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Submitted via email to cpmi@bis.org

London, March 3rd 2016

CPMI Report on Digital Currencies

Dear Sirs,

Markit is pleased to submit the following comments to the CPMI in response to its Report on *Digital Currencies* (the "***Report***").

Markit[1] is a leading global diversified provider of financial information services.[2] Founded in 2003, we employ over 4,000 people in 11 countries and our shares are listed on Nasdaq (ticker: MRKT). Markit has been actively and constructively engaged in the debate about regulatory reform in financial markets, including topics such as the implementation of the G20 commitments for OTC derivatives and the design of a regulatory regime for benchmarks. Over the past years, we have submitted more than 140 comment letters to regulatory authorities around the world and have participated in numerous roundtables.

Introduction

We welcome the publication of the Report on Digital Currencies by the CPMI and we appreciate the opportunity to provide you with our comments.

Over the last several years, Markit has been involved in countless industry discussions relating to the potential of digital currencies and the use of blockchain technology in derivatives post-trade processing and other contexts. Like many other market participants and infrastructure providers, we spend significant resources evaluating the use of blockchain technology and we expect to utilize blockchain technology in the near future.

With respect to the potential for blockchain technology to facilitate digital currencies, we believe that it is helpful to regard today's digital currencies as "digital commodity money". Such "digital commodity money" distinguishes itself from both "physical commodity money" and from "fiat currency" in unique ways. For example, given its digital nature, digital commodity money scales globally whilst physical commodity money does not. Furthermore, given its reliance on a peer-to-peer framework, digital commodity money holds an intrinsic value that is determined by the market. On the other hand, fiat currency has no intrinsic value given its central issuance and reliance on a fractional reserve banking framework.

[1] See www.markit.com for more details.

[2] We provide products and services that enhance transparency, reduce risk and improve operational efficiency of financial market activities. Our customers include banks, hedge funds, asset managers, central banks, regulators, auditors, fund administrators and insurance companies. By setting common standards and facilitating market participants' compliance with various regulatory requirements, many of our services help level the playing field between small and large firms and foster a competitive marketplace.

While several characteristics of digital commodity money are unique in their own right, we also see opportunities for central banks to employ similar technology for the creation of digital fiat currency. For example, we believe this could be the cheapest way to issue currencies and control the value of these currencies in real terms, effectively debasing paper money and reducing reliance on today's commercial banking infrastructure to enact monetary policy. Global access to tamper-resistant bank notes would also facilitate true delivery-versus-payment mechanisms and minimize the reliance on cross-currency reconciliations across time zones.

Comments

We are generally supportive of the framework that CPMI has put forward for the discussion of digital currencies and potential regulatory approaches to them. Specifically, we support CPMI's distinction between the various functions of digital currencies, namely the facilitation of payments ("asset aspect") on the one hand and the maintenance of the payment system ("payment aspect") on the other.[3] We believe that digital currencies that exist outside of central banking systems exhibit qualities akin to commodities, such as gold. This "asset aspect" has traditionally been at odds with liquidity and scalability; commodities cannot compete with bank money as suitable currency in these aspects. However, the protocols that support today's digital currencies (notably Bitcoin) provide users with a natively digital currency that operates under one global standard. As a result, the "payment aspect" of digital currencies holds the potential to compete with modern paper money or, in the extreme, even make it redundant.

We agree with CPMI that it is important to distinguish between digital currencies and e-money.[4] We regard digital currencies as the digital equivalent to the money that one would have in your wallet. Digital currencies are bearer assets; in contrast E-money is a balance sheet representation of cash liabilities between parties.

We believe that CPMI has created a very comprehensive list of "influencers" and provided a regulatory summary that seems accurate within global scope. However, we believe the Report would benefit from CPMI considering several further issues:

- **Accounts vs wallets**: We recommend CPMI more clearly distinguish between "accounts" and "wallets".[5] Most digital currency wallets are computer applications and therefore easily conflated with other digital accounts, such as bank checking accounts. However, digital currency wallets do not necessarily change the custody of the wallet's contents away from its owner; the wallet owner maintains full ownership and control of his or her digital currency supply. Accounts, on the other hand, are financial products that are provided by a merchant in exchange for a client's cash. Custody of the contents of an account is therefore not wholly owned by the client. Furthermore, these products require the formation of an ongoing legal relationship between parties. We therefore recommend CPMI expand on the concept of ownership[6] as it pertains to blockchain technology. This exercise should inform the use of more precise language with respect to digital currencies.

- **Bearer assets vs liabilities:** We recommend that CPMI further clarify supply side factors[7] by distinguishing between digital bearer assets and balance sheet liabilities. We define digital currencies as bearer assets given that digital currency transactions do not necessarily require institutional accounting or legal authorization. One only requires possession of a cryptographic key pair to initiate a digital currency transaction. Liabilities, on the other hand, imply the institutionalization of an asset; balance sheets account for liabilities within a legal banking framework. While digital currencies may certainly exist as a liability between two parties, it is not a pre-condition for allowing a digital currency network to function.

