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Central bank digital currencies: a solution in search of a problem?

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See Appendix 1.

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CONTENTS

	Page
Summary	2
Chapter 1: Introduction	7
Central bank digital currency	7
Box 1: Central bank money and commercial bank money	7
Global interest in CBDCs	8
What problems would a CBDC solve?	9
Box 2: Crypto assets	10
What are the risks?	11
Next steps	11
This report	12
Chapter 2: Households and businesses	13
Consumers and innovation	13
Decline in cash use	15
Figure 1: Payment volumes (millions) 2010 to 2020	16
Financial inclusion	17
Cross-border payments	19
Chapter 3: CBDC and the monetary system	22
Risk of private money creation	22
Figure 2: Total stablecoin supply (Tether, USD Coin, Binance USD, Dai, TrueUSD)	22
Monetary policy	25
Disintermediation	27
Privacy and 'Know Your Customer'	30
Chapter 4: International implications	33
Sanctions	33
Security	35
International standards	36
Wholesale CBDCs	37
Chapter 5: Conclusion	39
Summary of conclusions and recommendations	40
Appendix 1: List of Members and declarations of interest	45
Appendix 2: List of witnesses	46
Appendix 3: Call for evidence	50

Evidence is published online at https://committees.parliament.uk/work/1504/central-bank-digital-currencies/publications/ and available for inspection at the Parliamentary Archives (020 7219 3074).

Q in footnotes refers to a question in oral evidence.

SUMMARY

Central bank digital currencies

The Bank of England and HM Treasury have created a Joint Taskforce to explore the potential of a 'retail' central bank digital currency (CBDC). A retail CBDC is different to privately issued cryptocurrencies such as Bitcoin. Instead, it would be a form of electronic money issued by the Bank of England that could be used by households and businesses to make everyday payments—in essence a 'digital banknote'.

Over 90 central banks are exploring CBDCs. In developed countries, there are two common motivations. First, central banks are concerned that big tech companies, such as Meta/Facebook, could issue their own digital currencies to the users of their vast networks, enabling them to accrue excessive market power. Second, many central banks are concerned by the decline in the use of physical cash, which some have said anchors public confidence in the monetary system.

However, the introduction of a UK CBDC would have far-reaching consequences for households, businesses, and the monetary system for decades to come and may pose significant risks depending on how it is designed. These risks include state surveillance of people's spending choices, financial instability as people convert bank deposits to CBDC during periods of economic stress, an increase in central bank power without sufficient scrutiny, and the creation of a centralised point of failure that would be a target for hostile nation state or criminal actors.

Overall conclusion

We have yet to hear a convincing case for why the UK needs a retail CBDC. While a CBDC may provide some advantages, it could present significant challenges for financial stability and the protection of privacy. The Joint Taskforce should answer the following questions before deciding on whether to proceed:

- To what problem is a CBDC the answer?
- What is the precise threat posed by privately issued digital currencies, what it is that a CBDC could do to offset any threat, and what is the role of regulation?
- How can a CBDC be a competitive payments option without causing a level of banking sector disintermediation that would have negative consequences for credit allocation and financial stability?
- What additional monetary policy options would a CBDC provide to the Bank of England, and would these be proportionate to the Bank's current mandate for monetary and financial stability?
- How can a CBDC ensure strong privacy safeguards while also meeting financial compliance rules? Which organisations will be able to access sensitive CBDC payments data, and for what purpose will that data be used?
- What are the main international and national security risks that arise from a CBDC, and how can these be managed? How can a CBDC be made secure against current and future threats without sacrificing useability?

We recognise that consumer payment preferences, technological developments and the choices of other countries may enhance the case for a UK CBDC in the future. The long lead times involved in scoping and developing a CBDC mean the Joint Taskforce should continue to assess the rationale and technology in preparation for such a measure being needed in future.

Parliamentary scrutiny should be an essential part of assessing the case for a CBDC and if the Government decides to proceed, Parliament should have the opportunity to vote on any final decision, along with the governance arrangements for any such system, during the passage of primary legislation. The Government should set out the costs of introducing and operating any design that is proposed.

Risk of private money creation

The market for stablecoins and other crypto assets is growing quickly but these digital assets are unregulated and are increasingly seen as a risk to financial stability. Central banks are concerned that big tech companies could use the same technology to issue their own digital currencies which could be popular enough to compete with central banks and their control of monetary systems. While we agree this is a risk, the introduction of a CBDC may not be a necessary or complete response. Private entities of a size that can compete with the existing payments systems can and should be regulated.

Declining cash use

While the number of banknotes in circulation has continued to rise in the UK, most payments that were made in cash are now made via debit and credit cards. This trend is likely to have accelerated because of the COVID-19 pandemic. However, cash continues to be widely accepted in the UK and it is not obvious that the properties of CBDCs would satisfy the demand for cash, which is often valued for its physical properties and the privacy that it can provide. We note that the Bank of England has said that it will continue to issue cash on demand and that the public need for money without default risk is covered for most savers by the availability of cash and deposit protection.

Implications for the monetary system

If a CBDC is introduced, it is inevitable that some people will transfer money out of their bank accounts and into CBDC wallets. This process is known as disintermediation, but it is unclear how much might take place, and will depend ultimately on how a CBDC is designed. Without safeguards, such as limits on the amount of CBDCs individuals can hold, financial instability could be exacerbated during periods of economic stress as people seek to replace bank deposits with CBDC which may be perceived as safer.

Limits on CBDC holdings, or charges on large holdings, may reduce the attractiveness of CBDC to users, which could undermine other objectives such as increasing financial inclusion or crowding out privately issued stablecoins. The Bank of England should conduct further studies to assess what would be the effect on the banking system if more than 20% of deposits are converted to CBDC. This would help the Bank to better understand what limits or other design choices might be necessary.

A CBDC could enable central banks to conduct forms of unconventional monetary policy more easily. While the Governor of the Bank of England told

us that he did not see CBDC as a way to implement monetary policy, we note his successors may disagree. Such measures may increase the Bank of England's role and influence in the economy and any changes to the Bank's monetary policy toolkit should be scrutinised carefully. We recommend that the Joint Taskforce publishes its assessment of the potential for monetary policy via a CBDC in its 2022 consultation to assist this scrutiny.

To prevent their use in large-scale criminal activity, any CBDC system could not support anonymous transactions in the same way that cash can be spent anonymously. While there are design options that would provide some privacy safeguards, technical specifications alone may be insufficient to counter public concern over the risk of state surveillance. The Bank of England risks being drawn into controversial debates on privacy.

The Bank has indicated that it favours a private sector led approach for managing necessary 'Know Your Customer' checks on CBDC account holders. However, the requirement to provide these checks could reduce the incentives for new companies to provide CBDC account services, which may undermine the objective to spur competition in payments. It is also unclear what kind of digital identification may be needed to ensure payments are made securely and legally. This should be set out.

Implications for households and business

While the UK's existing domestic payments system is secure and efficient, a CBDC system could spur innovation and competition in payments, but this would be in addition to those that are already taking place. Increased competition from CBDC technology could lead to a reduction in card fees paid by merchants, which could be passed on to the consumer. However, few other significant potential advantages for UK consumers were predicted by our witnesses. We recommend that the Joint Taskforce include additional representative consumer groups on its engagement forum to help it to identify what benefits, if any, a CBDC could provide.

Cross-border payments can be expensive and slow. Interoperable, cross-border CBDC systems could bypass some of the existing frictions with lower costs. Nevertheless, such a system would still have to comply with oversight frameworks, national laws and international technical standards which are a long way from being agreed. Cross-border payments are already improving because of innovation and competition in the fintech sector. Furthermore, a great deal of international collaboration is under way both in the private and public sectors to improve cross-border payments, which should make them more efficient with or without CBDCs.

Should the acceptance of cash decline significantly, a CBDC could be a way to ensure greater financial inclusion in that it would provide access to digital payment services that are like bank accounts. However, for some, not having a bank account is a choice and for others, the technological requirements for CBDC transactions may exclude them from accessing it. It is likely that there are more straightforward and targeted ways to support access to financial services than to launch a CBDC.

International implications

The global reliance on the US dollar and the SWIFT messaging system which supports cross-border payments has enhanced the US's ability to implement sanctions. For some countries, reducing their reliance on the US dollar and trying to avoid sanctions is a motive behind CBDC development.

In the short term, barriers to bypassing the US-dominated international payments system remain formidable. Complex agreements on standards, design and governance would have to be agreed by all countries concerned. However, agreements between small groups of countries could be negotiated more quickly, and it is apparent that there is political will in certain countries, such as China, to create alternatives to the existing international payments system. This trend could erode the US dollar's sanctions leverage. We recommend that HM Treasury's Office of Financial Sanctions Implementation assesses whether similar risks exist for sterling and the euro.

There are two main security risks posed by a CBDC. First, individual accounts could be compromised through weaknesses in cyber security. Second, the centralised CBDC ledger, which would be a critical piece of national infrastructure, would be a target for attack from hostile state and non-state actors. While no design can guarantee absolute security, any CBDC system will need to be adaptable to emerging security threats and technological change, including fast-developing quantum computing.

The UK is well placed to lead on developing international standards for CBDCs. It would derive most long-term benefit by ensuring global standards and rules on governance, privacy, security, and interoperability are compatible with the national interests of the UK and its allies.

Finally, we heard the development of a 'wholesale' CBDC could support the UK's competitiveness as an international financial centre. Wholesale CBDCs, unlike universally available retail CBDCs currently being examined by the Joint Taskforce, would only be used in transactions between financial institutions. While the wholesale operations of the monetary system are already highly efficient, principally through the Real-time Gross Settlement system (RTGS), and there is ongoing improvement work, a wholesale CBDC may help to further enhance efficiency in securities trading and settlement. We recommend that the Joint Taskforce consults on whether a wholesale CBDC would have any material advantages over the continued development and widened membership of the RTGS alongside its 2022 retail CBDC consultation.

Central bank digital currencies: a solution in search of a problem?

CHAPTER 1: INTRODUCTION

Central bank digital currency

1. The Bank of England and HM Treasury are jointly exploring the potential of a central bank digital currency (CBDC). A CBDC is different to a cryptocurrency (or 'crypto asset') such as Bitcoin, which is privately issued and not backed by any central party. A CBDC would not be a new currency; it would be a form of central bank electronic money that could be used by households and businesses to make payments—in essence a 'digital banknote'. It would be the only form of electronic money available to the public that is issued by the Bank of England (see Box 1 for an explanation of central bank money and commercial bank money). In a March 2020 Discussion Paper on the possibility of introducing a UK CBDC, the Bank said it would be in addition to physical cash, not a replacement.[1]

Box 1: Central bank money and commercial bank money

There are three types of money in the UK: banknotes, reserves and bank deposits. Banknotes[2]—cash—and reserves (commercial bank deposits that are held in Bank of England accounts) are central bank money; bank deposits are commercial bank money.

Currently, around 97% of money in the hands of the public comprises commercial bank deposits and 3% cash.

Commercial bank money (bank deposits) can easily be converted into central bank money by withdrawing cash. At the moment, banknotes are the only form of central bank money to which the public has access.

A CBDC would be a new form of central bank money. It would be safe and free of credit risk in the same way as banknotes.

Source: Bank of England, Central Bank Digital Currency: opportunities, challenges and design (12 March 2020), pp 9–10: https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]

2. The Government has not decided on whether to introduce a CBDC. HM Treasury and the Bank of England have created a Joint Taskforce to explore the risks and opportunities that may follow from the introduction of a 'retail' CBDC, which would be designed to facilitate payments involving households and small or medium-sized businesses. Retail CBDCs differ from 'wholesale' CBDCs, which are designed to facilitate payments between

1 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]

2 According to the Bank of England, banknotes make up 94% of physical currency, while coins make up 6%. Of the banknotes that circulate in the UK economy, nearly 10% are issued by Scottish and Northern Irish commercial banks, but those banknotes themselves are backed by Bank of England notes, UK coins, and funds on deposit at the Bank of England. In many countries, coins are also issued by the central bank, but in the UK coins are produced by the Royal Mint, and are nominally a liability of the Government.

financial institutions. The Bank is undertaking separate work to improve wholesale and high-value payments[3] and it has cooperated with other central banks which are examining wholesale CBDCs.[4]

3. A retail CBDC system can follow an 'indirect' model (also known as 'hybrid') or a 'direct' model. Under an indirect model, the central bank maintains a central ledger which records CBDC balances and processes payments, but financial institutions (for example, commercial banks) manage customer account services.[5] The Bank of England consulted on this approach in its March 2020 Discussion Paper. Under a direct model, customer accounts and account management services are all handled by the central bank but we heard few central banks have seen such a model as viable, including the Bank of England.[6]

Global interest in CBDCs

4. The UK is not alone in exploring the potential of a CBDC. According to the Atlantic Council, around 90 countries are considering introducing their own form of public digital money.[7] Seven countries have launched a CBDC, the first of which was the Bahamian Sand Dollar and the latest was Nigeria's e-Naira. Currently, 17 other countries, including major economies like China and South Korea, are in a pilot stage and preparing possible launches. China was the first large economy to pilot a CBDC in April 2020 and it aims for widespread domestic use of the e-CNY by 2022.[8]

5. Around 40 countries have announced they are in a research phase.[9] Along with the Bank of England, this includes other major central banks including the European Central Bank (ECB) and the US Federal Reserve. In July 2021, the ECB announced a 24-month investigation phase for the 'digital euro' project, which is exploring the potential of both a retail and wholesale CBDC. The Federal Reserve is preparing to publish a review of the case for introducing a CBDC.[10]

6. The Bank of England is collaborating with six other central banks, together with the Bank for International Settlements, on CBDC design.[11] On 14

3 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]

4 In November 2018, the Bank of England, Bank of Canada and the Monetary Authority of Singapore published a joint report which set out ways to improve cross-border payments and settlements using wholesale CBDCs. See, Bank of Canada, Bank of England and Monetary Authority of Singapore, *Cross-border interbank payments and settlement* (15 November 2018): https://www.bankofengland.co.uk/-/media/boe/files/report/2018/cross-border-interbank-payments-and-settlements.pdf [accessed 15 December 2021]. For more information on international wholesale CBDC projects see, Eswar Prasad, *The Future of Money: How the Digital Revolution Is Transforming Currencies and Finance*, (Harvard University Press, 2001).

