



# Global Economic Insight

## Digital currencies unlock a new era for payments and global finance

Money and finance are changing fast, thanks to new technologies, evolving customer needs, and the digitization of commerce. Central to these changes are digital currencies (Fig. 1), which are breaking the old rules of finance and transforming how money moves around the world. Although they are still at an early stage of adoption, these new payment innovations could one day reshape the global financial system, bringing us a future that could be more inclusive, instantaneous and less bound by borders.

That day could come sooner than many expect. While the technologies underpinning digital currencies have been around for the better part of a decade, new paths have opened for their broader application as people increasingly sell and shop online. At the same time, governments' interest in promoting digital currencies has grown as geopolitical fragmentation brings new challenges to the existing global financial architecture.


The increasing adoption of digital currencies raises big-picture questions: Will blockchain technology democratize and decentralize finance, supplanting banks and governments alike? Or will these new technologies increase transaction speed and reduce costs within existing payment systems? Ultimately, the viability of digital currencies does not hinge solely on the sophistication of technology. Instead, the underlying economics and incentives are key, which this report examines alongside five possible non-mutually exclusive paths that digital currencies could take.

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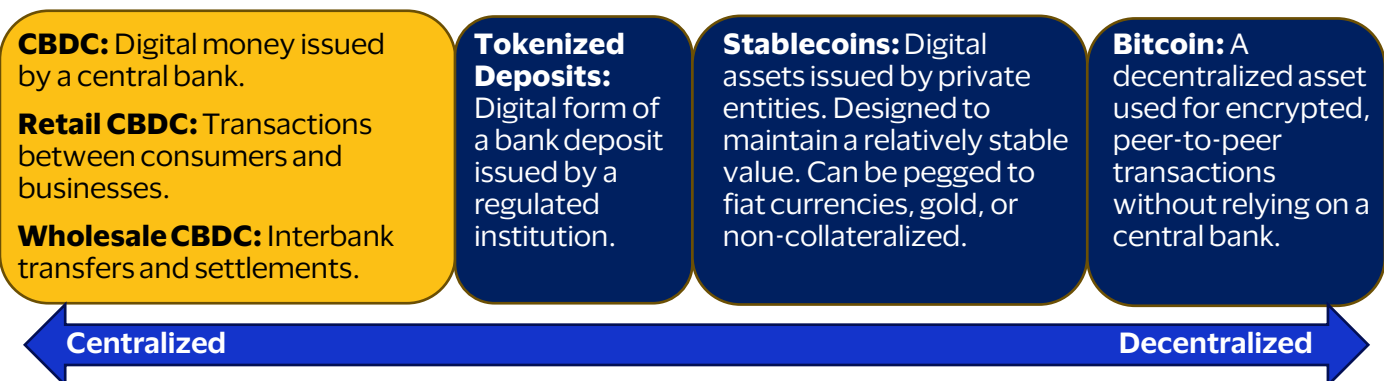
### Key Points:

 Money and finance are on the cusp of transformation

 Different forms of money warrant varying payment architecture

 Public and private sector digital currencies will coexist, encouraging competition and innovation

**Fig. 1: Types of digital money**



# New ways to pay lead to calls for new forms of money

Commerce’s steady move online is changing the financial industry. More people are using online platforms and apps to shop and pay instead of cash or traditional banks. As a result, new kinds of payment providers are emerging, offering more choices and convenience and providing an opening for greater use of digital currencies.

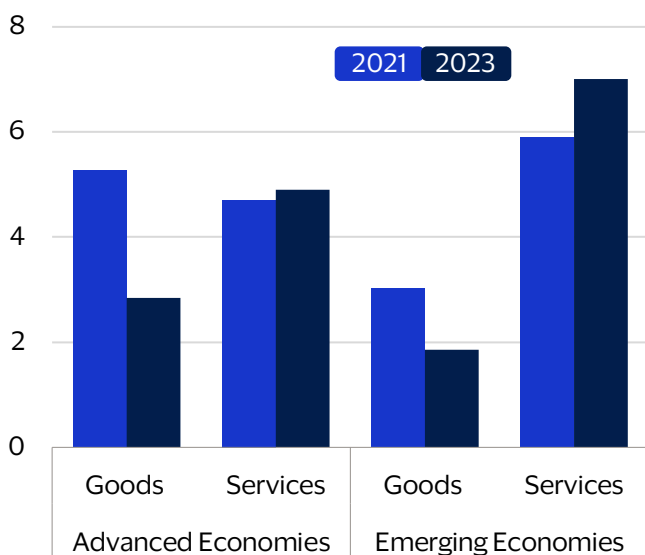
People buy and sell goods and services online much more frequently today than before the pandemic. The adoption of digital channels to deliver services such as prepared meals, education and healthcare has not only been faster than goods but has also proven more enduring. Analysis of anonymized Visa transaction data across millions of merchants indicates that the share of e-commerce in total sales at service providers has increased by 4.9 percent in advanced economies and 7.0 percent in developing economies since 2019 (Fig. 2). Services’ shift to greater online sales matters because consumers tend to spend more on services than goods.

Similarly, money itself has become less physical. The average number of digital payments has risen sharply in recent years, from 70 per capita in 2012 to 198 per capita in 2022, according to data from the Bank for International Settlements.

Over the same decade, the use of cash declined by an average of 2.8 percent. China and Saudi Arabia’s cash use fell below the average of their peers over this period (Fig. 3), as emerging digital payments continued to gain traction among the Gen Z and millennial population.

