyone

[7] In this paper, the term "crypto assets" refers to digital or virtual, decentralised assets that have been tokenised and comprises both, cryptocurrencies and stablecoins.

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with a phone and Internet connection, with low transaction costs. Moreover, through crypto assets users could access further financial services at lower prices. Nevertheless, crypto assets also pose new challenges and risks, making their link with financial inclusion – at least – contentious.

1. Digital rupiah and financial inclusion

In January 2018, the Bank of Indonesia announced its plan to launch a national CBDC. In May 2021, the Bank of Indonesia's governor Perry Warjiyo reaffirmed the country's plan to launch its CBDC as a response to three main policy objectives: (i) maintain monetary sovereignty in a digital era; (ii) participate in the global effort around CBDCs; and (iii) foster a deeper integration of the domestic digital economy and the financial system.[8] The last objective comprises the goal of reducing barriers to financial access for those excluded or unserved by the current financial system.

A CBDC system could indeed boost financial inclusion as confirmed by a growing literature on the topic.[9] A recent Bank for International Settlement (BIS) survey shows that 81 central banks found financial inclusion to be a top priority for CBDC development amongst emerging markets and developing economies (EMDEs).[10] A digital rupiah could provide the unbanked with an alternative pathway to access transactional accounts. For example, the e-naira in Nigeria mitigates the transaction costs related to banking requirements simplifying the access to an e-naira wallet for those without IDs or formal addresses. The e-naira wallet is also built to be an "entry point" to enter further financial services such as credit and loans or develop a credit score. Furthermore, CBDCs are expected to reduce transaction costs by 50 per cent,[11] as costs and fees related to a transaction could

[8] Bastian Muzbar Zams et al., "Designing Central Bank Digital Currency for Indonesia: The Delphi–Analytic Network Process", in *Bank Indonesia Working Papers*, No. 4/2019 (October 2019), https://www.bi.go.id/id/publikasi/kajian/Documents/WP_4_2019.pdf; "Bank Indonesia Joins Global C.Bank Push for Digital Currencies", in *Reuters*, 25 May 2021, https://www.reuters.com/article/indonesia-cenbank-cryptocurrency-idUSL2N2NC0NX.

[9] See: Committee on Payments and Market Infrastructures (CPMI) and World Bank, "Payment Aspects of Financial Inclusion in the Fintech Era", in *CPMI Papers*, No. 191 (April 2020), https://www.bis.org/cpmi/publ/d191.htm; World Bank, *Central Bank Digital Currency. A Payments Perspective*, Washington, World Bank, November 2021, http://hdl.handle.net/10986/36765; Jesse Leigh Maniff, "Inclusion by Design: Crafting a Central Bank Digital Currency to Reach All Americans", in *KC Fed Payments System Research Briefings*, 2 December 2020, https://www.kansascityfed.org/research/payments-system-research-briefings/inclusion-by-design-crafting-central-bank-digital-currency; Barry Cooper, Antonia Esser and Michaella Allen, *The Use Cases of Central Bank Digital Currency for Financial Inclusion: A Case for Mobile Money*, Cape Town, Centre for Financial Regulation & Inclusion (Cenfri), 2019, https://cenfri.org/publications/central-bank-digital-currency-cbdc-and-financial-inclusion; Erin Gjefle et al., *Centering Users in the Design of Digital Money*, Maidenlabs, December 2022, https://dci.mit.edu/user-research-collaborations; Raphael Auer et al., "Central Bank Digital Currencies: A New Tool in the Financial Inclusion Toolkit?", cit.; Erik Feyen et al., "What Does Digital Money Mean for Emerging Market and Developing Economies?", in *BIS Working Papers*, No. 973 (October 2021), https://www.bis.org/publ/work973.htm.

[10] Sally Chen et al., "CBDCs in Emerging Market Economies", cit.

