SARB POSITION ON THE NECESSITY OF A RETAIL CBDC IN SOUTH AFRICA

BACKGROUND NOTE

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SOUTH AFRICAN RESERVE BANK

Contents

List of figures

List of tables

1. Introduction and purpose of this Background Note

A market economy relies on a well-functioning monetary system for conducting transactions and establishing contracts efficiently. In a well-functioning monetary system, the state has monetary and regulatory sovereignty − the capacity to define the official unit of account[1] and to enact policies to regulate the creation of money in its jurisdiction. A well-functioning monetary system displays uniformity of public and regulated forms of private money; that is, public and private money coexist and complement each other while trading at par, allowing money to move back and forth safely and efficiently.

Over the last two decades, the landscape of payments globally and locally has undergone a profound transformation, driven by technological advancements and shifting consumer preferences. This evolution has not only revolutionised the way transactions are conducted but has also spurred discussions on the future of finance, particularly in the realm of digital payments. Several key trends have emerged, reflecting the increasing digitisation of commerce and the evolving preferences of consumers and businesses alike. These include the rapid growth of mobile payments; expansion of e-commerce platforms, growth in contactless payments; proliferation of digital wallets; as well as the growing uptake of crypto assets.

With the rise of the digital economy and advancements in digital payment technologies, the process of paying using cash, meaning the physical bank notes and coin issued by the central bank,[2] is increasingly being replaced by these private-sector-based digital payment solutions. In economies where cash use is especially low (e.g. Sweden, Norway and Denmark), the general accessibility of cash is also restricted, and its acceptance has become increasingly marginalised.[3]

For South Africa, although cash continues to play a vital role in the economy, the value of notes and coin in circulation relative to nominal gross domestic product (GDP) dropped significantly after the corona virus disease 2019 (COVID-19), compared to its long-run trend and has remained low. As cash becomes more marginalised, its cost of use as a payment instrument relative to digital alternatives increases (Bank of Japan, 2020; ECB, 2022). These factors may further undermine the usefulness of cash and exacerbate its declining use.

[1] In economics and accounting, a 'unit of account' is a standard unit of value used to measure and compare the value of goods, services, debts and wealth, enabling calculations and record keeping.
[2] In some economies, the issue of coins controlled by the national treasury (for example the United States and the United Kingdom). In others, it is controlled by a central bank (for example, in South Africa). The distinction is not critical for the purposes of this discussion.
[3] In Sweden, for example, (which has the lowest cash use globally), many bank branches refuse to handle cash, many retailers only accept digital payments and basic services such as hospitals refuse cash payments from patients (Sveriges Riksbank, 2017; 2021). This makes cash less accessible and its use more marginalised.

As payment habits continue to shift towards digital technology, and as both the use of and ability to access cash becomes more cumbersome and costly, the default long-term scenario facing central banks is a potential move away from a system that provides readily available, cost effective and universal public access to central bank money. In a longer-term environment where physical bank branches are few, automated teller machines (ATMs) sparse and retail outlets shun cash in favour of digital payment methods, cash could no longer be readily and generally accessible.[4] And because cash is the only central bank money that the public has access to, many would lose direct access to central bank-issued money.[5] An added complexity is the emergence of new forms of digital instruments such as crypto assets and stablecoins, which are enabled by distributed ledger technologies (DLT). These privately issued instruments may further disrupt the monetary system if consumers increasingly rely on them in the absence of central bank money or money issued in the national unit of account.

The rapid evolution of technology and digital payments prompted a crucial question for central banks, including the South African Reserve Bank (SARB): Should central banks respond to the rise of digital payments and alternative money-like instruments by introducing a digital version of public money, such as a central bank digital currency (CBDC), and what benefits would this bring?

This Background Note provides a comprehensive overview of the evolution of payment behaviours and infrastructure in South Africa. It serves as a standalone companion to the SARB's position paper on a retail CBDC.

The purpose of this Background Note is to provide a detailed background on South Africa's payment landscape, offering the necessary context to understand the potential motivations and considerations behind the exploration of a retail CBDC. By examining the role of central bank money, the persistence and decline of cash and the evolution of digital payment tools, this report lays the groundwork for evaluating the potential role of a CBDC within South Africa's broader financial ecosystem. In addition, the Note includes an overview of CBDC fundamentals, insights from the SARB's technical experimentation and lessons drawn from other jurisdictions.

The intention of this Note is to assist policymakers, researchers and stakeholders in interpreting the CBDC position paper by providing a deeper understanding of the structural and behavioural dynamics shaping payment trends in South Africa as well as the broader contextual factors that have informed the SARB's position.

[4] Some central banks have put initiatives in place to try and maintain or bolster access to cash (Mills, 2021; Zamora-Pérez, 2022). But encouraging the acceptance of cash requires complex strategies, and supplying becomes increasingly costly as economies of scale shrink. These factors diminish the cost-benefit value proposition of cash relative to a digital alternative.
[5] Commercial banks would retain access to wholesale central bank money in the form of bank reserves held at the central bank.

2. Setting the scene: why is central bank money important?

Today's money systems include two main types of publicly accessible money: central bank-issued cash[6] and commercial bank-issued demand deposits. Despite their differences, the guaranteed convertibility of demand deposits into cash at par[7] blurs this distinction, making commercial bank money effectively equivalent to central bank money. This feature, present for over a century, ensures uniformity and fungibility between the two, but also conceals their distinct roles and functions within the monetary system.

2.1 Commercial bank-issued money

Commercial bank-issued money is a liability on the balance sheets of commercial banks. It is easily transferable and has a nominal value fixed at par with cash. It is created primarily through a process of intermediated credit extension by banks.[8] This process involves two simultaneous parts: (i) banks extend credit to borrowers to finance purchases of goods and services (these loans appear as assets on bank balance sheets); and (ii) the sellers of the goods and services receive payment in the form of deposits (bank deposits are the matching liability entries on bank balance sheets).

The fact that sellers receive payment in the form of a deposit means that they have very little exposure to the underlying credit risk associated with the borrowers (Vivian & Spearman, 2015a; Greenbaum, Thakor, & Boot, 2016).[9] For their part, banks are also able to mitigate the cost of the credit risk they are exposed to through pooling and diversification at scale, and through developing expertise to monitor, evaluate and manage the risk (Choudhry, 2012; Vivian & Spearman, 2015a; Greenbaum, Thakor, & Boot, 2016).

The use of commercial bank-issued intermediated money reduces the risks and costs of using private credit to finance trade and commerce. This is partly because the use of any kind of commonly accepted medium-of-exchange provides efficiency gains relative to the double-

[6] Central bank money is money issued by a central bank. It is a liability of the central bank and usually takes the form of either physical cash or bank reserve deposits held on account at the central bank. Anyone may have access to cash, which is publicly accessible. Bank reserve deposits, however, are typically only provided to banks (and certain other key financial institutions) and are therefore not publicly accessible.

[7] Convertibility on demand and at par means that a holder of a sight/demand deposit can at any time, and without notice, request that the bank exchange the face value of the deposit (or part thereof) for an equivalent value in cash. In practice, exercising this guarantee usually happens through a direct withdrawal of cash from within a bank branch or from an ATM.

[8] Deposits can arise through three different contractual arrangements. First, cash can be exchanged directly for a deposit in a process commonly referred to as *depositing money*. Second, a bank can purchase other financial assets in exchange for deposits – see for example an early description in Thornton (1965 [1802]) or a more modern description in Gillet Bros. Discount Co. Ltd (1964). Third, banks intermediate credit extension – see for example detailed descriptions in Graziani (1989) or Vivian & Spearman (2015a) and the model of Kahn & Roberds (2007).

[9] In addition, banks guarantee the nominal value of their deposits at par with cash. This reduces the information costs of accepting deposits as payments and increases demand for their use in making payments (Brunner & Meltzer, 1971; Vivian & Spearman, 2015a).

coincidence-of-wants required for barter.[10] However, commercial bank-issued money further improves efficiency as it is a credit-based money.[11] Credit enables *intertemporal* exchange.[12]

By enabling economic agents to trade goods and services across time, credit lets entrepreneurs and producers acquire and direct resources to production processes based on the agreement that payment for these resources will only occur in some future periods. Credit thereby enables investment and capital accumulation; this provides for a more productively efficient use of available resources and makes credit critical to the production process (Schumpeter, 1983 [1934]; Graziani, 2003).[13] Likewise, credit enables consumers to optimise the distribution of consumption over time (Fisher, 1930). These efficiency gains expand an economy's production and consumption possibilities frontiers.

2.2 Central bank-issued money

Central bank-issued money is a liability of the central bank. It arises primarily through a different process to commercial bank money, usually beginning with the purchase of financial assets by a central bank.[14] It is also credit-based money. Credit is a financial contract that stipulates a promise to pay (an IOU) and is therefore a claim by one economic agent on another.[15]

This relationship establishes balance sheet assets and liabilities. And while using credit to finance trade and commerce brings economic efficiency benefits (see above), its use introduces its own inefficiencies.

A credit-based system with many agents lengthens agent balance sheets and creates credit, liquidity and contagion risks for all agents involved. These risks increase monitoring costs and raise novation, multilateral netting and other settlement complexities (Bindseil, 2019).[16] Direct

[10] Successful barter requires that each party to desire what the other is offering in exchange. This is referred to as a double-coincidence-of-wants. A commonly accepted medium-of-exchange (e.g. grain or a precious metal token) can overcome this constraint. It does so by providing something that can be offered in exchange for a desired good or service and that will be accepted in exchange because it can be offered and accepted in exchange for other desired goods and services. Access to a commonly accepted medium-of-exchange increases economic activity and improves efficiency by lowering search and other information costs which expand the set of potentially successful exchanges. This is a common economics textbook example.

[11] Credit-based money addresses various inefficiencies of using commodity-based money. These inefficiencies include imperfect coinage, clipping, indivisibility, weight and associated storage and transportation costs, security vulnerability and lack of scalability for very large or very small payments (Bindseil, 2019). But more importantly, and unlike commodity-based money, credit-based money has long been understood to reduce the costs of using credit to finance economic activity (Macleod, 1889; Schumpeter, 1983 [1934]).

[12] Intertemporal exchange means economic agents can trade goods and services that are available at one point in time for goods and services that will only be available at a different point in time.

[13] Credit has therefore played a key role in financing trade and commerce since the earliest societies (Graeber, 2011; Bindseil, 2019).

[14] See the description in Jordan (2018) for example.

[15] Alfred Mitchell-Innes. 1913. What is Money? The Banking Law Journal: 377–408

[16] In finance and law, *netting* refers to the process of offsetting the value of multiple positions or obligations due between two or more parties to determine a net amount payable or receivable. Netting reduces the number of transactions that need to be settled, thereby minimising credit risk and streamlining financial transactions. *Novation* is a legal concept in contract law where one party substitutes a new contract or obligation for an existing one, with the consent of all parties involved. It effectively replaces one contractual obligation with another, transferring rights and obligations from the original parties to the new parties.

access to central bank-issued money enables agents to novate claims against an IOU of the highest possible credit quality. This provides both settlement certainty and finality.[17] As a result, direct access to central bank-issued money serves an important economic function: it improves the efficiency of the payment system by mitigating risks and other costs within credit-based money systems (BIS CPSS, 2003; Sullivan, 2012; Bindseil, Central Banking Before 1800: A Rehabilitation, 2019, pp. 30-36). These efficiency gains have long been recognised as motivation for issuing the highest quality money as a readily accessible public good managed according to public policy objectives.[18]

2.3 Why central banks issue physical cash and commercial banks do not

An obvious feature of publicly accessible central bank-issued money that distinguishes it from commercial bank-issued money is that it is physical. Generally, only central banks issue physical money.[19] However, the physicality element is not a characteristic intrinsic of central bank-issued money.[20] A central bank monopoly on issuing physical money is instead an artefact of a historical evolution that started with a different institutional arrangement to that of today.

By contrast to today, and from as early as the 15th century, both private banks and publicly administered national banks issued physical bank notes, offered deposits and provided commercial credit to the public and private sectors.[21] Issuing bank notes was considered a

[17] In a purely credit-based system, debt is settled with other forms of debt. In this system, there will be a quality hierarchy of debts and the institutions that issue them. Higher quality debts offer higher degrees of settlement certainty (Mehrling, 2011; Bindseil, 2019). Risk is reduced as debt is novated against higher quality debt. To fully reduce risk requires novating claims against an IOU of the *highest possible credit quality.* Money issued by a central bank is the highest quality money, meaning that it is of the highest possible liquidity and credit quality among financial assets and is considered risk free. Bindseil (2019, p. 35) outlines the conditions which provide for central banks to offer IOUs of the highest possible credit quality. These are (1) sponsorship of the central bank by a fiscally responsible government, (2) a central bank charter that provides constructive constraints for central bank money creation and (3) a prudently managed central bank balance sheet with high quality assets. In addition, commitment to rules and stability can be emphasised through transparency and a clear, well defined communication strategy.

[18] Bagehot (1873), Roberds & Velde (2014) and Bindseil (2019) provide examples dating back to at least the 15th century of public policy objectives providing the motivation for the highest quality money being provided by a public central banking entity. Bindseil (2019, p.9) discusses the Bank of Amsterdam, created in 1609 and the Hamburger Bank (1619) having the explicit objectives of providing a higher quality means of payment to the public. Bagehot (1873, p.80) and Roberds & Velde (2014) describe improving payment quality motives for the creation of public banks in Venice (1587), Genoa (1408) and Nuremburg (1621). Macleod (1866; 1906) explains how a key objective of the Bank of England slowly evolved to focus on managing public access to the highest quality money.

[19] There are some countries where commercial banks issue physical bank notes, such as Scotland.

[20] Central banks issue digital money at the wholesale payments level.

[21] See early sources that discuss the business of early central banks, such as Thornton (1965 [1802]), Macleod (1866; 1906) or Bagehot (1873) or more recent sources that draw on this early literature e.g. Goodhart (1988), Capie (1995) or Binseil (2019).

normal part of the business of banking.[22] In the late 17th century, the Bank of England (BoE) was incorporated and later granted a legal monopoly privilege over the issue of bank notes.[23]

This monopoly was intended to secure exclusive commercial profit opportunities for the BoE, and it was granted in exchange for providing preferential financing arrangements for the government at the time. The model was successful, but the monopoly privilege required periodic renewal, and ensuing policy debate throughout the 19th century came to argue that renewal of this privilege should not be granted for the purposes of profit (Macleod, 1866; Capie, 1995). It was observed that being able to convert commercial bank cheques and deposits into less risky BoE notes was beneficial to payment system efficiency and supported broader financial stability in times of stress (Macleod, 1866; Roberts & Velde, Early Public Banks, 2014; Bindseil, 2019).[24]

It was therefore argued that the BoE's monopoly on bank note issue be renewed, not to secure private profit opportunities but to distinguish the debt issued by the BoE from debt issued by other commercial banks. This was important in a context where the core objective of the BoE was to focus on the public policy objectives of payment system efficiency and financial stability (Macleod, 1866; Bagehot, 1873; Capie, 1995; Bindseil, 2019).

As a result, a publicly mandated central bank with a monopoly over physical cash issuance, and a duty to manage the guaranteed convertibility of deposits into cash in pursuit of public policy objectives of payment system efficiency and financial stability became a cornerstone of the English financial system (Bindseil, 2019). Modern central banking has been heavily influenced by this approach, and central banks maintain a monopoly over physical cash issuance today.

[22] Commercial bank notes provided a payment technology that enabled the value of assets deposited at commercial banks to be transferred at physical locations that were different from the physical locations of bank branches. This meant funds kept at a bank could be transferred by depositors even when they were not in a bank branch. Bank notes could be cheaply and easily transported and transferred as well as carrying reduced risk compared to other credit notes. This gave merchants a cheap and easy technology for making payments wherever they were transacting. Physical commercial bank notes therefore served the same payment function in a non-digital payment environment that digital commercial bank payment options – for example, an instant electronic funds transfer (EFT) – play in an electronic payment environment today.

[23] This monopoly privilege meant that no other commercial banks could issue bank notes within a specific jurisdiction. The monopoly severely restricted the business of other commercial banks because their deposits could not be readily transferred away from the banks' branches. This monopoly privilege was a key part of a broader agreement whereby the BoE, a private bank, agreed to provide for the government's financing needs in exchange for certain commercial privileges. This was beneficial to the government because, at the time, lenders were cautious about lending to the government due to concerns about the government's ability and willingness to repay loans. The BoE accepted this risk in exchange for the commercial privileges of reduced competition from other private sector institutions (Macleod, 1866).

[24] By the mid-18th century, commercial banks had created a way around the BoE's legislative monopoly on paper money by inventing cheque payments; in other words, cheques arose as an early example of successful regulatory arbitrage. The BoE tried but failed to extend its monopoly to include cheque issuance (Macleod, 1866).

3. The role of physical cash in the South African economy

Physical cash, in its tangible form, holds a fundamental place in the economic dynamics of societies worldwide, serving as a cornerstone of some financial transactions and offering economic empowerment to many. Despite the rise of digital payment systems, the importance of cash endures due to its unique benefits.

