



Policy Brief

DIGITAL PAYMENTS, DECENTRALISED FINANCE AND THE DESIGN OF A NEW NORMAL FOR FINANCIAL STABILITY

Task Force 7

International Finance and
Economic Recovery

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Abstract

Digital currencies, payments and finance are expanding swiftly, creating a host of opportunities in finance and the real economy, approaching solutions to old problems such as financial inclusion and onerous retail payments while challenging the incumbent money systems and planting the seeds of new stability risks. Two areas – cryptocurrencies and decentralised finance – are ripe for a clear legal, operational and regulatory framework. Embedding a robust liquid monetary instrument into digital in the not distant future is strongly recommended. It need not be a central bank digital currency – a safe stablecoin under accessible guidelines could provide a timely and effective response.

Challenge

Digitalisation is deeply reshaping economies and society. New currencies and payment systems are surging in a field that has experienced a lull in developments for decades. A vast array of private-sector-led designs now cater to diverse demands, including those of the financially underserved and unbanked, in competition with traditional central bank and commercial bank monies and payment systems. Often – as in cross-border retail transactions such as remittances – at significantly lower costs for consumers.

Cash usage is declining as a share of payments while mobile and remote payments accessible 24/7 are climbing . Choices range from mobile wallets to cryptocurrencies, account-based or token-based, with the ability to perform online and offline transactions, and with distinct grades of anonymity. Though they challenge public money, their conversion to a monetary anchor is essential to perform as mediums of exchange. So, many of these new forms are prefunded or backed by conventional monies.

Digitalisation changes the whole financial architecture. Innovation comes mainly from outside the incumbent banking system with huge potential for disruption. Embedded finance – financial services provided by non-financial companies that are invisible to users – is also rising rapidly. The two-tier system that gives central banks a monopoly over base money issuance and leaves private banks in charge of broad money and credit creation is under pressure. Other architecture is viable, though its resilience is uncertain. Competition arises from blockchain, fintech innovations, Big Tech entrants (centralised digital platforms) and decentralised “peer-to-peer” networks (that may eliminate financial intermediaries altogether by using software and market design). Bank intermediation and its economic role – the transformation of deposits (savings) into credit (investment) – are more threatened than ever.

Innovation fuels business opportunities but comes with perils like market abuse, security breaches, illicit activity financing, vulnerable design and business failure. The Silk Road and the Dark Web scandal (2013), the Mt. Gox bitcoin exchange liquidation (2014), the DAO hack (2016) and other massive frequent hacks, the run on Iron Finance (2021) and the loss of the dollar peg of its stablecoin reveal that weaknesses could cause serious trouble. Achieving the true potential from the fast digitalisation of the global economy requires greater financial and monetary system stability as a main pillar.

In the short run, authorities hold the upper hand. They might toughen ad hoc regulations instead of building a revamped technological infrastructure. Regulators have blocked Facebook’s Libra (now renamed Diem) stablecoin project since 2019. But, a solely defensive

approach will not work. Needs and tastes evolve. Cash will lose relevance in a digital world. Central banks must give consumers and savers access to the monetary services they prefer in a stable environment. In that sense, central bank digital currencies (CBDCs) are a contingency plan to preserve public money. Authorities must keep pace with technological change and social behaviour to shape progress and uphold social favour.

Embryonic ideas like Web 3.0 or the metaverse (a persistent digital world inhabited by digital twins of people, places and things) suggest closer integration between physical and virtual reality spanning social presence, office work and entertainment will further spur payments and finance to adapt to stay fully compatible.

Proposal

ASPECTS TO CONSIDER:

People look for “convenient, fast, internet-ready, seamless payments, and it is our responsibility to provide the backbone of those payment systems and keep them state of the art¹” (Powell, 2021).

Non-cash transactions are poised to expand at 18.6 percent compound annual growth rate (CAGR) in 2020-2025. Banks must urgently embrace the next generation of payments to stay in the race (Capgemini, 2021). Instant payments, e-money² and next-generation payment methods such as buy now pay later (BNPL), invisible payments (that fully protect user data), biometrically authenticated payments and cryptocurrencies are their main engines.

Digital assets, including cryptocurrencies, have seen explosive growth in recent years, surpassing a US\$3 trillion market cap last November and up from \$14 billion just five years prior³. Surveys suggest that around 16 percent of adult Americans – approximately 40 million people – have invested in, traded or used cryptocurrencies⁴. According to a 2021 Bank for International Settlements (BIS) survey of 65 central banks, 86 percent were exploring the benefits and drawbacks of CBDC issuance, and about 60 percent were conducting experiments or a proof-of-concept⁵.

