IRSG
INTERNATIONAL
REGULATORY
STRATEGY GROUP

CLIFFORD
CHANCE

The Use of Central Bank Digital Currencies (CBDCs) in Wholesale Markets

A report by the International Regulatory Strategy Group in association with Clifford Chance

July 2022

CITY OF LONDON

TheCityUK

About the IRSG

The International Regulatory Strategy Group (IRSG) is a joint venture between TheCityUK and the City of London Corporation. Its remit is to provide a cross-sectoral voice to shape the development of a globally coherent regulatory framework that will facilitate open and competitive cross-border financial services.

It is comprised of practitioners from the UK-based financial and related professional services industry who provide policy expertise and thought leadership across a broad range of regulatory issues.

Within an overall goal of sustainable economic growth, it seeks to identify opportunities for engagement with governments, regulators and European and international institutions to promote an international framework that will facilitate open and competitive capital markets globally and enhance the UK's position as an international centre for financial and related professional services (FRPS). Its role includes identifying strategic level issues where a cross-sectoral position can add value to existing industry views.

It is an advisory body both to the City of London Corporation, and to TheCityUK.

The IRSG believes that the overriding strategic goal for governments and industry alike should be sustainable economic growth and the financial security of our customers and clients.

About Clifford Chance

Clifford Chance is one of the world's pre-eminent law firms, with significant depth and range of resources across the globe and with deep expertise relevant to the financial investor community, governments, regulators, trade bodies and many more. Clifford Chance provides highest-quality advice and legal insight based on global standards but with practical on-the ground expertise.

Clifford Chance have been working with central banks and the world's major payments providers in respect of emerging technologies and have positioned themselves as a thought leader for CBDC projects.

TheCityUK and the City of London Corporation co-sponsor the IRSG.

CITY OF LONDON

TheCityUK

CLIFFORD CHANCE

CONTENTS

FOREWORD BY CAROLINE MEINERTZ, CLIFFORD CHANCE

Partner, Clifford Chance

We are grateful to the International Regulatory Strategy Group, for allowing us to contribute to this important report.

Interest in central bank digital currencies (CBDCs) has been consistently growing over the past few years and at present approximately 90% of central banks worldwide are investigating the feasibility of adopting CBDCs. In its Annual Economic Report 2022, the Bank for International Settlements (BIS) provided a vision for the future monetary system which utilises the benefits of CBDCs through serving public interest by providing greater convenience and lower costs while maintaining the monetary system's integrity. While the concept of CBDCs could lead the way to a new way of making payments with reduced costs and increased efficiency it is important to fully understand any risks that CBDCs may bring. This will ensure that, if adopted, CBDCs enable economic growth ushering in a new era for digital payments.

This report provides valuable insight into the benefits, design considerations and outcomes of CBDCs. It looks at three use cases (i) Retail CBDCs; (ii) CBDCs for securities settlements; and (iii) CBDCs for foreign exchange transactions, and attempts to highlight some of the legal, regulatory and practical challenges that the implementation of a CBDC project may bring in any given jurisdiction. Without claiming to provide all the answers, this report will be of interest to policy makers around the globe as it provides relevant insight that showcases the potential strengths of CDBCs in wholesale markets establishing global regulatory principles.

"Interest in central bank digital currencies (CBDCs) has been consistently growing over the past few years and at present approximately 90% of central banks worldwide are investigating the feasibility of adopting CBDCs."

FOREWORD BY ANTONY MANCHESTER, BLACKROCK

Chair of the IRSG Global Regulatory Coherence Committee

The pace of change in the digital payments landscape has been considerable in recent years and one of the main developments has been the increasing interest and progress on central bank digital currencies (CBDCs) across a number of jurisdictions and global bodies.

The IRSG Global Regulatory Coherence Committee seeks to engage with the global standard setting fora and as CBDCs have risen to the top of many global standard setter agendas, so they have appeared on the radar of this Committee.

With this report, the IRSG, in association with Clifford Chance, seeks to explore what regulatory and legislative considerations should be put in place for a globally interoperable CBDC in the wholesale space. The report investigates a number of use cases for CBDCs, notably, retail CBDCs from a wholesale participant perspective, CBDCs for securities settlements and CBDCs for FX transactions.

From this exploration, it is clear that if we get this right, we can enjoy some of the benefits of CBDCs outlined in this report, such as broader accessibility, better record keeping and importantly – making payments more efficient, with global interoperability being the ultimate goal. In order to achieve this, we will require global regulatory principles for CBDCs and high-level expert collaboration across jurisdictions to deliver this, as well as jurisdictional buy in.

"With this report, the IRSG, in association with Clifford Chance, seeks to explore what regulatory and legislative considerations should be put in place for a globally interoperable CBDC in the wholesale space."

EXECUTIVE SUMMARY

Key Findings

There is accelerating momentum behind the development of CBDCs. Many central banks are exploring whether and how to establish CBDCs and some have already done so. CBDCs' potential benefits include:

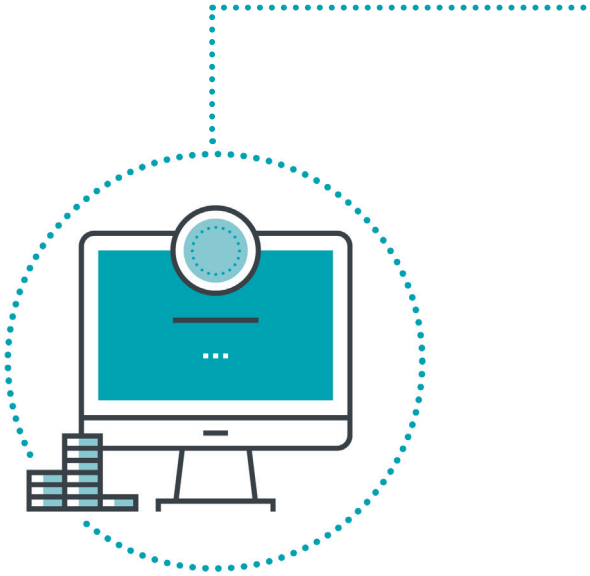
ACCESSIBILITY
CBDC could increase access to digital payments, so serving as a gateway to wider access to financial services.

MAKING PAYMENTS MORE EFFICIENT
CBDC could offer digital forms of payments that are cheaper and quicker to operate.

RECORD KEEPING
It could be possible to record and review all CBDC transactions, enabling a more efficient and data driven financial system.

Global standard setting bodies and key global stakeholders such as the G7 and G20 recognise the need for a global policy framework for CBDCs to maximise the benefits of this innovation. Indeed, in its May 2022 communique, G7 Finance Ministers and Central Bank Governors highlighted the *"opportunities and implications of CBDCs and their potential role in future payment transactions."* Similarly, the Indonesian Presidency of the G20 has partnered with the BIS Innovation hub to launch a 'TechSprint' on CBDCs, with improving interoperability being one focus area.

With this report, the International Regulatory Strategy Group (IRSG), in collaboration with Clifford Chance, seeks to contribute to this critical policy debate by considering the benefits, design considerations and outcomes of a CBDC. International alignment of CBDC design and technology is important as this will enable interoperability between CBDCs from different jurisdictions. Having interoperable CBDC regimes will be valuable in the long term as it is needed to improve cross border payments.