Cash is a universally accepted medium of exchange that facilitates immediate and final transactions without the need for electronic infrastructure or intermediaries. This makes it particularly valuable in regions with limited access to banking services or reliable digital networks. As a store of value, cash provides individuals and businesses with a tangible means of preserving purchasing power and accessing funds in times of need. It offers stability, liquidity and resilience, making it a trusted form of wealth preservation, especially in times of economic uncertainty and financial distress.

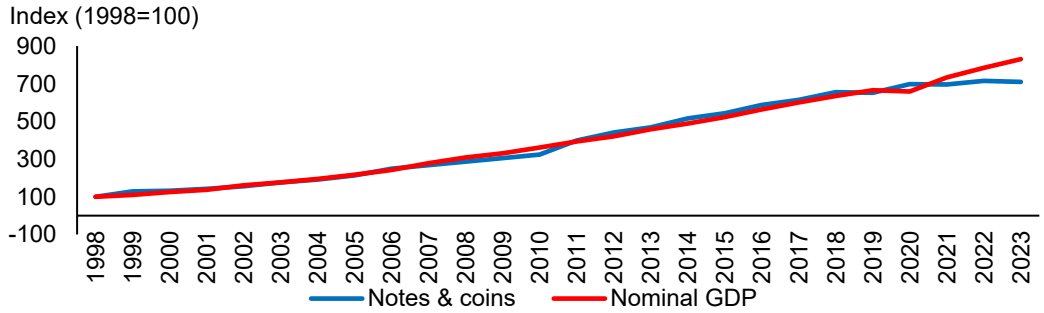
Cash also promotes economic inclusion and social equity by enabling marginalised populations to participate in the economy. For the unbanked and underbanked, cash facilitates access to essential goods and services, informal credit arrangements and income-generating opportunities, empowering individuals to build livelihoods and achieve financial independence.

While acknowledging the enduring importance of physical cash, it is essential to recognise the evolving nature of payment systems and the increasing digitisation of financial services. As technology continues to advance, policymakers, financial institutions and society at large must strike a balance between innovation and inclusivity, ensuring that efforts to promote digital payments do not marginalise those who rely on physical cash for economic participation and financial empowerment.

3.1 How cash has been trending locally and in other jurisdictions

According to the SARB data on monetary aggregates, the ratio of banknotes and coin in circulation as a percentage of the total monetary base of South Africa has remained constant at around 3% for the last decade. In recent years, following the coronavirus disease 2019 (COVID-19), the value of notes and coin in circulation relative to nominal GDP decreased compared to its long-run trend and has remained low. These trends suggest that despite the increase in digital payments, cash continues to be an important payment instrument, although this importance is gradually starting to decline.

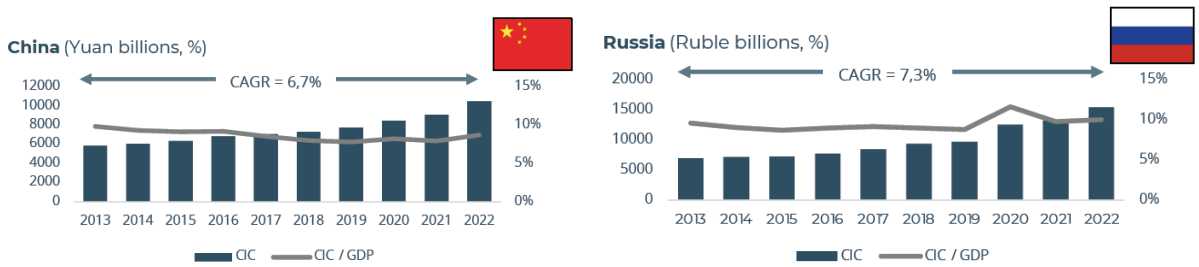
Figure 1: The value of notes and coin in circulation relative to nominal GDP

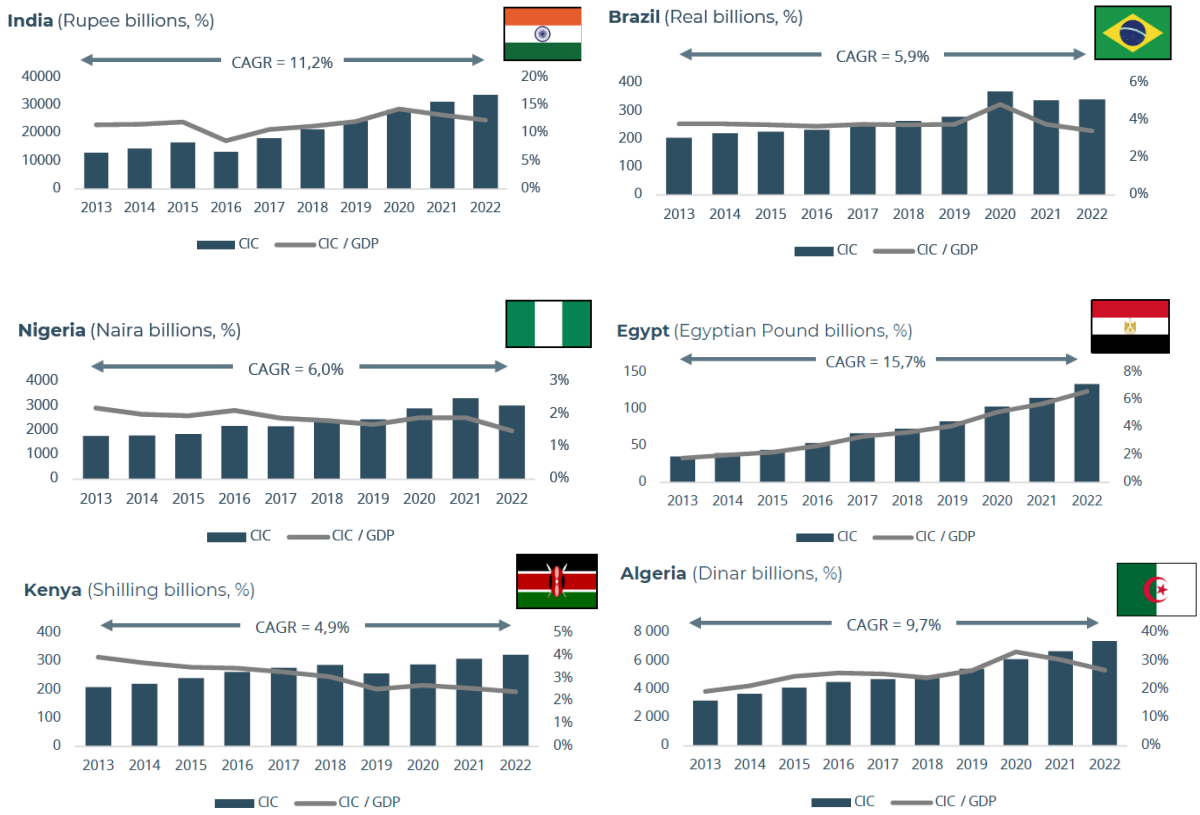


Source: South African Reserve Bank

According to insights from stakeholder consultations conducted as part of the SARB's CBDC research, the prevailing, and sometimes growing importance of cash is a common trend across many emerging economies. The data suggests that for many economies, cash may have fluctuated in use over decades, but for a range of reasons, remains an important economic payment instrument.

Figure 2: Cash in circulation as % of GDP in emerging economies



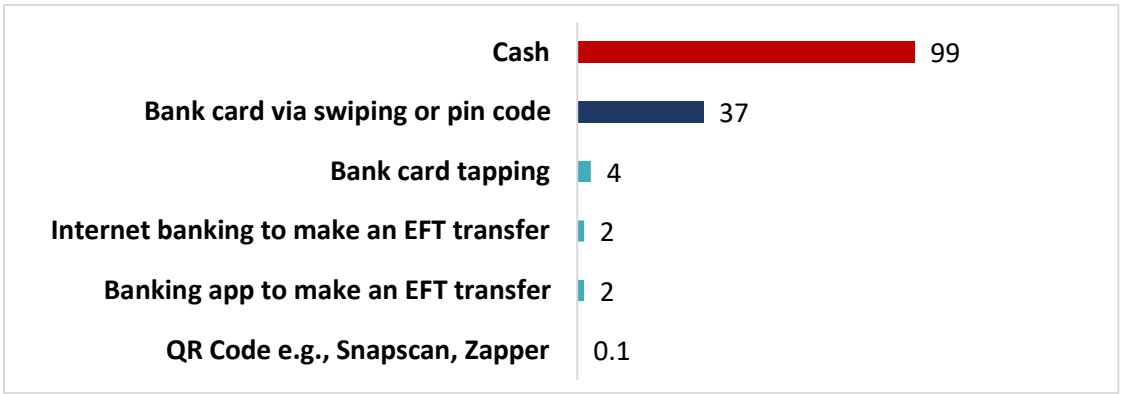


Source: Data and insights from stakeholder consultations

3.2 The use of cash in payments

According to 2023 FinScope Consumer Survey conducted by FinMark Trust, despite 84% of South African adults having a bank account, 99% of South African adults reported to have used cash to buy food and groceries. On the other hand, only 37% reported using bank cards via swiping or pin code, and even smaller 4% via bank card tapping. In terms of which they used the most, 71% said cash, 27% said bank card swipe/pin and 2% said bank card tapping.

Figure 3: Forms of payment used to buy food and groceries (% of SA adults)



Source: FinMark Trust, 2023 FinScope Consumer Survey

While the FinScope survey showed that the vast majority of South Africans still used cash for payment, by its nature, there is no available data on cash payment values. In the absence of cash payment data, a similar methodology to Humphrey and Khiaonarong (2023) is used to proxy cash payments. To do this, the net ATM and cash-back at point-of-sale (POS) data was considered. This data is depicted in the Figure 4 below.

Figure 4: South Africa cash payment trends (cash as proxy)

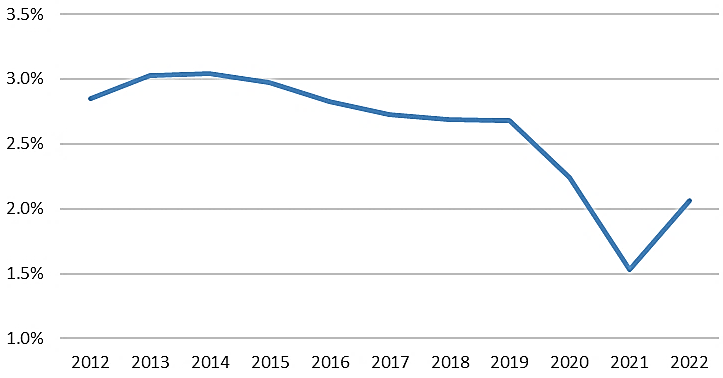
Source: SARB calculations

The graph depicted suggests cash usage has grown steadily and remains persistent. In 2022, cash payments increased at their fastest rate since 2013 measured year-over-year (YoY), although this can be largely attributed to base effects after cash payments contracted in 2020 and remained stagnant (1.5% YoY) in 2021.[25]

To illustrate the proportion of total retail payment value attributed to cash, the settlement values for card, EFT credit, EFT debit and real-time clearing (RTC) were summed with the figures obtained from the cash payment proxy data to arrive at what could be considered a proxy for total retail payment activity, inclusive of cash. As a result of not including all payment systems in the calculation, the resulting figure is on the conservative side. This data is illustrated in Figure 5 below.

[25] It should be noted that the cash payment proxy data are likely understated given that cash, which is not deposited but rather circulated via a string of purchases, will only be counted once. However, people hold cash for myriad reasons not necessarily related to payments and perhaps then, there is an argument that the cash payment proxy data could be a close estimate of cash payment. In the absence of a better alternative, the authors are comfortable that the cash payment proxy data reflects the observed reality of cash in that it is persistent, despite the increased utilisation of South Africa's digital payment systems.

Figure 5: Cash payments as a percentage of total retail payment value, %



Source: SARB calculations

Cash payments as a proportion of total retail payment value declined from 2.9% in 2012 to a low of 1.5% in 2021, before recovering to 2.1% in 2022. Thus, while cash payments grew since 2012 and recovered slightly after the COVID-19 pandemic, cash payments appear to be declining as a percentage of total retail payments (although the 2022 figure signals a possible rebound).

Demography influences usage

Table 1 below provides an overview of the use of different payment methods across various demographic groups. In summary, cash usage is more prevalent in consumer segments characterised by lower income, more remote location and lower education levels.

Table 1: Use of payment methods by demographic groups

Demographic group	Use of payment methods
Income levels	Higher income groups use more digital payments compared to lower income groups. **Significance**: About 70% of South Africans earn less than ZAR3 000.
Location	Rural and township-based consumers use cash more often compared to urban based adults. **Significance**: Nearly 60% of South Africans are rural and township based.
Education	Adults with higher levels of education have a higher percentage that use digital payment services. **Significance**: Almost half the adult population has less than matric level education.
Gender	There is no material difference in the use of payment methods across genders.
Age	Adults between the ages of 30 and 59 have the lowest percentage using cash as the primary payment method.

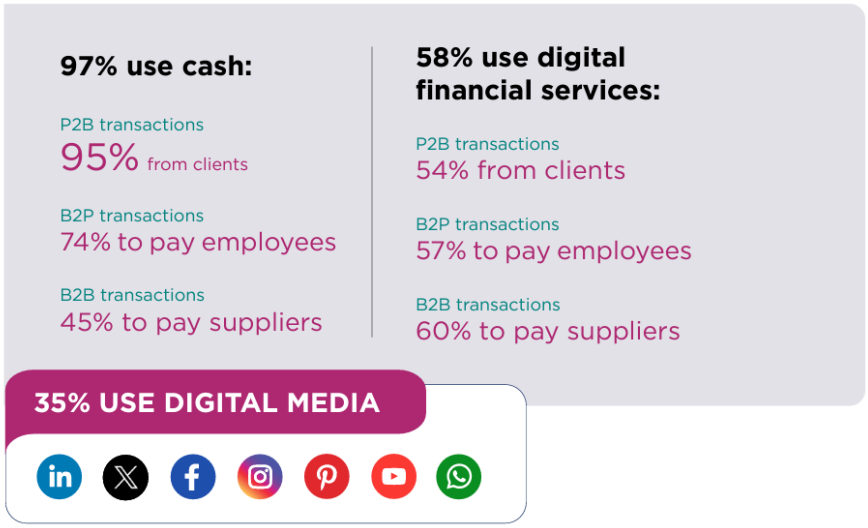
Source: FinMark Trust, 2023, FinScope Consumer Survey

The informal economy

South Africa's economy is characterised by duality, featuring a sizable and established formal sector alongside a significant yet largely hidden informal economy, both playing integral roles in shaping the country's economic landscape. The informal economy is a significant driver of economic activity, employment and livelihoods. It encompasses a wide range of activities, from street vending to domestic work, and contributes substantially to the country's GDP and socio-economic fabric. According to Statistics South Africa's Q1 2024 Quarterly Labour Force Survey, the informal sector accounted for approximately 19% of total employment in the country. It is estimated by some informal economy experts that the value of South Africa's informal economy ranges between ZAR600 billion and ZAR750 billion.[26]

While significant in size and contribution to employment and economic activity, the informal economy remains largely unseen as it operates predominantly in a cash environment. As revealed by the FinScope Consumer Survey, 71% of adults in townships have been reported to use cash the most to pay for goods and services compared to 26% that reported swiping bank cards. Most township businesses are informal, unbanked and cash-based, with only 35% of township enterprises having formal registration according to the FinScope 2020 Micro, small and mediums enterprises (MSME) Survey.

Figure 6: Use of cash, digital payments and digital usage by MSMEs



Source: FinMark Trust, 2020, FinScope MSME Survey

[26] As an example of the large sectors that operate in the informal economy, GG Alcock estimates that the South African informal independent traders, such as spaza shops, contribute 26% or R184bn of the total R716bn SA FMCG market. He also estimates over 44 500 licenced on-premises alcohol outlets with revenue of R110 billion per annum.

3.3 Drivers of cash usage

Cash usage in South Africa reflects a diverse array of influences, each intricately woven into the fabric of financial transactions and economic behaviours. From deeply ingrained cultural preferences to the availability of acceptance infrastructure, a multitude of factors converge to shape the prevalence and significance of cash in the country's financial landscape. Understanding these drivers is paramount as they provide valuable insights into prevailing gaps and potential opportunities for a CBDC.[27]

Perceptions about cash

Discussions with various stakeholders during the SARB's research and secondary research showed that the way South Africans perceive physical cash, whether correct or not, has an influence on cash preferences. Table 2 below highlights some of the perceptions that make cash more attractive to certain individuals or in specific situations compared to digital payments.

Table 2: Perceptions of cash versus digital payments

Perception	Cash	Digital payments
Cost	Perceived as 'free' at point of sale due to absence of visible transaction fees.	Digital payments attract transactional fees – and many consumers perceive these costs to be high, sporadic, unjustified and lacking transparency. These include, among other things, monthly account maintenance or service fees, credit transfer fees, ATM fees, debit order fees, fees related to payment to another party, etc.[28]
Tangibility	Physical presence provides sense of security, but vulnerable to loss, theft and counterfeiting.	Lack of physical presence of digital money may lead to concerns about losing track of spending.
Privacy	Offers anonymity and privacy, as transactions are not linked to personal information.	Digital transactions may raise concerns about privacy and data security, especially where trust in formal financial institutions is low.
Speed	Payment is made and funds are received instantly.	Payments can be made instantly or within seconds, reducing waiting times, but receipt of funds may have some delays.
Availability	Accessible and usable at any point despite network or power issues (however, also impacted by network connectivity if cash needs to be withdrawn at an ATM).	Often requires network connectivity or electricity.