In June 2019, Facebook (now Meta Platforms) and others launched the Libra Project, later called Diem. Libra was initially thought of as a global stablecoin backed by a basket of highly liquid conventional currencies. It sent a huge wake-up call to central banks that Big Tech could develop its own currencies and built-in payment systems. Unlike cryptocurrencies starting from scratch, Big Tech firms’ giant user bases might achieve rapid and massive adoption. They could tie their monies to the multiple services they provide and profit from their overriding market power and privileged access to data. Unable to solve the regulatory hurdles, the project was sold to Silvergate (a United States bank under federal banking regulation) in January 2022.

Payments are a massive source of data, and data plays a strategic role in the transformation of finance through algorithms, artificial intelligence and machine learning, empowered by big data. Strong data governance – enhancing access and data sharing – is crucial to making digitalisation work for the common good. CBDCs might ensure the non-monetisation of data.

Blockchain is the underlying decentralised technology that many cryptocurrencies – like Bitcoin and Ethereum – operate on. Blockchain can securely record and transfer information

without the need for a central authority. It allows the decentralisation of decisionmaking, risk-taking and/or record-keeping, with broader financial applications. It can provide an immutable ledger, public registry and real-time bilateral transaction settlement capability. It could reduce the risk and capital requirements of current financial systems and infrastructure, and can crash the cost of transactions by eliminating the need for financial intermediaries. Using standardised automatic code, many financial transactions could potentially become no more expensive than sending an email (though scalability problems might arise).

Decentralised Finance or DeFi⁶ comprises a variety of independent projects based on open-source software that runs on smart contracts and applications on blockchain and relies on digital tokens as collateral and incentive rewards and stablecoins for fund transfers. It replicates the activities of a financial system (exchanging, lending, derivatives, asset management and insurance, etc.) but with no (or limited) centralised intermediation.

Depending on the project, the code and market design may enable users to engage anonymously (through unhosted wallets) in different types of transactions. DeFi platforms⁷ (Massari and Catalini, 2021) can:

- match buyers and sellers of digital assets or let them “swap” one cryptocurrency for another (exchange trading);
- allow holders of cryptocurrencies to lend anonymously to people who want to borrow, generating interest returns for lenders (credit intermediation);
- invest user funds in cryptocurrencies to maximise portfolio returns (asset management) and
- establish markets for synthetic instruments, in which users can establish derivative positions in cryptocurrencies while posting collateral to support those positions (derivatives trading).

Decentralised Autonomous Organisations (DAOs) now govern almost all of the major DeFi applications. They self-execute smart contracts and oversee the resources tied to projects. Operations are fully transparent and global. DAOs are driven by rules encoded as a computer programme. No managers or bureaucracies are needed. They are controlled by the organisation members and not by any central authority. In the extreme stylised case of a completely decentralised DeFi platform, there may be no single person or entity to be held accountable for the functioning of the protocol. Responsibility would lie with its complete non-identifiable user base. Due to its global nature, even the applicable legal jurisdictions may not be clearly defined.

Full decentralisation is an illusion due to governance needs. Contracts, no matter how smart, cannot cover all possible eventualities. DeFi protocols allocate “governance tokens” to reward

users for engaging with the system and for conducting or supporting different types of transactions. Holders of governance tokens have a right to returns from the project and are entitled to vote on specific proposals concerning unforeseen contingencies (in a way that resembles equity). These centralised elements – as well as centralised exchanges – might be useful points of entry for regulation.

Cryptocurrencies are not truly currencies even though Bitcoin was born as "a purely peer-to-peer version of electronic cash" (Nakamoto, 2008) and despite El Salvador adopting it as legal tender in June 2021, the first country to do so, Powell (2021) argues, "[Bitcoin is] not really useful as a store of value (...) It's more of a speculative asset that's essentially a substitute for gold rather than for the dollar⁸". But, stablecoins, the second generation of crypto-assets, designed to keep a stable relation with a reference anchor (such as a currency) are suitable as mediums of exchange.

"What we just experienced is the worst thing that could happen to the protocol, a historical bank run in the modern high-tech crypto space. Remember that *Iron.finance* is a partially collateralised stablecoin, which is similar to the fractional reserve banking of the modern world. When people panic and run over to the bank to withdraw their money in a short period, the bank may and will collapse.⁹" Stablecoins are subject to runs. They are obligations (either, backed by assets, or uncollateralised and driven by algorithms) redeemable at par. So, failure is a distinct possibility.

