

Greengage

A Response to the

Bank of England's
Paper "New Forms
of Digital Money"

WHITE PAPER



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Introduction

Greengage aspires to be the next generation of digital financial services which aims to serve companies that are active in the digital asset/cryptocurrency space. As such, it is interested in the development of central bank digital currencies and regulations pertaining to them as these will undoubtedly impact the digital asset ecosystem and the stablecoins currently active within that ecosystem. We welcome the chance to respond to the BoE's extensively researched and well thought out paper "[New Forms of Digital Money](#)". In asking for a response to the paper, the BoE set several questions that it would like answers to. Greengage has opted to answer questions 1-4,6,8 & 10 as listed in the paper's Executive Summary - Questions for discussion section. We have not responded to questions 5,7,9 and 11 as we feel the paper was very clear in its considerations on those items or that we have covered them in our answers to other questions.



How might new forms of digital money affect money credit creation? Are there channels beyond those explored in this paper?

Should this consultation exercise lead to bringing stablecoins into the UK regulatory perimeter, we consider it is likely that “regulated” stablecoins will achieve a dominant position in terms of usage. However, there are already GBP stablecoins in existence that are not operated by a central authority, exist outside the BoE and UK regulators reach and are currently used in credit creation. The credit almost certainly does make its way into the non-digital asset economy, although most probably not on a meaningful scale at this present time. At present, comparatively little activity occurs involving GBP stablecoins as most in the digital asset space use dollar stablecoins. Some of these stablecoins may be difficult to centralise and regulations may not be practically enforceable.

For example, the nature of cryptoassets is such that someone can purchase a cryptoasset on a cryptoasset exchange then deposit the cryptoasset to a self-hosted wallet. From the self-hosted wallet, they can interact with the decentralised finance smart contracts on a given blockchain to swap into a stablecoin that in turn can then be lent out via other smart contracts. It is important to note that even if the cryptoasset exchange did not, for regulatory or whatever other reasons, list a given GBP stablecoin, a client of the exchange would still be able to access the stablecoin via the use of a self-hosted wallet. Mechanisms for controlling the “on” and “off” ramps between the regulated financial services space and the cryptoasset space will undoubtedly help to bring all stablecoins within the regulatory perimeter, but due to self-hosted wallets and DeFi such mechanisms will not capture all flows or all stablecoins.

In addition, there are cryptocurrencies that have an array of synthetic assets (including stablecoins) that can be sold to or bought from a protocol (a specific blockchain) in exchange for the cryptocurrency associated with that protocol. The cryptocurrency is issued and redeemed by the protocol to absorb the price volatility of the synthetic assets and ensure they maintain their peg to the underlying. Assets that maintain their peg to a fiat in this way are called algorithmic stablecoins. This is better explained in Figure 1 where a protocol issues a synthetic pound (sGBP) that aims to maintain a 1:1 peg to GBP.



