Centre for International
Governance Innovation

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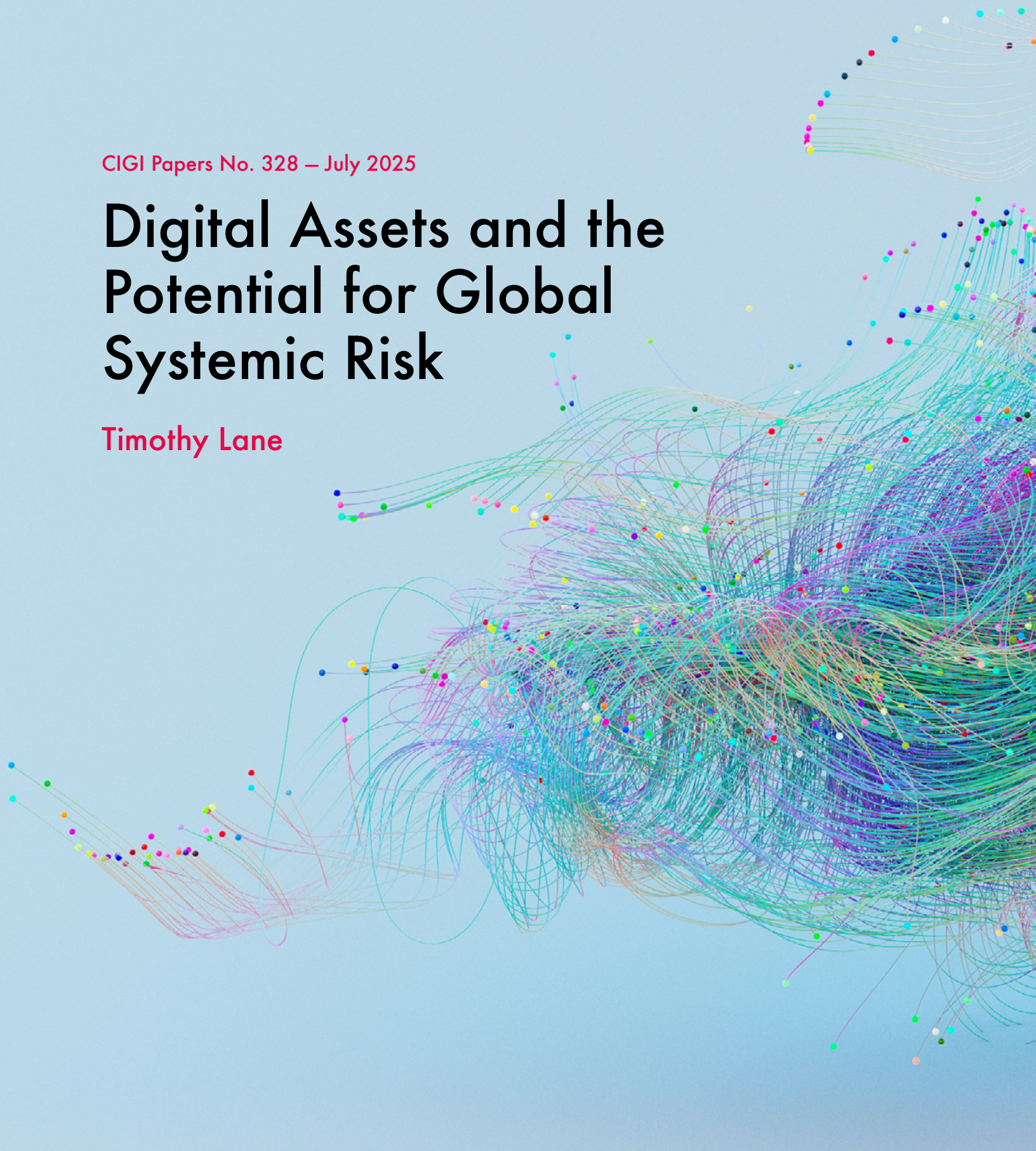
Digital Assets and the Potential for Global Systemic Risk

Timothy Lane



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About the Author

Timothy (Tim) Lane is a senior fellow at CIGI and a former deputy governor of the Bank of Canada (BoC) from 2009 through 2022. He shared responsibility for monetary policy and undertook a series of other responsibilities covering all main areas of central bank policy making. He led the BoC's work on central bank digital currency and payments modernization, and chaired the Financial Stability Board's international working group on stablecoin regulation. Previously, he led the BoC's international work, serving as G7 and G20 Deputy.