At present, stablecoins are mainly used as a bridge between traditional fiat currencies and other more volatile digital assets. But they also serve as collateral in crypto-asset derivatives transactions and DeFi; and facilitate trading, lending and borrowing in digital environments. Were a major stablecoin to fail, liquidity within the broader crypto-asset ecosystem (DeFi included) would suffer, causing potential adverse impact on short-term funding, trading and lending. A disorderly liquidation could even spill over to markets outside crypto due to their increasing links to traditional financial markets and the anticipation of cross-border investors and providers.

CBDCs might be needed to avoid these perils, and ensure universal access to public money and the effectiveness of financial and monetary policies. They can become a valuable addition to the central bank toolbox (Siaba Serrate, 2021). They might lower transaction costs, increase financial inclusion, facilitate direct fiscal transfers and advance innovation. They could provide interoperability with a whole variety of payment solutions on both a domestic and cross-border basis and encourage public-private partnerships to provide competitive services like open payment bridges (as India's Unified Payments Interface) and programming.

However, no unique design delivers all those benefits altogether. Many could be provided by alternative means of payments, such as real-time gross settlement systems (RTGS), especially if they are enhanced with application programming interfaces (API) functionality. Almost all central banks are improving their payment systems.

“We don’t want to destabilize the two tiered system¹⁰” (Powell, 2021). “Central banks interface with banks, banks interface with the public, and we do not want to destabilize that, and therefore we don’t want to compete with banks for funding.” CBDCs could trigger bank disintermediation and bank runs if not appropriately designed. Authorities do not aim to compete with commercial banks for funding with a CBDC but neither do they want the two-tier system to lose its edge to less stable arrangements off their radar.

A COMPREHENSIVE PROPOSAL

We urge the G20, under the umbrella of the Financial Stability Board, to (a) elaborate a granular understanding of financial innovation; (b) develop a comprehensive vision on the future of money, payments and finance, and continuous monitoring; (c) incorporate that vision into an agenda and list of actions to guide a resilient financial system in a stable transition towards the digital age (including specific frameworks for the integration of crypto-assets, stablecoins, CBDCs, decentralised finance, global digital platforms and their international harmonisation) to take full advantage of its potential benefits; (d) encourage the broadest international cooperation on research, development and experimentation, promoting and expanding the thematic and geographical reach of the BIS Innovation Hubs to low- and middle-income countries; (e) continue execution of the G20 Roadmap for Cross-Border Transactions; (f) align goals and actions with the G20 Sustainable Finance Roadmap and (f) continue supporting the G20 Financial Inclusion Action Plan.

Digitalisation goes far beyond finance and is reshaping society without a consistent set of shared norms. We call on the G20 to elaborate a Global Digital Governance Compact to establish principles, codes of conduct, standards, regulation and policies across the many relevant domains to build trust and ensure it works for the greater good. Within that Compact, the FSB should develop a Financial Chapter and align the financial agenda accordingly.

TARGETED RECOMMENDATIONS:

Cryptocurrencies and decentralised finance are two fields that are ripe for a solid operational, legal and regulatory framework. They have experienced explosive growth and ignited strong institutional and corporate interest but still operate with much vulnerability at the fringes of any solid regulatory perimeter. Hackers stole \$3.2 billion worth of cryptocurrencies in 2021 and \$1.3 billion in the first quarter of 2022. Almost 97 percent of this has been taken from Defi protocols, up from 72 percent in 2021 and just 30 percent in 2020¹¹.

Activity-based regulation – “same risks, same rules” – is needed to level the playing field with incumbent systems that face increased competition and tighter profit margins. Even basic topics remain in the dark, favoring market abuses and regulatory arbitrage. What is a stablecoin? Is it e-money, a money-market fund or a security? Digital areas are not systemic yet, but authorities are well advised to take action well before that occurs.

It is crucial to establish correct design principles, if possible, from an early stage in the digitalisation process. Inconsistency could force costly or (partially) ineffective second-best solutions if action comes late and non-optimal patterns and standards have taken roots. Two private digital platforms, Alipay and WeChat Pay, controlled 94 percent of China’s mobile payments market when authorities decided to switch from their original leeway into tougher antitrust regulation, severely damaging confidence and the value of good-faith investors’ holdings. It is important to note that remedies can often come from inside the innovation camp. China’s pilot CBDC, among other purposes, is aimed to provide commercial banks a competitive digital asset in order to catch up.

We recommend implanting a strong monetary instrument into the digital ecosystem, more so in the context of decentralised systems, in the not-too distant future. A CBDC could be created as a digital representation of an existing conventional currency, not undermining its singleness. It might be designed to be “privacy-protected, intermediated, widely transferable and identity-verified” to best serve the needs of society and become the robust settlement asset to anchor the system’s financial stability.