This paper examines three uses cases on the benefits of CBDCs:

RETAIL CBDC FROM A WHOLESALE PARTICIPANT PERSPECTIVE
In this use case the central bank maintains the infrastructure for CBDC issues and retail users access CBDCs through intermediaries such as banks. This could give households and businesses a new form of money, which is more efficient and reliable than other forms.

CBDC FOR SECURITIES SETTLEMENT
CBDCs could make the settlement of securities much quicker and even be close to instantaneous – so called atomic settlement. It would also be possible for payments to be made via smart contracts, so that when there is confirmation that sufficient securities are in the wallet/ account of a participant, the payment is automatically made.

CBDC FOR FX TRANSACTIONS
Currently FX transactions involve a number of parties and are based on settlement cycles, which gives rise to a risk that one party pays out the currency it sold but does not receive in full, when due, the currency it bought. Using CBDCs could eliminate this risk through atomic settlement.

This paper identifies legal, regulatory and practical features that are necessary to ensure the CBDC would deliver value and avoid uncertainty in these use cases. It concludes that the development of CBDCs should be encouraged, particularly for wholesale uses. The report offers a set of recommendations for policymakers to take forward:

GLOBAL REGULATORY PRINCIPLES
Global principles would enable jurisdictions to design CBDCs so that they are interoperable from the start. These principles ought to be developed by an international standard setting body such as the Bank for International Settlements.

ESTABLISHMENT OF A HIGH-LEVEL EXPERT GROUP
To be effective, a CBDC system would need to involve both public and private actors to ensure interoperability and coexistence with the broader payments system. So, an expert group involving public and private organisations should be involved in drawing together CBDC design principles.

JURISDICTIONAL INITIATIVE TO IMPLEMENT THE FRAMEWORK
Ultimately it will be up to jurisdictions to design and establish CBDCs. Jurisdictions should do so carefully and with reference to the international dimensions of CBDCs.

REGULATORY DEFERENCE
Regulatory deference and consultation with other jurisdictions and the private sector may need to occur in order to maintain a practical and global regulatory framework.

Overall, there are clear benefits to establishing CBDCs, at least in the wholesale space, in the three use cases explored. Public-private collaboration at a global level is the best way to design interoperability into CBDC systems and so maximise the benefits of faster and more efficient cross border payments.

INTRODUCTION

There has been much regulatory development on digital money across the world in the past few years, at the level of domestic central banks and international standard-setting organisations. Central Bank Digital Currencies (CBDCs) are digital money backed by a central bank. Retail CBDCs[1], wholesale CBDCs[2] and multi-CBDCs[3] arrangements have been proposed and discussed by governments and relevant bodies such as central banks.

CBDCs are digital currencies backed by a central bank and issued on a centralised or decentralised electronic system which achieves the same or similar benefits to distributed ledger technology (DLT). We will assume for this report that CBDCs are implemented on DLT. Participants are restricted by the central bank and must be granted access to participate in the network and view transaction data. This would be in contrast to major "permissionless" blockchains, such as Bitcoin and Ethereum which allow public participation and full transaction viewability.[4] While we will not focus on the technology behind CBDCs in this paper some points discussed may refer to technology in order to comment on certain benefits or aspects of CBDCs.

This report participates in the global policy debate around CBDCs by considering how CBDCs could be used in practice and by identifying key characteristics for CBDCs to be used effectively in cross-border wholesale market transactions. It acknowledges the importance of contextualising CBDCs within existing payments sectors across jurisdictions and comparing them with planned change such as in the UK - the The Real-Time Gross Settlement (RTGS) service renewal.

This report is not exhaustive. It contributes to policy debate, however it does not cover all technology considerations or legal issues.

The report approaches this through three use cases which compare existing wholesale market practice with any efficiencies or deficiencies that would be expected through the use of CBDCs:

(a) Retail CBDC: a wholesale participant perspective
(b) CBDC for Securities Settlement
(c) CBDC for FX transactions

In considering these use cases, the report identifies legal, regulatory and practical features that are necessary to ensure the CBDC would deliver value and avoid unacceptable levels of uncertainty. This report concludes that the development of CBDCs should be encouraged in particular for wholesale uses.

1 A retail CBDC (rCBDC), also referred to as a general-purpose CBDC is designed to be accessible by individuals and small and medium enterprises for low value high volume payments.

2 A wholesale CBDC (wCBDC) is designed to facilitate wholesale market transactions, such as inter-bank payments, and direct access to the wCBDC may be limited to regulated financial institutions and payment service providers (PSPs).

3 Arrangements, which are intended to create interoperability of CBDCs across jurisdictions.

4 WEF. Central Banks and Distributed Ledger Technology: How are Central Banks Exploring Blockchain Today? March 2019. https://www3.weforum.org/docs/WEF_Central_Bank_Activity_in_Blockchain_DLT.pdf

BENEFITS OF DIGITAL CURRENCIES

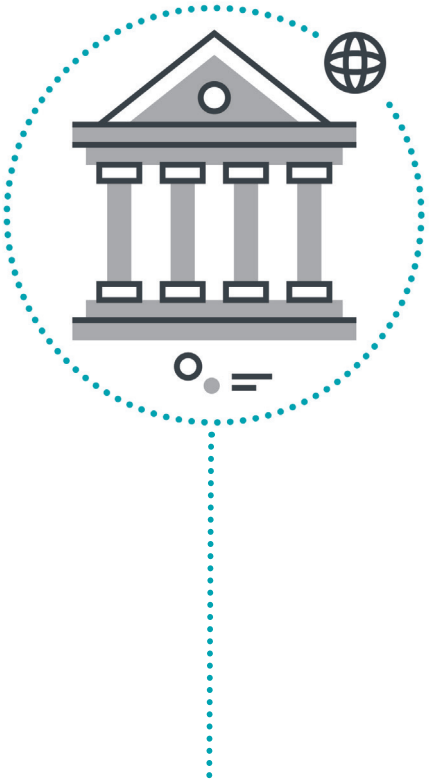
Before we explore the use cases of CBDCs, it is important to illustrate some benefits which can be provided through the use of the DLT technology together with the central bank backing that is characteristic of CBDCs.

Central Bank Liability

CBDCs are equivalent to existing legal tender in a jurisdiction, and as such they should be fungible against traditional fiat money. CBDCs being a liability of a Central Bank is the key benefit of CBDCs which makes them stand out from any other type of privately issued digital currency. As the liability of a central bank, CBDCs would be fundamentally different from privately issued cryptocurrencies. A CBDC would fulfill the three properties of a currency (medium of exchange, unit of account, store of value) which other crypto assets do not fulfill given their volatile nature.

CBDCs being a liability of a Central Bank is the key benefit of CBDCs which makes them stand out from any other type of privately issued digital currency.