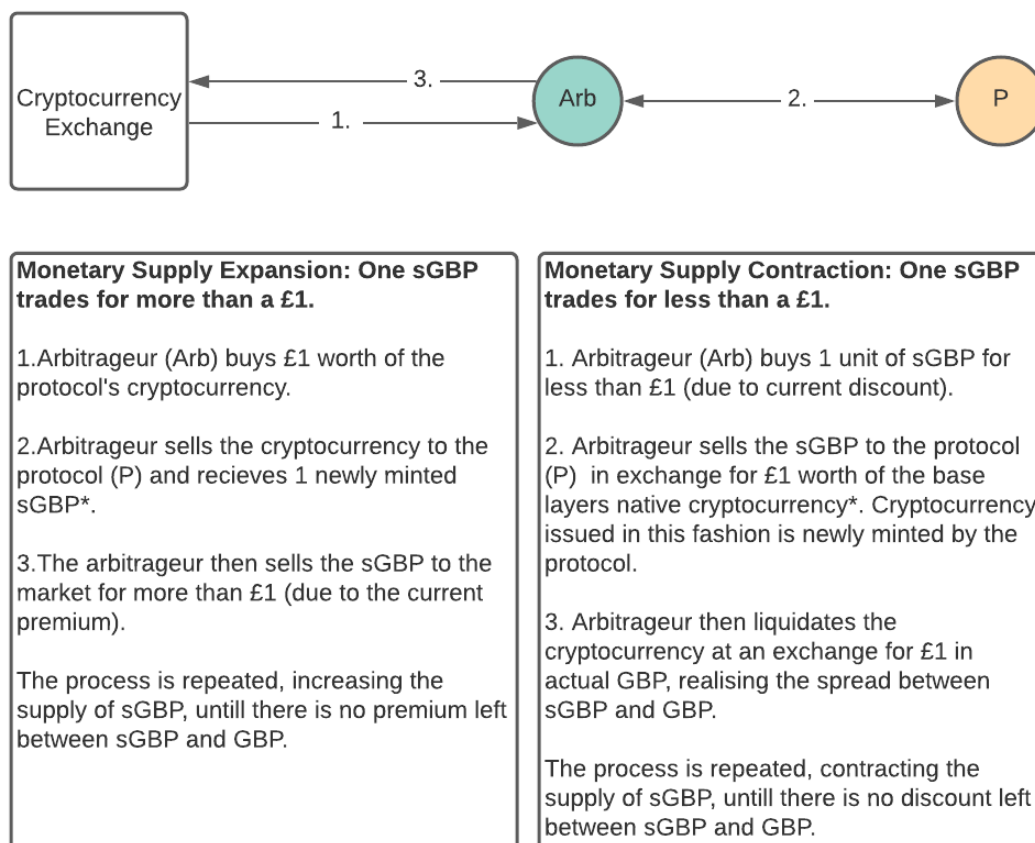


Figure 1 – Algorithmic Stablecoins

Altering the supply of the stablecoin in this fashion keeps it in alignment with price of the real asset. It is left to market forces to dictate what the float of the stablecoin should be. These synthetic GBP can be used for lending or borrowing activities on a blockchain, or easily cashed out into real GBP and used in the non-crypto related economy.

Algorithmic stablecoins are increasingly common in the cryptocurrency space. Figure 1 is a simplified version of the mechanism used successfully by the Terra ecosystem¹ to maintain a suite of stablecoins that its protocol has issued. Algorithmic stablecoins are not considered as a possible CBDC solution in the paper but perhaps should be. It is also important to note that the market participants that keep the algorithmic stablecoins in alignment with the price of the underlying currency they track could be anywhere on the globe and as such will be outside the reach of the BoE, FCA and other relevant authorities.

While the two examples above, of the use of self-hosted wallets and the creation of synthetic assets, are not currently deemed material, they are also not exclusive and demonstrate examples where it may be difficult to centrally administer and regulate the creation of and access to stablecoins. As such, there may be unregulated stablecoins which might impact money credit creation. Given the rapid innovation in this space, it seems that a principles-based approach to regulation would be more sensible with a constant monitoring of activity in case mediums for credit creation become significant and require clarification of principles.

1. <https://www.terra.money/#1>



How important is direct access for the general public to central bank digital money in a digital world

We feel a broader question needs to be asked – is it time to overhaul the financial system using modern technologies to create a system that is better than what came before? To us it seems the answer to this question is yes. Some of the suggested models for this overhaul could result in the public having direct access to central bank digital money, even though they are not calling for it at present.

Do you agree with the Bank's view on protection and privacy? What would you regard as a minimum set of protections?

Greengage's response to this is covered in its answer to question 8 [page9].

What steps could be taken, and by whom, to help promote interoperability of new forms of digital money with other payment systems, and thereby foster a competitive environment?

Achieving interoperability may be best left to the private markets, and there is already evidence in the USA to suggest this is occurring. Visa has already begun to experiment with the USDC stablecoin as a means of settlement over the Ethereum blockchain². This is despite USDC having the potential to become a direct competitor to Visa's own system. USDC is a cryptocurrency with a circa \$27B market cap³ that is primarily issued on the Ethereum blockchain. It was issued initially by Circle and is now managed by Centre – a consortium of companies that includes Coinbase and Circle. The token is backed primarily by dollars and other high-quality assets. It most closely resembles the Deposit-Backed model mentioned in the paper as USDC's reserves are held by commercial banks and none of the issuing members has a direct relationship with the central bank (in this case the Federal Reserve)⁴.