[27] See Annex 2 for a summary of some key South African demographic statistics.
[28] Some of these costs are perceived to be hidden and too high, leading to mistrust in digital payments and deterring consumers – particularly low-income earners (those in the lower living standard measure (LSM) market segments) and social grant recipients – from using digital payment methods, including bank accounts.

Psychological impact	Provides a tangible representation of value, making budgeting and spending decisions more tangible.	Digital transactions may feel less 'real' and may lead to less conscious spending decisions.

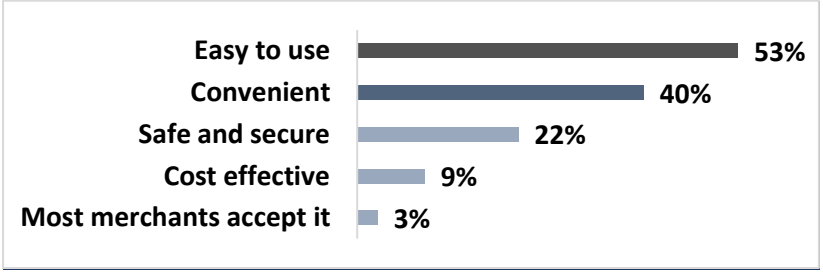
Source: Summary from stakeholder consultation and various reports

Consumer preferences

One of the key drivers behind high cash usage is the low frequency with which bank accounts are used in South Africa, with over 70% of the banked population only using their bank accounts to make/facilitate digital payments three times or less in a month. About 37% of the adult population in South Africa withdraw all their money as soon as it is deposited into their bank accounts. The reasons reported for immediate cash withdrawal included cash usage preference, the immediate need for all the money received, the account/ card being expensive, lack of trust in banks and lack of card/account acceptance by merchants.

When asked what their most preferred mode of payment was, 69% of adults chose cash, 26% chose bank card swipe/pin and 2% chose bank card tap. Respondents were then asked the reason for the preferred method. For those that chose cash, ease of use and convenience were the primary reasons for their preference.

Figure 7: Reasons for cash as preferred method of payment for goods and services (% of those who prefer cash)



Source: FinMark Trust, 2023, FinScope Consumer survey

This is aligned with the study conducted by the SARB and Bureau of Market Research in 2022, which found that from the quantitative research, ease of access, convenience, acceptance by many traders and suitability for low value payments topped the list of reasons why households and businesses used banknotes and coin as cash-payment methods.[29]

The preference for cash in South Africa is also shaped by structural and socio-economic factors. These include a small tax base[30] and high effective tax rates, which incentivise off-

[29] South African Reserve Bank, 2022, research study on the use of cash versus non-cash payments in South Africa.
[30] In the 2023 tax year, around 7.6 million individuals filed tax returns, yet only 1.66 million earned more than R500 000 annually, which contributed 76.2% of all personal income tax. The top 4% of assessed taxpayers accounted for 52.7% of total tax revenue.

the-books transactions; high levels of unemployment and poverty;[31] and the presence of undocumented foreign nationals who are excluded from formal financial services under the Immigration and Financial Intelligence Centre (FIC) acts. These challenges contrast sharply with countries like Sweden and are unlikely to be resolved through implementation of a CBDC alone.

Digital payment frictions

The influence of payment frictions on preferences is evident, particularly when considering the method of payment. Based on the FinScope Consumer Survey, urban adults exhibit a higher inclination towards digital payments compared to their counterparts in rural and township areas. Notably, 39% of rural adults and 31% of those in townships reported immediate money withdrawals upon receipt. A significant 76% or 10.4 million grant recipients withdrew all deposited funds at once. This stands in stark contrast to adults in metros and small urban areas, where fewer withdrawals are reported (27% and 28%, respectively).

Some of the frictions experienced by consumers, which negatively affect digital payment adoption include the following:[32]

i. **Lack of digital payment acceptance in some key sectors**: The lack or inconsistent availability of acquiring infrastructure (e.g. POS, QR codes or alternatives) has historically contributed to the slow adoption and use of digital payments. According to the 2020 FinScope MSME Survey, only 8% of MSMEs used POS devices, which limited consumer usage of digital payments (e.g. cards). Over recent years, considerable strides have been taken to digitise merchants in South Africa. According to a 2024 report,[33] card payments are increasingly displacing cash in South Africa's informal economy, signalling a notable shift in consumer behaviour. The study developed an informal economy index utilising data from over 70 000 merchant devices. According to the study, 42% of monthly transaction volumes, totalling ZAR2 billion, were attributed to card-based transactions, with debit cards comprising over 90% of this total.[34]

   Nevertheless, key sectors within the township and informal economies persist in operating primarily on a cash basis. Among these are pivotal players like the taxi

[31] According to Stats SA's Q1 2025 Quarterly Labour Force Survey, official unemployment rate in South Africa is 32.9% and the expanded unemployment rate (including working age adults that have stopped searching for employment) is 43.1%.
[32] Some of these challenges are drawn directly from the SARB Digital Payments Roadmap (Project Stimela) document.
[33] Lesaka 2024, Informal Economy Digitalisation Index (https://www.ir.lesakatech.com/sa-informal-economy-index.php)
[34] This coincides with findings from a study conducted by the SARB in 2022, in collaboration with the Bureau of Market Research, which found that households (88%), formal (93%) and informal (34%) business clients (B2C) as well as formal (55%) and informal (78%) businesses transacting with other businesses (B2B) who made use of non-cash payment methods more frequently used debit cards than any other (i.e. credit, store, cash and petrol/garage cards) card-based payment methods.

industry, serving as the primary mode of transportation for over 15 million commuters daily, street vendors and spaza shops (many of which are operated by undocumented migrants).

ii. **Network connectivity and electricity challenges**: The combination of expensive data prices in South Africa[35] and limited connectivity in remote regions frequently hinders the smooth utilisation of digital payment methods. This challenge is compounded by the nation's recurring power outages known as load-shedding, which often disrupts the functionality and accessibility of payment devices. In situations where cash is unavailable, consumers are compelled to endure the additional inconvenience of traveling to the nearest ATM, which is particularly burdensome given longer distances in rural and township areas, and the added frustration of encountering an offline ATM at the time of need.[36]

iii. **Restrictions on low-value payments**: As shared by various experts during stakeholder consultation in one of the workstreams of the SARB's CBDC Working Group, another hurdle to digital payments in rural and township areas emerges at the POS, where minimum transaction amounts such as ZAR50 are often enforced, alongside additional fees, like ZAR5, for card payments. These practices limit consumer options, especially for low-value transactions, consequently impeding the widespread adoption of digital payment methods.

iv. **Transaction fees**: Digital payments attract transactional fees, and many consumers consider these costs to be high, sporadic, unjustified and non-transparent. These include, among others, monthly account maintenance or service fees, credit transfer fees, ATM fees, debit order fees, fees related to payment to another party, statement fees and unstructured supplementary service data (USSD) fees. Some of these costs are perceived to be hidden and too high, leading to mistrust in digital payments and deterring consumers – particularly low-income earners (those in the lower LSM market segments) and social grant recipients – from using digital payment methods, including bank accounts.[37]

v. **Merchant fees**: High merchant service fees also contribute to the low adoption and use of digital payments by merchants. Merchant service fees, costs of digital payments (e.g. credit and debit cards) and payment acceptance devices (e.g. POS devices) significantly reduce merchants' usage of digital payments. Interchange fees form part

[35] According to the Competition Commission's Data Services Market Inquiry final report (published on 2 December 2019), SA ranks among the more expensive countries for prepaid data prices, with a monthly data service provided to the poor being inexplicably more expensive per megabyte than to the wealthy. In 2022, South Africans paid up to R85 (US$5) per gigabyte of data compared to US$1.53 per gigabyte in North Africa and US$2.24 in Western Europe.

[36] According to the FinScope Survey, 67% and 39% of adults in rural and township areas live more than 20 minutes away from bank branches − when using their usual mode of transport respectively compared to only 14% in the metros.

[37] SARB NPSD, 2024. Digital payments roadmap: towards inclusive, accessible, effective and sustainable digital payments in South Africa.

of the merchant service fee that acquirers impose on merchants for accepting card payments. In SA, card interchange fees range between 0.36% and 2.45%, depending on the type of transaction and the type of card used, with merchant card processing fees ranging between 1.5% and 3.5%. High interchange and merchant card processing fees deter smaller merchants from accepting digital payments, as these fees negatively impact profitability.[38]

vi. **Legacy systems**: Some incumbents, including government departments and banks, are still operating legacy systems to effect payments or provide digital payment services and therefore transitioning to more modernised payment systems may pose complexities and high cost-related challenges. As a result, these incumbents may be reluctant or lack the capacity to innovate, resulting in less than desirable adoptions when using digital payments to meet consumer or beneficiary needs.

vii. **Lack of interoperability**: Traditional and new payment service providers (PSPs) also offer innovative closed-loop digital payments which are not interoperable. A typical example is the provision of digital/electronic wallets and remittance products. Non-interoperable closed-loop systems lead to a fragmented payment ecosystem, limit customer choice and hinder the effective adoption and use of digital payments. Consumers in the closed loop may only transact (make or receive payments) using a specific PSP's instruments, infrastructure, premises or agents, thereby limiting the use and ubiquity of innovative digital payment products.

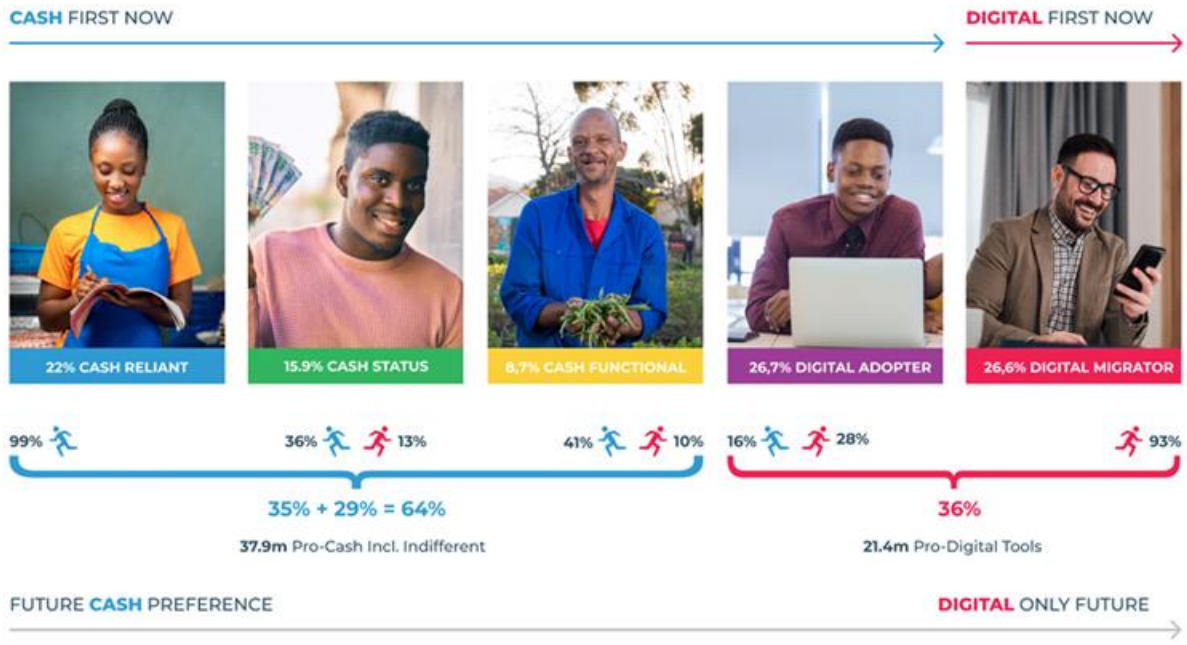
These frictions, highlighted by stakeholders and secondary research, are closely linked to those identified in a study the SARB conducted in 2022 − which found that regarding the preference for cash usage in general, in addition to convenience and ease-of-use, households also highlighted the lack of knowledge, access to the technology, lack of non-cash infrastructure and facilities and load-shedding among the main factors for cash usage preference. The households also based their preference for cash purchases of products and services on bank charges being regarded as relatively higher for electronic purchases of low-value items. Some risks associated with non-cash payment methods were also identified during interviews with informal businesses, such as card cloning, issues of insufficient funds transfers and non-payment after the goods and services have been delivered.

[38] SARB NPSD, 2024. Digital payments roadmap: towards inclusive, accessible, effective and sustainable digital payments in South Africa.

Segmented preferences: unravelling consumer dynamics

A pioneering 2023 study commissioned by SBV Services PTY (LTD) (SBV) and conducted by the University of Pretoria surveyed 4 500 consumers and 800 retailers resulted in a segmentation model which provided five distinct behavioural segments of SA consumer from a usage of payment tools perspective. The behavioural segments are represented on a linear scale of future intent – from most cash heavy users on the left – the cash reliant; to the lowest cash users on the right digital migrators (see Figure 8 below).

Figure 8: South African consumer segments according to future cash behaviours



Source: SBV, 2023, South African cash research paper

The research found that 64% of South African consumers prefer cash in the future, while 36% prefer digital. Segments with ‘cash’ in their name are likely to stick with cash, while those with ‘digital’ intend to partially transition to digital payments. It is noteworthy that even digital-leaning segments anticipate retaining some cash usage, believing in ongoing relevance.

The study’s revelations underscore the enduring significance of cash within various economic segments, juxtaposed against segments displaying high digital adoption rates or ample potential for digital migration. From a policy standpoint, these insights offer nuanced considerations. Firstly, they highlight that cash usage and digital alternatives are not mutually exclusive but rather coexist as complementary facets. Therefore, South Africa ought to pursue strategies fostering a cash-light rather than cashless economy − an approach echoed by most stakeholders consulted in this study. Secondly, initiatives geared towards advancing digital payment adoption must tailor their approaches to accommodate the distinct characteristics of each segment, thereby ensuring a more targeted and effective implementation.

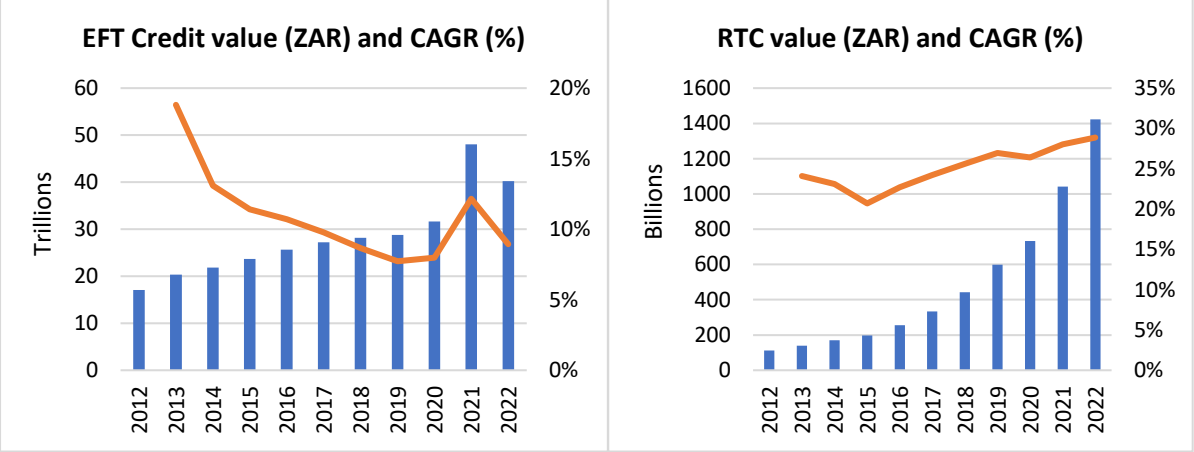
4. The evolution of payments in South Africa

Since payments is one of the primary use cases for a CBDC, it is crucial to understand the evolution of the broader national payment system (NPS) when evaluating the potential role of a CBDC. This understanding provides valuable insights into the existing payment infrastructure (e.g. fast payment systems), regulatory frameworks and trends that have shaped the current ecosystem. By examining this evolution, the strengths and weaknesses of the current system as well as the opportunities and challenges that a CBDC might present can be identified. This, in turn, will enable a more comprehensive assessment of the potential role of a CBDC within the existing NPS ecosystem.