5 Written evidence from EY (CDC0038)

6 Q 15 (Georges Elhedery). Sir John Cunliffe told us, "We would not give customers direct accounts at the Bank of England." See, Q 96 (Sir Jon Cunliffe).

7 Written evidence from the Atlantic Council GeoEconomics Center (CDC0041)

8 Atlantic Council, 'Central Bank Digital Currency Tracker': https://www.atlanticcouncil.org/cbdctracker/ [accessed 15 December 2021]

9 *Ibid.*. Individual eurozone countries are contributing to developments for both retail and wholesale digital euros.

10 The Federal Reserve has already conducted some exploratory work. For example, the Federal Reserve Bank of Boston has been developing prototypes of potential payments systems connected to a 'digital dollar'. This work is being completed in conjunction with the Massachusetts Institute of Technology.

11 The six central banks are the Bank of Canada, Bank of Japan, European Central Bank, the Federal Reserve, Sveriges Riksbank (the Swedish central bank) and the Swiss National Bank.

October 2021, the Government published a G7 report setting out principles that should govern the development of CBDCs.[12]

What problems would a CBDC solve?

7. The case for introducing a CBDC differs around the world to reflect the prevailing economic circumstances and the efficiency of national payments systems. In March 2020, the Bank of England published a consultation which set out seven ways in which a CBDC could support the Bank's objectives to maintain monetary and financial stability:

    - Supporting a resilient payments landscape.
    - Avoiding the risks of new forms of private money creation.
    - Supporting competition, efficiency and innovation in payments.
    - Meeting future payment needs in a digital economy.
    - Improving the availability and usability of central bank money.
    - Addressing the consequences of a decline in cash.
    - As an enabler for better crossborder payments.[13]

8. The rapid pace of technological change is driving central banks' interest in CBDCs. The past decade has seen a dramatic increase in new forms of electronic payment, and big tech companies are challenging established banks and payment operators for market share.[14] The use of physical cash is in decline in many countries and some central banks are worried that this could undermine public confidence in the monetary system if individuals are unable to convert commercial bank money into cash, which is a direct claim on the state.

9. Central banks are also increasingly concerned about the confluence of two trends: technology companies entering finance and the evolution of new forms of digital 'money'. Central banks have warned that big tech companies may issue their own digital currencies to users of their vast networks, which may facilitate rapid and large-scale adoption (see Box 2). Once established, these privately issued digital currencies may enable big tech companies to accrue excessive market power and reshape the payments landscape, and this would affect the functioning of the monetary system.[15]

12 G7, *Public Policy Principles for Retail Central Bank Digital Currencies* (14 October 2021): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1025235/G7_Public_Policy_Principles_for_Retail_CBDC_FINAL.pdf [accessed 15 December 2021]

13 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]

14 Written evidence from SICPA (CDC0018)

15 Q 63 (Patrick Honohan)

Box 2: Crypto assets

Decentralised cryptocurrencies—such as Bitcoin—are digital assets that can be transferred electronically between users without the involvement of intermediaries or the oversight of central banks and governments. Transactions are usually stored on a decentralised ledger known as a 'blockchain'. A blockchain allows users to confirm transactions without the need for a central clearing authority.

In practice, few cryptocurrencies have the properties of a traditional currency, otherwise known as a fiat currency, such as the ability to act as a means of exchange, a store of value and a unit of account. Instead, cryptocurrencies are often traded as speculative assets, rather than used to make payments for goods and services. This report will use the term 'crypto asset' to describe this technology.

Stablecoins are a form of cryptocurrency that are designed to maintain a stable value relative to national currency or another asset. In other words, their market value is pegged to a currency such as the US dollar.

As opposed to cryptocurrencies such as Bitcoin, which are often traded as speculative assets, stablecoins are designed to reduce volatility and can be used more easily to purchase goods and services.

Stablecoins are sometimes said to 'bridge the gap' between cryptocurrencies and volatility-free fiat currencies and are fast becoming a popular way to store value and trade goods in the digital domain.[16] Examples of stablecoins include Tether and USD Coin, which are the two largest stablecoins in the market as of December 2021.[17]

10. In June 2019, Facebook announced plans to launch a digital currency called Libra. The digital currency would have been pegged to a basket of financial assets, including national currencies. The project was criticised by governments and central banks around the world. On 2 November 2021, the Rt Hon Rishi Sunak MP, Chancellor of the Exchequer, told us that Facebook's Libra project prompted the Government to ask:

> "what do we think about a global stablecoin that we are not in control of? What does that mean? How should we regulate that? Do we have to worry about financial stability? That is probably what has catalysed work on [CBDCs] … "[18]

11. In December 2020, Libra was rebranded as Diem and its ambitions were scaled down. Nevertheless, in December 2020 Olaf Scholz, then Germany's finance minister, said Diem was still a "wolf in sheep's clothing". Regulators continue to be concerned about the effects of big tech and new forms of payments on monetary sovereignty.[19]

16 Coinbase, 'What is a stablecoin': https://www.coinbase.com/learn/crypto-basics/what-is-a-stablecoin [accessed 15 December 2021]

17 Business Insider, 'Top 6 stablecoins in the crypto market - what are they, how they work and why they have governments worried', (12 November 2021): https://www.businessinsider.in/investment/news/top-6-stablecoins-in-the-crypto-market-what-are-they-how-to-they-work-and-why-they-have-governments-worried/articleshow/87667452.cms [accessed 15 December 2021]

18 Oral evidence taken before the Economic Affairs Committee on 2 November 2021 (Session 2021–22), Q 19 (Chancellor of the Exchequer)

19 'Facebook's renamed cryptocurrency is still 'wolf in sheep's clothing': German Finance Minister', *Reuters* (7 December 2020): available at https://www.reuters.com/article/g7-digitial-facebook-idUKKBN28H20B . The Diem Association has stressed its institutional separation from Facebook.

What are the risks?

12. While the Joint Taskforce has set out potential benefits of CBDC, there are significant risks as well. We heard that CBDCs have the potential to provide the Government and the central bank with the power to monitor citizens' payment transactions, posing risks to individual privacy. If a retail CBDC proved to be popular, people may transfer money out of their bank accounts into CBDC wallets (software used for digital storage), which could disintermediate the banking sector. This could increase the cost of credit and exacerbate financial instability during periods of economic stress. CBDCs could provide central banks with powerful new monetary policy tools with uncertain effects that may increase the role and influence of the central bank over the economy. We heard that CBDCs could represent a vulnerable single point of failure in the payments system, serving as a target for cyber-attacks from criminals and hostile nation-state actors. The extent to which any of these risks would be realised depends heavily on the final design of a CBDC.

Next steps

13. HM Treasury and the Bank of England ('the Joint Taskforce') will publish a consultation in 2022 setting out their assessment of the case for introducing a CBDC in the UK. If there is a decision to proceed, the Joint Taskforce will initiate a development phase then a build and testing phase. The earliest date for launch of a UK CBDC would be sometime after 2025.[20]

14. Parliament's role in the introduction of any CBDC is unclear. John Glen MP, the Economic Secretary to the Treasury, said if the Government decides to introduce a CBDC, it was likely that Parliament would have some role in approving the decision, but he was not able to provide certainty on this point or explain whether it would be through legislation or some other means.[21] Andrew Bailey, the Governor of the Bank of England, understood it was possible to introduce CBDC without legislation but nevertheless legislation would "probably" be needed to ensure the system was legally robust.[22]

15. **Digitalisation is transforming payments systems and governments must consider what responses are necessary. Any UK central bank digital currency would have far-reaching consequences for households, businesses and the monetary system for decades to come. Parliamentary scrutiny should be an essential part of assessing the case for a CBDC and if the Government decides to proceed, Parliament should have the opportunity to vote on any final decision, along with the governance arrangements for any such system, during the passage of primary legislation. The Government should set out the costs of introducing and operating any design that is proposed.**

16. **The Bank of England has consulted on seven different ways in which a CBDC could support the Bank's objectives to maintain monetary and financial stability. However, a CBDC cannot be designed to support all seven objectives equally well and there are likely to be alternative**

20 Written statement HCWS381 Session 2021-22. In November 2020, the IMF said without strong legal foundations, the issuance of CBDCs poses legal, financial and reputational risks for central banks. See, IMF, *Legal Aspects of Central Bank Digital Currency: Central Bank and Monetary Law Considerations* (20 November 2020): https://www.imf.org/en/Publications/WP/Issues/2020/11/20/Legal-Aspects-of-Central-Bank-Digital-Currency-Central-Bank-and-Monetary-Law-Considerations-49827 [accessed 15 December 2021]

21 Q 82 (John Glen MP)

22 Q 106 (Andrew Bailey)

solutions for enhancing the payments system with fewer risks. When the Joint Taskforce publishes the use case for a possible CBDC in 2022, it should set out the most significant long-term problem to which it believes a CBDC may be the answer. Its assessment should compare CBDCs against alternative means of achieving the same aims.

This report

17. This report focuses on assessing the potential benefits of a CBDC as set out by the Bank of England, and the economic and political risks that we identified during our inquiry.

18. In Chapter 2, we assess how a CBDC would benefit households and businesses; what problems would it solve? In Chapter 3, we assess how crypto asset technology is affecting the monetary and payments systems, and how a CBDC might alter the role and influence of the Bank of England. In Chapter 4, we examine some of the wider international effects of a CBDC and the extent to which it could influence the economic foreign policies of UK allies and strategic competitors. In Chapter 5, we set out our view on the use case of a UK CBDC and recommended next steps for the Government and the Bank of England.

19. We thank all those who provided written and oral evidence. We are also grateful for contributions from the staff and leadership of the Bank of England and HM Treasury. A full list of witnesses and authors of written evidence is available in Appendix 2.

CHAPTER 2: HOUSEHOLDS AND BUSINESSES

Consumers and innovation

20. Under the Bank of England's proposed CBDC model, the Bank would not provide direct CBDC accounts to customers. Instead, it would operate the core digital infrastructure to enable CBDC payments while commercial banks and other financial services providers would connect to this infrastructure to provide CBDC wallets and related services. The Bank's March 2020 Discussion Paper said this model could encourage innovation and enable "the private sector to create services that support greater choice" for consumers.[23]

21. Most witnesses were sceptical that a UK CBDC payments system would provide significant advantages to consumers over the existing payments system. Patrick Honohan, a former Governor of the Bank of Ireland, said that the benefit of a CBDC to UK consumers, "at present [would be] absolutely nothing." Because the UK already has a "reasonably efficient payment system … just having a CBDC does not give you an advantage."[24]

22. Professor Eswar Prasad, Senior Professor of Trade Policy and Professor of Economics at Cornell University, New York, agreed that the UK has an effective payments system and said there was not a strong consumer case for introducing a CBDC: "One could still make the user case in terms of the CBDC catalysing additional innovation and being a backstop for financial instability, but in terms of access and efficient low-cost payments the case is perhaps much weaker in the UK than it is even in the US."[25] Georges Elhedery, Group Executive and Co-CEO of Global Banking & Markets at HSBC, made a similar point: "some of the benefits immediately available to a consumer were marginal" but HSBC was considering whether additional innovation spurred by CBDCs could "leapfrog" existing payment services.[26]

23. Currently, when customers pay for goods or services with a card, the merchant pays a fee which can be as much as 2–3% of the transaction, depending on several factors including the size of the merchant's business and the type of card used to pay. Debit card payments, which would likely resemble a CBDC payment most, have fees that are typically much lower than credit card fees. Andrew Cregan, Head of Finance Policy at the British Retail Consortium, said a widely used CBDC has the potential to increase competition in the retail payments sector, which could reduce the fees charged by the existing payment operators.[27]

24. Other witnesses agreed on the potential for a CBDC to foster private-sector innovation. David Birch, an adviser and commentator on digital financial services, said this was the best single reason for introducing a CBDC[28] and the Atlantic Council said a CBDC could help level the playing field for new market entrants.[29] Innovate Finance thought CBDC would help the UK to

23 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020):https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]
24 Q 69 (Patrick Honohan)
25 Q 69 (Prof Eswar Prasad)
26 Q 12 (Georges Elhedery)
27 QQ 41–42 (Andrew Cregan)
28 Q 26 (David Birch)
29 Written evidence from the Atlantic Council GeoEconomics Center (CDC0041)

develop world leading expertise.[30] We also heard that a CBDC could help increase the overall resilience of the payments system, which was another potential advantage set out by the Bank of England.[31] David Birch said a CBDC should be "constructed as a parallel system" to the existing payments system so that overall resilience increased.[32]

25. That said, we heard there is already significant innovation taking place in payments. For example, the growing use of payment apps is increasing competition with the major payments networks as they can link directly to bank accounts rather than physical cards. Charlotte Hogg, CEO of Visa Europe, told us that the UK is one of the most competitive payments markets globally, and that this trend had accelerated in recent years.[33] Georges Elhedery said a great deal of work had been done by the public and private sectors to improve the domestic payments systems but nevertheless a CBDC could provide a step change.[34] In its March 2020 Discussion Paper, the Bank of England set out several initiatives that are ongoing to improve payments, including:

    - Open Banking and PSD2,[35] which require banks and other payment service providers to share customer financial transactional data with authorised third parties, with customer consent. This is designed to increase competition in the banking sector and to enable third parties to innovate and create new financial products.

    - Pay.UK's New Payments Architecture, which will replace the existing interbank retail payment systems with infrastructure that supports instant settlement with a view to ending multiple-day clearing cycles. It should provide new capabilities that payment service providers can use to benefit customers.