[3] Pg. 6
[4] Pg. 17
[5] Pg. 6
[6] See Pg. 9: "Some users of digital currencies have relied upon intermediaries for holding and storing information relevant to their ownership of digital currency units, and so must trust these intermediaries to mitigate end user risk of loss from hacking, operational failures or misappropriation."
[7] Pg. 7

- **Credit vs debit:** we recommend CPMI more clearly distinguish between credit and debit[8] to understand irrevocability as a feature. Building on our definition of digital currencies as bearer assets, digital currency networks simply facilitate the near real-time settlement of those assets across different cryptographic key pairs. Credit systems defer settlement for a fee. We believe they are likely to develop as they have for cash, but it will not be without the extension of a third party service.

Recommendations

We believe that the CPMI would deepen its understanding of digital currency schemes and the possibilities for innovation in traditional capital markets if it considers the following comments.

i) Setup of digital currency networks

CPMI makes several statements in relation to the relevant institutional arrangements of digital currencies. Specifically, it states that the setup for digital currencies differs from traditional e-money schemes, also because "the decentralized nature of some digital currency schemes means that there is no identifiable scheme operator."[9]

However, based on our experience we believe that this is not always the case, nor is it necessarily an important distinction. There are often identifiable scheme operators, as is the case with Bitcoin.[10] Digital currency scheme operators are more akin to oil suppliers than central banks. More importantly, the potential for an operator, whether known or anonymous, to build a majority of network control, is a more relevant distinction to make from traditional e-money schemes. This possibility can threaten a network's core functionality.

ii) Demand side factors

As part of the demand side factors CPMI discusses the costs of digital currencies.[11] We agree with CPMI that some costs of digital currencies might not be transparent and other costs might exist. Specifically, we believe that digital currencies do not so much offer a free solution as much as an alternative to paper money that presents its own unique set of challenges and costs.

Most of today's digital currency networks rely on a consensus model known as "Proof of Work", which effectively engineers a resource-intensive competitive settlement model; network participants maintain copies of the ledger, thereby creating a high level of network redundancy which is by no means a cost-free feature. Those who wish to confirm a transaction request typically provide a market-determined premium in addition to the value of the request. These are only a few examples of the costs associated with open digital currency networks. Certainly, these costs allow for the benefits that a digital currency offers its users, but, we believe, they must be explicitly accounted for when considering the value proposition of a digital currency scheme alongside fiat currency, bank money, and financial products.

iii) Irrevocability

Under the topic "irrevocability" CPMI states that digital currency schemes that are based on distributed ledgers would often lack dispute resolution facilities.[12]

[8] Pg. 9, 15
[9] Pg. 5
[10] https://tradeblock.com/bitcoin/mining
[11] Pg. 9
[12] Pg. 9

While we generally agree with this statement we are confident that technology solutions can be developed to address this issue. Specifically, we believe that it should be possible to develop a process that can assign "credits" to be used as compensation where debits have been booked incorrectly. CPMI should also consider that such process of dispute resolution does not exist for cash payments either.

iv) Implications for financial stability and monetary policy

We believe that CPMI, in its analysis of the impact of digital currencies on financial market infrastructures, might be taking an overly optimistic view on the benefits and costs of digital currencies.

We therefore recommend CPMI analyse in more detail and consider the actual costs that arise to maintain the necessary peer-to-peer networks. We believe that, if such costs were properly measured and taken into account, they may not be as attractive as they might initially seem, e.g. for Bitcoin one needs to consider the cost of maintaining the entire network.

v) Impact on monetary policy

Based on our experience in this area, we recommend that central banks embrace digital currencies, get more actively involved in them and drive their development to their advantage. For example, we could well imagine that a central bank creates and maintains a distributed settlement network for a natively digital currency.[13]

Much work is certainly still ahead in terms of implementation specifics, but, we believe, that establishing a digital central bank currency would help solve many problems. The costs that a single central bank would incur for distributing and maintaining a robust fiat currency would be, for all intents and purposes, shared amongst network participants. The currency itself would not require resources like paper or printing technology. It would also allow for the possibility to conduct monetary policy in entirely novel ways. For example, if one only needs a wallet application in order to receive and secure digital currency, a central bank could interact directly with individuals, thereby removing the need to rely on depository institutions to act as channel for monetary supply. We believe that such interaction will open up new possibilities for enacting monetary policy and it should be fully embraced by central banks as soon as possible.

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We hope that our above comments are helpful to the CPMI. We would be more than happy to elaborate or further discuss any of the points addressed above in more detail. In the event you may have any questions, please do not hesitate to contact the undersigned or Jeffrey Billingham at jeffrey.billingham@markit.com.

Yours sincerely,

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[13] Pg. 1, 16, 17