CBDCs give participants direct exposure to the central bank. Traditionally, most central bank cash Real-Time Gross Settlement (RTGS) Systems which handle wholesale cash payments in central bank money allow access to banks or financial services providers who are able to post the necessary collateral and hold sufficient liquidity to participate. In principle, a CBDC could lower some of the financial constraints and enable a wider subset of financial market participants to obtain direct access. Generally speaking, this could include buy-side firms, payment services providers or other financial intermediaries. This subset of market participants would hold accounts directly at the level of a central bank with the benefit of shifting their exposure from traditional financial market participants directly to the central bank.[5]



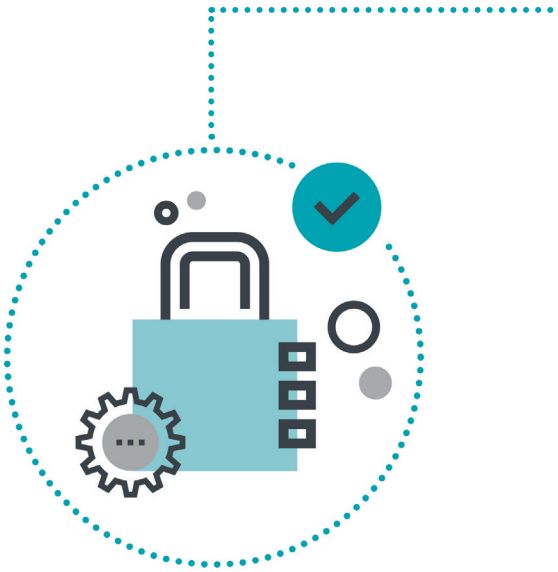
Record Keeping

The digital ledger available on the DLT would enable a record to be kept of all CBDC transactions executed on the relevant DLT platform. In principle this could include supply chain tracking creating for a more efficient and data driven financial system. Effectively the digital ledger serves as the memory of all the transactions in the economy, enabling certain users to go back and review the transactions that have been made and examine

5 Note that under the existing financial services framework only direct participants in the central bank real time gross settlement system benefit from that exposure.

the movement of CBDCs across the platform. This record is likely to be immutable and therefore considered reliable, which could enable the central bank and government to track CBDCs transactions. In this context, we welcome the G7 Principles for Retail CBDCs (2021), which made clear the importance of privacy to governments and central banks.[6] A key design choice, discussed below, is whether a CBDC should rely on a trusted central authority to maintain the transactions ledger, or be based on a decentralised governance system. The central bank can choose to run the infrastructure to support record-keeping, messaging and related tasks, or delegate these tasks to a private sector provider.[7] It should be noted that it is unlikely that all the transactions in the economy would be conducted in CBDCs which in turn would imply the full disintermediation of the retail banking sector. Instead we envision CBDCs coexisting with existing forms of money.

Efficiency



The use of DLT enables transfer efficiencies for CBDCs. Transactions on the blockchain are affected through the updating of the DLT in a fraction of a second. This enables rapid transfer of CBDCs between accounts. DLT records update almost instantly with each transaction so that the next transaction is available for node operators to inspect. Additionally, transactions or transaction features can be automated through the use of smart contracts, which provides further efficiencies for transactions. The efficiency of such transfers and the quick updating of the DLT provide transparency and immutability benefits described above.

Accessibility

The existing system relating to central banks is necessarily intermediated and in order to get access to the central bank system a participant needs to meet certain requirements and access to complex software. However, CBDCs provide participants with access to the central bank system with limited cyber security risks. Participants only need a digital wallet address to access the DLT. As a result, participants can engage in the CBDC market and take advantage of the benefits and use cases discussed in this report. For the CBDC use cases described below, the more accounts that are provided, the greater the benefits of the use cases as more transactions can occur due to the larger number of participants.

This open accessibility has to be balanced against the risk of cyber-crime, hacking and other security issues, which increases as the number of users increase. Additionally if intermediating occurs, for example by certain banks, the benefits are reduced since it is possible that only account holders with particular banks would be able to access the platform under such circumstances.

6 https://www.gov.uk/government/publications/g7-public-policy-principles-for-retail-central-bank-digital-currencies-and-g7-finance-ministers-and-central-bank-governors-statement-on-central-bank

7 BIS. Annual Economic Report. III. CBDCs: an opportunity for the monetary system. 23 June 2021. https://www.bis.org/publ/arpdf/ar2021e3.htm

Design considerations

As demonstrated by the benefits discussed above, there is a strong case for CBDCs. However, all of the benefits discussed above must be balanced against potential risks and will ultimately depend on certain design considerations. In its Annual Economic Report, the Bank for International Settlements announced that it was drawing up a blueprint for a future monetary system grounded in digital representation of CBDCs, noting that such a system could "combine innovation with essential attributes such as safety, stability, accountability, openness, and efficiency", but also highlighting the structural issues with the current crypto market at present, outlining the inherent risks in its design, suggesting that CBDCs would provide the necessary trust to bring stability. From the perspective of this report, the design considerations include how CBDCs can coexist with existing settlement systems and payment mechanisms, and whether private sector providers should be involved in CBDC systems. More generally, as this report shows, CBDCs have the potential to make significant improvements to the existing wholesale cash settlement frameworks and should therefore be encouraged.

Interoperability

As it is likely that CBDCs would be initially introduced to operate in parallel to existing legacy central bank cash, their ability to interact (be interoperable) with existing payment mechanisms is essential. As financial markets ecosystems and infrastructures are undergoing change (for example, to enable atomic swaps between CBDCs and other products), the importance of interoperability extends beyond CBDCs themselves. CBDC infrastructure will also need to be interoperable with existing capital markets ecosystems and financial market infrastructures, including central securities depositories and central clearing counterparties.[8]

Integration of CBDCs with existing payment systems could reduce settlement risk by automating certain aspects of the existing payment arrangements, such as automating dividends and subscription payments.[9] Another benefit of interoperation is that FX transactions can be settled outside of Real Time Gross Settlement (RTGS)[10] operating hours.

Integration of CBDCs with existing payment systems could reduce settlement risk by automating certain aspects of the existing payment arrangements.

8 GFMA. Central Bank Digital Currencies. A Global Capital Markets Perspective. February 2022. https://www.gfma.org/wp-content/uploads/2022/02/central-bank-digital-currencies-a-global-capital-markets-perspective-full-report-feb-2022-final.pdf

9 UK Parliament. Central Bank digital currencies: a solution in search of a problem?

10 RTGS is the process of settling interbank payments at the time they are received on an individual order basis across the books of a central bank.

While integration provides some benefits as discussed, there are unintended consequences on the existing capital market infrastructure. Using DLT platforms in the context of the use cases described in this report may have the effect of concentrating the functions that are currently being provided by several financial market infrastructure including RTGS, Central Counterparty Clearing House (CCP) and Securities Settlement System (SSS), into a series of interoperable DLT platforms (should DLT be chosen for CBDCs). There is a question as to whether this is desirable or not.

Private sector

One important question when considering a policy position on CBDCs is to what extent the private sector should be allowed to play a role other than as intermediating providers. There have been discussions in respect of individual central banks relying on a private DLT platform provider to operate the technology for a particular project.

One important question when considering a policy position on CBDCs is to what extent the private sector should be allowed to play a role other than as intermediating providers.

However, in our view, the private sector can offer many other solutions to facilitate and achieve enhancements using CBDCs. For example, the private sector could be instrumental in allowing for cross-border settlement of CBDC payments where no native interoperability of CBDC platforms exists. This could be achieved through the creation of a bridge for multiple DLT platforms or the creation of a payment settlement platform that facilitates the interaction of CBDCs with traditional currencies. It will also be important for Central Banks to make sure that appropriate actors, including the private sector, perform relevant roles in the ecosystem.