    - Real-Time Gross Settlement (RTGS) renewal, which will see the Bank of England, as operator of the Sterling RTGS service, promote innovation in payments by renewing the existing RTGS and expand access to settlement in central bank money. In 2017 the Bank announced that Electronic Money Issuers and payment institutions authorised by the Financial Conduct Authority could start applying for RTGS settlement accounts.[36]

26. John Glen MP, the Economic Secretary to the Treasury, told us that the Government recognised that the UK payments system was already effective but wished to assess the additional benefits a CBDC might provide.[37]

27. Sir Jon Cunliffe, Deputy Governor for Financial Stability at the Bank of England, said the use case for consumers and merchants should be taken

30 Written evidence from Innovate Finance (CDC0043)
31 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]
32 Q 26 (David Birch)
33 Q 56 (Charlotte Hogg)
34 Q 12 (Georges Elhedery)
35 Open Banking is a directive issued by the Competition and Markets Authority that came into force in January 2018. PSD2 is EU's Revised Payment Services Directive.
36 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]
37 Q 82 (John Glen MP)

together. As it becomes more difficult for merchants to refuse digital payments—accepting cash only—"the question is whether they should have an alternative that anchors the cost floor."[38] Andrew Bailey, Governor of the Bank of England, told us that increasing the competitiveness of the payments infrastructure is a longstanding challenge that requires further work but his view was that issuing a CBDC was a disproportionate response to that issue.[39]

28. **A CBDC system has potential to spur innovation and greater competition in payments, in addition to those that are already taking place, which may reduce card fees paid by merchants. However, we heard few other significant advantages for UK consumers. We recommend that the Joint Taskforce include a greater number of representative consumer groups on its engagement forum to help it to identify whether a CBDC would provide any benefits to individuals and households. We heard the UK's existing domestic payments system is secure and efficient, and it continues to foster innovation and the expansion of services.**

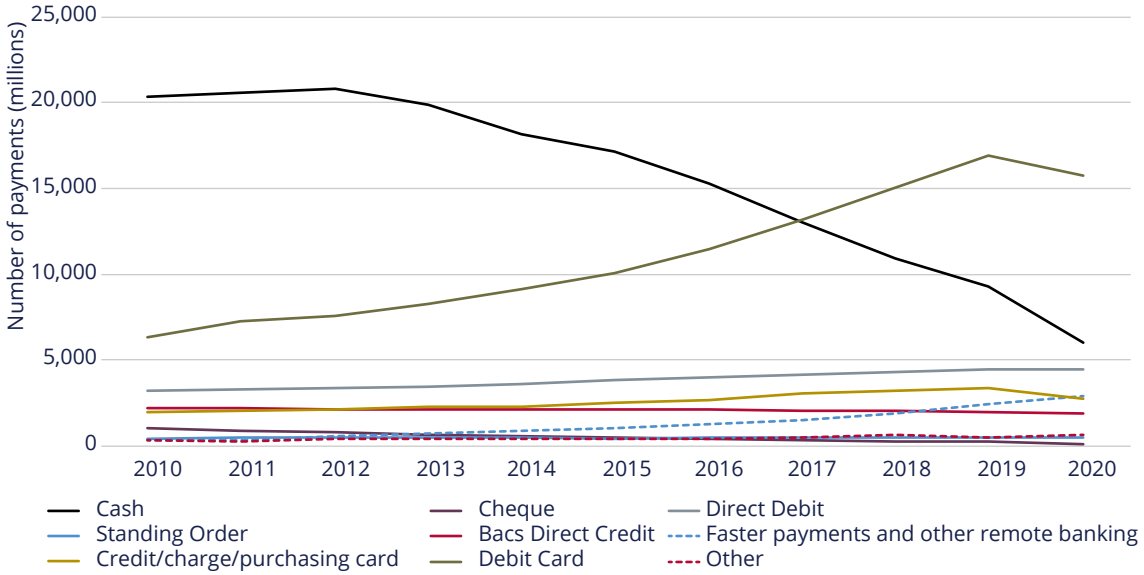
Decline in cash use

29. Many central banks are concerned by the decline in the use of central bank money (i.e. physical banknotes) by the public. The Bank of England said banknotes provide an "anchor of confidence" in the banking system, as households and businesses know they can convert bank deposits to central bank money and that this provides financial stability.[40]

30. The Bank is exploring whether CBDCs could improve the availability of central bank money and address the consequences of declining cash use. While the number of notes in circulation has continued to rise in the UK, most payments that were made in cash are now made in commercial bank money, including via debit and credit cards, as set out in Figure 1. The trend is likely to have accelerated in 2020 because of the COVID-19 pandemic, when cash use fell by 35% compared with the previous year.[41]

38 Q 94 (Sir Jon Cunliffe)
39 Q 99 (Andrew Bailey)
40 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]. See also, written evidence from Positive Money (CDC0011). Fabio Panetta, Member of the Executive Board of the ECB, made similar points on central bank money anchoring confidence in money in a speech to the European Parliament ECON Committee. See Fabio Panetta, speech on Designing a digital euro for the retail payments landscape of tomorrow, 18 November 2021: https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp211118~b36013b7c5.en.html [accessed 15 December 2021]
41 UK Finance, *UK payment markets summary 2021* (June 2021): https://www.ukfinance.org.uk/sites/default/files/uploads/SUMMARY-UK-Payment-Markets-2021-FINAL.pdf [accessed 15 December 2021]. Many bricks and mortar retailers were closed for long periods of time during the COVID-19 pandemic and cash was considered by many to be a health risk.

Figure 1: Payment volumes (millions) 2010 to 2020



Source: UK Finance, UK payment markets summary 2021: https://www.ukfinance.org.uk/sites/default/files/uploads/SUMMARY-UK-Payment-Markets-2021-FINAL.pdf [accessed 15 December 2021]

31. Richard Brown, Chief Technology Officer of R3, an enterprise technology company, said that policymakers had an obligation to decide whether a digital form of cash should be introduced if cash use declined to nothing, as cash provides people with the ability to transact with one another without recourse to any other authority and with high levels of privacy.[42]

32. Some witnesses were sceptical that CBDCs would satisfy the demand for cash. Andrew Cregan, Head of Finance Policy at the British Retail Consortium, did not think a CBDC was "in any way" a substitute for cash: "I do not envisage that individuals who have been so reticent over using card payments over the years … will jump on the CBDC bandwagon and abandon cash. People use cash either for budgetary purposes or for concerns around security or fraud. They use cash for other reasons that will not be affected by the creation of a CBDC."[43]

33. Other witnesses said CBDCs could not provide the same level of privacy as cash. Stephen Bonner, Executive Director, Regulatory Futures and Innovation at the Information Commissioner's Office, said a CBDC would not be like cash and that "proportionate" rules on privacy and data protection would be needed.[44] We explore the implications of a CBDC for privacy in the next chapter.

34. UK Finance said further analysis was needed to determine the benefit of a CBDC as the public already has access to risk free money in the form of cash and guaranteed commercial bank money through the Financial Services Compensation Scheme, and National Savings and Investment (NS&I) provides consumers with access to HM Treasury backed savings products.[45]

42 QQ 56–57 (Richard Brown)
43 Q 45 (Andrew Cregan)
44 Q 22 (Stephen Bonner)
45 Written evidence from UK Finance (CDC0021)

35. The Bank of England has recognised that a CBDC would be an imperfect substitute for cash. Its March 2020 Discussion Paper said, "for those in society who value the physical nature of cash, the introduction of CBDC is unlikely to affect their payment behaviour, and so we consider that CBDC would likely act as a complement to cash rather than a substitute."[46]

36. Sir Jon Cunliffe said that, from a central bank perspective, cash plays an important role in anchoring confidence in the monetary system as people can convert commercial bank money into central back money on demand.[47] John Glen MP told us the Government had committed to legislate for the continued issuance of cash.[48]

37. **Cash continues to be widely accepted in the UK. If this were to change it is not obvious that the properties of CBDCs would satisfy any residual demand for cash, which is often valued for its physical properties and the privacy that it can provide. We note that the Bank of England has said that it will continue to issue cash on demand and that the public need for money without default risk is covered for most savers by the availability of cash and deposit protection. We also note that a core aim of prudential regulation is to ensure we have a stable banking system: this, together with the deposit guarantee scheme, should ensure that confidence in the monetary system is anchored.**

Financial inclusion

38. The Bank of England said that cash provides an important role in financial inclusion, particularly for groups in society without bank accounts. The Bank's March 2020 Discussion Paper said that if cash use continued to decline, "there is no guarantee that the current private sector provision of the retail payment systems may meet the needs of all users, leaving underbanked groups of society particularly at risk."[49] It said, "a well-designed CBDC may also help to boost financial inclusion … by being accessible to a broader range of people, potentially in different formats, than private sector solutions."[50]

39. According to figures cited by the Government in its latest financial inclusion report, the number of 'unbanked' adults in the UK declined steadily from 2.85 million in 2005–06 to just below 1 million in 2018–19. The number of adults living in households without access to a relevant account fell to a record low of just under half a million.[51] The legal requirement for large banks to offer customers a 'basic bank account' has probably played a role in this reduction.

40. EY, a consultancy, told us that people in G20 countries are most likely to be excluded from the financial system because they are unable to meet the identification requirements for bank accounts. It said that digital challenger

46 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]
47 Q 95 (Sir Jon Cunliffe)
48 Q 81 (John Glen MP)
49 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]
50 *Ibid.*
51 HM Treasury and Department for Work and Pensions, *Financial Inclusion Report 2019–2020* (November 2020): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/935985/Financial_Inclusion_Report_2020.pdf [accessed 15 December 2021]

banks in the UK and the EU had been successful "not because they are blockchain based, but because … they enable more efficient customer onboarding and better customer experience."[52]

41. Natasha de Teran, member of the Financial Services Consumer Panel, said many of the non-bank alternatives to bank accounts, such as prepaid debit cards, were comparatively expensive. She thought a CBDC could lay a framework through which the provision of simple, affordable, non-bank alternatives could be provided to households and individuals without bank accounts. She said that, while a CBDC is not a prerequisite for such services, it is likely that this functionality would be a feature of any CBDC that the Bank of England designed.[53]

42. David Birch said increasing financial inclusion is an important goal, as people trapped in the cash economy paid the highest prices for certain services and were vulnerable to theft. However, he thought it was not clear that CBDC was the answer to these particular problems.[54] Barry Eichengreen agreed that people without bank accounts paid the most for utilities and other services, but said the argument that CBDC would solve this problem was "specious". He explained that the unbanked paid more because credit providers saw possession of a bank account as a signal of financial stability and reliability but a CBDC "available to everyone unconditionally would not signal anything".[55]

43. We heard that the digital nature of any CBDC would likely prove to be a barrier for some people who are excluded from the financial system. Natasha de Teran told us that the increasingly digital nature of the economy meant that people are not digitally literate need a simple means of making payments and it was not clear whether CBDCs would fulfil that role.[56] We also heard that reliance on comparatively expensive digital devices could be exclusionary. Professor Darrell Duffie, Adams Distinguished Professor of Management and Professor of Finance at Stanford University thought it was possible that CBDCs could be obtained through physical payment cards, which might mitigate the necessity to use digital devices to access accounts. However, he said realising the potential for financial inclusion from CBDC was not guaranteed.[57]

44. In March 2017, the House of Lords Select Committee on Financial Exclusion set out ways that the Government could increase access to financial services. It concluded that an increasing emphasis on technology in banking might exacerbate financial exclusion: "digital exclusion is likely to have a particularly significant impact on those who are already most at risk of financial exclusion."[58] In April 2021, the House of Lords Liaison Committee followed up this work and found that certain groups continued

52 Written evidence from EY (CDC0038)
53 Q 17 (Natasha de Teran)
54 Q 35 (David Birch)
55 Written evidence from Barry Eichengreen (CDC0036)
56 Q 17 (Natasha de Teran)
57 Q 6 (Professor Darrell Duffie)
58 Financial Exclusion Committee, *Tackling Financial Exclusion: A country that works for everyone?*, (Report of Session 2016–17, HL Paper 132)

to be financially excluded because of increasing digitalisation and reliance on mobile banking services.[59]

45. **Should cash acceptance decline significantly, a CBDC could be a way to ensure greater financial inclusion in that it would provide access to digital payment services that are like bank accounts However, for some, not having a bank account is a choice and for others, the technological requirements for CBDC transactions may exclude them from accessing it. It is likely that there are more straightforward and targeted ways to support access to financial services than to launch a CBDC.**

Cross-border payments

46. Cross-border payments are expected to total $250 trillion by 2027. In addition to high-value international wholesale markets, cross-border payments are increasingly important to small businesses and individuals. In 2020, remittance flows to low and middle-income countries reached $540 billion.[60] The Bank of England's March 2020 Discussion Paper said that for many users, "cross-border payments are expensive, slow, and opaque" and that CBDCs may offer a more efficient way to provide cross-border payments if national CBDC systems could be connected.[61]

47. Jana Mackintosh, Managing Director for payments and innovation at UK Finance, told us that CBDCs could make cross-border payments cheaper and faster, and could provide data that would make transactions more secure.[62] Andrew Cregan said, "there is significant scope for the reduction in friction of cross-border payments through new digital money and central bank digital currencies".[63]

48. Other witnesses said improvements to cross-border transactions represented the best use case for CBDCs. Prof Duffie thought improving cross-border payments is the "greatest promise" offered by CBDCs. Patrick Honohan said the ability to make cross-border payments more quickly and cheaply would be an advantage.[64]

49. We heard technological innovation was already improving cross-border payment systems. Charlotte Hogg, CEO of Visa Europe, said competition was driving cost reductions and that new forms of digital remittances were increasing efficiency and savings.[65] Prof Duffie told us that some banks in the US were working with fintech companies to use new technologies to improve cross-border payments. On 22 November 2021, Victoria Cleland, Executive Director for Banking, Payments and Innovation at the Bank of England, delivered a speech on progress made at the G20 level on making

59 Liaison Committee, *Tackling Financial Exclusion: A country that works for everyone? Follow-up report*, (10th Report, Session 2019–21, HL Paper 267). The House of Lords Liaison Committee conducts follow up work on reports published by special inquiry committees of the House of Lords.