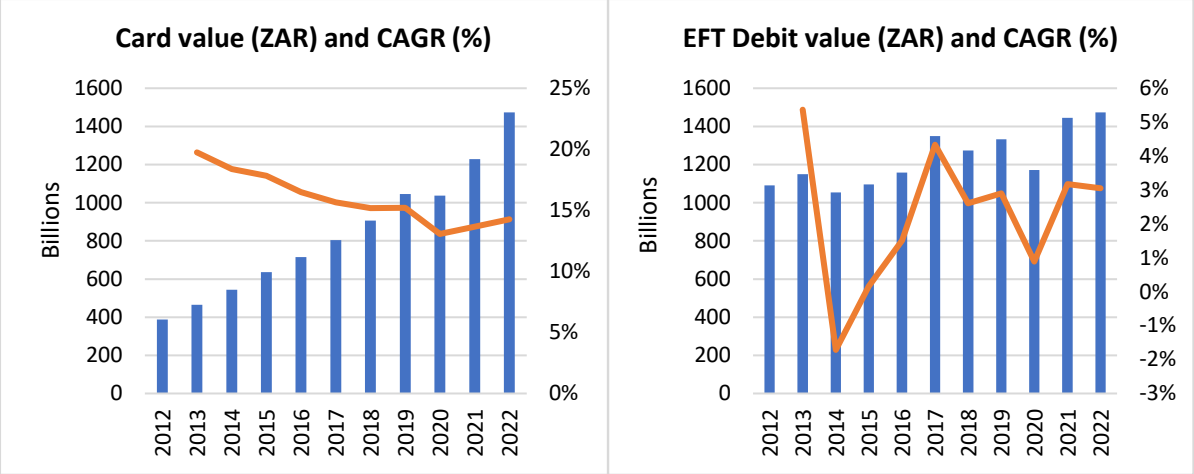
The South African retail payment services landscape has developed significantly over the past decade. The various retail payment methods currently in use in South Africa include cards (debit, credit and fleet), EFT (credit and debit), authenticated collections (DebiCheck), faster payment systems (including RTC and PayShap) and ATMs.

The total value of retail payments (excluding cash withdrawals) in South Africa have grown significantly from about ZAR19 trillion in 2012 to ZAR45 trillion in 2022, with total volumes of 6.4 billion transactions in 2022. In 2022, EFT credits made up a significant portion of total retail values, contributing 90%, while card purchases contributed 65% of total retail volumes. Figure 9 below provides an overview of trends in the main digital payment rails.

Figure 9: South Africa digital payment trends, 2012−2022[39]



[39] CAGR = Compound annual growth rate



Source: SARB calculations

From the above graphs, it is evident that the utilisation of South Africa's digital payment systems has generally increased since 2012 and showed strong recovery in 2021 following the onset of COVID-19 pandemic in 2020.

Several vision and strategy documents have been launched since 1994 that propelled the NPS into an innovative ecosystem with a suite of payment technologies and solutions available in the market. The most recent include the following:

4.1 NPS strategy and vision

In March 2018, the SARB published the *National Payment System Framework and Strategy – Vision 2025* (*Vision 2025*)[40]. The overarching vision is to enhance the safety, efficiency and accessibility of the NPS in a manner that promotes competition and minimises risk to the payments ecosystem by leveraging technological developments to extend the availability of digital payment services to all sectors of society while meeting domestic, regional and international requirements for the benefit of all members of the South African society.

4.2 Regulatory reforms implemented and proposed

National Payment System Bill

Currently, non-banks are not allowed to provide payment services that involve pooling funds such as remittances and electronic money (e-money), unless they partner with a bank or are exempted from the Banks Act 94 of 1994 (Banks Act). This impedes innovation and competition in the NPS. This is one of the key reasons for the publication of a policy paper titled "Review of the National Payment System Act 78 of 1998 (policy paper)."[41] The policy

[40] https://www.resbank.co.za/en/home/publications/publication-detail-pages/media-releases/2018/8319
[41] https://www.resbank.co.za/content/dam/sarb/what-we-do/payments-and-settlements/regulation-oversight/NPS%20Act%20Review%20Policy%20Paper.pdf

paper includes 21 recommendations, including allowing non-banks to participate fully in the NPS from a payment, clearing and settlement perspectives, without the need to partner with a commercial bank.

Further, the exemption of payment services from the Banks Act is also necessary. Access to non-banks will lead to benefits such as improved financial inclusion, innovation, faster, efficient and cheaper provision of payment services.

4.3 Digital Payments Roadmap (Project Stimela)

The SARB has developed a Digital Payments Roadmap (roadmap), called Project Stimela, which was launched in April 2024.[42] The purpose of the roadmap is to identify obstacles, barriers and challenges to the adoption, and increase and effective usage of digital payments. The roadmap further developed a multi-disciplinary and stakeholder action plan to unlock the inclusivity, effectiveness and sustainability of digital payments for the benefit of South Africans. The roadmap supports *Vision 2025,* which highlights the importance of digital payments in the NPS. The SARB has conducted engagements with stakeholders identified in the roadmap to contribute towards achieving inclusive, accessible, effective and sustainable digital payments. Action 16 of the roadmap recommends that "the SARB should further explore the feasibility of digitising money/cash through the issuance of retail CBDCs and use cases for a wholesale CBDC" over a two-year period. The position paper and subsequent work are therefore linked and aligned to this recommendation.

4.4 Payments Ecosystem Modernisation programme[43]

Further to the initiatives listed above, the SARB Governors' Executive Committee approved the Payments Ecosystem Modernisation (PEM) programme in October 2023, aimed at facilitating a radical reform and transformation of the South African payment ecosystem in the interest of all sectors of society in South Africa.

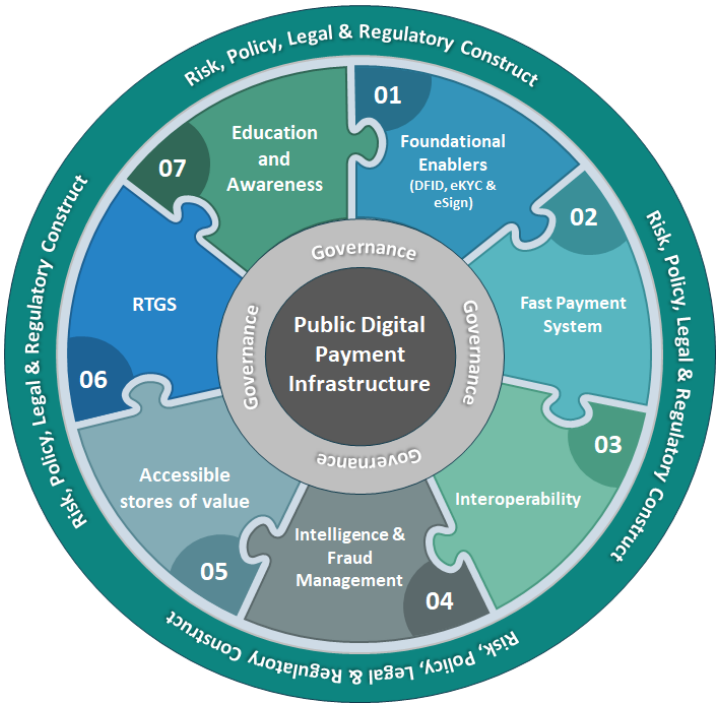
Despite the complexity of the task at hand, the envisaged over-arching goal will be achieved when all sectors of society have effective access to low to no-cost digital payments that are easy to understand, readily available and meet their needs.

[42] https://www.resbank.co.za/content/dam/sarb/publications/media-releases/2024/npsd---payments-report/Digital%20Payments%20Roadmap%20Report.pdf

[43] The section below is based on inputs from July 2024. As a new programme, PEM is being shaped and refined over time, which may alter the priorities and initiatives highlighted below.

The PEM programme intends to implement several key components such as establishing a National Payments Utility (NPU),[44] and several common services such as a renewed real-time gross settlement (RTGS) system, expanded fast payment system capabilities, foundational enablers such as digital financial identity, as well as interoperability standards geared to meet the demands of the entire payments ecosystem and all members of South African society. The key components included in the scope of the PEM are outlined in Figure 10 below.

Figure 10: PEM programme components



4.5 Introduction of a fast payment system

In June 2020, the SARB issued a consultation paper[45] on faster payments, which outlined the shortcomings of RTC, a faster payments system that was launched in 2006, enabling the transfer of funds within 60 seconds. The consultation paper stated that an RTC payment was much more costly than the EFT credit payment. The consumer's experience is generally poor since certain participants that offer EFT credit transactions do not participate in the RTC stream. As a result, the consumer remains underserved and generally defaults to the

[44] Pursuant to this, in November 2024, the SARB announced its intention to acquire 50% of BankServAfrica (now PayInc) for the purpose of transitioning the company into the national PPU through a collaboration with commercial bank shareholders. This strategic partnership seeks to bolster efforts to modernise South Africa's national payment system, making the payment system more secure, inclusive and efficient. [https://www.bankservafrica.com/blog/post/bankservafrica-announces-the-sarbs-intention]
[45] https://www.resbank.co.za/content/dam/sarb/what-we-do/payments-and-settlements/consultation-documents/Faster%20Payments%20consultation%20paper%20-%2012%20June%202020%20-%20version%20sent%20to%20stakeholders_.pdf

traditional EFT credit service that results in delayed transfers of funds, and so on. Subsequently, the SARB issued a position paper on faster payment in May 2022.[46]

The position paper highlighted that the SARB supports the development, implementation and adoption of safe, reliable, stable and interoperable faster payment systems as well as the provision of faster payment services and products to consumers and businesses in South Africa. It further outlined measures to ensure successful implementation of faster payment infrastructures.

In response to the faster payment position paper, during March 2023, PayShap was launched − a faster payment system that enables funds transfer within 10 seconds and includes a pay-by-proxy feature that enables payment via an alias instead of a bank account. As at January 2025, 10 banks are participating in PayShap.

As at March 2025, a total of about 260 million transactions with a rand value of ZAR215 billion have been processed since the launch. To further enhance the adoption of PayShap, the 'Request to Pay' feature went live in December 2024 and is available through participating banks. This feature allows consumers to request a payment from someone else and then receive the funds related to that payment request immediately and securely in their store of value account. Looking ahead, it is envisaged that PayShap will continue to grow as new enhancements are introduced to increase its capacity to promote economic inclusivity, lessen the reliance on cash and accomplish the strategic objectives of the SARB's *Vision 2025* and beyond. Further information on PayShap can be accessed on www.payshap.co.za.

The PayShap platform is also fully ISO 20022-compliant and adheres to global best practices for instant payments.[47]

Box 1: CBDCs and fast payment systems

Retail CBDCs and fast payment systems have several similarities. They both enable instant, often low-cost transfers for end users, enhancing payment efficiency and interoperability. They can be built on central bank-operated infrastructures, with private payment service providers (PSPs) playing a crucial role, particularly in user interactions. Additionally, both can be designed to improve access to a variety of competitive and affordable financial services for individuals, households and businesses, thereby fostering financial inclusion.

[46] https://www.resbank.co.za/content/dam/sarb/what-we-do/payments-and-settlements/regulation-oversight/position-papers/Position%20Paper%20no%2001_2022%20on%20Faster%20payments%20position%20paper%2013%20May%202022.pdf

[47] https://www.resbank.co.za/content/dam/sarb/publications/media-releases/2023/payshap-/Press%20release%20on%20the%20launch%20of%20Payshap%20-%20a%20digital%20payment%20service.pdf

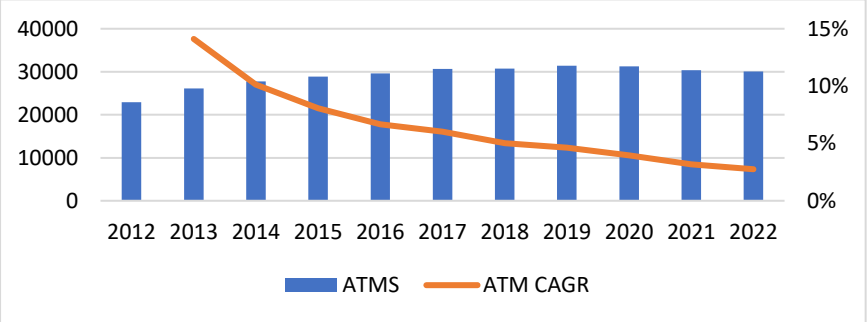
The primary difference between retail CBDCs and fast payment systems lies in the type of money used. Retail CBDCs allow users to make payments using a direct claim on the central bank, making them a form of central bank money, like cash. In contrast, fast payment systems facilitate the transfer of private money, such as commercial bank money or electronic money. Since retail CBDCs are central bank money, they are not subject to bankruptcy risks. Depending on their specific design and the safeguards in place to support private money (like deposit guarantee schemes), retail CBDCs may have different implications for the disintermediation of private banks, especially during periods of financial market stress or uncertainty.[48]

4.6 Payments Infrastructure and access to the NPS

ATMs play a crucial role in providing access to cash, particularly in areas where banking infrastructure is limited. Further, they enable consumers to withdraw cash conveniently, manage their bank accounts and perform a range of financial transactions without the need to visit a bank branch. This accessibility is vital for communities with limited banking services, as it supports financial inclusion and ensures that customers can access their funds when needed.

The number of ATMs in South Africa has remained stable in the last decade, with a slight decrease each year from 2020.

Figure 11: Number of ATMs and CAGR



Source: SARB calculations

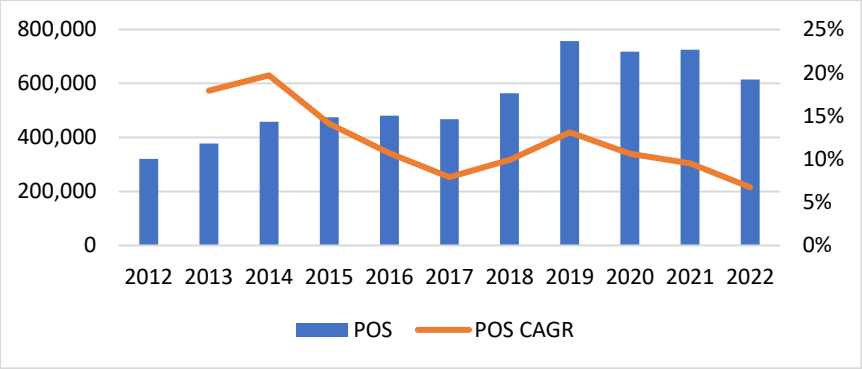
In South Africa, POS devices are another integral access point in South Africa, providing not only a means for efficient transaction processing but also enabling access to cash through cash-back services. Cash-back at POS allows consumers to obtain cash during a purchase, reducing the need to visit an ATM or bank branch. This service is particularly valuable in

[48] Aurazo et al, 2024, Central bank digital currencies and fast payment systems: rivals or partners? BIS papers no 151

underserved or rural areas where banking infrastructure is limited, promoting financial inclusion by offering convenient access to cash.

The reported number of POS devices in South Africa grew significantly between 2012 and 2019, particularly driven by fintech firms, before showing a decline in recent years. However, this trend may not fully reflect the broader landscape of POS capabilities, as traditional POS counts often exclude smartphone-based solutions such as 'SmartPOS' feature or QR code-based payments that do not rely on dedicated POS hardware. When these are included, the total number of POS-like access points may in fact have continued to rise.

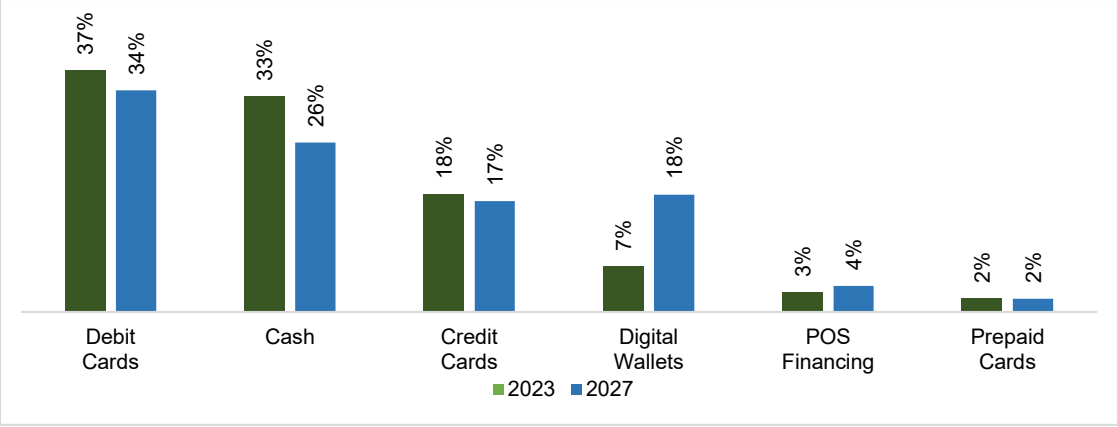
Figure 12: Number of POS devices and CAGR



Source: SARB calculations

The overall higher number of POS devices in South Africa has contributed positively to the use of digital payment solutions at point-of-sale compared to cash, with cash as a payment method estimated to decline from 33% in 2023 to 26% in 2027 (Worldpay, 2024). A similar decline is expected for card payments as more South Africans adopt mobile-phone-based payment solutions.