The evolution of USDC, its Ethereum payment rails and Visa's willingness to experiment with the technology has been achieved without any regulatory help or government incentives and has come about as a result of market forces. The BoE and other relevant regulators simply need to ensure that regulations currently in place and any regulations that are passed do not place an onerous burden upon new start-ups with novel technologies and thereby favour incumbents. It has not gone unnoticed in the crypto space that the blue-chip US banks JP Morgan and Goldman Sachs are already engaging

2. <https://www.visa.co.uk/about-visa/newsroom/press-releases.3086078.html>

3. <https://www.coingecko.com/en/coins/usd-coin>

4. <https://www.finextra.com/pressarticle/87178/circle-picks-signature-bank-for-usdc-integration>



in stablecoin test trades⁵, whereas it seems the UK banks are behind the curve. A supportive regulatory environment in the UK would make it easier for start-ups to challenge incumbents and as such stimulate the competition that the BoE is keen to support.

Can respondents identify any other significant risks to economic stability from new forms of digital money even when stablecoins are adequately regulated?

The paper talks about the possibility of softening the lower bound on monetary policy should CBDCs be used by the public and cash no longer used – the scenario posited in the paper is that a CBDC could be used in conjunction with ‘restricting the use of cash’. What the paper implies is the possibility that negative nominal rates of interest could be applied to the CBDC holdings of retail users. As this would be the only form of money available to them, they would then be in a situation where their only form of money is effectively taxed at a variable rate at the discretion of the BoE. This could further contribute to the widening wealth inequality that has occurred since 2008 as a result, in part, of the lowering of interest rates and quantitative easing carried out by central banks to deal with the 2008 financial crisis. This inequality could be compounded as the wealthy have a manifold of other options for holding their assets, whereas the working class typically hold a higher share of their liquid assets in fiat instruments. Restricting their use of cash could indeed result in a relatively regressive tax on the poor in the case of negative nominal interest rates should those become a feature of monetary policy in future.

Whilst tackling wealth inequality is not a stated aim of the BoE, macroeconomic stability is of concern to it, and this would be challenged should wealth inequality continue to widen as a result of central bank policy. As such, the softening of the lower bound of monetary policy should be considered a potentially disastrous consequence of introducing a CBDC and not viewed as a useful addition to the BoE’s toolkit.

Do respondents have any other concerns over the ability of banks and markets to adjust to the introduction of new forms of digital money in addition to those identified?

If a layer of the current financial infrastructure and payments rails, e.g. the commercial banks, was to be removed and the payment rails modernised and simplified with the introduction of a CBDC, it is likely that the velocity of money would increase. The BoE would have to factor this into its monetary policy decisions going forward as the effects of increasing the money supply may be amplified, possibly resulting in higher levels of inflation than the BoE would deem desirable.

5. <https://www.bloomberg.com/news/articles/2021-06-22/goldman-sachs-begins-trading-on-jpmorgan-repo-blockchain-network>



However, the introduction of a CBDC could lead to a new 'real time' economy where, due to the traceability of all transactions, the effects of policy decisions could be precisely and instantly gauged. Such a real time economy would allow for the monitoring of the transmission of monetary policy with a clarity and level of detail not achievable under the current, relatively disjointed, banking and payments system. This could be a boon for the BoE as it could set measurable KPIs for its policy decisions and watch the impact of these decisions in real time and adjust accordingly. This should lead to a more responsive system for delivering monetary policy. It could also lead to a greater public awareness as to the effects of monetary policy as the real time data could be made available to everyone.

Such a system is already evolving on the current blockchain payment rails. The velocity of any token (including stablecoins) on the Ethereum blockchain, for example, can be measured by anyone as it is a public ledger. Groups like Dune Analytics⁶ have taken steps to simplify this process by decoding relevant Ethereum data into an SQL database which can then be queried and the results visualised.

There are also KYC and AML implications that come with the greater transparency that could be afforded by a real time economy. Whilst we understand that KYC/AML considerations are the remit of the FCA, it would be sensible for any regulatory body involved in the design of a CBDC to consider them. The current payment rails do not allow an entity operating on the network, e.g. a financial institution, to assess its counterparty's interactions with all other entities operating on the network. In the current blockchain-based systems (such as Ethereum), it is possible to view an address's current holdings and the entire transaction history showing deposits to and from the address. Should such a level of radical transparency be adopted by a CBDC, then counterparties may be obliged to take one another's entire transaction history and current deposit mix into account as part of their risk-based approach to doing business with one another.