60 Victoria Cleland, speech on Working together to enhance cross-border payments, 22 November 2021: https://www.bankofengland.co.uk/speech/2021/november/victoria-cleland-keynote-presentation-the-cbpc-international-payments-on-the-move? [accessed 15 December 2021]

61 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]

62 Q 80 (Jana Mackintosh)

63 Q 39 (Andrew Cregan)

64 Q 69 (Patrick Honohan)

65 Q 59 (Charlotte Hogg)

cross-border payments more efficient. The targets included increasing the speed of transactions so that 75% of payments are to be settled within an hour and ensuring the global average cost of retail payments is no more than 1% and the global average cost of sending a $200 remittance no more than 3%.[66]

50. Barry Eichengreen told us the barriers to making national CBDCs interoperable were "formidable":

> "The two central banks would have to agree on an architecture for their corridor. They will have to jointly govern its operation. They will have to license and regulate dealers holding inventories of currencies and depository receipts to ensure that the exchange rate inside the corridor doesn't diverge significantly from that outside. They will have to agree on who provides emergency liquidity, against what collateral, in the event of a serious order imbalance."

51. He said in a world where there could be several CBDCs circulating at once, arrangements of this type "would require scores of bilateral agreements … considerably more elaborate than those of the World Trade Organization or the [International Monetary Fund]."[67] Simon Gleeson expressed doubt that central banks would allow their own CBDC to circulate widely in the international system in the short- to medium-term:

> "I find it impossible to imagine the Bank of England encouraging widespread circulation of it outside the UK simply because the risk of … fairly wild swings in demand externally would create a degree of monetary instability that would pose a severe threat … If your CBDC itself starts being used internationally, that presents a problem for you."[68]

52. John Glen MP, the Economic Secretary to the Treasury, agreed that bilateral arrangements to enable cross-border CBDCs would be "incredibly complicated." He added, "I imagine that it would be very difficult to establish a global system very easily, given the different ways that central bank digital currencies may evolve in different jurisdictions."[69]

53. The Bank of England has been working to improve cross-border payments and Sir Jon Cunliffe told us that the Committee on Payments and Market Infrastructures (CPMI) is leading work on interoperability in CBDCs.[70] The CPMI is currently exploring what standards and alignments might be necessary to ease the different types of interoperability which might improve cross-border payments.[71] However, some jurisdictions "might not want to

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66 Victoria Cleland, speech on Working together to enhance cross-border payments, 22 November 2021: https://www.bankofengland.co.uk/speech/2021/november/victoria-cleland-keynote-presentation-the-cbpc-international-payments-on-the-move [accessed 15 December 2021]. Victoria Cleland set out other targets: "On access, all financial institutions and end-users are to have at least one option for sending and receiving cross-border payments. More than 90% of individuals who wish to send or receive a remittance payment are to have access to a means of cross-border electronic remittance payment. On transparency, all payment service providers are to give a minimum defined list of information to payers and payees (e.g. total transaction costs, expected time to deliver funds) to ensure a floor of transparency across the market."

67 Written evidence from Barry Eichengreen (CDC0036)

68 Q 8 (Simon Gleeson)

69 Q 85 (John Glen MP)

70 Bank of England, 'Cross Border Payments': https://www.bankofengland.co.uk/payment-and-settlement/cross-border-payments [accessed 15 December 2021]

71 Q 102 (Sir Jon Cunliffe)

make it completely frictionless to move out of one currency and into another" due to the risk of capital flight or financial instability.[72]

54. **Cross-border payments can be expensive and slow. CBDC systems could, in theory, bypass some of the existing frictions in the international payments systems, with lower costs. Nevertheless, a CBDC system would still have to comply with oversight frameworks, national laws and international technical standards which are a long way from being agreed. Cross-border payments are already improving as a result of innovation and competition in the fintech sector. A lot of international collaboration is under way both in the private and public sectors (including at the G7 and G20 levels) to further improve cross-border payments, which will make them more efficient, with or without CBDCs.**

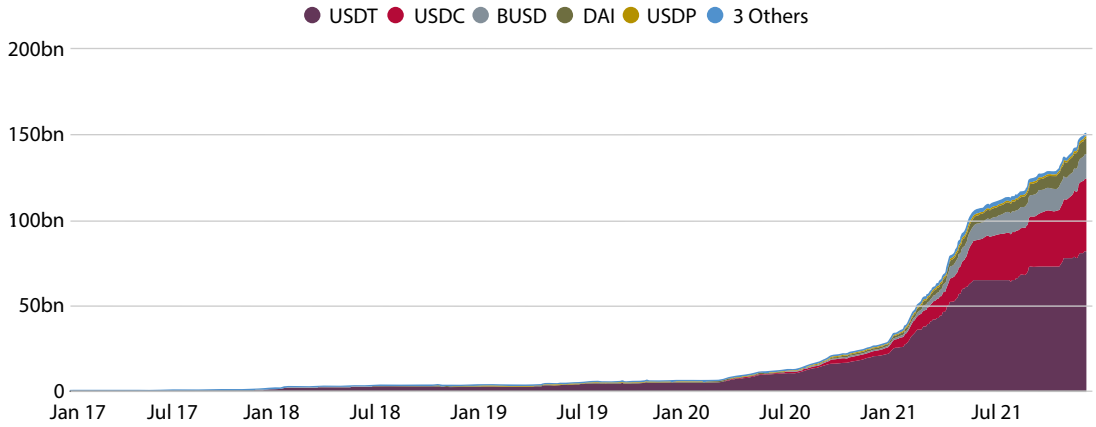
72 *Ibid.*

CHAPTER 3: CBDC AND THE MONETARY SYSTEM

Risk of private money creation

55. Central banks are increasingly concerned by the growing demand for privately issued stablecoins and other crypto assets which operate outside their supervision. While the market for stablecoins is still small compared to traditional asset classes, their role in the financial sector is growing. Figure 2 shows that since early 2020 the total supply has grown from around $5 billion to over $125 billion.[73] The Bank of England has said that CBDCs may reduce demand for stablecoins or "money like instruments".[74]

Figure 2: Total stablecoin supply (Tether, USD Coin, Binance USD, Dai, TrueUSD)



Source: The Block, 'Stablecoins': https://www.theblockcrypto.com/data/decentralized-finance/stablecoins [accessed 15 December 2021]

56. Stablecoins can be used as a bridge between national currencies and the crypto asset market, allowing traders to convert traditional currencies more easily into crypto assets. They can be lent as collateral for trading, or to generate high yields in the form of interest. Stablecoins are also used in blockchain-based decentralised finance applications. For example, Ethereum, a blockchain network, supports a multitude of decentralised finance applications which provide financial services without the need for commercial banks or the complex infrastructure which supports payments. In the second quarter of 2021, the value of transactions validated by Ethereum was around $2.5 trillion, which is comparable to Visa—one of the world's largest payment companies.[75] The Blockchain Association said stablecoins

73 The Block, 'Stablecoins': https://www.theblockcrypto.com/data/decentralized-finance/stablecoins [accessed 15 December 2021]. See also, written evidence from Andreessen Horowitz (CDC0026).

74 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]. HM Treasury has published a consultation assessing the appropriate regulatory approach to stablecoins: HM Treasury, *UK regulatory approach to cryptoassets and stablecoins: Consultation and call for evidence* (January 2021): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/950206/HM_Treasury_Cryptoasset_and_Stablecoin_consultation.pdf [accessed 15 December 2021]

75 'Down the rabbit hole: The promise and perils of decentralised finance' *The Economist* (18 September 2021): available at: https://www.economist.com/weeklyedition/2021–09-18. See also, Q 14 (Georges Elhedery).

could enhance financial inclusion, make cross-border transactions more efficient and create a stable store of value for users.[76]

57. However, these crypto assets are largely unregulated and pose risks to financial stability.[77]

58. First, we heard that widespread adoption of different, non-interoperable forms of private money risks fragmenting the payments system, which could undermine the ability of central banks to implement policies for monetary and financial stability, eroding the state's monetary sovereignty.[78] Patrick Honohan, a former Governor of the Central Bank of Ireland, told us that central banks were exploring CBDCs as a defence against the growth of big tech companies:

> "It is a question of arming oneself against an uncertain future in which there will be very powerful commercial firms with reach well beyond the financial system whose activities could be damaging to the mandate of the central bank and lead to wider societal concerns. Most central banks do not talk about this too much, but if you ask them about it, they will come out and say they are concerned about the monopoly power of, for example, the Facebook Meta organisation, which could be exploited to the disadvantage of the general public."[79]

59. On 6 October 2021, Agustín Carstens, General Manager of the Bank for International Settlements, said that big tech firms could issue stablecoins to users of their vast networks, enabling rapid and large-scale adoption, yielding excessive market power. He said this would "threaten financial stability, fair competition and data governance" and thought CBDCs could be a solution.[80]

60. Second, we heard there is a risk of a 'run' on stablecoins if investors no longer trust they are backed by the assets their issuers claim. Dr John Hawkins, Senior Lecturer at the University of Canberra, said, "given there are doubts about the backing, stablecoins would be vulnerable to a run in the same way as unregulated banks without deposit insurance. If this were to happen to a large stablecoin issuer it could be very disruptive to financial markets".[81] Trust in the world's most-used stablecoin (comprising just over half the market) has been called into question already. In February 2021, Tether was fined $18.5 million by the New York State Attorney General for misleading investors over the extent to which its currency was backed one-

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76 Written evidence from the Blockchain Association (CDC0035)
77 Q 2 (Simon Gleeson)
78 Written evidence from Positive Money (CDC0011)
79 Q 65 (Patrick Honohan)
80 Agustín Carstens, speech on Regulating big tech in the public interest, 6 October 2021: https://www.bis.org/speeches/sp211006.htm [accessed 15 December 2021]. See also, Bank for International Settlements, *Central bank digital currencies: financial stability implications* (September 2021): https://www.bis.org/speeches/sp211006.htm [accessed 15 December 2021].
81 Written evidence from Dr John Hawkins (CDC0029). See also, Q 2 (Prof Darrell Duffie), 'Official Monetary and Financial Institutions Forum Fed Week Financial stability Session', Eric Rosengren, *Federal Reserve Bank of Boston* (25 June 2021): available at https://www.bostonfed.org/news-and-events/speeches/2021/official-monetary-and-financial-institutions-forum-fed-week-financial-stability-session.aspx. Furthermore, in July 2021 Fitch, a ratings agency, said that credit markets could be destabilised in the event of a run to convert stablecoins into traditional money. See, Fitch, 'Stablecoins Could Pose New Short-Term Credit Market Risks', (1 July 2021): https://www.fitchratings.com/research/fund-asset-managers/stablecoins-could-pose-new-short-term-credit-market-risks-01-07-2021 [accessed 15 December 2021].

to-one by US dollars.[82] In October 2021, it agreed to pay $41 million to the US Commodity Futures Trading Commission in a settlement over similar allegations. Tether did not admit or deny wrongdoing.[83]

61. Third, some stablecoins rely on technology that may be unreliable. Prof Duffie told us there had been service outages involving some stablecoins which could cause financial instability if large numbers of people relying on them cannot access them. He said in the future, this risk could extend to the international level if a stablecoin were to dominate the monetary system of another country (as the US dollar has in some South American economies) and similar failures occurred.[84]

62. The extent to which a CBDC would meet the demand for stablecoins is not yet clear. UK Finance told us that UK consumers and businesses may continue to acquire crypto assets regardless of whether a CBDC is issued by the Bank of England: "many consumers could choose to acquire crypto assets as an investment opportunity or due to a lack of trust in central bank fiat currencies."[85]

63. We heard that greater regulatory control over stablecoins might be sufficient to manage risks, although there are technical and jurisdictional issues to overcome. Simon Gleeson, a partner at Clifford Chance, said, "the nature of the internet is such that the creator of these [decentralised stablecoin] instruments can be anywhere in the world, and to create a set of rules that keeps them out of the country is for all practical purposes impossible."[86] While it would be difficult to regulate all stablecoins reliably, we heard it would likely be possible to regulate those that may become systemically important. Barry Eichengreen, George C Pardee and Helen N Pardee Professor of Economics and Political Science at the University of California, Berkeley, said, "if the concern is with the concentration of payments in a single or small set of private hands, then the obvious solution is to strengthen regulation of those private providers."[87] Prof Duffie told us that stablecoin issuers should operate under equivalent compliance standards expected of commercial banks.[88]

64. Governments and regulators have made proposals to regulate stablecoins and other crypto assets. In 2019, the G7 and the Financial Stability Board assessed the impact of global stablecoin arrangements and made recommendations. On 6 October 2021, the International Organisation of Securities Commissions, whose members are financial regulators, published a consultation paper which set out guidance on applying financial market standards to stablecoins.[89] The guidance stated that the international

82 NYS Attorney General, 'Attorney General James Ends Virtual Currency Trading Platform Bitfinex's Illegal Activities in New York', (23 February 2021): https://ag.ny.gov/press-release/2021/attorney-general-james-ends-virtual-currency-trading-platform-bitfinexs-illegal [accessed 15 December 2021]

83 Commodities Futures Trading Commission, 'CTFC Orders Tether and Bitfinex to Pay Fines Totaling $42.5 Million', (15 October 2021): https://www.cftc.gov/PressRoom/PressReleases/8450–21 [accessed 15 December 2021]

84 Q 2 (Prof Darrell Duffie). For additional risks surrounding the stablecoin market, see written evidence from Peter Hindle (CDC0005).

85 Written evidence from UK Finance (CDC0021)

86 Q 1 (Simon Gleeson)

87 Written evidence from Barry Eichengreen (CDC0036)

88 Q 2 (Prof Darrell Duffie)

89 Bank for International Settlements and International Organisation of Securities Commissions, *Application of the Principles for Financial Market Infrastructures to stablecoin arrangements* (6 October 2021): https://www.iosco.org/library/pubdocs/pdf/IOSCOPD685.pdf [accessed 15 December 2021]

standards for payment systems apply to stablecoin payment arrangements and that a stablecoin system needs to be governed by one or more accountable legal entities.[90]

65. Andrew Bailey, the Governor of the Bank of England, said the Bank does not regard crypto assets as a direct threat to financial stability now, "but we regard it as having the potential to be a threat to financial stability, which is why we think we need to take action on that front." He said the Bank and the Government faced a choice to regulate stablecoins or to introduce a CBDC which may make a "better contribution" to financial stability.[91]

66. **We heard that some central banks are concerned that big tech companies will combine crypto asset technology and their vast network of users to launch a digital currency capable of rapid adoption by large numbers of people. While we agree this is a risk, the introduction of a CBDC may not be a necessary or complete response. Private entities of a size that can compete with the existing payments systems can and should be regulated. The Joint Taskforce should set out answers to the following questions:**

- **What is the precise threat to the monetary system which is posed by privately issued stablecoins and other crypto assets?**
- **What could a CBDC do to offset that threat?**
- **What is the role for regulation?**

We welcome the work of governments and financial watchdogs in recent months to start identifying ways to regulate issuers of crypto assets.