Before joining the BoC, Tim served for 20 years at the International Monetary Fund (IMF), where he worked on a range of issues concerning advanced and emerging market economies. He has published research on monetary policy and on a variety of other topics related to economic and financial policy. He was also a visiting fellow at the University of Oxford. Prior to his work at the IMF, Tim served as assistant professor of economics at Michigan State University and at the University of Iowa. He received a B.A. from Carleton University in Ottawa and an M.A. and a Ph.D. from the University of Western Ontario in London.

Executive Summary

Digital assets, especially crypto-assets, have major risks that are well understood — notably, the inherent volatility of their value. This downside tends to limit both the size of the market and the purposes for which crypto-assets are used, and thus the potential for risk to become systemic. But interconnections between digital assets and the mainstream financial system are becoming increasingly important and complex, especially with the emergence of multifunction crypto-asset intermediaries.

Stablecoins, for example, involve a distinct set of issues. Their perceived stability enables them to be used more widely as a means of payment. However, maintaining a stablecoin's link to fiat currency entails the risk of runs similar to that faced by banks, so their operation needs to be held to a high standard.

As for central bank digital currency (CBDC), a concern is that its very safety could make it too attractive relative to bank deposits, resulting in widespread disintermediation. In times of stress, deposits could rapidly shift into CBDC, resulting in faster and larger bank runs. Central banks have been considering how to design a CBDC to mitigate these risks.

More generally, wider application of distributed ledger technology (DLT) could reconfigure the financial system in a way that would simplify trading relationships. While overall this approach is more efficient and could transform the financial system to better serve the public, it could also weaken incumbent institutions, particularly those that are not sufficiently nimble to adapt to a new environment.

Introduction

What is most dangerous is the illusion of safety. To the extent that risks are well understood, they can be avoided, hedged or otherwise protected against. Systemic risk can arise, though, from vulnerabilities in such protective strategies — as exemplified by the role of US subprime mortgages in the lead-up to the 2007–2008 global financial crisis.

Digital assets, and especially crypto-assets, have major risks that are well understood. These risks stem primarily from the inherent volatility of their value, as their inflexible supply meets rapidly shifting demand from investors. Indeed, that volatility is what has attracted many investors. But their known riskiness tends to limit both the size of the market and the purposes for which they are used. These factors reduce, although they cannot eliminate, crypto-assets' potential to create global systemic risk.

The role of digital assets is changing rapidly and will evolve further with the crypto enthusiasm of the current US administration. Already, there are increasingly complex links between digital assets and the mainstream financial system, and these could become more pervasive as time goes on. More generally, the application of DLT could reconfigure the financial system in a way that would simplify trading relationships and, by doing so, eliminate many margins and fees. While this approach promotes efficiency and could transform the financial system in a way that better serves the public, it could also weaken established institutions that rely on revenue from these sources, particularly if they are not sufficiently nimble in adapting to a new environment.

Effective regulation can create an environment in which innovation can take place safely. But in the digital finance sector, the novelty of the products and platforms and their multi-faceted nature pose significant challenges. Beyond these regulatory challenges, political and geopolitical factors play a role. Several jurisdictions aspire to build thriving digital finance industries; while ideally this aim would induce them to underpin development with a strong independent regulatory framework, experience suggests otherwise — with the potential for a "race to the bottom" in regulatory standards creating multiple opportunities for regulatory arbitrage. Some jurisdictions may actively promote

digital assets as a vehicle for expanding their own influence abroad. Others may try to suppress the use of digital assets as a way of preserving their own control and/or protecting their own technology companies and financial institutions from competition. These factors may impede the establishment of a consistent and effective regulatory framework, either nationally or globally.

This paper first discusses the interlinkages between digital assets and the real economy. Then it reviews the specific issues associated with stablecoins, noting that their ostensible safety gives them greater potential for systemic harm. The paper will briefly discuss where CBDC fits in. Finally, the author examines the disruptive potential of a wider shift of financial transactions onto DLT platforms.

Interlinkages

Despite the vision that crypto-assets could become the money of the future, the role of these assets in the financial system remains limited. The primary use of crypto-assets such as bitcoin remains for investment or speculation, with little use in transactions (Balutel, Henry and Rusu 2023). While crypto-assets are used for various transactions related to digital finance and for transactions that are intended to be below the radar — for example, tax evasion, money laundering, bribery, terrorist financing, ransoms, sanctions avoidance and so on — they are not ordinarily used as a means of payment for most goods, services and assets. In addition to the substantial risks associated with fluctuating values of crypto-assets, investments in crypto-assets are often affected by opaque governance and the potential for manipulation and other malfeasance.