[11] BIS Innovation Hub et al., *Inthanon-LionRock to mBridge. Building a Multi CBCD Platform for*

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be lowered using simple features phones.[12] In a future scenario in which several national CBDCs are deployed, bilateral and multilateral CBDC-arrangements can promote the establishment of a new payment system network based on multi-CBDCs arrangements in which exchange risks and transaction costs are drastically reduced. In Indonesia, remittances accounted for 0.9 per cent of total GDP – 9.64 billion US dollars – in 2020.[13]

Moreover, most relevantly, a digital rupiah could help deliver public goods and government services delivery – such as social spending government-to-citizen payments (G2P). A CBDC system can be issued as "programmable money", meaning that the allocated amount could be used only for predefined and specific purposes. The potential application of "programmable money" is remarkable. For example, the COVID stimulus package implemented by the Indonesia government included cash transfers to poorer workers. If a digital rupiah had existed, the government could have been able to send direct payments much more rapidly than through checks or tax refunds and could have provided geographically and temporally targeted relief while controlling how the funds were used.[14] Funds issued to help citizens and businesses could then be processed faster and more efficiently than in the current system, which relies on third party intermediation.[15] This policy objective would be in line with Indonesia's recent extensive effort to improve the efficiency of its G2P payments as the basis of more inclusive policy actions. In the past few years, the country has moved from manual payments to account-based payments using state-owned banks and are now moving towards a recipient centric design.[16]

Yet, despite potential benefits, to properly address financial inclusion, a CBDC system needs to be designed to pursue this policy objective according to the specific socio-economic characteristics of a country. A CBDC could help to mitigate the five main structural factors which generally undermine financial inclusion in Indonesia.

International Payments, September 2021, https://www.bis.org/publ/othp40.htm.

[12] Habtamu Fuje, Saad Quayyum and Franck Ouattara, "Exploring and Piloting Digital Currencies Is Becoming More Popular Amongst African Central Banks, But Why?", in *World Economic Forum Articles*, 4 July 2022, https://www.weforum.org/agenda/2022/07/more-african-central-banks-are-exploring-digital-currencies-69560066da.

[13] World Bank Data: *Personal Remittances, Received (Current US$) - Indonesia*, https://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT?locations=ID.

[14] Biagio Bossone and Harish Natarajan, "Getting Funds to Those in Need and Enabling Access to Money during COVID-19, Part 3: Central Bank Digital Currencies and Other Instruments", in *VoxEU*, 15 July 2020, https://cepr.org/node/359088.

[15] Michal Rutkowski et al., "Responding to Crisis with Digital Payments for Social Protection: Short-term Measures with Long-term Benefits", in *World Bank Blogs-Voices*, 31 March 2020, https://blogs.worldbank.org/voices/responding-crisis-digital-payments-social-protection-short-term-measures-long-term-benefits.

[16] World Bank, *Towards Indonesia's G2P 4.0 – A Recipient Centric Modern Architecture*, 23 November 2021, https://www.worldbank.org/en/events/2021/11/23/toward-indonesia-g2p-4#3.

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First, countries with vast territories, rural areas or many islands – a perfect description of Indonesia's geography – face higher financial exclusion as physical and data connectivity is more challenging. More than 43 per cent of Indonesians live in rural areas and the country has more than 7,500 islands. According to a World Bank survey, 33 per cent of Indonesians without an account indicated the location of the financial institution was too far as the major issue.[17] However, while they reduce the need of physical proximity, CBDC-transactions require the internet. There are currently around 94 million Indonesians without Internet access on a mobile device – of which 80 per cent from rural areas.[18] Moreover, a smartphone is needed to allow transactions through a CBDC system. While 80 per cent of Indonesians have a smartphone,[19] buying the least expensive internet-enabled phone would cost the equivalent of one fifth of the monthly expenditures of a low-income person. A digital rupiah should then be designed with an offline payment functionality to allow transactions also with no mobile network coverage or internet. The introduction of a domestic CBDC should also be accompanied by a decisive effort in digital infrastructure's investments in remote areas.

Second, to access financial services, a form of identification is required to meet the basic know-your-customer (KYC) checks. A CBDC could allow users to set up digital wallets with effective yet practicable KYC requirements. For example, in regions with high smartphone usage, SIM card registration can be used as a means of identifying people. Yet, this approach risks increasing chances of fraudulent activity if not properly designed. The adoption of a CBDC could then ease the introduction and adoption of basic digital IDs, which could produce positive spillover effects as this digital ID could be used to access a larger set of public services – such as "programmable money" solutions in social spending.

Third, unserved and unbanked people tend to lack the knowledge on how to open a bank account or access further financial services. Indonesia's latest National Survey on Financial Literacy revealed that only 21.84 per cent of Indonesian citizens were classified as "well literate"[20] and only 15 per cent were aware of mobile money services.[21] Moreover, the Economist Intelligence Unit in 2021 ranked Indonesia 66th out of 120 countries in its inclusive Internet index. While

[17] Hilman Hanivan and Nasrudin Nasrudin, "A Financial Inclusion Index for Indonesia", in *Bulletin of Monetary Economics and Banking*, Vol. 22, No. 3 (2019), p. 351-366 at p. 352, https://doi.org/10.21098/bemp.v22i3.1056.