Monetary policy

67. The Bank of England's March 2020 Discussion Paper said, "the most important design decision for CBDC would be whether to … pay interest on CBDC balances."[92] The rate of remuneration would be a key determinant of how attractive a CBDC would be compared to other forms of money.

68. An unremunerated CBDC (one that does not pay interest) would affect the Bank of England's ability to implement monetary policy, particularly in a deflationary economic environment. This is because a CBDC paying zero interest could put a floor on how low the Bank could set interest rates to stimulate spending and investment. While cash offers the same option today, it is generally impractical for people to store significant amounts of cash. This may not be the case with CBDC, although one design option might be to limit the amount of CBDC an individual can hold.

69. A remunerated CBDC (one that pays interest) may also have implications for monetary policy. This is because the proportion of money linked directly to interest rate changes would increase, enabling them to be passed on

90 Sir Jon Cunliffe, speech on Is 'crypto' a financial stability risk?, 13 October 2021: https://www.bankofengland.co.uk/speech/2021/october/jon-cunliffe-swifts-sibos-2021 [accessed 15 December 2021]

91 Q 93 (Andrew Bailey)

92 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]

faster and more fully. We heard that this could bring the central bank into competition with commercial banks, as commercial banks would have to choose between responding to the CBDC interest rate or losing depositors.[93] This risk is explored in more detail below in the section on banking and disintermediation.

70. Most witnesses were sceptical that a CBDC should be remunerated. Simon Gleeson, a partner at Clifford Chance, said, "I cannot see how a token with a fluctuating value can perform the function of a unit of currency."[94] Prof Duffie, expected most countries not to pay interest on CBDCs, although he noted that the European Central Bank has discussed the possibility.[95]

71. A digital currency could enable the Bank of England to conduct forms of unconventional monetary policy more easily. We heard the Bank of England could 'programme' a CBDC to have an expiry date by which it would need to be spent, or conditions could be placed on a CBDC so that it could be spent on certain goods only.[96] The Atlantic Council said that a review of pilot projects across the world showed that no central bank is implementing an interest-bearing or programmable CBDC as a possible crisis-response measure. It said, "these are theoretical concerns at best and are unlikely to be featured in any first phase CBDC project."[97]

72. Martina Fraschini, Luciano Somoza and Tammaro Terracciano, academics based at the Swiss Finance Institute, said that it might be difficult for central banks to resist pressure to use new CBDC-derived monetary capabilities during an economic crisis.[98] Patrick Honohan thought it would be inappropriate to legislate against central banks having access to new monetary policy tools as a result of CBDCs, as this might prevent them taking necessary action quickly.[99] Prof Prasad, agreed but added:

> "putting in place some guardrails about what sort of circumstances might be enough to trigger such actions might be useful, but ultimately this is going to have to be at the discretion of central banks.
>
> While these are very useful policy tools, it should be borne in mind that the more one undertakes these operations, such as helicopter drops of money, that are really fiscal operations through the central bank, the greater the risk there is of the central bank being seen as an agent of the Government rather than an independent institution. That could have some far-reaching ramifications."[100]

73. Sir Jon Cunliffe said the potential for CBDCs to solve some problems should not be disregarded just because, "you might be creating a technology that

93 Written evidence from Martina Fraschini *et al* (CDC0017)
94 Q 10 (Simon Gleeson)
95 Q 10 (Prof Duffie). In contrast, Dr Asgerdur Petursdottir, Dr Cyril Monnet and Dr Mariana Rojas-Breu, academics exploring the effect of CBDCs on the financial sector, told us that the introduction of an interest-bearing CBDC could promote economic activity and discipline commercial banks, because banks would need to ensure that bank deposits are as valuable to depositors as CBDC. See, written evidence from Dr Asgerdur Petursdottir, Dr Cyril Monnet and Dr Mariana Rojas-Breu (CDC0020).
96 Bank for International Settlements, *Central bank digital currencies: foundational principles and core features* (9 October 2020): https://www.bis.org/publ/othp33.pdf [accessed 15 December 2021]. See also, written evidence from Ripple (CDC0034).
97 Written evidence from the Atlantic Council GeoEconomics Center (CDC0041)
98 Written evidence from Martina Fraschini et al (CDC0017)
99 Q 64 (Patrick Honohan)
100 Q 64 (Prof Eswar Prasad)

might at some future point be used for a purpose you did not intend".[101] Andrew Bailey did not see a CBDC as a tool to implement monetary policy: "Negative interest rates and helicopter money are not, for me, the reason that lies behind any of this … I am going to take a lot of persuading to come off that view, frankly, but you never know."[102]

74. **While it is yet to be established whether any future UK CBDC would bear interest, over the last decade many central banks have become accustomed to unconventional monetary policies. A CBDC would provide them with new options for responding to crises.**

75. **However, the application of monetary policy should not be a motivation for introducing a CBDC. Such measures would likely increase the Bank's role and influence in the economy substantially. Scrutiny of any changes to the Bank of England's monetary policy toolkit is essential. We recommend that the Joint Taskforce publishes its assessment of the potential for monetary policy via a CBDC in its 2022 consultation. This will assist such scrutiny.**

Disintermediation

76. If a CBDC is introduced, a proportion of people may wish to transfer money out of their bank accounts into non-bank CBDC wallets. This would reduce the size of commercial banks' balance sheets while increasing the size of the Bank of England's balance sheet. This process is known as 'disintermediation'. It would be an inevitable consequence of launching a retail CBDC.

77. Largescale disintermediation will have implications for the availability of credit, the stability of the banking system and for monetary policy. That said, it is unclear how much disintermediation might take place; the scale will depend largely on how attractive a CBDC is to hold and use.[103] As explained above, one of the most important characteristics affecting demand for a CBDC is whether it would bear interest to holders.[104]

78. Attempts to estimate the rate of CBDC adoption have resulted in wide ranges and are sensitive to CBDC design choices. One study found that households could be expected to hold from 4% to 55% of their combined cash and deposit holdings in a CBDC, depending on whether the CBDC had more

101 Q 97 (Sir Jon Cunliffe)
102 Q 97 (Andrew Bailey)
103 Q 11 (Natasha de Teran)
104 Jiaqi Li, Swiss National Bank, *'Predicting the Demand for Central Bank Digital Currency: A Structural Analysis with Survey Data'*, (18 November 2021): https://jiaqili.io/docs/Predict_CBDC_demand_Li.pdf. See also, Bank for International Settlements, *Central bank digital currencies: financial stability implications* (September 2021): https://www.bis.org/speeches/sp211006.htm [accessed 15 December 2021]. Other characteristics affecting likely demand include the extent to which transactions are private, their cost and ease of use, and the design features of the wallets in which they are stored. SICPA, a company that provides security inks for currencies and sensitive documents, told us that the perception of safety may make CBDCs attractive, particularly to businesses with holdings above insured deposit limits. See, written evidence from SICPA (CDC0018).

'cash like' features or whether it was more competitive with bank deposits.[105] Another study found demand for a CBDC could reduce bank deposits by between 4% and 12%.[106] The Bank for International Settlements said more reliable data on disintermediation will soon become available from countries which have launched CBDCs, such as China and the Bahamas.[107]

79. We heard that disintermediation may increase the cost of credit and tighten lending criteria, with implications for the efficiency of credit provision in the economy.[108] Barclays said this was because disintermediation would make banks more reliant on wholesale funding—an expensive and more volatile alternative to customer deposits.[109] It said this could mean banks being required to hold higher levels of liquidity against deposits, which could constrain lending further. HSBC agreed there would be implications for the cost of credit and that it may reduce diversification for bank liabilities, exacerbating exposure to market conditions.[110]

80. Patrick Honohan told us that commercial banks could issue bonds, which may be an expensive funding source, or central banks would have the option to lend their holdings of CBDC deposits back to commercial banks:

> "that moves the risk of a bank failure from the depositor to the central bank, but the central bank has lots of information about that. It is not guaranteed that the end equilibrium will be as much altered from [a commercial] bank's point of view. It may find that it is receiving deposits from the central bank instead of the customers, or alternatively from the bond markets."[111]

81. John Whittaker, a Senior Teaching Fellow at Lancaster University, told us that under this approach the Bank of England would need to hold high-quality collateral against its loans, which could still result in more expensive credit for bank customers. He said the Bank of England could also buy more Government debt (similar in practice to quantitative easing)[112] or more corporate debt so that the bank deposits that had been withdrawn to buy a CBDC would be replaced by deposits from sellers of either government or

105 Jiaqi Li, Swiss National Bank, *'Predicting the Demand for Central Bank Digital Currency: A Structural Analysis with Survey Data'*, (18 November 2021): https://jiaqili.io/docs/Predict_CBDC_demand_Li.pdf. See also, Bank for International Settlements, *Central bank digital currencies: financial stability implications* (September 2021): https://www.bis.org/speeches/sp211006.htm [accessed 15 December 2021]. The Bank of England has considered an 'illustrative scenario' in which about 20% of household and corporate deposits migrate to CBDC owing largely to non-financial factors such as safety and convenience. See, Bank of England, 'New forms of digital money', (7 June 2021): https://www.bankofengland.co.uk/paper/2021/new-forms-of-digital-money [accessed 15 December 2021]

106 These figures could be lower if a higher proportion of cash is exchanged for CBDC instead of bank deposits.

107 Bank for International Settlements, *Central bank digital currencies: financial stability implications* (September 2021): https://www.bis.org/speeches/sp211006.htm [accessed 15 December 2021]

108 Written evidence from HSBC (CDC0009)

109 Written evidence from Barclays (CDC0032). See also, written evidence from EY (CDC0038). According to the Bank of England, wholesale funding for banks comes in many forms and there is a wide range of types of investors that provide it. A bank may receive unsecured deposits from other banks, large corporates, pension funds, insurance companies and other financial market participants. See Bank of England, *Bank funding costs: what are they, what determines them and why do they matter?* (2014): https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2014/bank-funding-costs-what-are-they-what-determines-them-and-why-do-they-matter.pdf [accessed 15 December 2021]

110 Written evidence from Barclays (CDC0032)

111 Q 68 (Patrick Honohan)

112 See, Economic Affairs Committee, *Quantitative easing: a dangerous addiction?*, (1st Report, Session 2021–22, HL Paper 42).

corporate debt. These new deposits would likely be exchanged for longer-term claims on the banks such as term deposits of debt securities bearing higher interest rates, which again could cause banks to raise lending rates.[113] He concluded, "the decision over whether the Bank of England should implement CBDC thus presents a trade-off: a doubtful improvement in payments efficiency at the cost of potentially more expensive retail borrowing."[114]

82. The risk of a CBDC accelerating disintermediation would be most acute in a financial crisis, against a backdrop of falling confidence in the banking sector when people are motivated to exchange bank deposits for safer central bank money. A CBDC could make this process considerably easier and faster, potentially facilitating a 'digital run' on banks. The Bank of England, in a report co-authored with six other central banks, said although the existence of deposit insurance helps to ensure bank runs are rare, there is a concern CBDCs could make such events more "frequent and severe", with them unfolding with "unprecedented speed and scale".[115]

83. There are two main options for reducing the risk of disintermediation. The first is to limit the amount of CBDC that can be held or spent. Prof Prasad told us that the Bahamas had capped the amount of deposits that can be maintained in a CBDC account by household, with a slightly larger cap for businesses.[116] The second is price-based measures that can be used to disincentivise large holdings or large payments in CBDC via uncompetitive (or prohibitive) interest rates or fees. A tiered approach to paying interest on CBDCs is possible, in which one rate of interest is paid on holdings below a certain threshold and a lower amount above.[117] Patrick Honohan said the use of uncompetitive interest rates would not be effective if there is a bank run.[118]

84. We heard that these two options present a further trade-off in that they would make CBDCs less attractive to use. For CBDCs to benefit the payments system, there needs to be enough CBDC holders for a significant proportion of retail transactions to be between CBDC accounts.[119]

85. When we asked the Bank of England what effect a CBDC might have on bank disintermediation, we were told the Bank had modelled for 20% of bank deposits to move to CBDC wallets. Sir Jon Cunliffe said that figure "roughly represents all the uninsured deposits" and "we tried to look at the behavioural response if people had an extreme preference for safety… it is a pretty prudent assumption that 20% of household and corporate transactional deposits move to CBDC." He said, that as a result, "banks would have to adjust. They would have to fund themselves more with long-term wholesale debt. They would lose a revenue stream from payments, which at the moment is quite a reliable and reasonably substantial revenue stream." He said commercial banks had adapted to changing circumstances

113 John Whittaker said that the Bank of England's stated desire to reduce its stock of Government debt and the sensitivities of the state routinely intervening in the corporate debt market makes these options undesirable.
114 Written evidence from John Whittaker (CDC0012)
115 Bank for International Settlements, *Central bank digital currencies: foundational principles and core features* (9 October 2020): https://www.bis.org/publ/othp33.pdf [accessed 15 December 2021]
116 Q 66 (Prof Eswar Prasad)
117 Q 11 (Natasha de Teran). See also, Q 13 (Georges Elhedery).
118 Q 68 (Patrick Honohan)
119 Written evidence from John Whittaker (CDC0012)

before.[120] Andrew Bailey acknowledged the risk of digital bank runs but said the most appropriate way to reduce the risk "is to have appropriate regulation and, even more so, appropriate resolution of banks, so that you can deal with those problems promptly rather than have them take hold."[121]