Figure 13: SA's POS payment methods – contribution, %



Source: Worldpay, 2024, Global Payments Report

4.7 The adoption and use of digital payments

In 2023, the SARB commissioned a Payments Study as an extension and expansion of its existing efforts to assess the use of payment instruments and to broadly measure aggregate payment volumes and values in South Africa.[49] The study made use of the Survey of Consumer Payment Choice (SCPC) and Diary of Consumer Payment Choice (DCPC) surveys – which were based on the profile of adult South Africans to represent the broader population in its diversity across provinces, race, gender and age groups.[50]

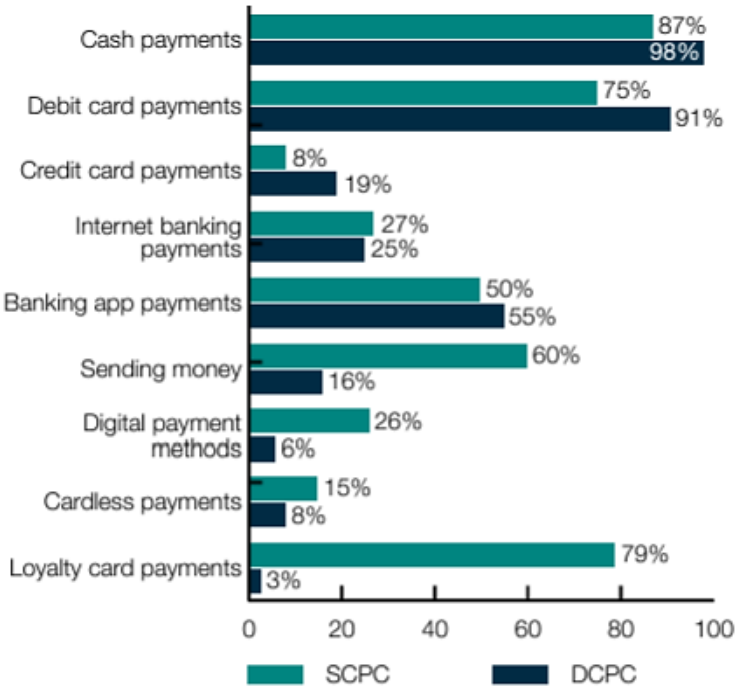
The SCPC surveyed a nationally representative sample of at least 3 000 participants aged 18years and older, from metropolitan regions, urban and rural areas of the country. The DCPC was complementary to the SCPC, but distinct in that it was designed as a diary survey instrument to record actual payments over a specified time with a sample of 4 624 achieved, yielding 210 207 payments with a collective value of ZAR111.2 million.

Similar to the FinScope Survey findings, the study found that South Africans most often use cash as a payment method, irrespective of what they buy, as it is a widely accepted payment method. Other payment methods such as internet banking and banking apps have increased, especially since COVID-19. However, these are not POS-friendly payment methods and therefore their use is limited to buying certain goods or services. In the DCPC, internet banking and banking apps payment methods are mainly used for cell phone and data top-up payments, which seems to be a very elementary use of the sophisticated platforms.

[49] https://www.resbank.co.za/content/dam/sarb/publications/media-releases/2024/payments/SARB%20Payments%20Study%20Report%202023.pdf

[50] The SCPC – deemed a recall approach – is based on consumer choice and focuses on preferences, awareness, usage, reasons for adoption and barriers to entry. The DCPC measures actual payments where individuals are required to keep a record of transactions in a diary format over a set period of days. Both the SCPC and DCPC surveys are based on several similar approaches adopted from other countries and regions, most notably the Federal Reserve Bank of Atlanta, complemented with additional questions and context relevant to the South African market.

Figure 14: Overview of the payment methods measured in both surveys



Source: SARB, 2023, Payments Study

Table 3 below provides a summary of the DCPC survey findings on the use of various payment channels. The table shows that although cash is the most used form of payment and constitutes the highest share of all payments by volume, debit cards have the highest share by value. Cash payments are also, on average, much smaller compared to digital payments.

Table 3: Summary table of different channel payments

Key indicators	Cash	Debit Card	Credit Card	Internet banking	Banking App
Consumer population using it	39.7 m[51]	37 m	7.5 m	10.2 m	22 m
Percentage of total adult population	98%	91%	19%	25%	55%
Estimated percentage of all payments (volume)	56%	34%	1.9%	1.6%	5%

[51] m = million

Key indicators	Cash	Debit Card	Credit Card	Internet banking	Banking App
Estimated percentage of all payments (value)	21%	55%	4.3%	6.7%	12%
Total payment value over three months	ZAR22.8 m	ZAR60.6 m	ZAR4.8 m	ZAR7.4 m	ZAR13 m
Average payment per transaction	ZAR208	ZAR768	ZAR1 141	ZAR2 133	ZAR1 137

Source: SARB, 2023, Payments Study

The use of crypto assets in payments

In 2021, the Intergovernmental Fintech Working Group (IFWG) published its Position Paper on Crypto Assets (Position Paper),[52] setting the South African policy position to bring crypto asset service providers within the regulatory perimeter in a phased and structured manner. The Position Paper confirmed that crypto assets are not legal tender in South Africa.

From the SARB's ongoing research, crypto assets do not currently seem to be widely used and accepted as a form of payment in South Africa, but the ecosystem is evolving at a fast pace with various use cases being introduced. According to the World Bank, crypto payments are increasingly accepted by merchants worldwide, offering a decentralised alternative to traditional financial systems. In 2023, a large South African retailer became the first major merchant in South Africa to enable crypto asset payments directly at the till by integrating its POS devices with a QR code supported by third-party digital wallets. Since then, there has been an exponential increase in merchant crypto asset acceptance, with one crypto asset service provider enabling nearly 700 000 merchants to accept crypto asset payments.

The dominance of Bitcoin as the primary method of crypto asset payments has also been declining over time. In 2021, Bitcoin accounted for 54.8% of all transactions, but by 2023, this figure dropped to 35.6%. Although not discussed extensively in this paper, stablecoins, particularly the ones pegged to fiat currencies, like the US dollar, have gained popularity as a choice for payments − with a number of rand-pegged stablecoins launched in the country in recent years as well.[53]

[52] See, https://www.ifwg.co.za/Reports/Position%20Paper%20on%20Crypto%20Assets.pdf
[53] See, https://coingate.com/blog/post/crypto-payments-report-2023

Data on the extent of adoption and usage of crypto assets for payments is limited and therefore it is difficult to form an accurate picture. According to the SARB Payments Study, crypto-asset investors constituted 2.3% of the adult population and about 93% of the surveyed adults (37.6 million) were not aware of any crypto assets.

Notwithstanding the current levels of adoption, given the speed of developments in the crypto asset market and the volatility of crypto assets, vigilant and proactive monitoring is essential. As stablecoins pegged to fiat currency are more likely to resemble the features of money and be used for payments, increased attention by policymakers is warranted. The use of stablecoins in Africa has been growing and is estimated to make up 43% of the region's total crypto transaction volume in sub-Saharan Africa.[54] In countries where local currencies are highly volatile and access to US dollars is limited, dollar-pegged stablecoins like USDT and USDC have gained traction, offering businesses and individuals alike a way to store value and facilitate cross-border payments.

According to the Financial Stability Board's 2024 report on "Cross-border regulatory and supervisory issues of global stablecoin arrangements in EMDEs", the widespread use of currency-pegged stablecoins (particularly foreign currency) in emerging market and developing economies (EMDEs) could undermine the effectiveness of monetary policy, circumvent capital flow management measures, strain fiscal resources and threaten financial stability. Macroeconomic instability can increase financial stability risks by destabilising financial flows and straining fiscal resources.

In addition, the widespread foreign currency-pegged stablecoin activity could threaten monetary sovereignty through currency substitution. The risk of a foreign currency-pegged stablecoin displacing a domestic currency for domestic transactions ('cryptoisation') is particularly pertinent for those EMDEs with high inflation, unstable currencies and weak monetary frameworks. In an economy with high inflation and large exchange rate movements, residents might prefer a stablecoin that is pegged to (or perceived to be backed by) a more stable foreign currency as a store of value over the domestic currency.

Lastly, the widespread activity related to currency stablecoins in EMDEs may also reduce monetary policy effectiveness. Monetary policy transmission might weaken if local firms and households prefer to save and invest in stablecoins that are not pegged to the domestic fiat currency or to use them as a medium of exchange. In addition, if the use of stablecoins for pricing goods and services became common in an economy, domestic prices may become more volatile due to any price movement of the currency to which the stablecoin is pegged.

[54] Chainalysis, 2024, sub-Saharan Africa: Nigeria Takes #2 Spot in Global Adoption, South Africa Grows Crypto-TradFi Nexus (https://www.chainalysis.com/blog/subsaharan-africa-crypto-adoption-2024/)

These risks highlight the importance of an appropriate regulatory, supervisory and monitoring environment to ensure stablecoins are issued and managed safely and protects consumers, ensures financial stability and prevents illicit activities.

Box 2: The current regulatory environment for crypto asset payments

The SARB does not have a regulatory framework on the use of crypto assets for payments. This is largely due to crypto assets not meeting the definition of 'money' (i.e. legal tender), even though they perform certain functions of money – that is, medium of exchange and store of value. In accordance with the SARB position paper, there is currently no regulatory framework to provide for, among others, the acceptance of crypto assets for the payment of goods and services. The acceptance of crypto assets for payment of goods and services depends on the merchants' willingness to accept them. This leaves consumers vulnerable to various abuses without a regulatory recourse.

Crypto assets fall outside of the application of the NPS Act. The NPS Act defines a payment system as a system that enables payments to be effected or facilitates the circulation of money and includes any instruments and procedures that relate to the system. Although the term 'payment' is not defined in the NPS Act, the Bank for International Settlement (BIS) defines payment as "[t]he payer's transfer of a monetary claim on a party acceptable to the payee." A crypto asset is not money and therefore does not meet the definition of a payment system. The SARB may issue directives in respect of a payment system but cannot issue directives in this regard.

Crypto assets and payments are evolving, suggesting that the development of the policy and regulatory positions on crypto assets should be agile. In this regard, the SARB intends to introduce enabling provisions in the revised NPS framework that would allow for regulation, supervision and oversight of new payment instruments as designated by the Governor of the SARB, based on appropriate assessment.

5. Overview of a CBDC and its relevance

The SARB has a statutory mandate to protect the value of the currency and enhance and protect financial stability − which includes the sole right to issue banknotes and coin (also referred to as central bank money). Central bank money refers to the currency and reserves issued and controlled by the SARB. This includes physical currency in the form of banknotes and coin, which are considered legal tender. The function of this money is to act as (i) a medium of exchange with which to make payments for goods and services, (ii) a unit of account with which to measure the value of goods, services, savings products or loans and (iii) as a store of value with which to transfer purchasing power over time.

The ongoing digitalisation of the economy locally and globally, spurred by the COVID-19 pandemic, has changed the way people pay for goods and services, leading to the rise of

various electronic payment methods. With concerns about virus transmission and the advent of technologies like near-field communication (NFC)[55], there has been a significant shift towards contactless payment methods. The growth of smartphones and e-commerce has boosted mobile payment apps and online payments. Consumers now frequently use digital payment methods such as credit/debit cards, digital wallets and instant payment solutions. According to the BIS's February 2024 briefing, cashless payments per capita increased: from under 300 in 2015 to 468 in 2022 in advanced economies and from around 150 to 291 in EMDEs.[56]

As digital transactions become increasingly common and technologies like DLT advance, private sector-created money-like instruments, such as unbacked crypto assets and stablecoins, have emerged. These alternatives, while offering innovation, have raised concerns among central banks due to their price volatility, potential threat to monetary sovereignty, potential to fragment the payment ecosystem and risks to consumers. To address these challenges and meet the demands of a digitising economy, central banks are exploring CBDC as a way to preserve currency sovereignty, ensure continued access to central bank money for the general public and achieve policy objectives like improving payment efficiency and enhancing financial inclusion.

The BIS defines a CBDC as a purely digital banknote, denominated in the national unit of account, that could be used by individuals to pay businesses, shops or each other (a retail CBDC), or between financial institutions to settle trades in financial markets (a wholesale CBDC).[57] At its core, CBDC mirrors traditional currency but in digital form. Unlike private forms of money, like commercial bank deposits and crypto assets, CBDC is issued and regulated by a country's central bank, thus offering stability, security and a risk-free settlement instrument. It combines the familiarity of cash with the efficiency and convenience of digital transactions, facilitating seamless peer-to-peer payments, retail transactions and even cross-border settlements.

[55] Near-field communication (NFC) is a short-range wireless connectivity technology that uses magnetic field induction to enable communication between devices when they are touched together or brought within a few centimetres of each other. This includes authenticating credit cards, enabling physical access, transferring small files and jumpstarting more capable wireless links.
[56] CPMI, 2024, Tap, click, and pay: how digital payments seize the day, Brief No. 3.
[57] https://www.bis.org/about/bisih/topics/cbdc.htm

The following are common features of a CBDC:

- **Digital representation of fiat currency**: CBDC retains the value and legal status of traditional currency, providing a secure and trustworthy medium of exchange.
- **Centralised issuance and control**: Unlike decentralised crypto assets, a CBDC is controlled and regulated by a central authority, typically a central bank, ensuring compliance with monetary policies and regulatory frameworks.
- **Accessibility and inclusivity**: CBDC has the potential to enhance financial inclusion by providing access to banking services for unbanked and underbanked populations (e.g. through more accessible channels and low-cost services), thereby promoting economic empowerment and participation.
- **Efficiency and transparency**: By leveraging new forms of technology, like DLT, CBDC transactions can be executed swiftly, securely and with greater transparency, reducing costs and risks associated with intermediaries.
- **Innovative monetary policy tools**: CBDC opens avenues for innovative monetary policy tools, such as programmable money and smart contracts, enabling automated execution of predefined conditions and enhancing policy effectiveness.

BIS research papers[58] outline three different retail CBDC deployment architectures − **direct**, **hybrid and** i**ntermediated** model, supplemented by a fourth alternative, **indirect** model.

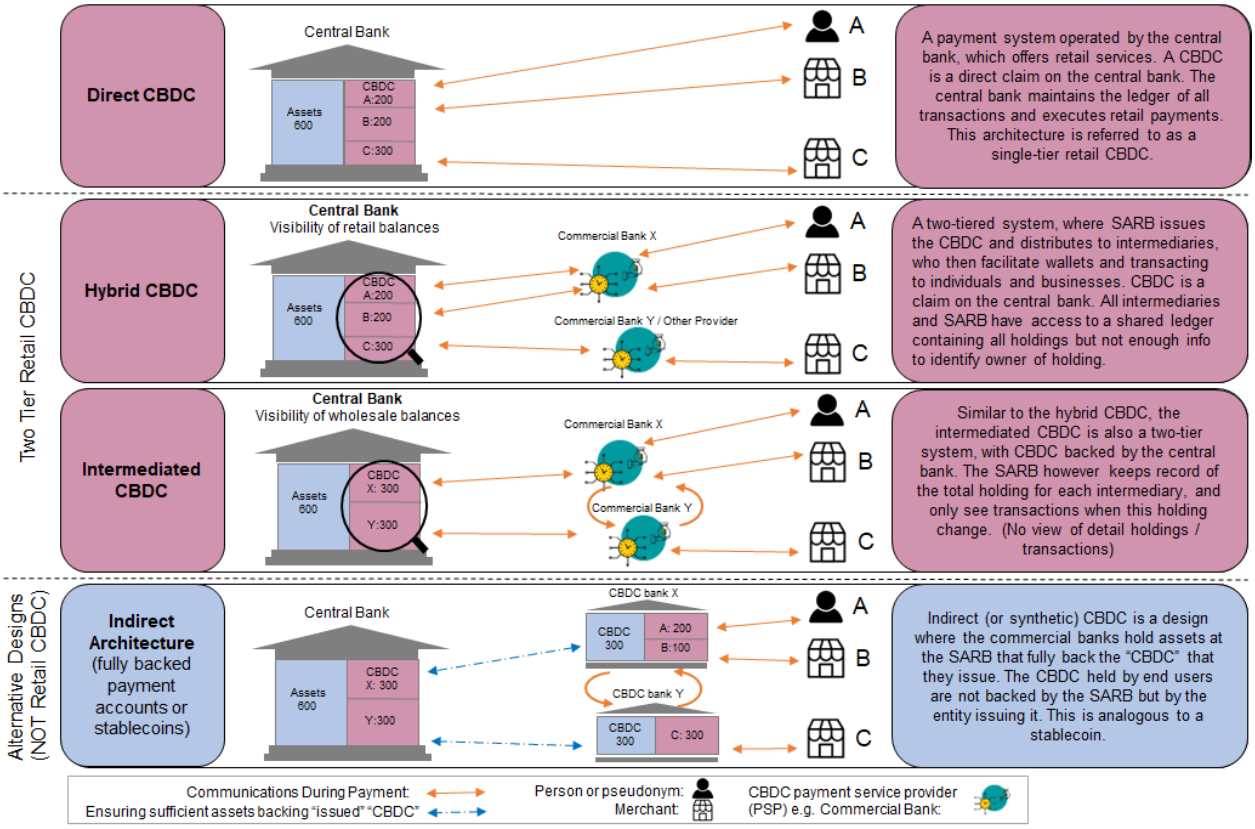
Table 4: BIS CBDC deployment models

Direct CBDC	A payment system operated by a central bank, which offers retail services. A CBDC is a direct claim on the central bank. The central bank maintains the ledger of all transactions and executes retail payments. This architecture is referred to as a **single-tier retail CBDC.**
Hybrid CBDC	An intermediate solution that runs on two complementary engines. Intermediaries handle retail payments, while the CBDC is a direct claim on the central bank, which also keeps a central ledger of all transactions. This architecture is referred to as a **two-tier retail CBDC.**
Intermediated CBDC	The architecture resembles Hybrid CBDC model but differs in that the central bank maintains only a wholesale ledger, rather than a central ledger that encompasses all retail transactions. Further, the CBDC is a claim on the central bank and private intermediaries execute payments. This is also a type of **two-tier retail CBDC.**
Indirect or synthetic CBDC	A payment system operated by financial intermediaries that resembles narrow payment banks. Consumers have claims on these intermediaries, which operate all retail payments. These intermediaries need to fully back all liabilities to retail clients with claims on the central bank. The BIS paper notes that, as this does not allow the consumer to directly access central bank money, not all central banks recognise this architecture as a general purpose CBDC.