**Fig. 2: Shift to e-commerce sustained, more so for service providers than retailers**

Change in online share of sales since 2019 across 30 major markets by broad merchant categories, percentage points



Source: Visa Business and Economic Insights analysis of data from VisaNet

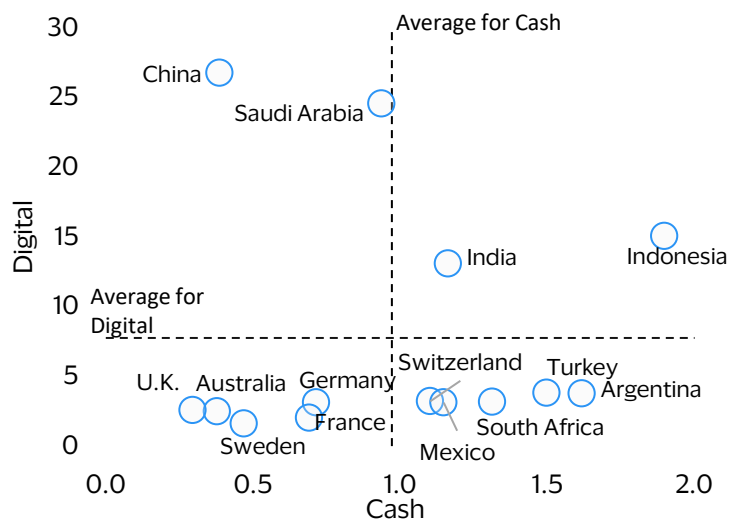
## What is digital currency?

Digital currency is a broad category of monies that are represented online and can be used for payments and other financial transactions. Decentralized digital currencies rely on cryptography and peer-to-peer networks to verify transactions and maintain a distributed ledger. Both the public and private sectors have created new forms of digital money to enable cheaper and faster payments. These new forms of digital money, such as CBDCs and stablecoins, have potential for high retail and cross-border usage, leveraging the strong network effects of platforms.

Compared to physical cash, digital currencies have some advantages in speed, access, transparency and innovation. However, the changes digital currencies bring have far-reaching implications for financial stability and sovereign control.

**Fig. 3: Cash has declined as a means to pay**

Usage of cash and digital instruments in 2022 indexed to 2012, expressed as multiples of 2012 ratio \*



\*Cash payments proxied by cash withdrawals at ATMs. Digital payments include direct debits, credit transfers, and card and e-money payments. Usage is calculated as number per inhabitant.

Source: Visa Business and Economic Insights analysis of Bank for International Settlements’ Committee on Payments and Market Infrastructures data



# Five ways digital money could transform the payment architecture

Over a decade has passed since the first bitcoin was mined, unleashing distributed ledger technology such as blockchain. In 2024, the Bitcoin market cap is in the trillions. Although there have been fits and starts, digital currency use has now gained sufficient traction that we can identify five potential trajectories for the monetary and payment system.

## Scenario 1: Cryptocurrencies could enable new modes of financial interaction

Cryptocurrencies, such as Bitcoin and Ethereum, are fundamentally assets that are recorded and represented digitally. If widely adopted, they could directly connect buyers with sellers, reducing the need for financial intermediaries such as commercial banks, clearing houses and centralized institutions. However, because they have no intrinsic value or issuer backing, cryptocurrency values are highly volatile, making them less reliable for everyday payments and savings.

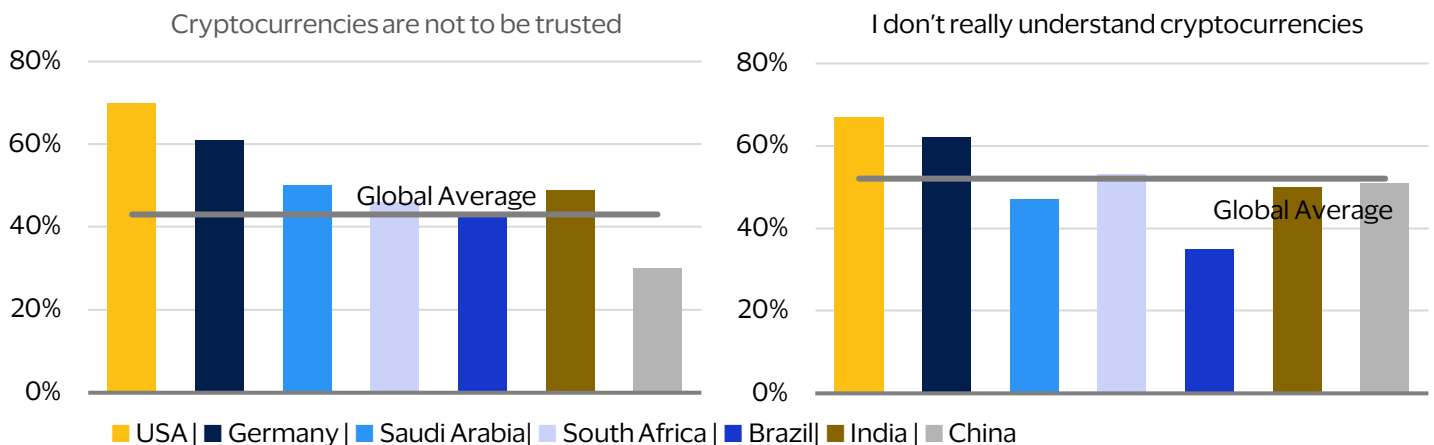
Nonetheless, cryptocurrencies’ supporters believe that trust can be regained through strategic incentives to enable new modes of financial interaction, which would form the foundation of a parallel, decentralized financial system. This community governance model is enforced by consensus mechanisms, such as proof-of-work or proof-of-stake, to verify transactions and maintain the security of the underlying blockchain.