[18] Imam Setiawan, Utz Pape and Natasha Beschorner, "How to Bridge the Gap in Indonesia's Inequality in Internet Access", in *World Bank Blogs-East Asia & Pacific on the Rise*, 13 May 2022, https://blogs.worldbank.org/eastasiapacific/how-bridge-gap-indonesias-inequality-internet-access.

[19] Statista, *Smartphone Penetration Rate in Indonesia from 2017 to 2020 with Forecasts until 2026*, 23 March 2022, https://www.statista.com/statistics/321485.

[20] Indonesian Financial Services Authority, *Indonesian National Strategy for Financial Literacy*, Jakarta, 2013, p. 17, https://sikapiuangmu.ojk.go.id/FrontEnd/images/FileDownload/184_OJK_NATIONAL%20STRATEGY%20FOR%20FINANCIAL%20LITERACY.pdf.

[21] OECD Development Centre, *Economic Outlook for Southeast Asia, China and India 2019. Towards Smart Urban Transportation*, December 2018, p. 149, https://www.oecd.org/dev/asia-pacific/saeo-2019-Indonesia.pdf.

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Indonesia's performance was in the top half of the list for availability and relevance of the Internet, it performed within the bottom half of countries in affordability and readiness, with specific deficiencies in literacy rates.[22]

The issuance of a digital rupiah would need to be accompanied by a remarkable effort to increase basic financial literacy. The Bank of Indonesia can play a key role in helping third-party intermediaries to develop friendly, easy-to-use mobile apps to access a digital rupiah. It could design its CBDC allowing its users to print a QR code and make use of it for offline purchases. Moreover, it could also force third-party intermediaries to enable access to special groups with limitations or promote targeted digital and financial literary campaigns on access to and acceptance of CBDC.

Fourth, a digital rupiah could foster further competition in the financial sector. In a CBDC tier-two system, public-private integration could incentivise new players to provide valued-added financial services while, potentially, reducing transaction costs for incumbent players. The Bank of Indonesia would provide a robust and low-cost public sector technological infrastructure and novel interfaces on which the private sector could develop new innovative services. The Bank of Indonesia could also provide low-cost CBDC payment services with fees set by the central bank, using Application Programming Interfaces (APIs) to share data with appropriate safeguards, such as separating transaction and personal data, and technological solutions with offline functionality. Moreover, to increase competition, a CBDC could allow for a new type of intermediaries that offer payment services but do not handle customer funds. Another application to foster financial inclusion is data portability. If the Bank of Indonesia set all e-wallets to enable transaction histories in a structured and machine-readable format, this set of data could be easily shared by users with other financial institutions to obtain additional financial services like credit facilities.

Lastly – and more importantly –, Indonesia is a very unequal country. A report of the World Bank estimated that Indonesia's Gini index increased to 39.0 in 2017 from 30.0 in the 1990s.[23] According to a 2019 survey of the World Bank, 72 per cent of Indonesians with no account cited insufficient funds as the reason for not having an account.[24] It needs to be clear that a CBDC system could potentially help tackle high transaction costs, credit risk or lack of documentation but it will not address lack of wealth, which is the major cause of financial exclusion.

[22] Ariza Ayu Ramadhani, "Fintech Could Be a New Source of Financial Exclusion", in *The Jakarta Post*, 23 November 2021, https://www.thejakartapost.com/opinion/2021/11/23/fintech-could-be-a-new-source-of-financial-exclusion.html.

[23] Yenny Tjoe, "Two Decades of Economic Growth Benefited Only the Richest 20%. How Severe Is Inequality in Indonesia?", in *The Conversation*, 28 August 2018, https://theconversation.com/two-decades-of-economic-growth-benefited-only-the-richest-20-how-severe-is-inequality-in-indonesia-101138.

[24] Hilman Hanivan and Nasrudin Nasrudin, "A Financial Inclusion Index for Indonesia", cit., p. 352.