[58] Auer and R Böhme, "The technology of retail central bank digital currency", *BIS Quarterly Review*, March 2020, and BIS Working Paper No. 948 "Central bank digital currency: the quest for minimally invasive technology" June 2021

The BIS CBDC deployment models are depicted graphically as follows:

Figure 15: BIS CBDC deployment models

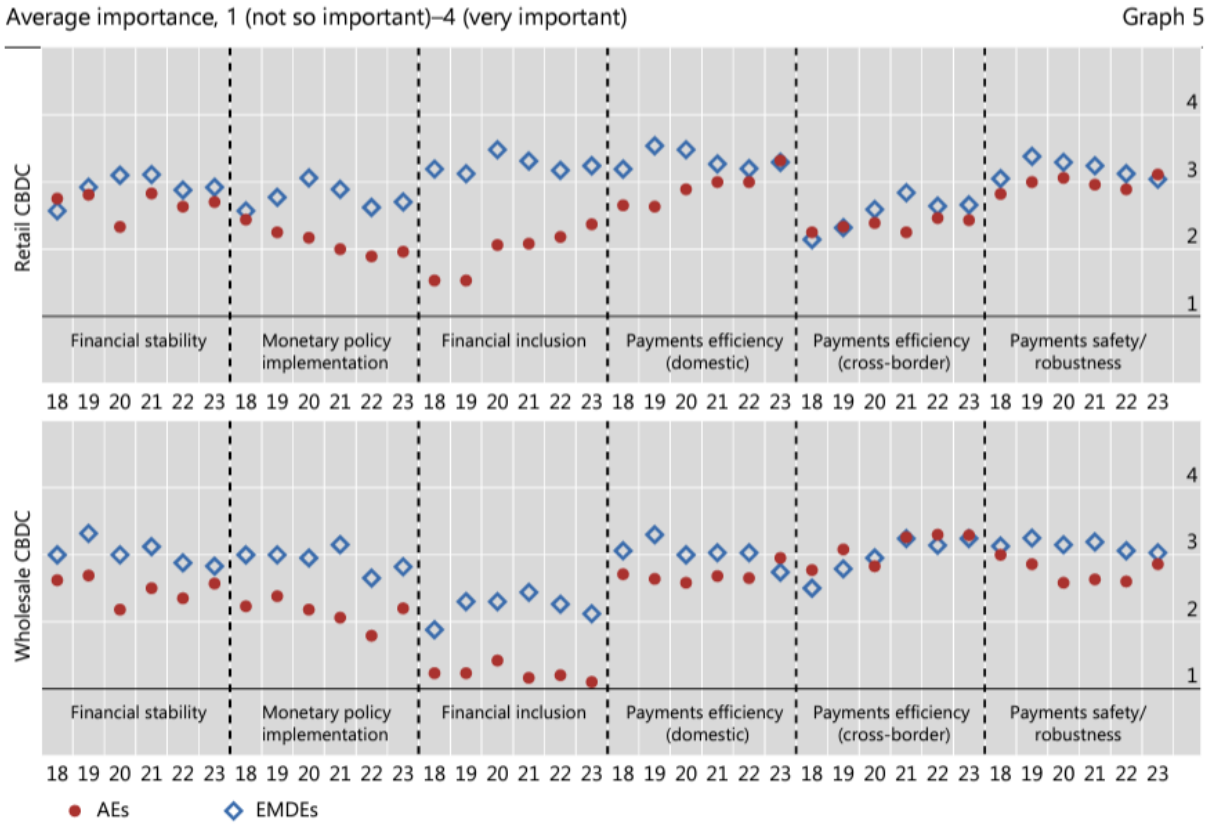


Source: BIS Working Paper No. 948 "Central bank digital currency: the quest for minimally invasive technology" June 2021

Research published by various standard-setting institutions, such as the International Monetary Fund (IMF), the BIS and other central banks, support the view that every country has to determine its own reasons (drivers) for, or against, the issuance of a CBDC. According to the IMF,[59] individual countries' policy objectives must guide the CBDC exploratory work and inform design and technology choices. The 2023 BIS Central Bank Survey on CBDC highlighted key motivations for CBDCs in advanced economies (AEs) and EMDEs − see Figure 16 below.

[59] IMF FinTech Notes. Behind the Scenes of Central Bank Digital Currency. FinTech Notes No. 2022/004

Figure 16: Motivations for issuing a retail and wholesale CBDC



Source: BIS, 2023: Embracing diversity, advancing together – results of the 2023 BIS survey on central bank digital currencies and crypto

As shown above, central banks' motivations for considering retail CBDCs have been converging, with both AEs and EMDEs prioritising domestic payments efficiency and safety. Financial stability and cross-border payments efficiency are also important, with EMDEs placing more emphasis on financial inclusion.

The main motivations above resonate with the existing challenges to financial inclusion in South Africa and the need for innovative means to increase the adoption of digital financial services. For example, according to the 2023 FinScope Consumer Survey by FinMark Trust, 16% of the adult population in South Africa is still unbanked, with a significant portion of the banked population characterised by low bank account usage. Similarly, cash remains dominant due to issues like limited payment infrastructure, connectivity and costs (as detailed in Section 4). CBDCs could address these challenges by providing a trusted, secure, efficient, low-cost and accessible digital payment system, encouraging digital payment adoption and enhancing financial inclusion.[60]

[60] IMF, 2023: Central Bank Digital Currency's Role in Promoting Financial Inclusion

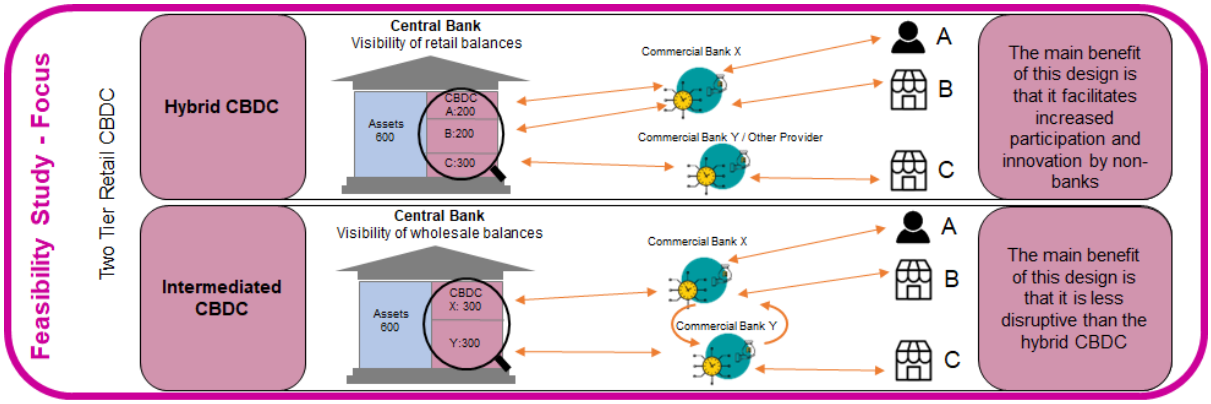
6. The feasibility of a CBDC in South Africa: lessons from technical experimentation

In 2021, the SARB commissioned a study to practically investigate the feasibility, desirability and appropriateness of a SARB-issued digital currency (feasibility study), to be used as electronic legal tender, complementary to cash. The feasibility study considered the practical implications through experimentation with the technical test lab solutions within purposefully constrained sandbox environments.

The SARB appointed two solution provider partners to assist with the feasibility study. The feasibility study was conducted over a period of 10 months, and the work was designed to explore matters related to policy, regulation, legal and technology, leaning on the international experience and insights of the two solution partners, as well as research performed by the SARB inter-departmental legal/policy and technical work streams.

The study investigated two deployment models for an account-based and token-based CBDC using DLT,[61] namely, the hybrid retail CBDC model and the intermediated retail CBDC model (see Section 5). Both deployment models fall into the two-tier category, but their levels of intermediation are different. The SARB mandate and functions would not be affected in a meaningfully different way by the two deployment models.

Figure 17: Deployment models investigated by the SARB feasibility study

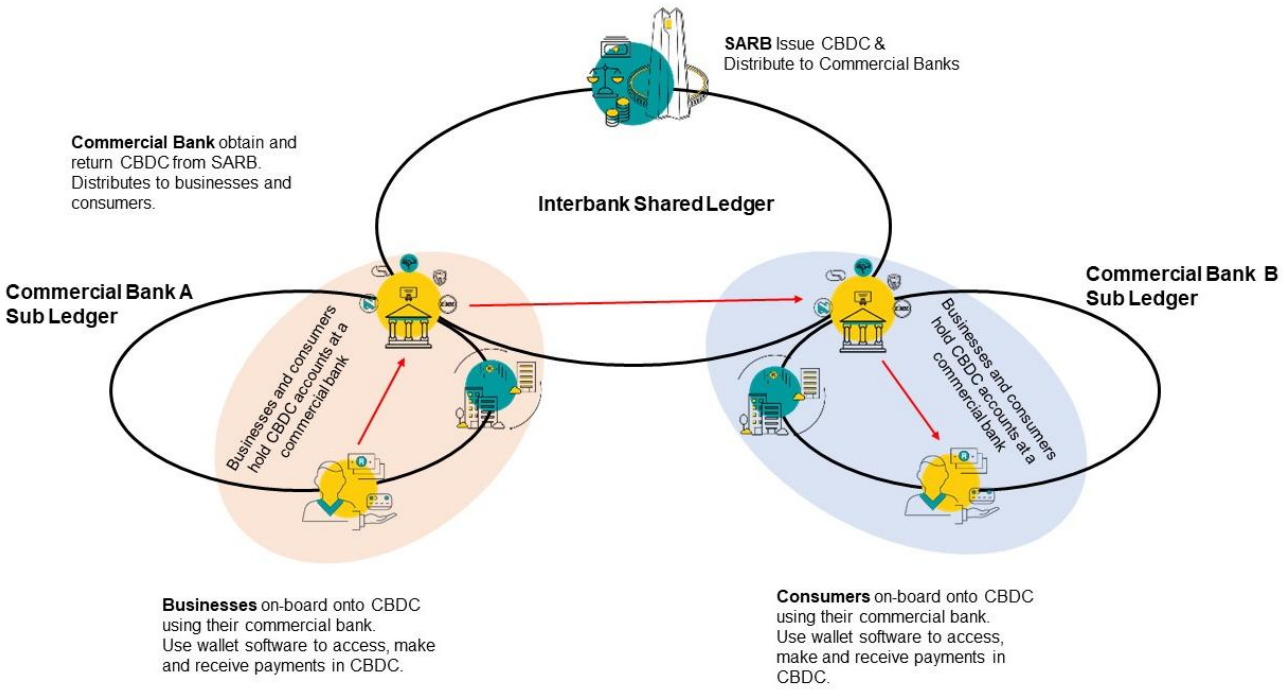


The **intermediated retail** CBDC is similar in concept to the current bank customer-centric model and aims to protect the banks' investment in payment system infrastructure, while adopting the benefits offered by DLT-based technologies. In this model, a consumer or business would open a CBDC account with a bank, which is held on a sub-ledger hosted by the bank.

[61] Both solutions employed permissioned private blockchains where the access to process transactions and visibility into network is controlled through access rules by a central authority or grouping of authorities, depending on the governance model deployed.

All transactions are facilitated by the bank, like in the existing four-party model in the payment system. Only inter-bank movements are reflected in the main CBDC DLT ledger, for settlement purposes. A customer wallet and its cryptographic keys are created and managed by the bank that issued the wallet, and the customer is linked to that bank. The wallet is maintained on the issuing bank infrastructure, along with the customer's transaction history and balances.

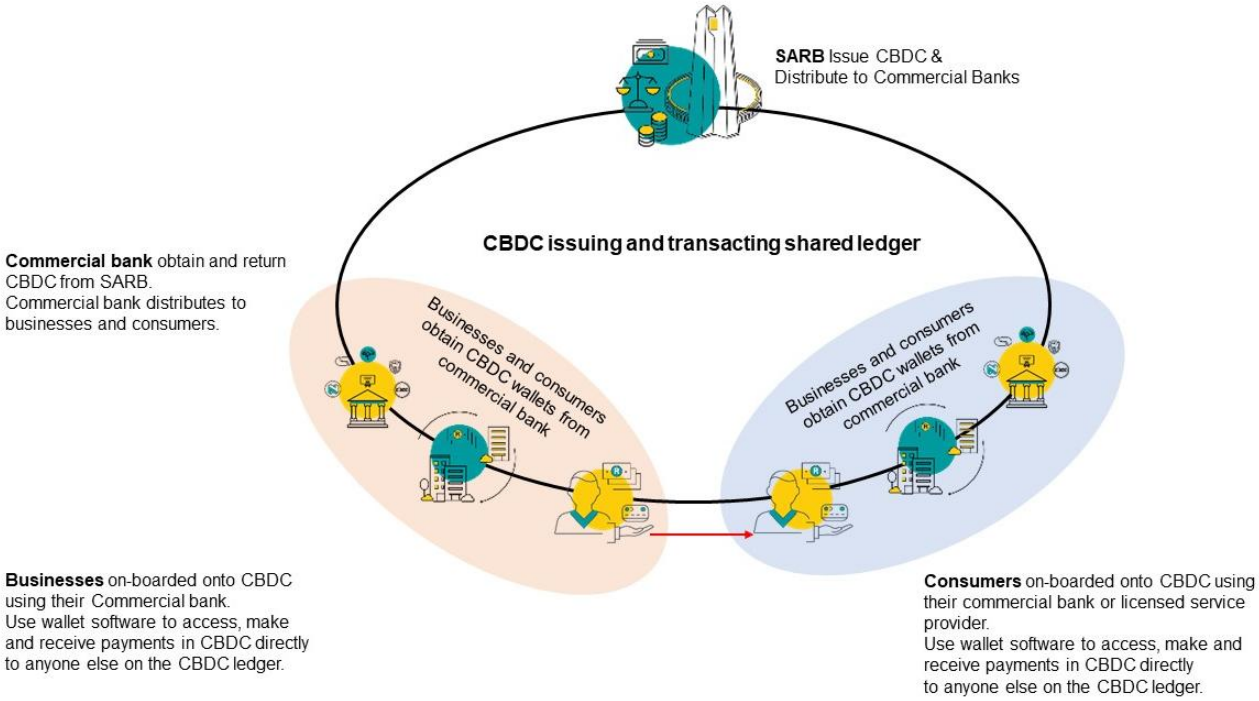
Figure 18: Intermediated retail CBDC



The **hybrid retail** CBDC architecture allows but does not require a formal linkage between a financial institution and a customer. All balances and movements are held on the main CBDC DLT ledger – there are no sub-ledgers. Banks provide technical facilitation services, but consumers and businesses can obtain and operate a CBDC wallet without the need to open an account with a bank. The wallet and its associated cryptographic keys are controlled by the individual or entity, and the transaction history and balances are maintained on the single main CBDC ledger.

The hybrid retail CBDC architecture opens the landscape for improved utility, broader participation by licensed (and therefore regulated) non-banks and innovation by fintech companies and payment service providers without needing to partner with a specific wallet-issuing bank.

Figure 19: Hybrid retail CBDC



The principal finding of the study was that **a CBDC is technically feasible – and can be achieved technologically in a way that meets regulatory frameworks without hindering the SARB's policy goals**. To do so, the SARB would need to institute a programme of regulatory adjustments to create a clear legal foundation upon which to issue a CBDC, establish a new licencing framework for providers and create a comprehensive oversight regime. This construct would enable a CBDC to be managed like the current payment systems, allowing it to benefit from applying similar risk management practices and effectiveness.

From a policy perspective, the introduction of a CBDC is one way to enable the SARB to expand the accessibility of central bank money into the digital realm – a benefit that is particularly relevant where there is an objective to reduce cash dominance. In addition, there is also a potential to use CBDCs to achieve other financial policy goals, such as driving payments resiliency, driving digital payments, enabling wider payments innovation and contributing towards financial inclusion – although such goals could also broadly be achieved through other means and other policy interventions currently underway within the NPS. Importantly, the introduction of a CBDC would create new risks − with the risk of commercial bank deposit substitution the most profound. However, such risks can be controlled through account limits (and other mechanisms), and so it is likely possible to launch a CBDC that 'does no harm'.

Lastly, the ability for a CBDC to add value to the NPS was also shown conceptually and through current live implementations in other jurisdictions.

The study, however, also identified several considerations. From the outset, for a CBDC to be viable in South Africa, it is imperative that the SARB's motivations for a CBDC are clear and aligned to broader national policy objectives. This is important because it affects the CBDC design options, the choice of use cases that are developed and the value proposition for each ecosystem participant. In addition to clear objectives, the study identified several other critical success factors to the implementation and adoption of a CBDC, including a considered customer value proposition, careful management of the ecosystem and participants and clear risk management principles.