Certainty is needed

Policymakers around the world are grappling with the benefits and risk of CBDCs. Recently for example, the House of Lords Economic Affairs Committee stated that they *"have yet to hear a convincing case for why the UK needs a retail CBDC. While a CBDC may provide some advantages on speed of settlement and cheaper and faster cross-border payments, it would present significant challenges for financial stability and the protection of privacy […]."* [11]

In respect of CBDCs, the Economic Affairs Committee further stated: *"A wholesale CBDC would be less disruptive than a retail CBDC, with fewer economic and political risks. Although the wholesale operations of the monetary system are already highly efficient, a CBDC may help to further enhance efficiency in securities trading and settlement. Further exploration and experimentation are necessary."* [12]

11 See paragraph 126 HL Paper 131 Central bank digital currencies: a solution in search of a problem? Available at: https://publications.parliament.uk/pa/ld5802/ldselect/ldeconaf/131/13102.htm (the "HL Paper")

12 See paragraph 125 HL Paper.

While the adoption of CBDCs in the UK could therefore be said to be in a research phase, it is undeniable that across the world more CBDC projects are being developed. According to some sources there are currently 87 countries (representing over 90 percent of global GDP) exploring CBDCs.[13] Nine countries have already launched a CBDC, including the launch of e-Naira in Nigeria in October 2021.[14]

Each CBDC project has its own specific purpose and design features, typically trying to address or improve certain aspects in the local economy. These may range from financial inclusion to the enhancement of tools to direct monetary policy.

However, generally speaking, the debate on CBDCs, particularly when considered in the wholesale markets, seems to centre around increasing efficiency in payments. The Bank for International Settlements noted for example that a *"[…] benefit of settlement in wholesale CBDCs is to allow for new forms of the conditionality of payments, requiring that a payment only settles on condition of delivery of another payment or delivery of an asset. Such conditional payment instructions could enhance the delivery-versus payment mechanism in RTGS systems".* [15]

We agree that CBDCs have the potential to create efficiencies in wholesale markets reducing settlement risks and automating certain aspects of the existing payment arrangements, particularly in the context of cross-border transactions. However, in order to achieve these benefits it is of vital importance that the use of CBDCs does not introduce unnecessary risk and legal uncertainty.

Financial markets have developed over many years relying on legal concepts and institutions that have been tested over time and that continuously self-correct where new risks are identified. The efficiency of financial markets is therefore to a large extent based on the trust that market participants place on the practical and legal arrangements that have been put in place. The introduction of a new set of arrangements such as CBDCs, distributed ledger technology (DLT) and smart contracts represents a big shift from traditional arrangements making their adoption in established financial markets a higher risk proposition as a result of the lack of certainty in the legal and regulatory analysis of such new arrangements.

In their basic form, in order for securities transactions to settle with acceptable levels of risk the following three characteristics must be established by the relevant legal framework: (1) the property that is transferred, be it a paper document or an uncertificated (dematerialised) security (through a ledger update) must be recognised as being transferable; (2) the transfer of property rights must have been adequately achieved, and (3) to the extent that the law requires any formality to the transfer, this must be discharged so that there is a valid legally binding transfer.

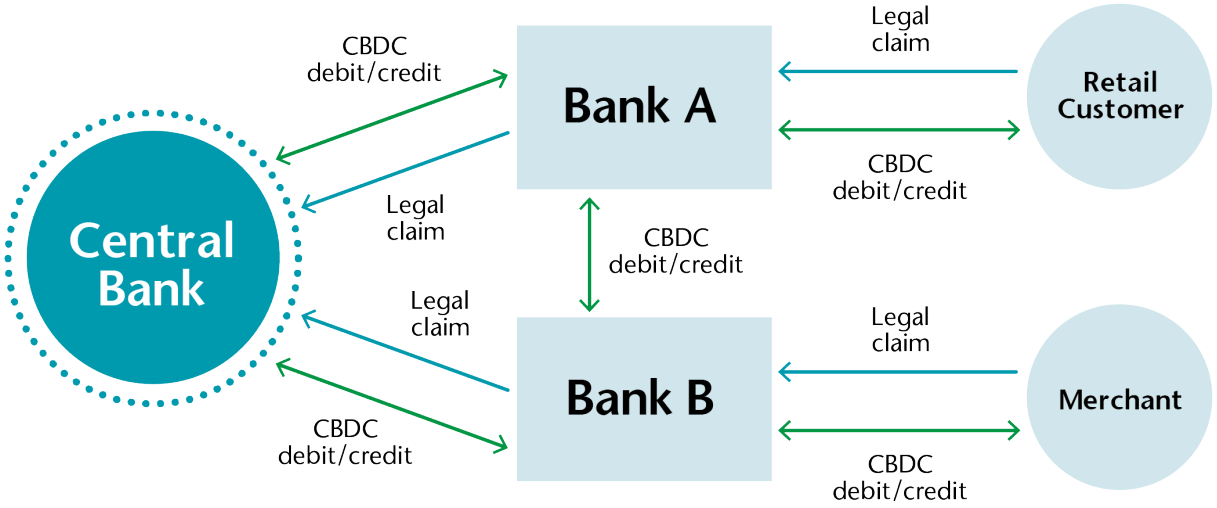
Each CBDC project has its own specific purpose and design features, typically trying to address or improve certain aspects in the local economy.

13 See https://www.atlanticcouncil.org/cbdctracker/ - Key Findings

14 Investopedia, see https://www.investopedia.com/countries-developing-central-bank-digital-currency-cbdc-5221005#:~:text=There%20are%20nine%20countries%20that,bank%20digital%20currency%20(CBDC).

15 See https://www.bis.org/publ/arpdf/ar2021e3.htm

USE CASE: RETAIL CBDC



While this report focuses on wholesale use of CBDCs it is important to acknowledge that the use of retail CBDCs is at the forefront of policymakers' minds. The European Central Bank is considering the introduction of a digital euro and in its consideration of a CBDC, the UK is at this time focusing on retail CBDCs. Therefore it is important to consider some practical issues for the implementation of a retail CBDC, i.e. a CBDC available to the general public that facilitates retail transactions domestically. This analysis is based on existing retail CBDC use cases published by the Bank of England, ECB, BIS and IMF.

This use case therefore assumes:

(a) the Central Bank is responsible for deploying and maintaining the core infrastructure required for CBDC issuance and CBDC payments processing;

(b) private sector intermediaries who would be banks or potentially technology providers (though the line between these may blur with time) act as settlement agents instructing transactions on behalf of their users, connecting to and leveraging the Central Bank's infrastructure to provide customer-facing CBDC payment services;[16] and

(c) users access CBDCs through such supervised intermediaries.

The European Central Bank is considering the introduction of a digital euro and in its consideration of a CBDC, the UK is at this time focusing on retail CBDCs.

16 To the extent that intermediating CBDCs amounts to a regulated payment service or similar this would trigger licensing requirement for the private sector intermediary and compliance obligations.