Blockchain-based cryptocurrencies have two main types of participants: miners and users. Miners keep track of transactions, while users send and receive payments. Users need miners to update the ledger, and miners need users to pay for their service. In Bitcoin, under a proof-of-work mechanism, self-interested miners compete to solve math puzzles in order to be picked to process users’ transactions. There is no legal entity or legal contract involved. Instead, there are only incentives that are linked to network tokens, and fully transparent, pre-programmed rules that are enforced by consensus mechanisms.

Trust in cryptocurrencies varies around the world, meaning that their wide adoption could splinter global finance. Advanced economies would likely retain the status quo, as their consumers have lower levels of trust in and understanding of cryptocurrencies (Fig. 4). In contrast, consumers in Asia Pacific, Latin America, the Middle East and Africa have a higher degree of trust in cryptocurrencies. Emerging markets in particular tend to have younger populations that are more attuned to digital technologies, as well as diminished institutional credibility and weak macroeconomic fundamentals in some cases. Trust in cryptocurrencies is also seemingly higher in economies with inefficient legacy payment infrastructure for facilitating remittances.

**Fig. 4: Consumers in advanced economies are less trusting of cryptocurrencies**

Adult respondents who agree with the statement as a share of total



Source: YouGov, Global Profiles, May 15, 2024. Level of agreement with statements about finance (3-point scale).



## Scenario 2: Stablecoins could play a significant role in the payment value chain

Stablecoins are designed to hold a set value relative to a fiat currency or a basket of assets. They enjoy the benefits of blockchain technology, such as decentralization, security and transparency. At the same time, they avoid the drawbacks of cryptocurrencies, including wide swings in their valuation, lack of scalability and uncertain regulatory treatment. Stablecoins are now becoming popular outside of crypto circles for use in cross-border trade, wholesale settlement and consumer banking. The true extent of their popularity is clouded somewhat as, a Visa study revealed, most transactions are still initiated by bots rather than real users.<sup>1</sup>

Unlike in the first scenario, central banks would retain their role of setting the value of money. However, the role of commercial banks under a stablecoin-based system is less clear. Fully backed stablecoins permit non-banks a greater role in financial intermediation. That said, banks are actively researching ways to leverage digital asset technology to remain relevant in retail payments and avoid being displaced from the payment value chain.

## A blue-sky potential scenario: Securities as money

Related to the second path that digital currency could follow, there is another potential blue-sky scenario.

The potential for securities as money reflects an attractive opportunity of asset tokenization, leveraging an underappreciated aspect of blockchain rails. For instance, the recent launch of the security BlackRock USD Institutional Digital Liquidity Fund (BUIDL) marked an important milestone.

BUIDL can be exchanged for USD Coin (USDC) on the same underlying rail almost instantly, without having to exit the crypto ecosystem, in contrast to traditional finance where securities and cash run on different layers.

Circle's breakthrough smart contraction functionality allows users to sell their BUIDL shares but keep holding digital dollars (i.e., USDC, which is a fully reserved stablecoin).<sup>2</sup>

## Scenario 3: Tokenized deposits maintain the relevance of commercial banks

Tokenized deposits would make commercial bank money programmable and usable in smart contracts and other blockchain applications, thus preserving banks' function as financial intermediaries. Tokenized deposits and asset-backed stablecoins both represent liabilities of the issuer, which will be commercial banks for the former and private companies for the latter. However, tokenized deposits and asset-backed stablecoins differ in their role in and implications for the financial system.

Critically, by maintaining the current two-tiered monetary system with central bank and commercial bank money ensuring that a dollar deposited in one bank equals the exact amount of the same currency in another bank—or in the form of digital cash—tokenized deposits maintain the interchangeability of money, given that they are settled in central bank money. This sets tokenized deposits apart from options such as stablecoins, which could see departures in their relative exchange values away from par.

Further, tokenized deposits, which have the same economic and legal status as off-chain deposits, are likely to be subject to and enjoy the protection of existing deposit insurance schemes. Banks would likely also be able to borrow from the central banks as lenders of last resort when necessary.



## Scenario 4: CBDCs preserve the public payment system’s relevance

Central banks are exploring CBDCs to ensure money and payments remain fit for our increasingly digital economies. Wholesale CBDCs are very promising, particularly in cross-border payments, which suffer from high costs and frictions. By utilizing decentralized ledgers or blockchain, wholesale CBDCs can bypass the need for a global central counterparty, enhancing the interbank system’s ability to facilitate cross-border transactions.

In comparison, there does not seem to be a compelling case for retail CBDCs yet, given well-functioning electronic payment systems, particularly in advanced economies. Nonetheless, these economies are exploring design requirements and consulting stakeholders in case they need to launch a retail CBDC in the future. The global experimentation with retail CBDCs, led by China, likely pressures other central banks to consider issuing their own to avoid economic disadvantages and currency substitution risks.

CBDC work among central banks has accelerated. As of May 2024, 134 economies representing 98 percent of global gross domestic product (GDP) are exploring a CBDC, up from only 35 in May 2020, according to the Atlantic Council. Currently, around half are in the advanced phase of exploration (i.e., development, pilot, or launch). Based on the number of central banks indicating that they would be very likely to issue a CBDC over the next few years, as many as an additional six retail and nine wholesale CBDCs could be in circulation toward the end of this decade.<sup>3</sup> Even as developed countries tread cautiously on retail CBDCs, China and India’s central banks expanded the use of CBDCs as part of their respective ongoing pilot.