Developments in recent years have brought crypto-assets further into the mainstream: crypto-investment funds have been permitted to launch; there are crypto indices and futures markets; and peer-to-peer platforms use digital assets to transfer value. Moreover, mainstream financial institutions have been getting into the act — not primarily as crypto investors but in enabling those activities. Despite greater mainstream involvement, the risks of investments in digital assets are still borne mainly by the users and investors: there is little evidence of channels that could amplify and spread them systemwide. Further development in the same direction is not likely by itself to create systemic risk.

The market for crypto could grow much further as it is viewed as an asset class. Initially, it was made more attractive as an asset class because its return had a low correlation with equities and other risky assets — and that fact made it less likely to be systemic. As crypto-assets are increasingly held by mainstream investors, though, this tends to heighten correlations with other assets (IMF 2024). Greater mainstream exposure, together with the higher correlation, adds to the potential for wealth effects to transmit price fluctuations to real household spending. But crypto-assets remain a small share of asset markets: although their worldwide market capitalization has grown substantially, to around US$3.5 trillion,[1] that is only about three percent of the size of the global equity market (Kolchin, Romulus and Paluzzi 2024). Thus, there is little reason to believe that crypto-assets would be more than a minor factor contributing to market fluctuations and their economic impact.

Another channel pertains to the exposure of financial institutions to crypto-assets. Limiting such exposures has been the main focus of international bank regulation: the Basel Committee on Banking Supervision (2022) establishes punitive capital requirements on unbacked crypto holdings on banks' balance sheets. Despite these regulations on banks, non-bank financial institutions could take on substantial leveraged exposures to crypto-assets, which, in the presence of other vulnerabilities, could have knock-on effects on the wider financial system. So far, though, there is little evidence of such exposures.

Perhaps more important is the emergence of multifunction crypto-asset intermediaries operating internationally (FSB 2023). Such intermediaries typically undertake a range of different functions, including supporting trading, market making, margin lending, custody and staking as a service. Such platforms are becoming more important, and if this role continued to grow, they could develop systemic interconnections. The increasing importance of these intermediaries, as well as the incomplete and sometimes inconsistent regulatory framework, may over time create the potential for systemic risk.

1 See https://coinmarketcap.com.

If crypto markets or intermediaries were subjected to a major crisis, the absence of an institution that can provide liquidity to the market could make the effects more severe. A crisis is typically spread and amplified by cumulative processes associated with illiquidity and related fire-sale dynamics. In the traditional financial system, central banks can provide unlimited liquidity support to check these processes — as happened in 2007–2008 and in March 2020. The decentralized nature of crypto-asset creation precludes the establishment of an institution to provide such support, so such crisis dynamics could cause greater damage.

All this said, there is no evidence yet that interconnections between crypto-assets and the mainstream financial system are such as to create systemic risk. Indeed, these assets have experienced various "real-life stress tests" in recent years, including price drops of as much as 80 percent and increases of up to 500 percent, as well as the failures of some key institutions — including fintech platforms and two commercial banks providing services to the industry — without a serious impact on the broader financial system and economy. But these interconnections are likely to continue to deepen over time, requiring close scrutiny.

Stablecoins

A distinct set of issues arises with stablecoins, which claim to maintain a stable value, usually relative to the US dollar or some other fiat currency. Their perceived safety gives stablecoins greater potential to create systemic risk, for two reasons (MacDonald and Zhao 2022).

First, over time, stablecoins could become more widely used in payment for goods, services and other assets if they are perceived as combining the stable purchasing power of fiat money with the convenience of use on digital platforms. Concern that this could occur — and that if it did, the risks would need to be well managed — was an important motivation for the FSB, global standard-setting bodies and regulators in many jurisdictions to examine how the financial regulatory framework should be applied to stablecoins. At present, stablecoins are used primarily as on- and off-ramps for investments in crypto-assets — but there is real potential for them to come into wider use.

Second, maintaining the stability of a stablecoin's value entails a set of risks similar to those faced by banks, and that calls for a regulatory framework similar, in important respects, to bank regulation. If a stablecoin is backed by a reserve of other assets, it is subject to run risk, which depends on the quality and liquidity of the reserve assets. This risk must be well managed. If the stability of the stablecoins' value is to be credible, it must be on firm foundations, which require clarity of the legal rights of holders, sound principles for the management of reserve assets, good governance and management of operational risk, as well as a clear framework for recovery and resolution.