Status of the CBDC

Across all use cases considered in this report, it is important to consider what the status of the CBDC is under the law in which it is issued. If the CBDC is account based, the identity of the account holder allows them to access the funds. This position is not dissimilar to the existing Real Time Gross Settlement (RTGS) systems where the account balance represents a claim on the central bank for the account owner. In the context of account based CBDCs the person who controls the cryptographic key to access a given CBDC account would be presumed to be the owner.

An alternative approach is to create CBDCs in token form. A token CBDC is generally regarded to amount to a claim on the central bank which circulates in the economy by transfer of the token. In principle this approximates the position with banknotes and coins where a transfer of the banknote or coin equals transfer of the claim.[17] However, unlike physical banknotes or coins, a token cannot be held physically raising the question of what its legal status is. In turn the answer to this question creates implications for any person that may intermediate CBDCs.

For example, in circumstances where banks intermediate the CBDCs they may be acting as custodians of the CBDC recognising proprietary rights in favour of the underlying retail customer, acting as an agent or acting in a different capacity.

This is important because this classification will determine the ability of the retail client to protect its CBDC on insolvency of the Bank (in absence of any other mechanism).

A token CBDC is generally regarded to amount to a claim on the central bank which circulates in the economy by transfer of the token.

Intermediation of CBDCs

The operation of accounts for all CBDC holders at the level of the central bank is generally regarded as not suitable.[18] The alternative is an indirect or intermediated solution where for the final user of the CBDC it represents an indirect claim on the central bank, with each commercial bank backing any outstanding liabilities to the consumer via holdings deposited with the central bank.[19] Note that in respect of a retail CBDC an intermediated solution is likely.[20]

The effect of this approach for the provision of payment services would not substantially change today's existing model, which is already built on the strengths and synergies of the Central Bank and private sector.

17 See Legal Aspects of Central Bank Digital Currency (WP/20/54) at page 11.

18 See for example BIS Working Paper No 976.

19 We note that many central banks, including the Bank of England, as per the 'platform model' in their Discussion Paper in 2020, are considering a model where the CBDC would be a direct liability of the central bank and intermediaries would provide interface/'wallet' services rather than themselves being balance sheet intermediaries. See more here: https://www.bankofengland.co.uk/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design-discussion-paper

20 This model also has the benefit that it avoids the Central Bank having to build new infrastructure to handle direct communications with users, know-your-customer checks and dispute resolution. The Central Bank retains all control and can ensure that only entities approved by it are able to connect to the core ledger, impose standards and surveillance procedures to guarantee resilience, security and integrity of the overall system.

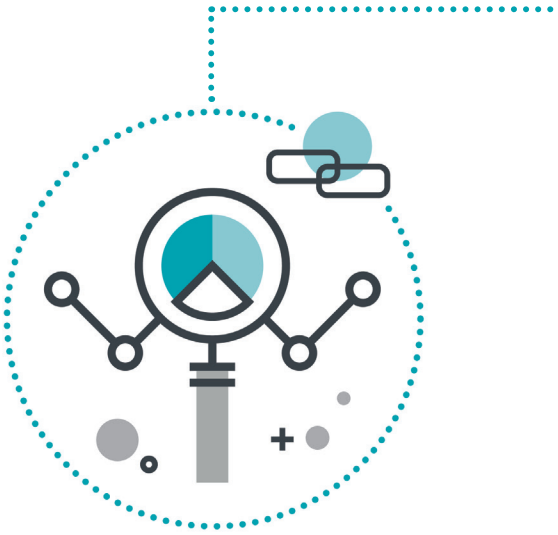
Nonetheless, arguably it would benefit from practical advantages in terms of speed, efficiency and reliability of settlement at central bank level. It would also provide households and businesses a new form of money and a new way of making payments, which could coexist alongside other forms of money and payment systems.

Volume Restrictions

Proposals of retail CBDCs sometimes include restrictions or limitations on the use of the relevant CBDC to prevent significant shifts between CBDCs and money provided by banks or other payment providers.

For example, the amount of the relevant CBDC that individual users are allowed to hold is proposed to be kept within a range such that the overall value of the CBDC in circulation remains within pre-set indicators or thresholds. For example a participant may only be able to hold up to a level of £2000 worth of CBDCs in their wallet which means that there is always a maximum amount of CBDCs allowed to be in circulation. By necessity this would require a sophisticated system to avoid the circumvention of restrictions by impersonating multiple users or by operating multiple accounts. However, this raises concerns from a privacy perspective.

In particular in an intermediated model where banks facilitate the holding of CBDCs via electronic wallets, the legal framework would have to be structured so that any intermediated CBDCs are not attributed to the relevant bank.



Access Restrictions

Similarly, the retail CBDC could be programmed to restrict the scope of individuals and entities that can access CBDC services. An example would be to limit access to residents in certain jurisdictions (including visitors according to their length of stay), to guarantee that the retail CBDC is used in a relatively small size domestically, or to restrict the way in which CBDCs can be used, for example by restricting benefit money to only be used for certain purposes.

Unrestricted access could allow widespread international use of a particular CBDC, raising issues of currency substitution and lack of central bank oversight. Central banks should be considering how they plan to ensure retail CBDCs remain on shore. By way of illustration, persons outside of the UK may prefer UK issued CBDCs substituting their own currency. Nevertheless, exchange controls would aggravate recent trends towards globalisation and fragmentation. There is a need to explore other options such as on usability / transfer restrictions as a means of avoiding exchange controls.

Balancing privacy requirements and AML concerns

To date, payment systems provide varying degrees of privacy, from anonymous cash transactions to bank transactions requiring a high degree of documentary verification.

AML and terrorist financing regulations do not allow for anonymity in electronic payments and any CBDC proposal would need to comply with such requirements. Furthermore, identity information will be further required to limit scope (e.g. excluding non-UK residents, or to prevent excessive capital flows). This means ruling out true anonymity, which does not sit well with consumer and data protection regulations.

Different degrees of privacy can be granted by both the central bank and third party providers, both by way of either account-based or token-based systems. Third party operators could allow certain transactions to be executed partly anonymously, e.g. without registering the identity of payer and payee, while full privacy could be achieved by offline payments, even when retail users have been previously identified with their third party providers.