Retail CBDCs could pose risks to credit creation.<sup>4</sup> Retail CBDCs that do not pay interest like cash should not affect most deposits that earn positive interest rates. However, if CBDCs pay interest, it could elicit a flow of funds from deposits to CBDCs. In this scenario, when people switch from bank deposits to CBDCs, banks’ funding positions worsen.

### CBDCs vs. Stablecoins: What’s the difference?

CBDCs are issued and regulated by central banks, unlike stablecoins, which are issued by private entities. Further, the CBDC would be stable, a safe store of value, and trusted like banknotes, unlike stablecoins where their exchange value might deviate from face value. At this juncture, the use of stablecoins for payments outside the crypto ecosystem is still limited to niche groups for remittances and negligible for wholesale payments.<sup>5</sup>

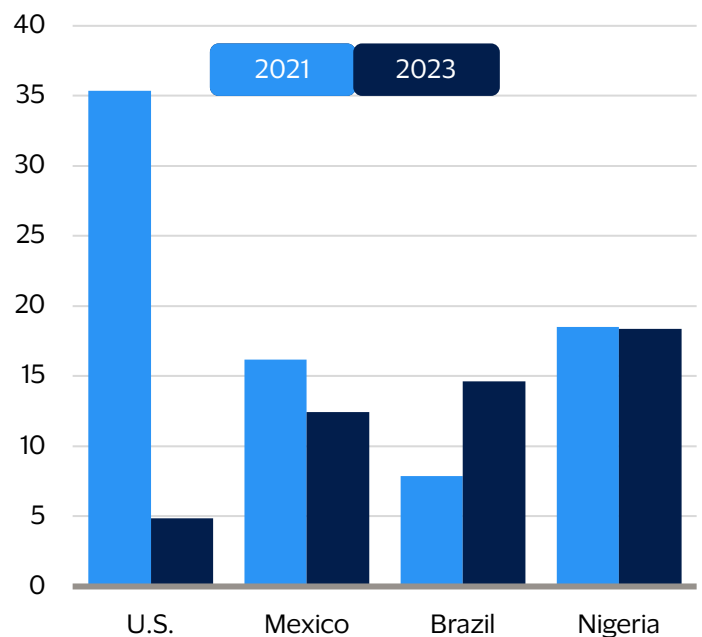
In most economies, retail deposits are a main source of cheap and stable funding for local banks. When customers swap their deposits for CBDCs, banks lose their retail deposits as well as central bank reserves. This makes banks’ funding less stable and liquid, which increases their funding risks.

To restore their funding stability after losing retail deposits to CBDC, a bank could either lend less to the economy or pay more for funding. For example, a bank could offer higher interest rates to keep its retail deposits or seek other sources of stable funding, which are usually more expensive than retail deposits, resulting in higher funding costs for the bank. Consequently, banks might increase lending rates to stay profitable, which could result in fewer loans overall.

However, these risks are manageable. Even if bank lending declined slightly, overall credit creation in the economy would remain intact. The ratio of customer deposits to total non-interbank loans has increased since 2019 (Fig. 5), suggesting depositor and investor confidence in the banking system as well as limited potential liquidity stress—even during the peak of the pandemic. Meanwhile, growth of non-bank financing, whether by capital markets or new tech players, can help mitigate any decrease in bank lending and keep the broader credit creation intact during non-crisis periods.

**Fig. 5: Banks’ funding positions have remained resilient**

Change in ratio of customer deposits to total non-interbank loans since 2019, percentage points \*



\* Latest available data for Nigeria is through Q2-2023. Source: Visa Business and Economic Insights analysis of IMF data



## Scenario 5: An evolving status quo

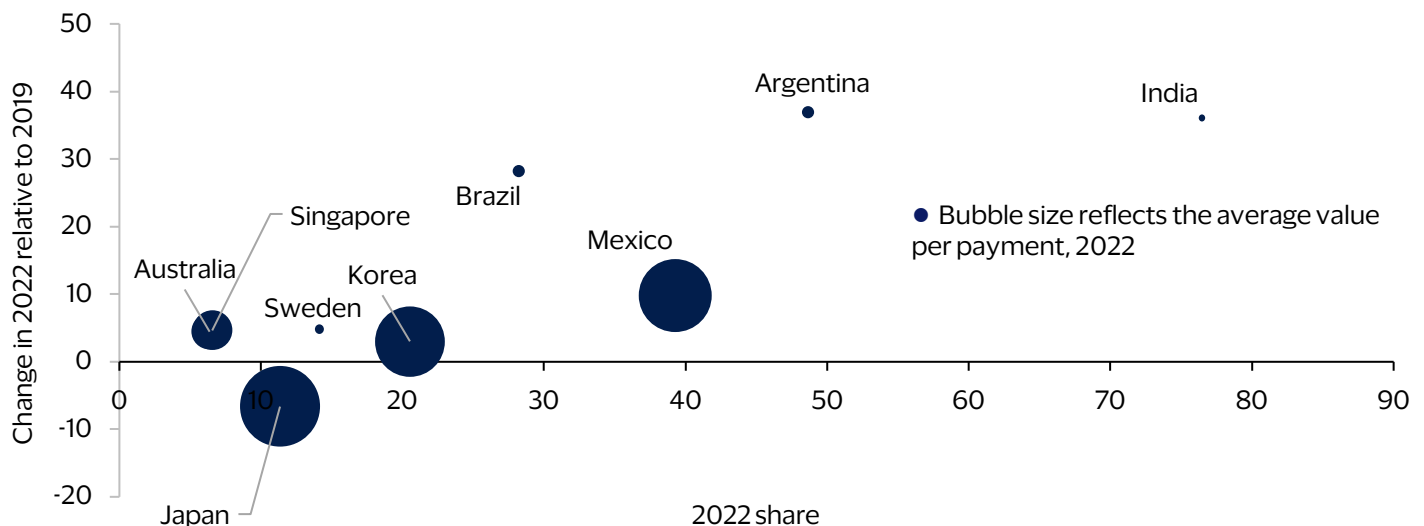
Another potential path forward could entail fiat currencies and policy-led modifications to the payment infrastructure. Many countries have recently launched fast payments as a means to a cashless economy, such as Pix in Brazil and Unified Payment Interface (UPI) in India.