Concerns over privacy are warranted given the radical transparency that a new CBDC based system could allow for. Ideally the BoE would be able to collect as much metadata as possible to allow for macroeconomic KPIs to be monitored in real time whilst having no ability to identify the individual retail users on the CBDC system and therefore not compromise their privacy. This could be done by identifying any given retail user simply as 'a retail user' but identifying large institutions and corporations by name and industry type so the BoE could, for example, observe where money issued as a result of QE ends up in the economy.

The entities that onboard retail users to the CBDC system, e.g. commercial banks or stablecoin issuers could be the gatekeepers for KYC & AML information that remains siloed in their database and not accessible to the BoE or anyone else watching the real time flows over the network. This way the same privacy would be afforded to the retail user as the current banking system affords them, but the new CBDC system would allow the BoE access to currently unavailable real time macroeconomic data.

6. <https://dune.xyz/home>



Do respondents agree with the Bank's assessment of the four possible regulatory models for stablecoins? Are there other models the Bank should consider?

On the assumption that one of the four models considered in the paper is eventually chosen, then the "Central bank liability" (CBL) model seems like the most sensible model. This is essentially how some of the largest stablecoins in the crypto asset space currently work and, as the paper notes, such a setup is already in existence today regarding the S&NI regime, which allows the banks of Scotland and Northern Ireland to print their own notes.

The BoE already being familiar with such a regimen should make it easier to implement than other models considered in the paper. Despite USDC's admirable success, we feel this solution would be better than the current solution utilised by USDC that involves commercial banks as we don't see a need for them. Commercial banks will introduce a layer of unnecessary friction that will result in more fees to the consumer and make it harder for macroeconomic KPIs to be observed as data will be siloed in their outdated and relatively opaque IT infrastructure.

It would also be worth considering that perhaps the solution will not be any of these four models and that anticipating all possible models may not be possible at this stage. This is because the technology underpinning most stablecoins is developing so rapidly that it is impossible to anticipate what the full list of potential models may look like. Therefore, a light touch, principles-based approach to regulation would be advisable. Engaging with as many stablecoin projects as possible to let them know what principles their system needs to adhere to may be the best route forward. This would allow for a multitude of stablecoin projects to exist that can compete with one another and will allow the free market to decide which solution is best. The least favourable route in our opinion is for the BoE to directly issue its own CBDC, at least not in the short term, as this could effectively "crowd out" such innovation from occurring before selecting the best model.

There is precedent for taking such a light touch approach in the face of monetary revolutions. In a recent Bloomberg article, historian Niall Ferguson highlighted that the price and wage controls put in place to help 'regulate' the monetary revolution that took place in 1971, after the end of Bretton Woods when the dollar came off the gold standard, were swept away. Ferguson also argued that deregulation of the American financial institutions that took place in the 80s under Reagan allowed the US to become a dominant player in international markets. The same could be said for deregulation of the financial institutions in the UK under Margaret Thatcher over the same time period, which allowed for an incredible wealth creation in this country as well as a corresponding increase in the tax base.



Due to the impacts of technological and political forces, many of which are only currently unfolding and the scale of which may have only been partially softened – or deferred – by quantitative easing at an unprecedented scale, we are facing disruption to the global financial order of a magnitude not seen since the end of Bretton Woods. This revolution may not be adequately described by four regulatory models. British politicians and in our view, regulators should opt to take a light regulatory touch and maintain a very open mind as to what the future of currencies, banking, settlement and clearing might look like. History suggests that this approach is most likely to allow the UK to maintain its position at the centre of the new global financial system and enjoy all the benefits that come with that position. We would also argue that the UK should seek to support novel entrants to this ecosystem – it is notable for example that the largest firms in the digital asset space all seem to be American (e.g. Coinbase). The UK seems a more natural hub for such activity given the predominance of common law and the intersection of significant technology and financial industries in London whereas in the USA these sectors are split across the East and West coast.

For more information on the topics covered in this paper or to find out more about how Greengage can assist in gaining exposure in the digital asset sector in general, please do not hesitate to contact us at info@greengage.co.



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