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A digital rupiah has indeed the potential to address structural gaps in Indonesia's current financial system, if properly designed. However, it also poses risks. In addition to financial stability concerns and monopoly risks, a CBDC could have a reverse effect on financial inclusion. People who are currently excluded from the growing digitally provided financial services might be further marginalised if the Bank of Indonesia fails to include them in a digital rupiah's ecosystem. Despite the widespread and increasing uptake of mobile technology and internet usage, a persistent segment of society remains that is lacking internet access. If an increased number of public and private financial services are linked to a digital rupiah, anyone the excluded will face even greater barriers. The Bank of Indonesia needs to incorporate onset functionalities and technical solutions to ensure that its digital rupiah remains accessible to everyone, 100 per cent of the time.

2. Driving financial inclusion through crypto assets: Risks and opportunities

The establishment of efficient regulatory frameworks is fundamental to incentivise innovation in the banking industry. The Bank of Indonesia has been extremely dynamic in promoting proactive regulations to boost the development and adoption of digital payment and financial services solutions. With the GNNT initiative and the IPS vision, the Bank of Indonesia has set the fundamentals to regulate and build an innovative digital payment system that includes incumbent players as well as non-bank newcomers. However, the Bank of Indonesia has been more cautious when dealing with the emergence of crypto assets.

In Indonesia, crypto assets cannot be used as a medium of exchange (payments). By law – Article 23B of the Indonesian constitution and the currency legislation of 2011 – all financial transactions in the country need to be in Indonesian rupiah – with the exception of international transactions, government spending, and bank deposits. Therefore, cryptocurrencies and stablecoins are only allowed for investment purposes. Incumbent financial institutions and newcomers are then forbidden to ease payments through digital currencies. Because crypto assets are classified as "commodities", their supervision is enforced by the Ministry of Trade Regulation and not by the Bank of Indonesia. In 2018, the Ministry of Trade Regulation formally authorised crypto asset trading. In 2019, the Indonesian Commodity Futures Trading Supervisory Authority released a new regulatory framework, Regulation No. 5 of 2019, on crypto assets. A year later, it presented a list of crypto assets that could be traded legally.

According to data from the Commodity Futures Trading Regulatory Agency, the number of investors has grown by 89.5 per cent since 2020, from 1.5 million to 7.35 million.[25] According to Gemini's 2022 Global State of Crypto, Indonesia currently

[25] TripleA website: *Cryptocurrency Ownership Data for Indonesia*, https://triple-a.io/?p=28430.

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leads in cryptocurrency ownership worldwide in terms of percentage adoption – around 41 per cent of surveyed participants with an income higher than 14,000 US dollars in Indonesia own digital assets. Furthermore, more than half of crypto investors in the country are women. Even though the survey only took into account wealthy Indonesians – whose average income is 4,350 US dollars –, it provides an interesting angle on crypto's adoption. In a country in which only 2.6 people have access to equity investments,[26] crypto assets are rapidly becoming an alternative to traditional investment products. While the traditional stock market and financial intermediaries are largely perceived as costly and they require a high initial investment, the crypto asset market is easier and cheaper to access.

In July 2022, Mastercard announced a partnership with the Indonesia crypto asset trading company Fasset. Mastercard mentioned its ambition to support Fasset's mission to advance financial inclusion through the provision of digital financial services to Indonesians. Fasset believes that crypto assets' ownership can empower new access to financial services through the investment in digital products, developing training and education platforms to bring the underserved segment to the formal economy. Fasset has yet to start its operations in the country, though. According to people familiar with matter, Mastercard and Fasset might also target the remittance market. Crypto assets can provide consumers with trusted and safe alternative intermediary, if properly regulated, to send money abroad as they could reduce the costs of transferring money, with great advantages especially for microtransactions and remittances which currently have high transaction costs. According to the existing regulations on crypto assets, remittance services seem to operate in a grey area. Moreover, in 2021 the US giant Ripple purchased 40 per cent of Tranglo, a cross-border payment firm that operates in Indonesia. The Indonesia Bitcoin exchange ArtaBit partnered with Bitspark, a Hong Kong-based crypto asset trading platform, to offer a remittance service through Bitcoins between Hong Kong and Indonesia. According to people familiar with the matter, while the costs of service for these transactions is about 5–10 per cent of remitting funds, Bitspark's and ArtaBit's services have a flat fee of about 25 Hong Kong dollars. This solution would provide users with a cheaper option than traditional channels.