Though in 2020 the Bahamas was the first to launch a national digital currency¹², no major central bank has yet issued a CBDC. This is a complex, time-consuming decision that will take years to mature (if it does). But a privately issued stablecoin, pegged to the currency and backed by a liquid pool of safe assets, could play the same function. It would not hurt but broaden the demand for the currency. It will preserve the valuable public-private partnership as well as nurture useful experience to further decide on the convenience of implementing a CBDC.

Safe stablecoin issuers are narrow banks (less risky than commercial banks as they do not take loan exposure). If licensed as banks, they might supply a digital highly liquid risk-free asset (backed by federal deposit insurance and with access to the central bank balance sheet) for the vast majority of transactions. Alternatively, tokenised commercial bank deposits running on the blockchain could provide a similar monetary service from legacy banks.

DeFi uses a multi-layered architecture where every layer has a distinct purpose and any layer is as secure as the layer below¹³. The blockchain can be seen as the foundation for trustless execution and serves as a settlement and dispute resolution layer. On top of it, there is an asset layer that includes the native protocol asset (e.g., ETH on the Ethereum blockchain) and other additional assets issued on this blockchain (known as tokens). **We recommend embedding a safe stablecoin as cited into DeFi platforms, or a CBDC when available, to significantly reduce the many legal, operational, market and credit risks involved, increase scalability and retain most of the benefits of decentralised finance within a stable digital environment.** Under these conditions, DeFi could build strong interfaces with the traditional finance system and the real economy without swelling financial risks.

DeFi is highly composable. Their protocols are comparable with Lego pieces. They can be combined, forked or rehashed to facilitate financial engineering with a limit-less range of possibilities. **We recommend that regulation and supervision be inserted in DeFi by encoding the proper rules within the protocol and application layers of their platforms** (e.g., requiring wallets to operate to be “Anti Money Laundering” and “Know Your Customer” compliant), which can suppress the need of third-party audits and facilitate real-time oversight.

APPENDIX: KEY CONCEPTS AND INITIATIVES RELATED TO THE TOPIC
G20 Italy. The Prosperity priority¹⁴. The digital revolution represents a fundamental tool to achieve prosperity and better quality of life. The international community needs to make digitalisation an opportunity for all.

G20 Saudi Arabia. Finance Ministers and Central Bank Governors Meeting, February 2020¹⁵. Reiteration of the view that technological innovations can deliver significant benefits to the financial system while remaining vigilant to potential risks from financial innovations, including risks related to financial stability.

The Financial Stability Board states that Crypto-asset markets are fast evolving and could reach a point where they represent a threat to global financial stability due to their scale, structural vulnerabilities and increasing interconnectedness with the traditional financial system¹⁶.

The G7 maintains that no global stablecoin project should begin operation until it adequately addresses relevant legal, regulatory and oversight requirements and adheres to applicable standards. It supports the work of the FSB, FATF, CPMI and other standard-setting bodies to analyse the risks associated with and determine appropriate policy responses¹⁷.

The BIS and the central banks of Canada, Europe, the United Kingdom, Japan, Sweden, Switzerland and the US agreed on three common foundational principles to guide CBDCs

examination¹⁸. They comprise not harming the central bank's mandate for monetary and financial stability, the coexistence with conventional cash (as long as there is sufficient public demand for it) and fostering innovation and efficiency. They also outlined certain core features covering the CBDC instrument, the underlying system and the broader institutional framework in which they exist.

The European Central Bank has launched the investigation phase of a digital euro project that is expected to last two years. This will not prejudice any future decision on the possible issuance of a digital euro, which will come only later. In any event, a digital euro would complement cash, not replace it¹⁹.

The US Federal Reserve is exploring the implications of, and options for, issuing a CBDC²⁰. It does not intend to proceed without clear support from the executive branch and from Congress, ideally in the form of a specific authorising law.

President Biden issues an executive order on digital assets, including cryptocurrencies, in which he calls public agencies for a broad review setting forth six main objectives: consumer and investor protection, financial stability, mitigation of illicit finance and national security risks and US leadership in the global financial system and economic competitiveness²¹.

The BIS Innovation Hub, which aims to foster innovation and greater collaboration amongst the central bank community globally, does extensive work in CBDCs, Financial Market Infrastructure, Cybersecurity and open finance²². Sixty-three central banks own the BIS. Central banks actively involved in current projects include Switzerland, Singapore, Hong Kong SAR, Thailand, United Arab Emirates, the ECB, the New York FED and the Digital Currency Institute of the Bank of the People of China.

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