As discussed in Section 5, some of the policy objectives that have been considered by various central banks for a CBDC include financial inclusion, payment system access, efficiency and modernisation, reducing illicit use of money and reducing the cost of cash. While it remains important that central banks collaborate and learn from one another, there is clearly no 'one size fits all' set of objectives.

During the SARB's feasibility study, the following emerged as main drivers or motivations for implementing a retail CBDC for South Africa:

- **Central bank influence**: The rapid growth of private digital assets, such as crypto assets, both domestically and internationally, presents a potential challenge to central banks' ability to effectively implement monetary policy, maintain financial stability and oversee the financial system. In this context, a CBDC could serve as a tool for the SARB to preserve its policy transmission capabilities and regulatory oversight, ensuring continued relevance and effectiveness in a digitally evolving financial landscape.
- **Public form of digital money**: A CBDC has the potential to enable policy objectives that prioritise ensuring the availability of a public form of digital money backed by the SARB. A CBDC may enhance financial stability amid the growing multitude of private crypto asset offerings and provide a reference for digital versions of the rand, similar to the role of cash today. It would ensure the availability of a digital version of public money, allowing the consumer the choice to transact with a digital option of central bank-backed money.
- **Enhancing the NPS**: The South African NPS is mature, offers several options to businesses and consumers and is in the process of modernisation. A CBDC would not negate or compete with these modernisation initiatives, unless a policy decision is made to do so. It has the potential to add value through its unique attributes (e.g. offline

capability and peer-to-peer transacting) and ability to unlock benefits for the stakeholder community through programmability of money (smart contracts in CBDC terms), peer-to-peer transacting without the need for a bank account (depending on SARB policy stance and deployment model) and richer market intelligence. Further analysis would be needed to assess the interaction of CBDC with other payments innovations, including PayShap and/or new forms of privately issued money.

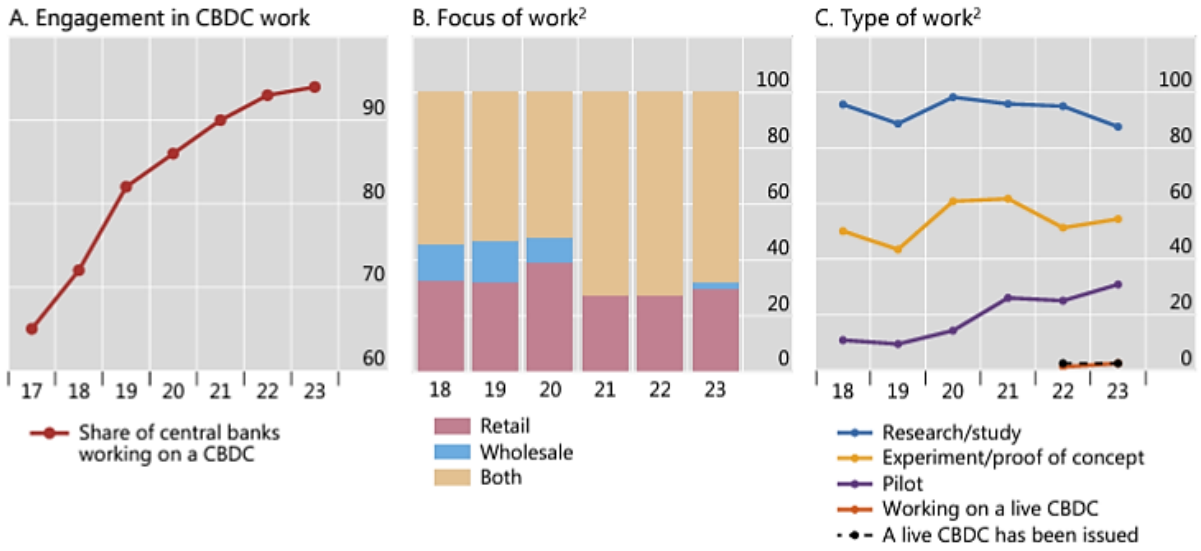
- **Preparing for the evolving digital money landscape**: Finally, when assessing the appropriateness of a CBDC, network effects and global trends should be considered. This includes considering what is required for South Africa to remain digitally progressive and to ensure it does not lag in terms of innovation and related developments.

The high-level motivations identified in the feasibility study remain relevant. The subsequent research conducted by the SARB aimed to assist in determining the urgency of addressing these imperatives and to delve into the local factors and nuances that could influence the decision on whether to implement a retail CBDC or not. These considerations are discussed in the Position Paper.

7. Examples from other jurisdictions

According to the 2023 BIS CBDC Survey, 94% of surveyed central banks are exploring a CBDC. The study noted that central banks were proceeding, at their own speed, taking diverse approaches and considering different design features. Furthermore, over the course of 2023, there was a sharp uptick in experiments and pilots with wholesale CBDCs – mainly in advanced economies but that various EMDEs were also stepping up their wholesale CBDC work. The study concluded that, overall, the likelihood that central banks will issue a wholesale CBDC within the next six years now exceeds the likelihood that they will issue a retail CBDC.

Figure 20: Central bank involvement in CBDC work advances further[62]



[2] Share of respondents conducting work on CBDCs

Source: Alberto Di Iorio et al, 2024, Embracing diversity, advancing together – results of the 2023 BIS survey on central bank digital currencies and crypto, BIS Papers No 147 – direct image of graph from BIS report

As part of the SARB's further research, a review of a sample of countries' publications was conducted to provide a view of how different jurisdictions have articulated the potential need for retail CBDC. These are provided in detail in Annex 3.

In summary, the top motivations for retail CBDC issuance vary across countries, with no single factor dominating. Providing a cash-like digital means of payment, considering reduced cash usage and the increase in private digital payment services was the most common motivation. Boosting financial inclusion was also a common motivation. Other motivations included strengthening competition, increasing payment efficiency, reducing the costs of financial services and promoting innovation.

While most countries are yet to make a formal policy decision whether they will implement a CBDC, they appear to recognise the importance of continued work to position themselves to be able to implement a CBDC should the need arise in future. This is either through monitoring developments in other jurisdictions, further research and engagement with industry, or technical experimentation such as proof-of-concept and piloting.

[62] Based on responses to the survey. Therefore, the results do not necessarily match with actual CBDC issuance as reported in other sources such as the database from Auer et al (2020), the CBDC Tracker at cbdctracker.org from Mikhalev et al, (2021) and the CBDC Tracker from the Atlantic Council at www.atlanticcouncil.org/cbdctracker.

7.1. Lessons from countries that have launched or piloted a CBDC

While it is still too early to capture lessons, some experiences have been gathered on the implementation and testing of CBDCs in the following jurisdictions:

Country	Insights
Nigeria	A 2023 paper by IMF staff took stock of the first year of Nigeria's eNaira launch. The report found that in terms of the technicalities, the eNaira project had a relatively smooth start, having proven its 24/7 operational resilience. No major accidents occurred, despite the Central Bank of Nigeria's ambitious early foray into this unchartered territory of central banking. In terms of the market's acceptance, however, the project had not yet moved beyond the initial wave of early adopters, with the retail clients onboarded falling short of 1% of active bank accounts. Most wallets appeared to remain inactive, except for a limited window of weeks of activity surge. The average number of eNaira transactions since its inception amounted to about 14 000 per week − only 1.5% of the number of wallets out there. This meant that 98.5% of wallets, for any given week, were not used even once. The average value of eNaira transaction were 923 million naira per week − 0.0018% of the average amount of M3 (broad money) during this period. The average value per one transaction was 60 000 naira.[63]
Bahamas	In January 2024, it was reported that adoption of the Sand Dollar had been somewhat lacklustre in the country, with the CBDC reportedly accounting for less than 1% of the currency in the Bahamas − despite it being introduced in 2020. There were over 100 000 registered wallets, equivalent to about 25% of the population, with 1 800 registered merchants and nine Sand-Dollar authorised financial institutions.[64] The Central Bank of the Bahamas saw four factors leading to very low adoption of the Sand Dollar. First, merchants failed to participate in the Sand Dollar network. Second, the Sand Dollar was not integrated with the traditional banking system regarding merchant accounts. Third, banks and credit unions were slow to sign on to the Sand Dollar project. And fourth, customer education was inadequate, failing to show users how and why to use Sand Dollars.[65]
South Korea	Upon completion of its first experiment into retail CBDC, the Bank of Korea shared the following lessons – as directly quoted from a keynote address by Chang Yong Rhee, Governor of the Bank of Korea:

[63] Jookyung Ree, 2023, Nigeria's eNaira, One Year After, IMF Working Papers
[64] AFI, 2024, Central bank digital currency: lessons from The Bahamas, shared by Erek Sean Rolle, Deputy Governor, Central Bank of the Bahamas
[65] Central Bank of the Bahamas, 2023, Public Update on The Bahamas Digital Currency SandDollar

Country	Insights
	• "Introducing a CBDC involves not just developing technology but also a process of balancing trade-offs between various goals. It is important to put more effort to forge a consensus on the appropriate design of a CBDC by actively communicating with various stakeholders, such as the legislature, the government, financial institutions and the public from the early stage of research. • Developing a successful CBDC is much more complex than anticipated: There are two opposing risks regarding the success of CBDCs: being 'too successful' and crowding out private payment solutions or being 'not successful enough' and generating insufficient demand. In fact, as the experiment progressed, our concerns grew larger on the latter risk. • It may never be too early to establish effective private-public partnerships for CBDCs: There is a consensus that collaboration with the private sector is prerequisite to the success of a CBDC. However, the devil is in the details, and it could be very tough to figure out exactly how such cooperation or division of roles should be performed. Therefore, I believe that it is better to start collaboration with private partners earlier on to enhance mutual understanding and reach consensus on a desirable way of dividing roles. • Further exploration of wholesale CBDCs (wCBDC) is essential: After finding several obstacles to the success of a retail CBDC such as a lack of solid use case in an economy with a well-functioning financial system and limitations of the current state of DLT to support a retail CBDC, we have found it is warranted to devote more effort to developing a wCBDC and combining it with a retail CBDC." [66]
Eastern Caribbean Currency Union (ECCU)	The DCash pilot started in 2021. By March 2023, 400 merchants were participating. The Eastern Caribbean Central Bank (ECCB) ran educational campaigns and in-person demonstrations and its initial issuance of EC$2 million grew to EC$2.45 million in March 2023, accounting for only 0.16% of the total currency in circulation at the time. Following some system issues, it was announced that the DCash pilot platform operations would be ended on 12 January 2024. The ECCB and Bitt (the technology partner) gave three explanations for the slow adoption of DCash: failures in user education, the selling of use cases and low merchant participation. A Bitt representative noted a 'natural disinclination' among potential users to adopt a new technology and the failure of the ECCB to overcome this mindset.[67] Customers were

[66] Chang Yong Rhee, Governor of the Bank of Korea, 2022, Keynote Address: Central bank digital currency: what we have learned from a recent hands-on experiment, IMF STI Peer-Learning Webinar
[67] Stephen Phillips, 2021, A progress report on DXCD (A CBDC in production), presentation: https://wiki.hyperledger.org/display/CMSIG/2021-01-27

Country	Insights
	also not provided with any actual use cases for DCash. The ECCB admitted that it did not adequately develop the merchant network, and it focused on DCash development rather than on its implementation and use.[68] Moreover, DCash was not integrated with merchant POS devices or with ECCU legacy financial systems, contributing to low adoption among merchants.[69]
Jamaica	Adoption of Jamaica's JAM-DEX has also been reported to lacklustre and has failed to meet its targets despite efforts such as a CBDC-powered digital marketplace. For the Bank of Jamaica (BOJ), the main reasons for low JAM-DEX adoption were a lack of public education and difficulty in onboarding merchants. Consumers and merchants reported general apathy over the launch of JAM-DEX. The BOJ responded to this disinterest with 'a national sensitisation and education campaign' that promoted the importance of using the retail CBDC among consumers.[70] However, the merchants wanting to accept JAM-DEX needed updated POS devices, and the BOJ did not incentivise or mandate commercial banks to modify their ATMs to accept and convert JAM-DEX.[71]
India	The Reserve Bank of India started a pilot for the e-rupee, devised as a digital alternative to physical cash in December 2022, and successfully reached a target of 1 million retail transactions per day by December 2023. The achievement came after banks were asked to push up transactions by offering incentives to retail users and disbursing a portion of bank employees' salaries using the e-rupee. It was reported at the end of June 2024 that the pilot had reached 5 million users and 420 000 participating merchants.
Thailand	The Bank of Thailand conducted a retail CBDC pilot during late 2022 to October 2023, which reportedly demonstrated the following satisfactory results; (1) The latent capability of retail CBDC as a retail payment infrastructure, evidenced by its ability to handle various retail transactions including top-up, withdrawals, transfers and payments. (2) The potential of CBDC as an enabler for innovation, through the setting of programmable payments using common functionality features. This was explored by experimenting with programmability, and through a conceptual feasibility study of universal escrow and fraud response use cases. These explorations showed

[68] Robert A. Emmanuel, 2023, ECCB Governor views expansion of merchant network to boost DCash use in A&B, subregion, Antigua Observer: https://antiguaobserver.com/eccb-governor-views-expansion-of-merchant-network-to-boost-dcash-use-in-ab-subregion/

[69] Sharmyn Powell, 2023, Sharmyn Powell, 2023, New Digital Currencies Shaping the Future of Money, The CBDC Broadcast Webinars: https://fna.fi/insights/the-CBDC-broadcast-session-20-2/

[70] Jamaica Observer, 2022, BOJ partners with Gov't to increase CBDC adoption: https://www.jamaicaobserver.com/2022/10/15/boj-partners-with-govt-to-increase-cbdc-adoption/

[71] Alphea Sumner, 2022, Hiccups hamper digital currency roll-out: https://www.jamaicaobserver.com/2022/10/27/hiccups-hamper-digital-currency-roll-out/

Country	Insights
	that a CBDC could create new opportunities and innovations beyond what the existing financial system can deliver. (3) The capability of the CBDC system to serve as an open infrastructure accessible to all types of financial service providers (FSPs), including non-banks. (4) The capability of the CBDC system to serve as an alternative payment infrastructure for retail payments, to enhance resiliency in future. The pilot also identified challenges associated with retail CBDC that remain, such as user adoption as well as its consequences on the business models of financial services providers. It also notes that the value-added benefits of a CBDC remain unclear to many central banks, leading them to designate their respective CBDC plans as long-term endeavours.[72]

8. Conclusion

As discussed throughout this Background Note, South Africa has witnessed a surge in digital payment adoption, driven by technological advancements and changing consumer preferences. The proliferation of digital payment solutions − including card payments, EFTs, fast payments and mobile money − has significantly reshaped the financial ecosystem. However, physical cash continues to play a vital role, particularly among segments of the population and regions where access to digital infrastructure remains limited. Barriers such as the lack of acceptance channels, network connectivity and power issues, transaction fees, large cash-dependent sectors and restrictive merchant practices (e.g. minimum swiping amounts) contribute to the persistence of cash transactions.

Beyond convenience, cash holds intrinsic value for many individuals in South Africa. It offers a tangible representation of financial holdings and serves as a reliable fallback during technological failures, emergencies or periods of economic instability. Moreover, cash transactions support the economic activities of those with limited access to formal banking services or digital payment methods, reinforcing its role in promoting financial inclusion.

From the feasibility study conducted by the SARB, it is evident that a retail CBDC is technically feasible and could be implemented in a manner that aligns with regulatory and policy objectives, such as promoting digital financial inclusion. However, its introduction requires careful consideration of several imperatives, including whether a retail CBDC should be prioritised in light of existing payment modernisation efforts.

Experiences from other jurisdictions underscore the importance of a measured and context-sensitive approach. Some of the countries that have launched or piloted retail CBDCs have

[72] Bank of Thailand, 2024, Pilot program − Retail CBDC conclusion Report

encountered significant challenges, particularly around low user and merchant adoption. Such experiences highlight the importance of aligning the CBDC design with local needs and clearly articulating the value proposition to both consumers and service providers.

These trends, structural realities and lessons from the SARB and other central banks' work have shaped the SARB's position on a retail CBDC. The persistence of cash, alongside the growing digitalisation of payments, raises important questions about the future accessibility of central bank money and the role of public sector innovation in ensuring inclusive financial participation.

The accompanying SARB Position Paper on retail CBDC builds on this context, presenting a policy perspective on whether and how a digital form of central bank money could complement the existing payment instruments and support broader national objectives.

Annex 1: List of acronyms

AEs	advanced economies
ATM	automated teller machines
BIS	Bank for International Settlements
BoE	Bank of England
CBDC	Central Bank Digital Currency
COVID-19	coronavirus disease 2019
DCPC	Diary of Consumer Payment Choice
DLT	distributed ledger technology
ECCU	Eastern Caribbean Currency Union
EFT	electronic funds transfer
eKYC	electronic Know-Your-Customer
EMDEs	emerging market and developing economies
FPS	fast payment system
GDP	gross domestic product
IFWG	Intergovernmental Fintech Working Group
IMF	International Monetary Fund
LSM	Living standard measure
MSME	micro, small and medium enterprises
NPS	national payment system
PEM	Payments Ecosystem Modernisation
POS	point-of-sale
PSP	payment service providers
RTC	real-time clearing
RTGS	real-time gross settlement
SARB	South African Reserve Bank
SCPC	Survey of Consumer Payment Choice
USSD	unstructured supplementary service data

Annex 2: Demographic profile of South Africa

Nestled at the southern tip of Africa, South Africa's demographic landscape presents a tapestry of diversity and historical depth. Shaped by a complex interplay of indigenous cultures, colonial legacies and migration, its population reflects a rich mosaic of ethnicities, languages and traditions. Table 5 below provides an overview of the demographic profile of South Africa.