As clearly showed by the number of initiatives and actors involved, from foreign incumbent banks to domestic start-ups, the potential marketability of crypto assets for investments and remittances is considerable indeed. This argument fits the common narrative that crypto assets could bolster financial inclusion because they are easier to access than traditional financial services as they need only internet and a device without the need of a bank account or traditional financial intermediaries. Moreover, crypto assets could side-step issues related to mistrust in the traditional financial industry which seem to be a crucial issue in Indonesia. In conclusion, crypto assets could help the unbanked or the unserved because they can develop

[26] Indonesia Stock Exchange (IDX), *Offerings for 44th Years of Indonesia Capital Market's Reactivation: 1 Million SID New Shares as of August 2021*, 2 September 2020, https://idx.co.id/en-us/news/press-release-detail/?emitenCode=1560.

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more affordable and easier financial service products, from payments to savings or investments. The question, however, is whether and how crypto assets can help foster financial inclusion in Indonesia.

While the digital payment market in the country provides a growing inclusive and quite efficient system, other financial services are still largely inaccessible for a large share of the population. There is still a large portion of Indonesians who rely on informal financial services that could benefit from the promises of cheaper and easier form of money management through a smartphone. Yet, despite potentially allowing for cheaper transaction costs, crypto network charge transaction fees are often as high – if not higher – than traditional money transfer or bank accounts. Moreover, in Indonesia, financial exclusion is firstly a result of poverty. In rural areas, people lack the financial and educational means – often also the connection to the Internet – to access mobile financial services. Whether crypto assets can help to mitigate these barriers is questionable.

Furthermore, crypto assets produce remarkable risks. According to a recent survey by Tokenomy on crypto assets' holders in Indonesia, 48 per cent of respondents cited their highest level of education as high school while 44 per cent as university degree level.[27] Many Indonesians purchase crypto assets without being properly aware of potential risks. Instead of adopting a predictive analysis-based strategy, they tend to follow a priced based strategy, meaning that they tend to purchase crypto assets based on how cheap they are, hoping that these assets' value could rise in short-medium term. Due to low financial literacy levels, many investors tend not to be aware of the different strategies and expected outcome that are determined by short-term trading and long-term investment.

Moreover, younger holders tend to follow suggestions and advices from social media influencers, who act as "brand ambassadors" of specific crypto assets. For example, in February 2022 the crypto asset Asix, developed by local music celebrity Anang Hermansyah with other social media influencers, became rapidly popular. However, Asix published a very vague white paper that does not explain in detail the infrastructure and the operating mechanisms of its system.[28] Moreover, the price of Asix suddenly dropped after the Indonesian Commodity Futures Trading Supervisory Authority reported that Asix was not legally allowed to be traded in the country. At the peak of its value, Asix supplied 10 billion coins and it was traded at 0.00004 US dollar. Since its collapse, it has oscillated around 0.000000005 US dollar (about -100 per cent). Thousands of small retail investors recorded significant losses.

[27] Jake Tennant, "2021 Indonesia Cryptocurrency Investor Report. Part 1: The Growth in Adoption of Crypto Assets in Indonesia", in *Tokenomy*, 17 March 2021, https://tokenomy.medium.com/2021-indodax-cryptocurrency-investor-report-part-1-the-growth-of-crypto-assets-in-indonesia-127c93da3975.

[28] ASIX Whitepaper Official website: https://asix-token.gitbook.io/asix-whitepaper-official.

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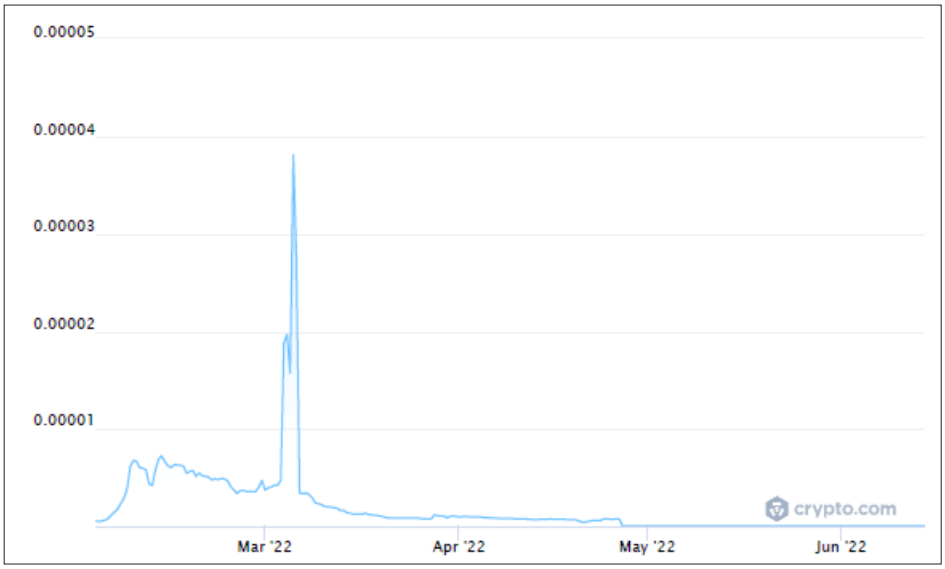
Figure 3 | Asix price (US dollars)