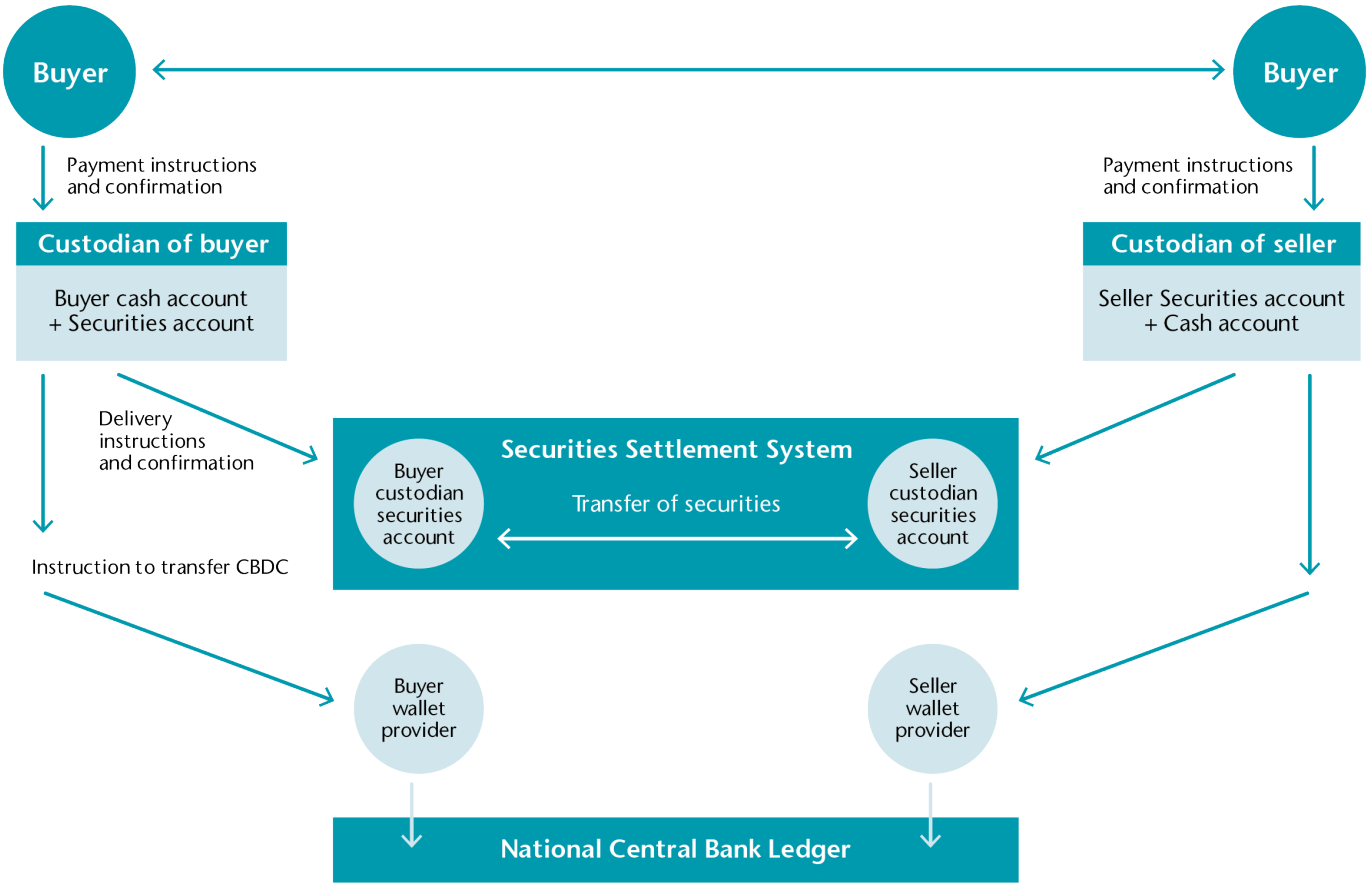
Dual track

It would be reasonable to assume that all jurisdictions that intend to launch a CBDC project would do so with a period under which traditional / legacy cash exists with CBDCs.

In an intermediated model of CBDCs for developed jurisdictions, the practical benefit for day-to-day users may be practically imperceptible. This is because across many jurisdictions instantaneous payments can be made already and because deposit protection regimes exist. However, in jurisdictions where CBDCs may represent a significant improvement compared to legacy payment systems, CBDCs may become the preferred method of payment (though the risk remains that privately owned coins too can become the preferred method). It is crucial that local legislation is designed to avoid any price distortions and in particular, to prevent any price disparity.

Different degrees of privacy can be granted by both the central bank and the third party providers, both by way of either account-based or token-based systems.

USE CASE: CBDC FOR SECURITIES SETTLEMENT



Settlement is the post-trade process whereby the buyer receives the purchased securities, and the seller receives the corresponding cash in exchange for those securities. In the case of securities transactions in most markets settlement normally occurs two business days after trade date to allow for a certain number of cash funding and processing steps to occur. The exchange of cash and securities is normally carried out in a Securities Settlement System (SSS) operated by a Central Securities Depositary (CSD) and by corresponding debits and credits of securities throughout the custody chain. Generally, this is done on a Delivery vs Payment (DvP) model. In other words, delivery occurs only if the corresponding payment occurs.

This use case assumes:

(a) the relevant buyer and seller of securities do not have direct access to the CBDC DLT platform or to the Securities Settlement DLT platform (together referred to as 'DLT Platforms').

(b) access is intermediated by a custodian wallet provider.

Settlement is the post-trade process whereby the buyer receives the purchased securities, and the seller receives the corresponding cash in exchange for those securities.

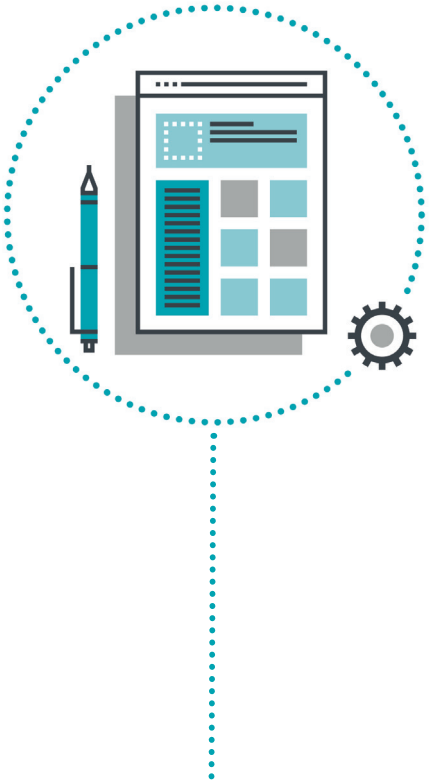
CBDCs could create efficiency for securities settlement transactions but only to the extent that the trading, clearing and settlement legs of the transaction are operated on the same or interoperable digital platforms, such as DLT platforms.

In this use case, using CBDCs for settling the transaction does not materially change the transaction flow for buyer and seller because it relies on intermediation. However, the perceived benefit would be a much shorter settlement cycle which is close to instantaneous – so called atomic settlement. For example, it is conceivable that settlement could be achieved automatically through the use of smart contracts which on confirmation that sufficient securities are in the wallet/ account of a particular participant, make the payment. A similar smart contract could initiate the transfer of securities upon determining that sufficient funds are ready to be transferred.

Whilst a reduced settlement cycle lowers the exposure to replacement cost risk, market participants may not necessarily favour shorter settlement cycles, as this would potentially require additional liquidity because a market making institution would not have time to source the cash / securities it needs to settle the transaction.

Benefit of shorter settlement

As mentioned, there may be practical advantages to the use of CBDCs in terms of the speed of moving from trading to settlement and credit risk exposure of the counterparties when settling tokenized securities or native digital securities. There is no obvious reduction in transaction costs unless intermediating entities decide to pass on efficiencies to their respective clients. In this context it is important to note that efficiencies that could be achieved in respect of the trading, clearing and settlement legs are not endemic to CBDCs but could also be achieved by a consolidated technical solution, if this was in the benefit of the broader market.



Platform as CSD, SSS or DLT Platform?