86. **Introducing a CBDC will lead inevitably to some disintermediation of the banking sector, although how much is uncertain and will depend on how a CBDC is designed. Higher levels of disintermediation would likely lead to more expensive credit and tighter lending criteria. Without safeguards, CBDCs could exacerbate financial instability during periods of economic stress as people would likely seek to replace bank deposits with CBDC.**

87. **There are two main options for reducing the negative effects of disintermediation. The first is to limit the amount of CBDC that can be held or spent. The second is to disincentivise use by paying uncompetitive (or prohibitive) rates of interest on CBDC above a certain level of holdings. Either of these options, or a combination of both, would likely reduce the attractiveness of a CBDC to users, depending on their stringency. This could undermine other possible objectives such as increasing financial inclusion or crowding out privately issued stablecoins. We recommend that the Bank of England conduct further studies to assess what would be the effect on the banking system if more than 20% of deposits converted to CBDC.**

Privacy and 'Know Your Customer'

88. We heard that any CBDC system could not support anonymous transactions in the same way that cash can be spent anonymously. This lack of anonymity is to prevent CBDCs facilitating large-scale criminal activity, and to ensure a CBDC system complies with national disclosure laws that apply to payments. This means payments data on CBDC users would exist and would be accessible to some authority or institution. There is concern about the potential for state surveillance or private sector-monetisation of personal information and it will be necessary to decide who can access which parts of payment data sets and under what circumstances.[122] A survey by Redfield & Wilton Strategies found that 32% of people thought the Bank of England would issue a CBDC to monitor how UK citizens use their money.[123]

89. There are different options for managing privacy and supervision. A hybrid model of CBDC architecture would rely on the private sector to manage 'Know Your Customer' checks. These are requirements to verify the identity, suitability and risks involved with providing financial services to customers. These include compliance with anti-money laundering and 'Countering the Financing of Terrorism' rules.[124]

90. In its 2020 Discussion Paper, the Bank of England set out a model in which the Bank's core ledger would store pseudonymous accounts and balances, with each account in the core ledger linked to a payment interface provider, who knows the identity of each user and can conduct anti-money laundering

120 Q 92 (Sir Jon Cunliffe)
121 Q 96 (Andrew Bailey)
122 Bank for International Settlements, *Central bank digital currencies: foundational principles and core features* (9 October 2020): https://www.bis.org/publ/othp33.pdf [accessed 15 December 2021]
123 Written evidence from Redfield & Wilton Strategies (CDC0016)
124 Written evidence from the Atlantic Council GeoEconomics Center (CDC0041)

and other checks. This arrangement means that the Bank would not hold personal data on any user.[125] We were told both China and Sweden are experimenting with a similar approach, and that China is designing five grades of digital CBDC wallets, including those with different levels of privacy depending on what value of transaction they facilitate.[126]

91. Witnesses said a CBDC would need to be attached to a digital identification system as the only reliable way to ensure that payments were legally compliant.[127] A digital ID is a way to prove who someone is without physical documents. There are a range of digital ID models: some public sector, some private sector, as well as combinations of the two. This might make interoperability across borders difficult. Natasha de Teran, member of the Financial Services Consumer Panel, told us:

> "It is more complicated when we get into the cross-border arena, because we might trust say, America's form of digital ID, but we might not trust somebody else's, so banks … will have problems in dealing with countries whose IDs they do not support."[128]

92. The Bank of England's March 2020 Discussion Paper said that a digital ID may help identify suspicious activity.[129] However, the Department for Digital, Culture, Media and Sport, which is leading the Government's digital ID project, has not referred to the Joint Taskforce's work on CBDCs.[130]

93. Andrew Bailey said a digital ID would be needed but it was to be determined whether it would be unique to a platform or "broader in terms of your identity".[131] He said the assessment of the privacy implications of CBDC was being led by HM Treasury.[132] John Glen, Economic Secretary to the Treasury, told us the Government's view on privacy would be set out in the 2022 consultation paper. He said, "the UK, through its work at the G7, has been clear on the rigorous standards of privacy, accountability and transparency that we wish to work under. Those principles would guide us in how we frame the consultation."[133]

94. **Widespread adoption of any CBDC would depend on a high level of public trust. While there are design options that would provide some privacy safeguards, technical specifications alone may be insufficient to counter public concern that a government might use a CBDC as an instrument for state surveillance. The Bank risks being drawn into controversial debates on privacy, which could undermine its reputation for independence from the Government.**

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125 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]

126 Q 66 (Prof Eswar Prasad)

127 Q 30 (David Birch)

128 Q 15 (Natasha de Teran)

129 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020): https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]

130 Department for Digital, Culture, Media & Sport, *Digital identify and attributes consultation* (19 July 2021):https://www.gov.uk/government/consultations/digital-identity-and-attributes-consultation/digital-identity-and-attributes-consultation [accessed 15 December 2021]

131 Q 105 (Andrew Bailey)

132 Q 103 (Andrew Bailey)

133 Q 86 (John Glen MP)

95. **The Bank of England has indicated that it favours a private sector led approach for managing 'Know Your Customer' checks. However, there is significant public concern over control of consumer data, particularly by big tech. The requirement to provide 'Know Your Customer' checks may reduce the incentives for new companies to provide CBDC payment services, particularly if the checks are onerous or expensive to complete. While conducting such checks will be necessary, their cost may undermine the objective of using CBDC to spur private-sector innovation, or limit involvement to the largest companies or those which have existed the longest.**

96. **We heard that a digital identification system may be an effective component of any CBDC payment system to ensure compliance with legal requirements. However, the Bank of England's March 2020 Discussion Paper mentions the possibility of digital ID only in passing, and the Department for Digital, Culture, Media and Sport's January 2021 consultation on digital ID does not mention CBDCs at all. The Joint Taskforce should set out whether the Government's work on digital ID now relates to its work on CBDCs.**

CHAPTER 4: INTERNATIONAL IMPLICATIONS

Sanctions

97. The US dollar dominates the international monetary system. A significant amount of cross-border trade is transacted in dollars, which makes it the world's main invoicing currency. It is the leading payments currency and the principal reserve currency. Around 60% of foreign exchange reserves held by the world's central banks are in dollar-dominated assets.[134]

98. We heard that global reliance on the dollar and US payment systems enhances the US's ability to implement sanctions. This is because cross-border payments depend on two pieces of critical infrastructure: SWIFT and a network of correspondent banking agreements.[135] SWIFT is a Belgian-based messaging platform that facilitates cross-border payments between financial institutions. While SWIFT claims political neutrality, the US has used its economic power to influence it in pursuit of foreign policy goals. For example, the US government persuaded SWIFT to block transactions with Iran.[136] Furthermore, it threatened to exclude Russian banks from SWIFT after the invasion of Crimea in 2014.[137] The threat of losing access to SWIFT is powerful as it effectively severs contact with the international financial system.

99. Many countries are seeking to reduce their reliance on SWIFT,[138] including US allies. In January 2019, Germany, France and the UK established the Instrument in Support of Trade Exchanges (INSTEX) to maintain their commitment to the Iran nuclear deal (the Joint Comprehensive Plan of Action) after the US government withdrew from the agreement. INSTEX bypasses cross-border payments through a mechanism which enables European and Iranian firms to barter with each other indirectly.[139] China and Russia are also developing new cross-border payments and messaging services.[140] Tom Keatinge, Director for the Centre for Financial Crime and Security Studies at the Royal United Services Institute (RUSI), told us that if countries can trade without needing to "touch the US dollar … we shall see a deterioration and disintegration of some of the norms that have held together international security in past decades."[141]

100. Some countries have said that avoiding US sanctions or reducing their reliance on the US dollar is a motive behind developing CBDCs. Russia's central bank was reported to have said that a digital rouble could help mitigate the risk of sanctions. Iran's central bank has developed a prototype of a digital rial.[142] In April 2020 Chinese state media said:

134 Eswar Prasad, *The Future of Money: How the Digital Revolution Is Transforming Currencies and Finance*, (Harvard University Press, 2001)
135 Written evidence from SICPA (CDC0018)
136 Eswar Prasad, *The Future of Money: How the Digital Revolution Is Transforming Currencies and Finance*, (Harvard University Press, 2001)
137 European Council on Foreign Relations, Ellie Geranmayeh and Manuel Lafont Rapnouil, *Meeting the challenge of secondary sanctions*, (25 June 2019): https://ecfr.eu/publication/meeting_the_challenge_of_secondary_sanctions/ [accessed 15 December 2021]
138 Written evidence from SICPA (CDC0018)
139 Eswar Prasad, *The Future of Money: How the Digital Revolution Is Transforming Currencies and Finance*, (Harvard University Press, 2001)
140 Written evidence from SICPA (CDC0018)
141 Q 51 (Tom Keatinge)
142 Central Bank of the Islamic Republic of Iran, 'The Central Bank of Iran delves into Digital Rial', (15 May 2021): https://www.cbi.ir/showitem/21652.aspx [accessed 15 December 2021]

> "A sovereign digital currency provides a functional alternative to the dollar settlement system and blunts the impact of any sanctions or threats of exclusion both at a country and company level. It may also facilitate integration into globally traded currency markets with a reduced risk of politically inspired disruption."[143]

101. The People's Bank of China has said that its E-CNY CBDC will be restricted to payments within China. However, there is scope for this to change. On 16 July 2021, it published a progress report of a working group on E-CNY which said:

> "though technically ready for cross-border use, e-CNY is still designed mainly for domestic retail payments at present. Looking ahead, the [People's Bank of China] will actively respond to initiatives of G20 and other international organisations on improving cross-border payments and explore the applicability of CBDC in cross-border scenarios."[144]

102. As outlined in Chapter 2, we heard that interoperable cross-border CDBC payments are improbable in the short term.[145] In the long-term, the Atlantic Council said the absence of American-led innovation with interoperable CBDC mechanisms for cross-border trade could "begin to erode the dollar's hegemony and replace the use of SWIFT, thereby reducing US sanctions leverage." It said, "similar effects could occur for currencies like the pound and euro if relevant authorities fail to innovate."[146] Tom Keatinge warned of a world in which states might have to choose between payments systems dominated by either the US or China—whether "you want to be part of the Chinese walled garden or part of the United States walled garden".[147]

103. John Glen MP, the Economic Secretary to the Treasury, told us that "it is difficult to come to a clear conclusion" on how CBDC might affect the efficacy of sanctions. The current sanctions policy, operated primarily through SWIFT, "is a powerful tool" that has significant reach, but it was difficult to anticipate what might be the effect of CBDCs on the international payments system.[148]

104. **In the short term, barriers to creating interoperable cross-border CBDCs are formidable. While a growing number of central banks are investigating this possibility, complex agreements on standards, design and governance would have to be agreed by all countries concerned. However, agreements between small groups of countries could be negotiated more quickly and it is clear there is political will in certain countries, including China, to create alternatives to the established international payments system, including through interoperable, cross-border CBDCs.**

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143 Daryl Guppy, 'The future of China's economic engagement', *China Daily* (24 April 2020): https://www.chinadaily.com.cn/a/202004/24/WS5ea28240a310a8b2411516bf.html [accessed 15 December 2021]. See also, RUSI, *The Other Side of the Digital Coin: Central Bank Digital Currencies and Sanctions*, (26 May 2021): https://rusi.org/explore-our-research/publications/commentary/other-side-digital-coin-central-bank-digital-currencies-and-sanctions [accessed 15 December 2021].

144 People's Bank of China, *Progress of Research & Development of E-CNY in China* (16 July 2021): http://www.pbc.gov.cn/en/3688110/3688172/4157443/4293696/2021071614584691871.pdf [accessed 15 December 2021]

145 Written evidence from Barry Eichengreen (CDC0036)

146 Written evidence from the Atlantic Council GeoEconomics Center (CDC0041)

147 Q 51 (Tom Keatinge)

148 Q 87 (John Glen MP)

105. **While this may be a distant prospect, if such payments architecture is implemented effectively, the pressure on the US dollar as a payment currency will increase. This trend could erode the US dollar's sanctions leverage, helping countries seeking to evade economic sanctions to bypass US dollar-dominated systems such as SWIFT. We recommend that HM Treasury's Office of Financial Sanctions Implementation assesses whether similar risks exist for sterling and the euro. It should also assess the development of CBDCs by countries which are a threat to UK security and any implications for the effectiveness of economic sanctions.**

Security

106. The Bank of England's March 2020 Discussion Paper noted that a CBDC payments system would make an "attractive target for hackers or fraudsters who wish to steal funds" and it "may become a target for hostile attacks with the aim of disrupting the system and, potentially, the wider economy. For these reasons, the security of the CBDC payments system must be of the highest standard."[149] In December 2021, Sir Jeremy Fleming, Director of GCHQ, said that while a digital currency presents a "great opportunity" to democratise payment systems, it could also present a threat: "If wrongly implemented, it gives a hostile state the ability to surveil transactions. It gives them the ability … to be able to exercise control over what is conducted on those digital currencies."[150]

107. Tom Keatinge told us that an online system would be a target for attack by foreign nation states: "North Korea has made extensive use of the fact that cryptocurrency exchanges and so on can be hacked. It ran a nearly very successful attack against the Bangladesh central bank a few years ago."[151]

108. Stephen Bonner, Executive Director of Regulatory Futures and Innovation at the Information Commissioner's Office, told us, "it is very hard to build a system that is perfect for ever."[152] EY, a consultancy, said the Bank would need to be "at the forefront of technology" to maintain the security of a CBDC system as technology failure or cyber-attack would give rise to "country-wide systemic risk."[153] SICPA, a consultancy providing security solutions and services, said that no solution can guarantee absolute security, "especially as we begin transitioning to the age of quantum computing." It said any design would need to be adaptable to meet evolving security threats.[154]

109. Andrew Bailey, the Governor of the Bank of England, said design principles for security would be developed after any decision to proceed with a CBDC. He noted examples of cyber-attacks on private crypto assets and said a balance would need to be struck between security and usability.[155]

110. John Glen MP, the Economic Secretary to the Treasury, told us that operational resilience, data security and cybersecurity will be core to the