Fast payments are retail payments, usually in small transaction amounts, that the payee gets right away or almost right away, on any day and at any time. Most fast payments happen within a country, but interlinking arrangements involving faster payment systems in different countries can support cross-border payments. India (76 percent), Argentina (49 percent), Mexico (39 percent) and Brazil (28 percent) have among the highest shares of fast payments by number of transactions (Fig. 6). Transaction value is higher in countries where fast payments are used for government payments and transactions between businesses, as compared to primarily person-to-person/business payments in other countries that might also have transaction limits.

For instance, the average transaction value of fast payments in Sweden is around 0.1 percent of GDP per capita, indicating they are used mainly for person-to-person payments. At the other end of the scale, the average transaction value of fast payments in South Korea and Japan is around 10 percent of their respective GDP per capita, suggesting that they are used mainly for payments involving businesses, which are often higher in value.

### Fig. 6: Countries are increasingly turning to fast payments as an alternative to cash and card payments

Fast payments volume as a percentage of total cashless payments



Source: Visa Business and Economic Insights analysis of BIS data

### Fast payments are another option to meet growing demands in the remittances space

Digital remittances lower the cost of sending remittances. It costs \$12-\$18 on average to send \$200 back home through non-digital means. This is due in large part to the need to convert remittances from and to cash on both sides, which entails manual processing at a physical office. Across the globe, fees account for a larger share of the cost of remittance services than the foreign exchange (FX) margin (see Fig. 9 in the appendix). Further, costs for non-digital remittance services are higher than for digital services, regardless of the region where money is sent. This is especially true in Sub-Saharan Africa, which registered the highest costs. By leveraging digital payments, the cost and efficiency of remittance transfers can be significantly improved, reducing consumer reliance on costly cash remittance channels.