A potentially unintended consequence is that functions currently being performed by a Central Counterparty Clearing House (CCP) and a Securities Settlement System (SSS) are transferred to the DLT Platform.

The legal considerations thrown up by this arrangement are complex. The fundamental question would be whether market participants would accept to exchange the legal certainty created through the use of CCPs and SSSs for operational certainty achieved by the DLT Platform.

To avoid this, what is required is either legislative or contractual recognition that transactions can be validly recorded on DLT Platforms and that the delivery of CBDC as payment is legally valid and binding. We expect that this would mean that DLT Platforms would become subject to supervision.

Given central banks are themselves typically regulatory authorities a requirement to be supervised is unlikely to apply in respect of the CBDC settlement systems but it may apply to DLT Platforms, to the extent that these are operated by the private sector and are used to provide securities trading infrastructure. At this stage it is difficult to predict what the regulatory framework would entail. However, it would be reasonable to assume that it would require a minimum set of systems and controls as well as specific prudential and conduct of business requirements.

This may create a liability mismatch between the payment leg (operated by a central bank) and the settlement leg which may be operated by the DLT Platform (to the extent the latter is operated privately).

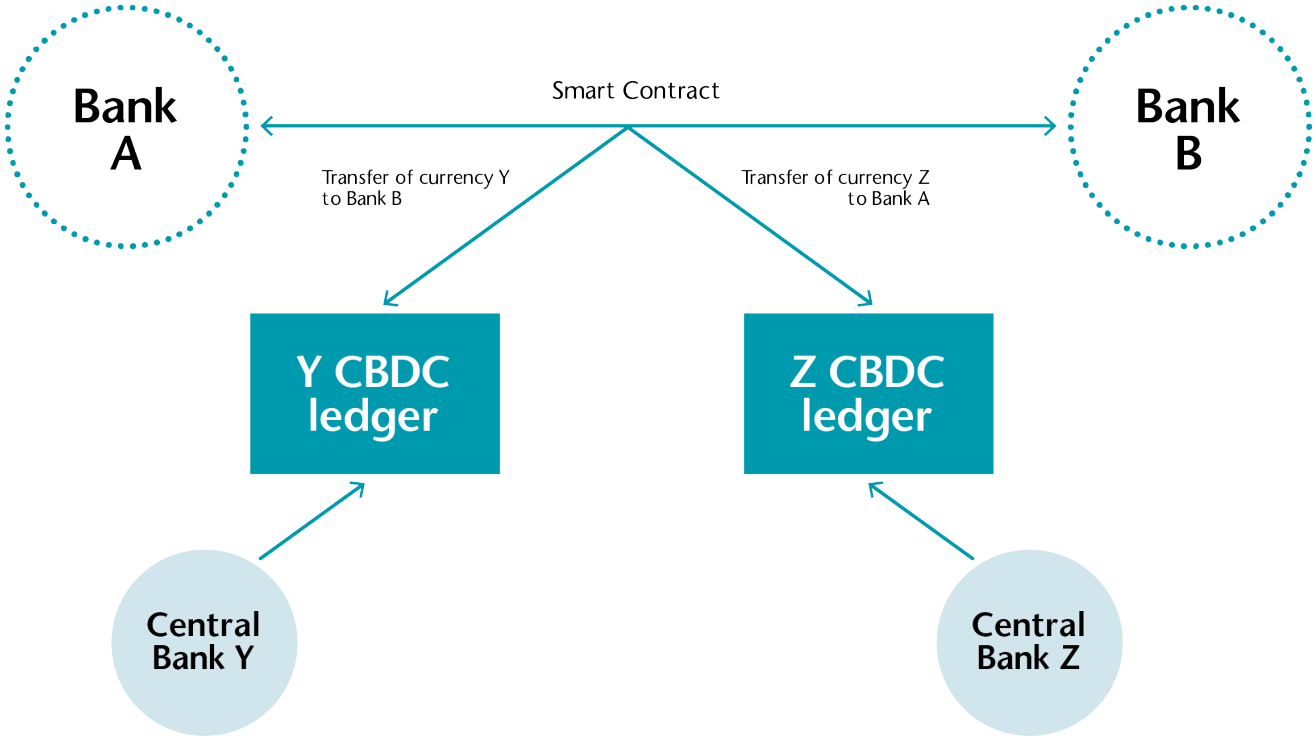
What would be the key design characteristics for CBDCs to be used to settle transactions?

For CBDCs to be considered as payment instruments in the context of securities transactions they must have the same broad characteristics as private settlement tokens, including 24-hour transferability, no restrictions on holder's identity, no interest element.

Operationally these features could conceivably exist for token-based CBDCs but are less likely for an RTGS interoperable account-based CBDC unless Central Banks permit 24-hour operation and reconciliation of their systems. Most RTGS systems close their settlement cycles overnight.

For CBDCs to be considered as payment instruments in the context of securities transactions they must have the same broad characteristics as private settlement tokens.

USE CASE: CBDC FOR FX TRANSACTIONS



Currently, FX transactions are settled by exchanging payments between counterparties on an FX transaction's settlement date. Typically, this involves several parties that process or intermediate the payment. However, at the least this includes:

(a) the counterparties to the transaction;
(b) the account banks; and,
(c) the relevant central banks whose currency is involved in the payment.

To initiate the payment, counterparties typically give a payment instruction to their agent bank to debit their account and transfer the transaction amount to their counterparty's account at the relevant agent bank. In the background there are messaging networks that receive and transmit the payment instructions electronically. Ultimately agent banks settle the transaction at their central bank during the applicable reconciliation process.

In most cases central banks handle FX payments for wholesale market participants via the local RTGS system. However, due to the volumes of transactions that are reconciled, RTGS systems typically operate within strict operating hours. This has the effect that cross-border FX transactions may not settle until a particular RTGS settlement cycle starts. This exposes wholesale market participants to settlement risk (also known as Herstatt risk).

In most cases central banks handle FX payments for wholesale market participants via the local RTGS system.

This is the risk that one party to a physically settled FX transaction pays out the currency it sold but does not receive in full, when due, the currency it bought (the counter-currency).[21] In respect of certain currencies, CLS Bank International acts as a protection mechanism by the settling of both legs of an FX trade on a payment-versus-payment ("PvP") basis and eliminating that risk.

This use case illustrates how the above process can be made more efficient through the use of CBDCs. For these purposes we assume that:

(a) Both CBDCs are issued on an interoperable or on the same DLT Platform allowing for smart contracts to interact with each CBDC.

(b) Both Banks have access to the CBDC ledger of both CBDCs.

The effect of using CBDCs for settling FX transaction is that the DLT Platform acts as the central settlement agent (instead of CLS Bank International) allowing for efficient settlement of currency pairs by simply swapping them to achieve atomic settlement.

Interoperability

Operationally this requires interoperability of CBDC platforms and existing payment/settlement systems and CBDC platforms operated by other central banks.

While there are currently projects that are developing models for interoperability to ensure that all CBDC projects reach a common standard will be a challenge.

While there are currently projects that are developing models for interoperability to ensure that all CBDC projects reach a common standard will be a challenge.