149 Bank of England, *Central Bank Digital Currency: opportunities, challenges and design* (12 March 2020), p 46: https://www.bankofengland.co.uk/-/media/boe/files/paper/2020/central-bank-digital-currency-opportunities-challenges-and-design.pdf [accessed 15 December 2021]

150 'UK spy chief raises fears over China's digital renminbi', *Financial Times* (11 December 2021): https://www.ft.com/content/128d7139–15d6-4f4d-a247-fc9228a53ebd [accessed 15 December 2021]

151 Q 49 (Tom Keatinge)

152 Q 23 (Stephen Bonner)

153 Written evidence from EY (CDC0038)

154 Written evidence from SICPA (CDC0018)

155 Q 104 (Andrew Bailey)

evolution of any CBDC that the Government pursues, should it decide to. The financial authorities already "work closely with the intelligence agencies, the National Cyber Security Centre and law enforcement", and "conversations" about security and CBDC designs would continue to be "front and centre".[156] Charles Roxburgh, Second Permanent Secretary at HM Treasury, told us that the Treasury is working closely with the security services on any implications of a CBDC for security.[157]

111. **There are two clear security risks for a CBDC system. The first is that individual accounts, managed by the private sector, could be compromised as a result of cyber security weaknesses. The second is that a CBDC system, as a piece of critical national infrastructure, would be a target for attack from nation state or criminal actors. Such attacks would risk the exposure of sensitive payments data and the loss of national wealth. No design will guarantee absolute security. Any CBDC would need to be designed so that it was adaptable and could be updated rapidly in response to technological change and emerging security threats.**

International standards

112. The Bank of England has been working with international partners to examine CBDC standards and design principles. During its 2021 G7 presidency, the Government led on issuing a joint statement on CBDCs and 13 public policy principles to shape global standards. Witnesses said that the UK is well placed to lead on developing international standards further and that there was a risk that the UK would be disadvantaged economically if it does not stay engaged in such work.[158]

113. The Atlantic Council said that the UK "playing a leading role in international standard-setting, will be crucial to secure London's vitality to the global financial infrastructure and maintain its supremacy in transaction settlement and clearing." Without global standards in governance and greater international coordination, "the financial system may be headed for a significant currency interoperability problem in the near future."[159]

114. Tom Keatinge said that many countries are experimenting with CBDCs in isolation, and the UK could use its reputation as a leading financial centre to support the agreement of common standards. He said such work could contribute to avoiding 'balkanisation' of the international payments system.[160]

115. Sir Jon Cunliffe said because the majority of central banks are considering introducing CBDCs around the same time, there is an opportunity to design a new international payments system with "common standards and common legal approaches that would increase the ability for interoperability." He said these decisions would not be made in international fora such as the Bank for International Settlements or the United Nations: "In the end, these decisions are taken by domestic central banks, domestic governments and domestic legislatures."[161]

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156 Q 88 (John Glen MP)
157 Q 86 (Charles Roxburgh)
158 Q 49 (Tom Keatinge) and Q 25 (Stephen Bonner)
159 Written evidence from the Atlantic Council GeoEconomics Center (CDC0041)
160 Q 51 (Tom Keatinge)
161 Q 102 (Sir Jon Cunliffe)

116. **While other countries are developing and testing CBDC technology faster than the UK, the Government should prioritise opportunities to collaborate with its international partners in order to shape the emerging CBDC systems. The UK would derive most long-term benefit by ensuring global standards and rules on governance, privacy, security and interoperability are compatible with the national interests and values of the UK and its allies.**

Wholesale CBDCs

117. Wholesale CBDCs (unlike universally available retail CBDCs) would be used only in transactions between financial institutions. They are intended for the settlement of interbank transfers and related wholesale transactions. The Bank for International Settlements said they serve the same purpose as reserves held at a central bank but with additional functionality:

> "One example is the conditionality of payments, whereby a payment only settles if certain conditions are met. This could encompass a broad variety of conditional payment instructions, going far beyond today's delivery versus-payment mechanism in real-time gross settlement (RTGS) systems. In effect, wholesale CBDCs could make central bank money programmable, to support automation and mitigate risks."[162]

118. The Digital Pound Foundation, an advocacy group for digital money, said a programmable CBDC could deliver a range of benefits in the wholesale and capital markets, including automating payments in the life cycle of financial instruments (for example, dividends, subscriptions and coupon payments) and automating regulatory reporting requirements, among others.[163]

119. The Atlantic Council said wholesale CBDCs present an opportunity for countries to build cross-border 'mCBDC' (multi-CBDC) mechanisms that lower transaction costs for currency transactions and international capital movements: "leaders in wholesale CBDCs and in the development of cross-border mechanisms will be well-positioned to strengthen the role of their currency in the global economy and to cement their status as a financial centre."[164]

120. The Aurora Project, a network of financial experts, said that other countries, particularly France, saw national strategic advantages in developing a CBDC for wholesale payments. It said that unless the UK accelerates the development of a wholesale CBDC, the City of London will be targeted by other financial centres with wholesale CBDCs in place.[165]

121. On 19 October 2021, it was reported that a consortium of France's biggest financial market participants used a digital currency issued by the Banque de France as part of a CBDC pilot focused on France's debt market. The trial was led by Euroclear, a securities depository, and included many of France's largest banks, as well as the French public debt office and the central bank. It was part of a pilot commissioned in 2020 by the Banque de France to

162 Bank for International Settlements, *Annual Economic Report* (23 June 2021): https://www.bis.org/publ/arpdf/ar2021e3.htm [accessed 15 December 2021]
163 Written evidence from the Digital Pound Foundation (CDC0033)
164 Written evidence from the Atlantic Council GeoEconomics Center (CDC0041)
165 Written evidence from the Aurora Project (CDC0007)

explore how CBDCs would exchange and settle, with transactions recorded on a digital ledger.[166]

122. Some witnesses said that prioritising a wholesale CBDC would have advantages. UK Finance said, "It may be that an initial pilot of a CBDC for wholesale use cases could provide the opportunity for the industry and regulators to test and learn ahead of a retail roll out."[167] David Birch, an adviser and commentator on digital financial services, said that what makes the City of London attractive is the cost of doing business, and "a significant way to reduce the cost of financial intermediation is through the use of wholesale digital currencies, which allow people to exchange financial instruments without the clearing and settlement risks associated with it."[168] He said the Bank of England and the private sector had already started work in this area.[169]

123. John Glen MP told us that he is confident that the Bank of England's ongoing work to improve the RTGS wholesale system is "moving forward in the right direction." He said he did not think the UK would gain any significant competitive advantage by being an early adopter of a wholesale CBDC.[170]

124. Sir Jon Cunliffe said it was not quite right to say the Bank was not examining CBDC technology for wholesale purposes: "The Bank published a paper on omnibus accounts, which would enable the banks that currently have access to central bank digital wholesale to use a digital coin between themselves and then the omnibus account would settle with the Bank of England."[171]

125. **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. HM Treasury and the Bank of England should assess whether the work on wholesale CBDCs being undertaken by some of the UK's economic competitors poses risks to UK competitiveness. We recommend the Joint Taskforce consults on the use case for a wholesale CBDC alongside its 2022 retail CBDC consultation.**

166 'France tests crypto assets in series of government bond deals', *Financial Times* (19 October 2021): https://www.ft.com/content/23c2572a-29a2-4ef4-aa8a-27f8ad30ba09 [accessed 15 December 2021]
167 Written evidence from UK Finance (CDC0021)
168 Q 36 (David Birch)
169 Q 37 (David Birch)
170 Q 83 (John Glen MP)
171 Q 98 (Sir Jon Cunliffe)

CHAPTER 5: CONCLUSION

126. **We 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. Furthermore, a lot of work remains to find workable solutions which do not entail difficult design trade-offs which may make a CBDC unattractive. Earlier in this report, we put several questions to the Joint Taskforce which need to be answered. Crucially, it should set out the most significant long-term problem (or problems) to which it believes a CBDC may be the answer; and its assessment should compare CBDCs against alternative means of achieving the same aims. There are several other questions that should also be answered before deciding on whether to issue a CBDC:**

- **How can a CBDC be a competitive payments option without causing a level of banking sector disintermediation that would have negative consequences for credit allocation and financial stability?**
- **What additional monetary policy options would a CBDC provide to the Bank of England, and would these be proportionate to the Bank's current mandate for monetary and financial stability?**
- **How can a CBDC ensure strong privacy safeguards while also meeting financial compliance rules? Which organisations will be able to access sensitive CBDC payments data, and for what purpose will that data be used?**
- **What are the main international and national security risks that arise from a CBDC, and how can these be managed? How can a CBDC be made secure against current and future threats without sacrificing useability?**

127. **While there appear to be no significant advantages for the UK in being an early adopter of CBDCs, we recognise that consumer payment preferences, technological developments and the choices of other countries may enhance the case for a UK CBDC in the future. The long lead times involved in scoping and developing a CBDC mean the Joint Taskforce should continue to assess the rationale and technology in preparation for such a measure possibly being needed in future. The Government and the Bank of England should continue to work with international partners on principles and standards while learning lessons on technical design and usage from the experiences of countries that introduce a CDBC soon.**

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Central bank digital currencies

1. Digitalisation is transforming payments systems and governments must consider what responses are necessary. Any UK central bank digital currency would have far-reaching consequences for households, businesses and the monetary system for decades to come. Parliamentary scrutiny should be an essential part of assessing the case for a CBDC and if the Government decides to proceed, Parliament should have the opportunity to vote on any final decision, along with the governance arrangements for any such system, during the passage of primary legislation. The Government should set out the costs of introducing and operating any design that is proposed. (Paragraph 15)

2. The Bank of England has consulted on seven different ways in which a CBDC could support the Bank's objectives to maintain monetary and financial stability. However, a CBDC cannot be designed to support all seven objectives equally well and there are likely to be alternative solutions for enhancing the payments system with fewer risks. When the Joint Taskforce publishes the use case for a possible CBDC in 2022, it should set out the most significant long-term problem to which it believes a CBDC may be the answer. Its assessment should compare CBDCs against alternative means of achieving the same aims. (Paragraph 16)

Households and businesses

3. A CBDC system has potential to spur innovation and greater competition in payments, in addition to those that are already taking place, which may reduce card fees paid by merchants. However, we heard few other significant advantages for UK consumers. We recommend that the Joint Taskforce include a greater number of representative consumer groups on its engagement forum to help it to identify whether a CBDC would provide any benefits to individuals and households. We heard the UK's existing domestic payments system is secure and efficient, and it continues to foster innovation and the expansion of services. (Paragraph 28)

4. Cash continues to be widely accepted in the UK. If this were to change it is not obvious that the properties of CBDCs would satisfy any residual demand for cash, which is often valued for its physical properties and the privacy that it can provide. We note that the Bank of England has said that it will continue to issue cash on demand and that the public need for money without default risk is covered for most savers by the availability of cash and deposit protection. We also note that a core aim of prudential regulation is to ensure we have a stable banking system: this, together with the deposit guarantee scheme, should ensure that confidence in the monetary system is anchored. (Paragraph 37)

5. Should cash acceptance decline significantly, a CBDC could be a way to ensure greater financial inclusion in that it would provide access to digital payment services that are like bank accounts However, for some, not having a bank account is a choice and for others, the technological requirements for CBDC transactions may exclude them from accessing it. It is likely that there are more straightforward and targeted ways to support access to financial services than to launch a CBDC. (Paragraph 45)

6. Cross-border payments can be expensive and slow. CBDC systems could, in theory, bypass some of the existing frictions in the international payments systems, with lower costs. Nevertheless, a CBDC system would still have to comply with oversight frameworks, national laws and international technical standards which are a long way from being agreed. Cross-border payments are already improving as a result of innovation and competition in the fintech sector. A lot of international collaboration is under way both in the private and public sectors (including at the G7 and G20 levels) to further improve cross-border payments, which will make them more efficient, with or without CBDCs. (Paragraph 54)

CBDCs and the monetary system

7. We heard that some central banks are concerned that big tech companies will combine crypto asset technology and their vast network of users to launch a digital currency capable of rapid adoption by large numbers of people. While we agree this is a risk, the introduction of a CBDC may not be a necessary or complete response. Private entities of a size that can compete with the existing payments systems can and should be regulated. The Joint Taskforce should set out answers to the following questions:

    - What is the precise threat to the monetary system which is posed by privately issued stablecoins and other crypto assets?
    - What could a CBDC do to offset that threat?
    - What is the role for regulation?

    We welcome the work of governments and financial watchdogs in recent months to start identifying ways to regulate issuers of crypto assets. (Paragraph 66)

8. While it is yet to be established whether any future UK CBDC would bear interest, over the last decade many central banks have become accustomed to unconventional monetary policies. A CBDC would provide them with new options for responding to crises. (Paragraph 74)

9. However, the application of monetary policy should not be a motivation for introducing a CBDC. Such measures would likely increase the Bank's role and influence in the economy substantially. Scrutiny of any changes to the Bank of England's monetary policy toolkit is essential. We recommend that the Joint Taskforce publishes its assessment of the potential for monetary policy via a CBDC in its 2022 consultation. This will assist such scrutiny. (Paragraph 75)

10. Introducing a CBDC will lead inevitably to some disintermediation of the banking sector, although how much is uncertain and will depend on how a CBDC is designed. Higher levels of disintermediation would likely lead to more expensive credit and tighter lending criteria. Without safeguards, CBDCs could exacerbate financial instability during periods of economic stress as people would likely seek to replace bank deposits with CBDC. (Paragraph 86)

11. There are two main options for reducing the negative effects of disintermediation. The first is to limit the amount of CBDC that can be held or spent. The second is to disincentivise use by paying uncompetitive (or prohibitive) rates of interest on CBDC above a certain level of holdings.