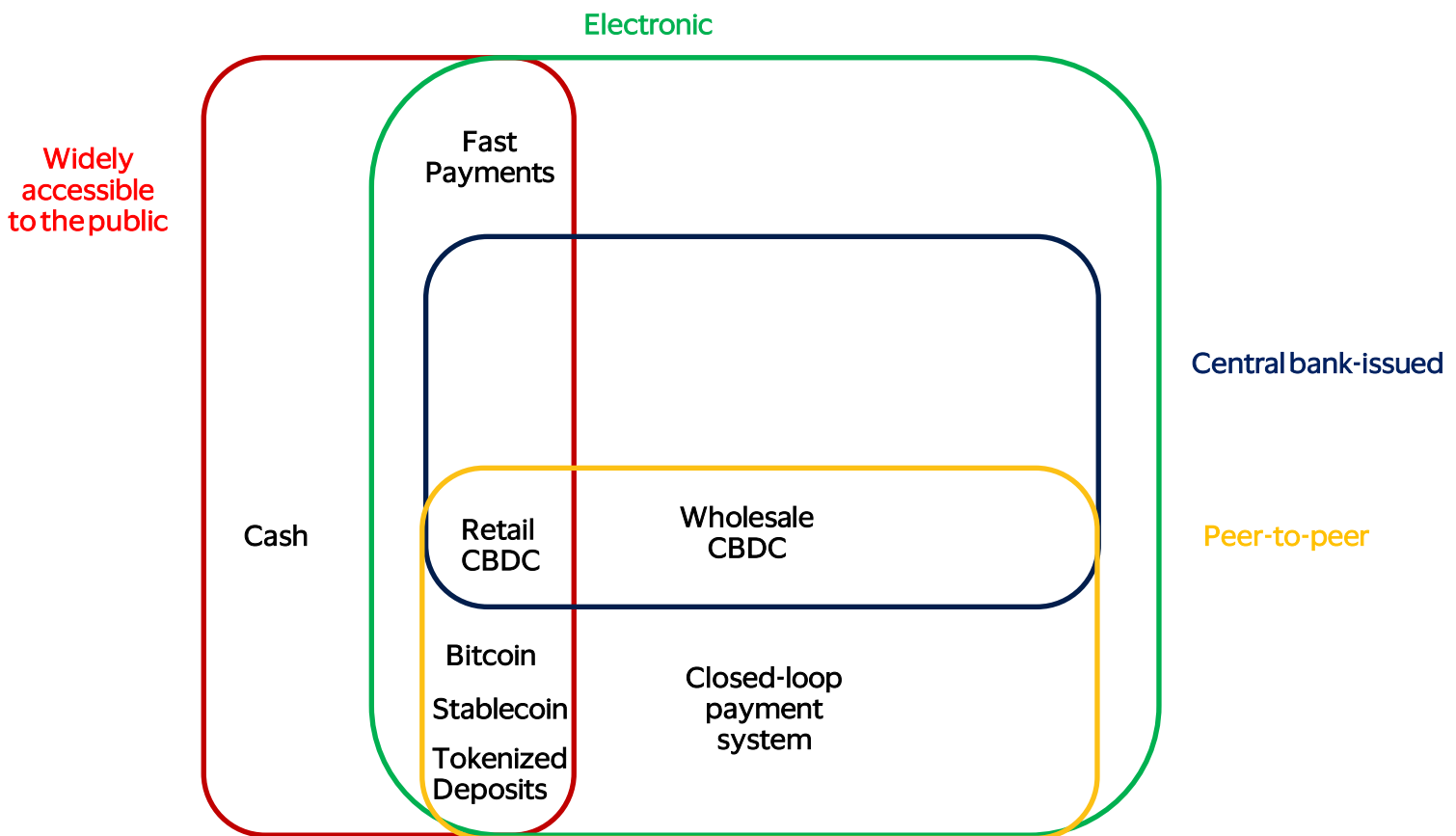


# Digital currencies can coexist constructively

The potential scenarios for the future of money are illustrated in the diagram below (Fig. 7), which highlights four key properties of money: the issuer (e.g., central bank), the form (electronic or physical), the extent of accessibility and the transfer mechanism (e.g., peer-to-peer transaction), based on the framework by Bech and Garratt (2017).<sup>6</sup>

In the diagram, the probability of each digital currency scenario is depicted by the area of intersection. In this regard, wholesale CBDC, tokenized deposits, stablecoin, Bitcoin and fast payments can coexist constructively in the short term and have higher odds of materializing compared to retail CBDC.

**Fig. 7: Potential paths for the future of money**



Source: Visa Business and Economic Insights analysis based on Bech and Garratt (2017) framework

Already, the BIS and major Southeast Asian central banks have recently finished the detailed plan of seamlessly connecting their domestic fast payment systems to enhance cross-border payments. They will eventually be joined by the Reserve Bank of India, expanding the potential user base to India’s UPI, the world’s largest fast payment system.

Meanwhile, in one of the more likely scenarios, wholesale CBDCs could serve as the foundation of the financial system alongside tokenized deposits, which would allow banks to continue their financial intermediation function. Wholesale CBDCs do not face the same challenges as Bitcoin, for example. Despite being in existence since 2009, Bitcoin has struggled to build trust amid cyberattacks, loss of customers’ money and inherent governance weakness.

# Over the long term, digital currencies could form an interoperable network of financial ecosystems

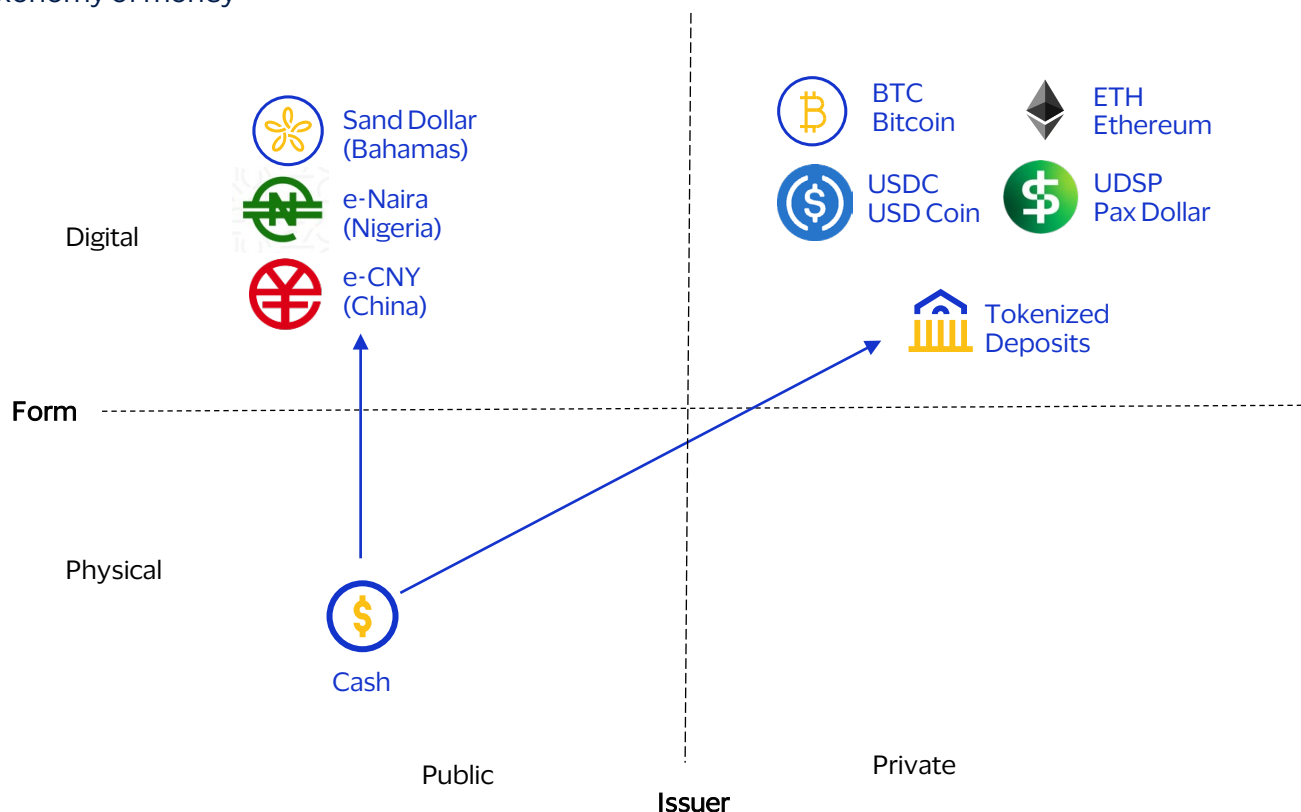
As the forms of money evolve (Fig. 8), a unified ledger that allows for interoperability between wholesale CBDCs, tokenized deposits and tokenized assets is the most likely path forward. Already, governments and large institutions are progressing from assessing the benefits of tokenization to trials and proofs of concept. For instance, in March 2024, the Hong Kong Monetary Authority (HKMA) launched Project Ensemble for a new wholesale CBDC initiative, which enables interbank settlement for tokenized commercial bank money (tokenized deposits). Further, HKMA has planned a sandbox to facilitate interoperability between the wholesale CBDC, tokenized deposits and tokenized assets.