Point of settlement issues

The point at which an FX transaction has been settled is often determined by the reconciliation of end-of-day agent bank statements, to confirm receipt of funds. If the use of CBDCs has the effect of extending operating hours to a 24/7 basis it is not clear at what point end-of day statements should be sent/ received. In the context of multijurisdictional platforms this issue becomes particularly complex.

Another consequence of extending operating hours to 24/7 will be that liquidity calculations and interest payments in respect of positions will have to be calculated on an on-going basis.

21 https://www.bis.org/publ/bcbs241.htm

Outcomes

The table below details the desirable and undesirable outcomes for a CBDC system in relation to key considerations.

Table 1: Outcomes for a CBDC system

	Undesirable Outcome	Desirable Outcome
Access	Access restricted to certain groups, limitations on the amount of CBDC held by individuals. Restrictions on ways CBDCs can be used.[22]	Access for the largest group, ensure that benefit of CBDC system is felt as widely as possible.
Legal Protections for CBDCs	CBDCs not nettable, do not have equivalent legal protections compared to cash.	Legal protections for CBDCs should be equivalent to those in cash. Transactions using DLT platforms should be protected with netting. Legislated framework deployed to equate CBDC payment with cash payments.
Value of CBDCs	CBDCs trade at a premium or lower than the underlying currency causing issues in terms of monetary policy and financial stability as the value of the currency may be affected by the issuance of a CBDC.	Avoid dual value of currency. Central banks put in place appropriate measures to ensure the CBDC's value is maintained and controlled.
Regulation	Political differences and opposing views on CBDCs may result in contrasting regulation which could be difficult to standardise. Regulatory fragmentation occurs.	A common approach to regulation is achieved. Central banks across jurisdictions investigate the possibility of making agreements on standards, design and governance of CBDCs. Regulatory deference may need to be pursued to facilitate cross-border transactions. May need to cater for further interoperability if a global interoperable platform is pursued.

22 On the policy question on whether to expand access to central banks' balance sheets, careful consideration is expected by central banks of the risk that open access to a wholesale CBDC could pose to the functioning of money markets. The issue around access is often mentioned in wholesale CBDC experiments around the world as one of the major policy considerations (Project Dunbar, Helvetia, Jura).

RECOMMENDATIONS

In light of the above, including the use cases outlined for CBDCs, we suggest that it is worthwhile developing wholesale CBDCs. Relevant governing bodies should focus on CBDCs in wholesale markets with corresponding recommendations set out below.[23]

1 GLOBAL REGULATORY PRINCIPLES

To deal with the issue of regulatory fragmentation, global regulatory principles should be established for a globally interoperable wholesale CBDC. Discussions between international institutions including the Bank of England, examining CBDC standards and design principles have been ongoing. During its 2021 G7 presidency, the UK Government led on issuing a joint statement on CBDCs and 13 public policy principles for retail CBDCs to shape global standards.[24] We support these principles and call for further global cooperation to develop them into Global Regulatory Principles for CBDCs, eventually leading to globally accepted standards.

It would be appropriate for an international body like the Bank for International Settlements (BIS) to lead the development of these global principles, particularly as BIS with the BIS Innovation Hub, currently considers topics such as the use cases of CBDCs and their co-existence with central bank cash. In developing these principles it is important that BIS follows the CPMI-IOSCO principles of financial market institutions (PFMIs) as CBDCs will play an important role in FMIs.[25] Introducing CBDCs into the financial market will create new FMIs and therefore considering the PFMIs will be integral for the implementation of CBDCs.

We note that the BIS is collaborating with the Indonesian Presidency of the G20 to organise a new global hackathon competition that focuses on solving technology challenges related to wholesale and retail CBDCs.[26] One of the categories of the hackathon is enhancing connectivity and interoperability of CBDCs. We support this initiative and recommend that international bodies and individual jurisdictions support experiments, sandbox approaches and prototypes that help prove the use cases and catalyse developments in CBDCs.

23 We acknowledge that jurisdictions will vary in their prioritisation of developing wholesale CBDCs. For instance, we note that in the UK, on wholesale settlement, the Bank of England is in the process of delivering RTGS Renewal programme and consulting on the Future Roadmap for this service, with some of the features proposed in the consultation having the potential to achieve similar benefits associated to wholesale CBDCs. See more here: Roadmap for Real-Time Gross Settlement service beyond 2024 | Bank of England

24 https://www.bis.org/cpmi/info_pfmi.htm

25 UK Parliament. Central bank digital currencies: a solution in search of a problem?

26 www.bis.org/press/p220425.htm

2 ESTABLISHMENT OF A HIGH-LEVEL EXPERT GROUP

Discussion with private sector actors is essential particularly in light of the private sector considerations discussed. The involvement of private sector providers in the CBDC system will need to be addressed as the extent of private sector involvement will effect their concerns and areas which they would like to discuss. In addition to private sector representatives, the expert group should include representatives from relevant bodies such as the FSB or the BIS Innovation Hub leadership. These bodies would have the appropriate expertise in relation to CBDCs and have the ability to take an impartial view as they are not directly involved with the issuance of CBDCs. Establishment of a high-level expert group which includes private sector representation would be appropriate to facilitate discussion. This expert group should be involved in the development of the Global Regulatory Principles discussed above in order to establish best practice in relation to the use cases of CBDCs.

3 JURISDICTIONAL INITIATIVE TO IMPLEMENT THE FRAMEWORK

A jurisdictional initiative will be required to implement the principles and legislative frameworks that may be required for the introduction of CBDCs into the financial market. In the UK, the CBDC Taskforce created in April 2021 and jointly led by HM Treasury and the Bank of England, is coordinating a strategy for the development of a CBDC with current focus on retail CBDCs, and we welcome the expansion of that focus to wholesale, aligned with the above mentioned global regulatory principles.[27] We support the work of this taskforce and the establishment of similar initiatives in other jurisdictions. Jurisdictions exploring CBDCs should examine the international dimensions of CBDCs, in particular their cross-border use.

4 REGULATORY DEFERENCE

As previously discussed, regulatory deference and consultation with other jurisdictions and the private sector will need to occur in order to maintain a practical and global regulatory framework. Harmonisation of regulatory requirements across jurisdictions will help to avoid regulatory arbitrage and allow providers who are licensed in one jurisdiction to provide services in another, either directly or after some level of light touch regulatory process. A global standard for regulation of CBDCs is desirable due to the cross-border nature of CBDCs and is necessary to facilitate the integration of CBDC transactions into the financial system.

27 https://www.bankofengland.co.uk/research/digital-currencies/cbdc-taskforce-terms-of-reference

IRSG
INTERNATIONAL
REGULATORY
STRATEGY GROUP

CLIFFORD
CHANCE

The International Regulatory Strategy Group (IRSG) is a practitioner-led group comprising senior leaders from across the UK-based financial and related professional services industry. It is one of the leading cross-sectoral groups in Europe for the industry to discuss and act upon regulatory developments.

With an overall goal of promoting sustainable economic growth, the IRSG seeks to identify opportunities for engagement with governments, regulators and European and international institutions to advocate an international framework that will facilitate open and competitive capital markets globally. Its role includes identifying strategic level issues where a cross-sectoral position can add value to existing views.

TheCityUK and the City of London Corporation co-sponsor the IRSG.

CITY OF LONDON

TheCityUK