Either of these options, or a combination of both, would likely reduce the attractiveness of a CBDC to users, depending on their stringency. This could undermine other possible objectives such as increasing financial inclusion or crowding out privately issued stablecoins. We recommend that the Bank of England conduct further studies to assess what would be the effect on the banking system if more than 20% of deposits converted to CBDC. (Paragraph 87)

12. Widespread adoption of any CBDC would depend on a high level of public trust. While there are design options that would provide some privacy safeguards, technical specifications alone may be insufficient to counter public concern that a government might use a CBDC as an instrument for state surveillance. The Bank risks being drawn into controversial debates on privacy, which could undermine its reputation for independence from the Government. (Paragraph 94)

13. The Bank of England has indicated that it favours a private sector led approach for managing 'Know Your Customer' checks. However, there is significant public concern over control of consumer data, particularly by big tech. The requirement to provide 'Know Your Customer' checks may reduce the incentives for new companies to provide CBDC payment services, particularly if the checks are onerous or expensive to complete. While conducting such checks will be necessary, their cost may undermine the objective of using CBDC to spur private-sector innovation, or limit involvement to the largest companies or those which have existed the longest. (Paragraph 95)

14. We heard that a digital identification system may be an effective component of any CBDC payment system to ensure compliance with legal requirements. However, the Bank of England's March 2020 Discussion Paper mentions the possibility of digital ID only in passing, and the Department for Digital, Culture, Media and Sport's January 2021 consultation on digital ID does not mention CBDCs at all. The Joint Taskforce should set out whether the Government's work on digital ID now relates to its work on CBDCs. (Paragraph 96)

International implications

15. In the short term, barriers to creating interoperable cross-border CBDCs are formidable. While a growing number of central banks are investigating this possibility, complex agreements on standards, design and governance would have to be agreed by all countries concerned. However, agreements between small groups of countries could be negotiated more quickly and it is clear there is political will in certain countries, including China, to create alternatives to the established international payments system, including through interoperable, cross-border CBDCs. (Paragraph 104)

16. While this may be a distant prospect, if such payments architecture is implemented effectively, the pressure on the US dollar as a payment currency will increase. This trend could erode the US dollar's sanctions leverage, helping countries seeking to evade economic sanctions to bypass US dollar-dominated systems such as SWIFT. We recommend that HM Treasury's Office of Financial Sanctions Implementation assesses whether similar risks exist for sterling and the euro. It should also assess the development of CBDCs by countries which are a threat to UK security and any implications for the effectiveness of economic sanctions. (Paragraph 105)

17. There are two clear security risks for a CBDC system. The first is that individual accounts, managed by the private sector, could be compromised as a result of cyber security weaknesses. The second is that a CBDC system, as a piece of critical national infrastructure, would be a target for attack from nation state or criminal actors. Such attacks would risk the exposure of sensitive payments data and the loss of national wealth. No design will guarantee absolute security. Any CBDC would need to be designed so that it was adaptable and could be updated rapidly in response to technological change and emerging security threats. (Paragraph 111)

18. While other countries are developing and testing CBDC technology faster than the UK, the Government should prioritise opportunities to collaborate with its international partners in order to shape the emerging CBDC systems. The UK would derive most long-term benefit by ensuring global standards and rules on governance, privacy, security and interoperability are compatible with the national interests and values of the UK and its allies. (Paragraph 116)

19. 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. HM Treasury and the Bank of England should assess whether the work on wholesale CBDCs being undertaken by some of the UK's economic competitors poses risks to UK competitiveness. We recommend the Joint Taskforce consults on the use case for a wholesale CBDC alongside its 2022 retail CBDC consultation. (Paragraph 125)

Conclusion

20. We 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. Furthermore, a lot of work remains to find workable solutions which do not entail difficult design trade-offs which may make a CBDC unattractive. Earlier in this report, we put several questions to the Joint Taskforce which need to be answered. Crucially, it should set out the most significant long-term problem (or problems) to which it believes a CBDC may be the answer; and its assessment should compare CBDCs against alternative means of achieving the same aims. There are several other questions that should also be answered before deciding on whether to issue a CBDC:

- How can a CBDC be a competitive payments option without causing a level of banking sector disintermediation that would have negative consequences for credit allocation and financial stability?

- What additional monetary policy options would a CBDC provide to the Bank of England, and would these be proportionate to the Bank's current mandate for monetary and financial stability?

- How can a CBDC ensure strong privacy safeguards while also meeting financial compliance rules? Which organisations will be able to access sensitive CBDC payments data, and for what purpose will that data be used?

- What are the main international and national security risks that arise from a CBDC, and how can these be managed? How can a CBDC be made secure against current and future threats without sacrificing useability? (Paragraph 126)

21. While there appear to be no significant advantages for the UK in being an early adopter of CBDCs, we recognise that consumer payment preferences, technological developments and the choices of other countries may enhance the case for a UK CBDC in the future. The long lead times involved in scoping and developing a CBDC mean the Joint Taskforce should continue to assess the rationale and technology in preparation for such a measure possibly being needed in future. The Government and the Bank of England should continue to work with international partners on principles and standards while learning lessons on technical design and usage from the experiences of countries that introduce a CDBC soon. (Paragraph 127)

APPENDIX 1: LIST OF MEMBERS AND DECLARATIONS OF INTEREST

Members

Lord Forsyth of Drumlean (Chair)
Lord Bridges of Headley
Viscount Chandos
Lord Fox
Baroness Harding of Winscombe (recused herself from this inquiry)
Lord Haskel
Lord King of Lothbury
Baroness Kingsmill
Baroness Kramer
Lord Livingston of Parkhead
Lord Monks of Blackley
Lord Skidelsky
Lord Stern of Brentford

Declarations of interest

Lord Bridges of Headley
Senior Adviser to and shareholder in Banco Santander, Madrid, Spain
Editorial Consultant, London Evening Standard

Viscount Chandos
No relevant interests declared

Lord Forsyth of Drumlean (Chair)
Chairman and non-executive Director, Secure Trust Bank plc

Lord Fox
No relevant interests declared

Baroness Harding of Winscombe
Recused herself from this inquiry.

Lord Haskel
No relevant interests declared

Lord King of Lothbury
Consultant to Citigroup Global Markets Limited

Baroness Kingsmill
No relevant interests declared

Baroness Kramer
No relevant interests declared

Lord Livingston of Parkhead
Director of S&P Global Inc

Lord Monks
Member of the Takeover Panel

Lord Skidelsky
No relevant interests declared

Lord Stern of Brentford
Climate Adviser to NatWest Group
Climate Adviser to Citigroup

A full list of Members' interests can be found in the Register of Lords' interests: https://members.parliament.uk/members/lords/interests/register-of-lords-interests

APPENDIX 2: LIST OF WITNESSES

Evidence is published online at https://committees.parliament.uk/work/1504/central-bank-digital-currencies/publications/ and available for inspection at the Parliamentary Archives (020 7219 3074).

Evidence received by the Committee is listed below in chronological order of oral evidence session and in alphabetical order. Those witnesses marked with ** gave both oral and written evidence. Those marked with * gave oral evidence and did not submit any written evidence. All other witnesses submitted written evidence only.

Oral evidence in chronological order

*	Simon Gleeson, Partner at Clifford Chance	QQ 1–10
*	Professor Darrell Duffie, Adams Distinguished Professor of Management and Professor of Finance, Stanford University	QQ 1–10
**	Natasha de Teran, Member of the Financial Services Consumer Panel	QQ 11–19
**	Georges Elhedery, Group Executive and Co-CEO of Global Banking & Markets, HSBC	QQ 11–19
*	David Birch, Advisor and Commentator on Digital Financial Services	QQ 20–37
**	Stephen Bonner, Executive Director, Regulatory Futures and Innovation, Information Commissioner's Office	QQ 20–37
*	Andrew Cregan, Head of Finance Policy, British Retail Consortium	QQ 38–46
*	Tom Keatinge, Director, Centre for Financial Crime and Security Studies, Royal United Services Institute (RUSI)	QQ 47–55
*	Charlotte Hogg, CEO, Visa Europe	QQ 56–62
**	Richard Brown, Chief Technology Officer, R3	QQ 56–62
*	Patrick Honohan, Nonresident Senior Fellow at the Peterson Institute for International Economics and former Governor of the Central Bank of Ireland	QQ 63–71
*	Professor Eswar Prasad, Senior Professor of Trade Policy and Professor of Economics at Cornell University	QQ 63–71
**	Jana Mackintosh, Managing Director for payments and innovation, UK Finance	QQ 72–80
**	Peter Randall, Principal, The Aurora Project	QQ 72–80
*	John Glen MP, Economic Secretary to the Treasury	QQ 81–90
*	Charles Roxburgh, Second Permanent Secretary, HM Treasury	QQ 81–90

*	Andrew Bailey, Governor, Bank of England	QQ 91–109
*	Sir Jon Cunliffe, Deputy Governor of Finance, Bank of England	QQ 91–109

Alphabetical list of all witnesses

	Andreessen Horowitz	CDC0026
	Association of Accounting Technicians (AAT)	CDC0002
*	Andrew Bailey, Governor of the Bank of England (QQ 91–109)	
	Barclays Bank	CDC0031
*	David Birch, advisor and commentator on digital financial services (QQ 20–37)	
	Atlantic Council Geoeconomics Center	CDC0041
	Blockchain Association	CDC0035
**	Stephen Bonner, Executive Director (Regulatory and Innovation) at Information Commissioner's Office (QQ 20–37)	CDC0028
**	Richard Brown, Chief Technology Officer at R3 (QQ 56–62)	CDC0008
	Paul Bryden-Bradley	CDC0001
*	Sir Jon Cunliffe, Deputy Governor of Finance at the Bank of England (QQ 91–109)	
	Circle Internet Financial, Inc	CDC0022
*	Andrew Cregan, Head of Finance Policy at the British Retail Consortium (QQ 38–46)	
	Crypto UK	CDC0031
*	Professor Darrell Duffie, Adams Distinguished Professor of Management and Professor of Finance, Stanford University (QQ 1–10)	
	Rob Dejean	CDC0003
**	Natasha de Teran, Member of the Financial Services Consumer Panel (QQ 11–19)	CDC0010
	Digital Currencies Governance Group	CDC0025
	Digital Pound Foundation	CDC0033
	Electronic Money Association	CDC0023
**	Georges Elhedery, Group Executive and Co-CEO of Global Banking & Markets, HSBC (QQ 11–19)	CDC0009
	Barry Eichengreen, George C.Pardee and Helen N. Pardee Professor of Economics and Political Science at the University of California, Berkeley	CDC0036
	EY	CDC0038

	Geoffrey Goodell (Senior Research Associate at University College London), Hazem Nakib (General Partner at 7BC Venture Capital), and Dann Toliver (Co-Founder and CTO at TODA Group)	CDC0014
*	Simon Gleeson, Partner at Clifford Chance (QQ 1–10)	
*	John Glen MP, Economic Secretary to the Treasury (QQ 81–90)	
	John Hawkins, Senior Lecturer at Canberra School of Politics	CDC0029
	Peter Hindle	CDC0005
*	Charlotte Hogg, CEO at Visa Europe (QQ 56–62)	
*	Patrick Hononhan, Nonresident Senior Fellow at the Peterson Institute for International Economics and former Governor of the Central Bank of Ireland (QQ 63–71)	
	Adam Jackson, Director of Policy at Innovate Finance	CDC0043
*	Tom Keatinge, Director at the Centre for Financial Crime and Security Studies, Royal United Services Institute (RUSI) (QQ 47–55)	
**	Jana Mackintosh, Managing Director for Payments and Innovation, UK Finance (QQ 72–80)	CDC0021
	nChain	CDC0019
	Perfinal Technologies Zrt	CDC0006
	Mark Perry, Professor at Brunel University London	CDC0015
	Dr Asgerdur Petursdottir, Assistant Professor at University of Bath, Dr Cyril Monnet, Professor at University of Bern and Dr Mariana Rojas-Breu, Professor at Université Paris II Panthéon-Assas	CDC0020
	Positive Money	CDC0011
*	Professor Eswar Prasad, Senior Professor of Trade Policy and Professor of Economics at Cornell University (QQ 63–71)	
**	Peter Randall, Principal at the Aurora Project (QQ 72–80)	CDC0007
	Redfield & Wilton Strategies	CDC0016
	Ripple	CDC0034
*	Charles Roxburgh, Second Permanent Secretary at HM Treasury (QQ 81–90)	
	SICPA	CDC0018

Luciano Somoza (PhD Candidate at Swiss Finance Institute, University of Lausanne), Martina Fraschini (PhD Candidate at Swiss Finance Institute, University of Lausanne), and Tammaro Terracciano (PhD Candidate at Swiss Finance Institute, University of Geneva)	CDC0017
Standard Chartered	CDC0013
Dr John Whittaker, Senior Teaching Fellow at Lancaster University	CDC0012
Dr Larisa Yarovaya (Associate Professor of Finance at Centre for Digital Finance, Southampton Business School, University of Southampton), Professor Brian Lucey (Professor of Finance at Trinity College Dublin), Dr Samuel Vigne (Associate Professor of Finance at Trinity College Dublin), and Mr Yizhi Wang (PhD Researcher at Trinity College Dublin)	CDC0004

APPENDIX 3: CALL FOR EVIDENCE

The House of Lords Economic Affairs Committee, chaired by Lord Forsyth of Drumlean, is launching an inquiry on Central Bank Digital Currencies (CBDCs).

HM Treasury and the Bank of England are exploring the potential of a possible CBDC for the UK. The Committee will take evidence on the main issues confronting HM Treasury and the Bank as they conduct this work. It will also examine how a CBDC might affect the role of the Bank, monetary policy and the financial sector.

The Committee is seeking evidence on the following questions:

(1) What are the main issues driving central banks to explore CBDCs?

(2) What are the main benefits and risks of a CBDC?

(3) Could the proposed benefits of a CBDC be achieved through improvements to existing payment systems?

(4) How should the Bank of England and HM Treasury address concerns over privacy and traceability of payments when exploring CBDC design?

(5) What effects might a CBDC have on the financial sector?

(6) What effect might a CBDC have on competition and innovation in the payments and fintech sectors?

(7) How might a CBDC affect monetary policy?

(8) How might a CBDC change the Bank of England's role and responsibilities?

(9) How should HM Treasury and the Bank of England engage with the public on the research and development of a CBDC?

(10) How might CBDCs affect the economic foreign policies or geopolitical influence of different countries and economic areas? Are there implications for the effectiveness of economic sanctions?

This is a public call for written evidence to be submitted to the Committee.