Notably, these transformations are happening at the same time the fragmentation of the global economic order fosters demand for new alternatives to serve a more multi-polar world. Already, alternatives to SWIFT, the primary clearing house for cross-border payments since the latter half of the 20th century, have emerged. The coexistence of public and private sector digital currencies gives the finance industry an opportunity to build a brand-new monetary architecture—one that both supports the next wave of payment innovation as well as increases the diversity of firms innovating on retail payments and related services.

Regardless of which of the five potential trajectories money may take, digital currency has the potential to transform our financial infrastructure into one that is virtually seamless—allowing businesses and consumers to send any financial asset of any size from any device to anyone else in the world at any time. Further, increased interoperability will enable businesses to significantly expand the range of innovative financial services that are accessible and affordable to consumers.

**Fig. 8: Public and private money can coexist constructively**

Taxonomy of money



Source: Visa Business and Economic Insights

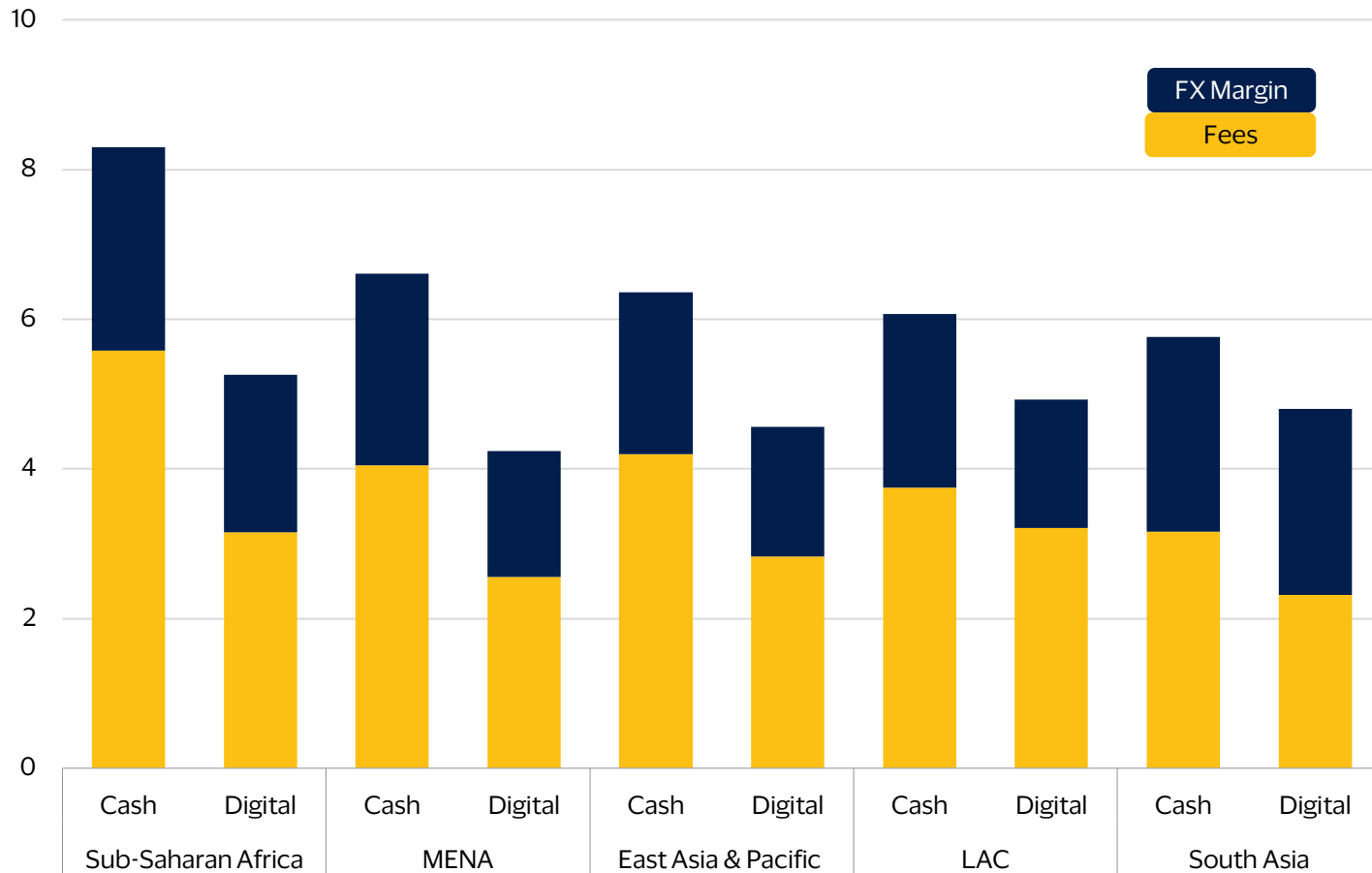




# Appendix: Digital money helps reduce remittance costs

**Fig. 9: Digital money helps reduce remittance costs**

Average cost to send US\$200, percent



Source: Remittance Prices Worldwide, Q4-2023



## Footnotes

1. Visa: [Making sense of stablecoins](#), April 26, 2024
2. Circle Announces USDC Smart Contract for Transfers by BlackRock's BUIDL Fund Investors, April 11, 2024
3. Bank for International Settlements (BIS) (2024), "Embracing diversity, advancing together - results of the 2023 BIS survey on central bank digital currencies and crypto," June.
4. Bank for International Settlements (BIS) (2018), "Central Banks Digital Currency," Committee on Payments and Market Infrastructures, March.
5. Bank for International Settlements (BIS) (2024), "Embracing diversity, advancing together - results of the 2023 BIS survey on central bank digital currencies and crypto," June.
6. Bech, M. and Garratt, R. (2017), "Central bank cryptocurrencies," BIS Quarterly Review, September.



## Accessibility notes

Figure 1: A schema classifying the various types of digital currencies across varying degrees of centralization. For instance, CBDC is issued and centrally managed by a central bank. In comparison, at the other end of the spectrum, Bitcoin is a decentralized digital currency.

Figure 2: A bar chart showing the change in online share of sales in percentage points (ppt) since 2019 by broad merchant category as well as region in 2021 and 2023. In advanced economies, the change in online share of sales amounted to 5.3ppt in 2021 and 2.8ppt in 2023 for goods, and 4.7ppt in 2021 and 4.9ppt in 2023 for services. In emerging economies, the change in online share of sales amounted to 3.0ppt in 2021 and 1.9ppt in 2023 for goods, and 5.9ppt in 2021 and 7.0ppt in 2023 for services.