Source: Crypto.com Price Index: *ASIX Token Price*, https://crypto.com/price/asix-token.

Figure 4 | I-COIN price (US dollars)

Source: Crypto.com Price Index: *I-COIN Price*, https://crypto.com/price/i-coin.

The crypto asset I-COIN sheds further lights on unstructured crypto asset projects. I-COIN was issued and promoted by Wirda Mansur, daughter of the very famous Indonesian religious leader Yusuf Mansur. Yusuf Mansur actively spoke in favour of his daughter's I-COIN project, claiming that I-COIN was "halal" – permissible by the Islamic laws – and that its holders were actually buying "real estate in heaven" when buying I-COIN. This digital coin became extremely popular with a supply of

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around 30 billion coins, reaching a peak of 0.06 US dollar before crashing in a less than a month to 0.002 US dollar (-96.6 per cent). According to people familiar with the matter, most of I-COIN holders were young, uneducated Indonesians who were falsely attracted by the prospect of a "halal" investments.

These two cases, among others, show the risks related to crypto investments by younger and uneducated people who might not have the instruments to properly assess their purchase. However, similar risks are also found in the traditional stock market. For example, algorithmic trading programmes have become quite popular in Indonesia. Yet, millions of small investors have lost their money after discovering that several of the existing programmes were shut down as they lacked the required license from the Commodity Futures Trading Regulatory Agency. Financial literacy seems to be a broader issue that blurs the boundaries of crypto assets. As most Indonesians have not had access to financial services for a long time, they are lacking the experience and expertise to efficiently deal with investment strategies.

Overall, significant doubts remain on a so far unproved link between crypto assets and financial inclusion in Indonesia. While it might true that crypto assets can reach an unserved, larger customer base, it is disputable whether they are providing users with more affordable and safe financial services.[29]

Conclusion

From e-wallets like Alipay and WePay in China to m-Pesa in Africa, financial technology has been driving financial inclusion worldwide. The development and adoption of digital currencies could be a game-changer to further scale up the efforts towards universal financial inclusion. Indonesia is not an exception. With still millions of people unserved or unbanked, digital currencies represent a great opportunity. Unsurprisingly, the Bank of Indonesia has set financial inclusion as a policy goal of its digital rupiah's project. While in theory a digital rupiah could ease the establishment of tools and services that could boost financial inclusion, it needs to be designed and implemented to pursue such a policy goal. It will not be an easy challenge, though. First, the Bank of Indonesia will need to develop technical solutions to promote and ease the adoption of a digital rupiah. Second, the Bank of Indonesia should accompany the issuance of its digital money with an incisive financial literacy campaign while the government should advance its plan of investment in digital infrastructure in rural areas to expand Internet and mobile access.

[29] World Economic Forum, "What is the Value Proposition of Stablecoins for Financial Inclusion?", in *Digital Currency Governance Consortium White Paper Series*, No. 4 (November 2021), p. 85-127, https://www.weforum.org/reports/digital-currency-governance-consortium-white-paper-series/value-for-financial-inclusion.

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Third, the Bank of Indonesia should address the existing risks and challenges related to crypto assets investments, as this type of assets are getting increasingly popular in the country. Despite crypto assets being potentially an affordable and attractive alternative to traditional financial services, they carry great risks. On the positive side, crypto could help reach people who have been traditionally left out from the financial industry. On the negative side, it could target small investors with no knowledge or experience on financial investments, which could occur in potential loss or money mismanagement.

Behind the superficial layer of apparent benefits for financial inclusion, digital currencies hide remarkable complexities. While, in different ways, a digital rupiah and crypto assets could improve accessibility and usability of financial services, they could face similar barriers that exclude Indonesians from accessing traditional financial services and products and create new risks. Only if properly designed and regulated, digital currencies will be an additional tool to foster financial inclusion in Indonesia.

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