Table 5: Key demographic characteristics of South Africa

Population	**62 million** (2022 census), increasing from 51.7 million in 2011	
Gender distribution	**Female**: 52% **Male**: 48%	
Age distribution	**Children 0–14:** 28% **Youth 15−34:** 34% **Adults 35−59:** 29% **Elderly 60+:** 9%	
Adult educational attainment	**No school – some high school**: **Matric and non-tertiary post matric**: **Tertiary:**	49% 38% 12%
Location	**Rural:** 27% **Metro:** 45% **Small urban:** 28%	
Employment	**Official unemployment rate:** 33% **Expanded unemployment rate:** 42%	
Main source of income	**Grant recipient**	42%
	Salaried employees	22%
	Money from friends, family and others	11%
	Piece jobs	8%
	Money from your own business	8%
	Selling things to neighbours or on the street	3%
	Work pension/provident fund	1%
	Money from rent	1%
	Unemployment insurance fund/ UIF / UIF TERS Covid Benefits	1%
Income segments	**SASSA Grant Recipients**	45%
	Low income (R0−R1500	16%
	Entry (R3000−R9999)	20%
	Informal (R1501−R2999)	9%
	Core middle (R10000−R19999)	5%
	Upper (R20000 plus)	5%

Source: FinMark Trust, 2023, FinScope Consumer Survey

Annex 3: Examples from other jurisdictions

Table 6: Summary of motivations for implementing retail CBDC in various jurisdictions

Jurisdiction	Key motivations articulated
United Kingdom Conducting further technical (preparation) work	"The Bank of England and HM Treasury judge it likely that a digital pound will be needed in the future. It is too early to decide whether to build the infrastructure for one, but we are convinced the next stage of preparatory work is justified. A significant factor in determining whether the digital pound is needed will be how the payments landscape evolves in coming years, both in the UK and abroad. In particular, whether new forms of privately issued digital money emerge and how they interact with existing forms of money and payments. The digital pound would maintain public access to retail central bank money, thereby anchoring trust in the monetary system in a more digitalised world and underpinning monetary and financial stability. Also, as our lifestyles and the economy become ever more digital, it would, through partnership with the private sector, promote innovation, choice, and efficiency in domestic payments, thereby boosting the UK economy, supporting growth and financial inclusion."[73]
European Union Conducting further technical (preparation) work	"The Eurosystem's digital euro project aims to ensure central bank money evolves alongside current payment preferences and trends, as well as to facilitate electronic payments everywhere in the euro area and strengthen Europe's strategic autonomy. A digital euro would be a digital means of retail payment issued by the Eurosystem – which consists of the European Central Bank (ECB) and the national central banks of the euro area – available to everyone in all retail payment scenarios, across the entire euro area. It would complement cash, offering individual users more freedom of choice by providing a secure and accessible payment solution. A digital euro would also strengthen Europe's monetary sovereignty and reduce our dependence on the large, non-European private payment providers that currently dominate the European landscape."[74]
Nigeria Launched	"The Central Bank of Nigeria believes the eNaira will make a significant positive difference to Nigeria and Nigerians, including: Improving the availability and usability of Central Bank money; Supporting a resilient payment system ecosystem; Encouraging financial inclusion; Reducing the cost of processing cash; Enabling direct welfare disbursements to citizens; Increasing revenue and tax collection; Facilitating Diaspora remittances and Reducing the cost and improving the efficiency of cross-border payments"[75]
Ghana	"The Bank of Ghana considers CBDC to be of strategic importance to a progressive and digitally inclusive society and has developed the eCedi to meet the following strategic goals: Increase digitization of the economy in Ghana; Increase digitization of

[73] Bank of England, 2023, The digital pound: a new form of money for households and businesses? Consultation paper
[74] European Central Bank, 2024, ECB publishes first progress report on digital euro preparation phase
[75] Central Bank of Nigeria, 2021, eNaira design paper

Pilot	the economy in Ghana; Increase digitization of the economy in Ghana; Anticipation of the role of BoG as a progressive regulator for facilitating the development of the digital economy; Foster the possibility of a more secure, efficient, and resilient payment system; and Foster the possibility of a more secure, efficient, and resilient payment system."[76]
Canada Conducting further technical (preparation) work	"In an era of rapid digitalization, we need to do the necessary work to be ready if Canadians' payment preferences or needs change. Whether and when Canada will need a Digital Dollar is uncertain. Canadians will decide—through their representatives in Parliament—if a Digital Dollar should be issued. To prepare for the possibility that a digital dollar is needed and ensure that the Canadian payments system is ready for the future of the digital economy, the Bank will continue to engage with a wide range of stakeholders on the key issues and features that matter most to Canadians. There will be further opportunities for Canadians to provide input on a potential digital dollar."[77]
Kenya Research	"The rollout of CBDC should not be rushed just to be first or ride on trends. Presently, Kenya's pain points in payments can potentially be solved by strengthening innovations around the existing payment ecosystem. Accordingly, implementation of a CBDC may not be a priority in Kenya in the short-medium term."[78]
China Pilot	"The e-CNY system will support the development of retail payment infrastructures and improve payment system efficiency in parallel with digital economy developments in China. First, e-CNY aims to improve the efficiency of central bank payment systems. As an important financial infrastructure, the e-CNY system will further fulfil the diversified payment needs of the public and improve efficiency of financial infrastructures. Second, e-CNY aims to provide a backup or redundancy to the retail system. Big tech companies have become important retail payment infrastructures, and any failure will dramatically impact payment system operation, and even introduce systemic risks. Third, e-CNY aims to support equal access to digital payment and financial inclusion. As digital technology and electronic payments develop, the use of cash in retail payments has been declining. Fourth, e-CNY aims to echo international initiatives and explore ways to improve cross-border payments."[79]
Brazil Proof of concept	"The central bank does not see a need for a retail digital real due to the success of its Pix retail payment system. Mr. Renato Gomes, deputy governor at the Banco Central do Brasil pointed out that the motivation for Brazil's CBDC project has been less about improving retail payments but rather creating a wholesale framework for innovation based on DLT. "We want to set up a common platform with governance led by the central bank so as to bring fintechs, DeFi actors, and traditional financial institutions to innovate with this new technology," he said. The digital real project is primarily a wCBDC that will also enable retail access through tokenized deposits. According to the deputy governor, its main objective will be to "commoditize financial services." Instead, "The BCB aims at promoting the efficiency of financial markets and financial inclusion through the implementation of Drex, whose retail version will be provided by a regulated financial intermediary. In practice, the Drex Platform is a DLT ecosystem, in

[76] Bank of Ghana, 2022, Design paper of the digital Cedi (eCedi)
[77] Bank of Canada, Digital Canadian Dollar [webpage]
[78] Central Bank of Kenya, 2023, Discussion paper on central bank digital currency
[79] BIS, 2022, CBDCs in emerging market economies

	which regulated financial intermediaries will convert balances of demand deposits and electronic money in Drex, so that their clients have access to various intelligent financial services." Thus, the retail Drex will enable the population to access various types of financial transactions with digital assets and smart contracts to be settled in the wholesale Drex issued by the BCB within the Drex Platform
Sweden Conducting further technical (preparation) work	"Whether or not to introduce an e-krona in Sweden is ultimately a political decision. An inquiry into the role of the state in the payment market, presented in March 2023, assesses that there is currently insufficient social need for the Riksbank to issue an e-krona. However, global changes may lead to a different assessment in the future. In its consultation response, the Riksbank points out that work on developing legislation for a possible e-krona needs to begin now, to shorten the implementation period if the launch of an e-krona becomes relevant later."[80]
Russia Pilot	"A digital ruble will be the third form of money issued by the central bank and will be the central bank's liability. Like other central banks around the globe, the Central Bank of the Russian Federation believes that the launch of a digital ruble will lay the foundation for a new payment infrastructure enabling a range of additional advantages for households, businesses and the state. More specifically, the introduction of a digital ruble will help reduce clients' dependence on financial institutions, since customers will access their wallets through the infrastructure of any financial institution that holds their accounts. Moreover, transactions in the digital ruble will be charged under unified rules throughout the country and the cost will be minimal. Overall, these measures will be instrumental in increasing competition in the financial market and improving service quality and customer experience. Another key motivation for issuing a digital ruble lies in enhancing financial inclusion. The chosen model provides for maximum accessibility of the digital ruble for customers. The possibility of using it without internet access will allow for better financial inclusion, especially in remote and sparsely populated areas. Furthermore, financial institutions will have the opportunity to develop and offer innovative financial services to households and businesses, particularly with the use of smart contracts."[81]
The Bahamas Launched	"It is an undertaking to promote more inclusive access to regulated payments and other financial services for unbanked and underbanked communities and socio-economic groups within the country. Additionally, through the introduction of this retail central bank digital currency (CBDC), the Central Bank expects to reduce service delivery costs and increase transactional efficiency for financial services across The Bahamas."[82]
Jamaica Launched	"If a viable solution is adopted and introduced, the anticipated benefits of CBDC for Jamaican citizens, businesses and the Government include increased financial inclusion, as it will provide another means of efficient and secured payments. For deposit-

[80] Sveriges Riksbank, E-krona: https://www.riksbank.se/en-gb/payments--cash/e-krona/
[81] BIS, 2022, CBDCs in emerging market economies
[82] Central Bank of The Bahamas, Sandollar: https://www.sanddollar.bs/about

	taking institutions, CBDC presents an opportunity to improve cash management processes and costs. In this event, however, the Bank wishes to assure the public that it will continue to issue bank notes and coins for facilitating all economic activities."[83]
Rwanda Conducting further technical (preparation) work	"The four identified Sweet Spots for CBDC, within the Rwandan context, are the following: • to increase resilience against possible network outages, power failures and natural disasters; • to improve innovation and competition; • to contribute to achieving the cashless economy national initiative over time; and • to develop faster, cheaper, more transparent and more inclusive cross-border remittances." However, there are conditions that prevent the study to conclude with a high level of confidence that Rwanda needs to introduce a CBDC in the immediate or short term. The primary condition, or pitfall, is the topic of public adoption, which warrants the need for deep user research. How users would treat CBDC offering should therefore be carefully investigated prior to decision-making. For the medium-to-long term, the need for a CBDC could increasingly materialize for the BNR, given the trajectory of ongoing digitization in payments and the need for central bank money to continue playing the role of monetary anchor at the expanding digital economy where public money, i.e. cash, cannot have a role. As a way forward, the research recommends proceeding iteratively and cautiously with multiple time-lined verification stages in terms of CBDC Proof of Concepts (PoC) and piloting."
India Pilot	"Some of the important motivations for India to consider issuing CBDC are given below: • Reduction in cost associated with physical cash management. • Further the cause of digitisation to achieve a less cash economy: India has a unique case where the cash in the economy has shot up despite rapid digitisation in the payments space. The growing use of electronic medium of payment has not yet resulted in a reduction in the demand for cash. • Supporting competition, efficiency and innovation in payments. • Explore the use of CBDC for improvement in cross-border transactions. • Support financial inclusion.

[83] Bank of Jamaica, 2020, BOJ opens door to central bank digital currency, press release

	• Safeguard the trust of the common man in the national currency vis-à-vis proliferation of crypto assets."[84]
United States of America Research	On 23 January 2025, President Trump signed an executive order establishing a federal policy on digital assets, which includes a ban on the establishment, issuance or promotion of Central Bank Digital Currencies (CBDCs) in the US or abroad, while also affirming support for USD-backed stablecoins.[85]
Australia Research	"Considering the broader context – where the Australian payments system is currently meeting most of the needs of end users and work on CBDC in advanced economies is generally still in an exploratory stage – it is likely that any serious policy consideration of issuing a CBDC in Australia is still some years away."[86]
Singapore Research	"Overall, MAS' current view is that there is no pressing need for a retail CBDC in Singapore at present. Demand for cash domestically remains some way from the 'minimum threshold' where concerns of the negative implications from the lack of cash in circulation might arise. Retail payments are generally competitive, efficient and cheap, and innovation continues to flourish. Even though there remain pockets of friction and high costs, there are other initiatives in the pipeline to address them. The fundamental soundness of the Singapore dollar and its dominance in the domestic economy will also be a bulwark against any rapid substitution towards the use of foreign currencies."[87]
Thailand Pilot	"In a nutshell, the BOT envisions that CBDC can foster competition among FSPs, enable new financial innovation, and make more capable and cost-efficient services available to the public in the future. Nonetheless, challenges associated with retail CBDC remain, such as user adoption as well as its consequences on the business models of FSPs. Meanwhile, the value-added benefits of CBDC remain unclear to many central banks, leading them to designate their respective CBDC plans as long-term endeavours. At present, the BOT has no immediate plan to officially issue Retail CBDC, but the BOT will use the results from the pilot, especially insights related to the technology design, to apply to new areas and future studies on enhancing the payment system."[88]
Korea Pilot	"The Bank of Korea has not yet decided whether to issue a CBDC. However, developing a CBDC is a complex process that involves a lot of planning and coordination among various stakeholders, such as government agencies, financial institutions and technology companies. It typically takes several years to prepare for the launch of a CBDC. To this end, the BOK is conducting a series of research and experiments on possible forms and designs of a CBDC. More information on these efforts can be found on the following link."[89]

[84] Reserve Bank of India, 2022, Safeguard the trust of the common man in the national currency vis-à-vis proliferation of crypto assets
85 https://www.whitehouse.gov/presidential-actions/2025/01/strengthening-american-leadership-in-digital-financial-technology/
[86] Reserve Bank of Australia and Digital Finance Cooperative Research Centre, 2023, Australian CBDC pilot for digital finance innovation - Project Report
[87] Monetary Authority of Singapore, 2021, A Retail central bank digital currency: Economic considerations in the Singapore context
[88] Bank of Thailand, 2021, The Way Forward for Retail Central Bank Digital Currency (CBDC) in Thailand
[89] Bank of Korea, Central Bank Digital Currency: https://www.bok.or.kr/eng/main/contents.do?menuNo=400411

Japan Pilot	"Digitalization has advanced in various areas at home and abroad on the back of rapid development of information communication technology. There is a possibility of a surge in public demand for central bank digital currency (CBDC) going forward, considering the rapid development of technological innovation. While the Bank of Japan currently has no plan to issue CBDC, from the viewpoint of ensuring the stability and efficiency of the overall payment and settlement systems, the Bank considers it important to prepare thoroughly to respond to changes in circumstances in an appropriate manner. With this in mind, the Bank of Japan decided that it would publish its approach to; general purpose' CBDC − that is, CBDC intended for a wide range of end users, including individuals and firms."[90]
Zimbabwe Launched	The new digital currency will complement the Mosi-oa-Tunya coins introduced in 2022 and will act as the digital representation of the gold coins. With it, the country hopes to have more citizens buy into its gold industry and fight the redundancy of its currency.[91]
Namibia Research	"In the context of Namibia, the motivation for a possible CBDC lies in further extending financial inclusion. Access to finance remains a bottleneck for the rural population, which faces considerable hurdles. Although access to mobile phones, which is a key enabler, is relatively high, network/internet connectivity remains a challenge for most households in rural areas. Electricity coverage throughout the country is a further notable constraint. In addition, numerous households face challenges from a transportation perspective accessing the ATMs and other infrastructure that facilitate payments and economic participation. These challenges result in high costs and inconvenience for the already less privileged. The introduction of CBDC could therefore enhance financial inclusion through improving access to digital financial services, enhancing the efficiency of national payment systems, encouraging the broad digitisation of traditionally cash-based segments of the population and reducing cost. The technology will particularly enable people with access to mobile phones and remote digital money outlets to access basic financial services, such as sending and receiving money in a convenient manner."[92]
Eswatini Research	"Consumer needs have shifted because of the increase in digitalisation, with consumers increasingly preferring digital financial services that are available 24 hours a day, seven days a week and expect transactions to settle instantly. Central banks around the world are increasingly moving beyond theoretical research and into practical experimentation on retail CBDCs in response to the growing demand for secure central bank money in digital form. CBDCs have the potential to provide numerous benefits to both consumers and businesses, including faster and more secure payments, increased financial inclusion, more innovation and cost and inefficiency elimination. CBDCs have the potential to increase the resilience of domestic payment systems while also encouraging more competition and innovation"[93]

[90] Bank Japan. 2020, The Release of "The Bank of Japan's Approach to Central Bank Digital Currency"
[91] Techcabal, 2023, Zimbabwe to introduce gold-backed digital currency
[92] Bank of Namibia, 2022, Consultation Paper on Central Bank Digital Currencies (CBDCs)
[93] Central Bank of Eswatini, CBDC: https://www.centralbank.org.sz/cbdc/

South African Reserve Bank