Figure 3: A bubble chart showing the use of cash and digital instruments in 2022 indexed to 2012, expressed as multiples of 2012 ratio by country. China and Saudi Arabia are above the peer group average for digital and below it for cash. Countries that are above the peer group average for both digital and cash are Indonesia and India. Countries that are above the peer group average for cash and below it for digital are Argentina, Mexico, South Africa, Switzerland, and Turkey. Countries that are below the peer group average for both cash and digital are Australia, France, Germany, the U.K., and Sweden.

Figure 4: A bar chart showing the average share of consumers who agree with statements regarding cryptocurrencies. In response to the statement “Cryptocurrencies are not to be trusted,” the share of consumers who agreed was 43 percent globally, 70 percent for the U.S., 61 percent for Germany, 50 percent for Saudi Arabia, 46 percent for South Africa, 43 percent for Brazil, 49 percent for India and 30 percent for China. In response to the statement “I don’t really understand cryptocurrencies,” the share of consumers who agreed was 52 percent globally, 67 percent for the U.S., 62 percent for Germany, 47 percent for Saudi Arabia, 53 percent for South Africa, 35 percent for Brazil, 50 percent for India and 51 percent for China.

Figure 5: A bar chart showing the change in ratio of customer deposits to total non-interbank loans in percentage points (ppt) since 2019 by country in 2021 and 2023. In the U.S., the change in ratio of customer deposits to total non-interbank loans amounted to 35.3ppt in 2021 and 4.9ppt in 2023 ; in Mexico, 16.1ppt and 12.4ppt; in Brazil, 7.9ppt and 14.6ppt; in Nigeria, 18.5ppt and 18.4ppt.

Figure 6: A bubble chart showing fast payments volume as a percentage of total cashless payments in 2022 compared to 2019 by country. The bubbles are proportionate to each country’s average value per payment in 2022. Countries, arranged in descending order of the increased share of fast payments, are as follows: Argentina, India, Brazil, Mexico, Sweden, Singapore, Australia and South Korea.

Figure 7: A schema classifying the various potential scenarios for the future of money based on the four key properties of money: the issuer (e.g., central bank), the form (electronic or physical), the extent of accessibility to the public and the transfer mechanism (e.g., peer-to-peer transaction). The probability of each scenario is depicted by the area of intersection. In this regard, wholesale CBDC, tokenized deposits, stablecoin, Bitcoin and fast payments can coexist constructively in the short term and have higher odds of materializing compared to retail CBDC.

Figure 8: A schema classifying the various forms of digital money by form and issuer. Sand Dollar, e-Naira, and e-CNY are examples of digital money by public issuer. Meanwhile, examples of digital money by private issuer include Bitcoin, Ethereum, USD Coin, Pax Dollar and tokenized deposits.

Figure 9: A bar chart showing the average cost to remit US\$200 in Q4-2023 by cash as well as digital means, and by region. In the Sub-Saharan Africa, the average cost is 8.3 percent via cash and 5.3 percent via digital; for MENA, 6.6 percent and 4.2 percent; for East Asia and Pacific, 6.4 percent and 4.6 percent; for LAC, 6.1 percent and 4.9 percent; for South Asia, 5.8 percent and 4.8 percent.



## Forward Looking Statements

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