These considerations shaped the FSB principles for the regulation of "global stablecoins" (i.e., those that are in widespread use in multiple jurisdictions) (FSB 2020). These principles start from the premise of "same activities, same risk, same regulatory outcome": risks should be addressed in a similar manner even if they arise in the context of a different technological platform. These principles provide a good foundation, but their implementation is challenging and progress has so far been uneven (FSB 2022; FSB and IMF 2024).

One of the challenges of applying regulatory principles to stablecoin arrangements is the decentralized structure of some stablecoin platforms. Such decentralization may make it more difficult to identify who is responsible for complying with various regulations.

A second challenge is related to proportionality: regulations that are needed for globally systemic stablecoin arrangements may be excessively stifling for stablecoins that are used on a small scale or for limited purposes — but the use of a stablecoin can evolve rapidly over time, requiring a framework that can be graduated.

A third challenge is related to regulatory coordination, particularly given the cross-border nature of digital assets. Stablecoin arrangements typically comprise different functions: issuance and stabilization of value; transfer; and wallet provision. Therefore, they could involve more than one type of regulation — as financial institutions, payment infrastructures, services providers, securities issuance, financial market infrastructures and so on. Regulatory coordination

may thus need to be cross-functional as well as cross-border. Finally, because the different aspects of stablecoins are interconnected, it is important for regulators to take a holistic approach — but regulators are typically required to focus narrowly on their respective areas of responsibility. It is unclear how much further progress will be made in developing a coherent approach — and, in its absence, systemic risks remain.

A further issue concerns the potential role of big tech companies in launching digital assets and platforms (FSB 2023). This has not materialized so far, in part, because of the companies' concerns about the potential regulatory burden associated with the provision of financial services. The Libra project illustrates some of the issues that could arise: while the initial proposal was that a stablecoin be issued by a foundation of which Facebook would be only one of several sponsors, the platform's involvement elicited various regulatory and political concerns (including concerns over US dominance). Ultimately, the decision was taken to scale back the project (renamed Diem) and transfer it to a US-regulated financial institution. While the project was ultimately shelved, it illustrates some of the risks and challenges associated with potential involvement by big tech. Even if the stablecoin is only one of a big tech company's many business lines, these risks could still be material, or even systemic, and could be difficult to separate from the company's broader activities.

Finally, there is the potential that a government could actively promote stablecoins to pursue geopolitical objectives, possibly at the expense of financial stability. Here, the major focus is on the United States, given the overwhelming share of stablecoins that are linked to the US dollar. The signals so far have been mixed. On the one hand, legislation working its way through Congress (the GENIUS Act) would establish a regulatory framework for stablecoins. This framework could be characterized as "bank-lite," assigning regulatory responsibility to banking regulators and establishing criteria for reserve backing, disclosure and other issues. This approach seems to reflect a recognition that sound regulation of stablecoins must be the foundation for their wider use. On the other hand, these developments raise questions about whether the US administration, in its desire to promote the industry, may be willing to compromise on regulatory rigour.

CBDC

Most central banks have been exploring the possibility of launching a CBDC. Whereas stablecoins offer a stable value in relation to fiat currency, and require a mechanism to maintain that stability, a CBDC is itself a form of fiat currency — a direct liability of the central bank — in tokenized form. It would thus not be subject to the potential risks associated with stablecoins: it would combine finality of settlement in fiat currency with the functionality associated with tokenization.

Paradoxically, it is the very safety of CBDC that has been a focal point of discussions of the risks it could create in the system. Here, the concern is that the safety and functionality of a CBDC made available to the general public could make it too attractive relative to (non-interest-bearing) bank deposits, resulting in widespread disintermediation.

This concern has two aspects. One is that on an ongoing basis, creating a CBDC could deprive banks of a source of low-cost funding, impelling them to seek revenues from riskier sources, which would heighten their risk of failure.[2] A second is that, in times of stress, deposits could rapidly shift into CBDC and result in faster and larger bank runs. Of course, bank runs can occur in the absence of CBDC, as the high-speed US bank failures in 2023 illustrate. But concerns have been expressed that giving the public immediate access to a perfectly safe asset (CBDC) could enhance their ability to shift suddenly out of bank deposits in times of anxiety, which would immediately trigger liquidity problems at the banks.

Central banks exploring CBDC have been mindful of these potential risks (Bank of Canada 2020). Some, notably the European Central Bank (ECB), are considering limits on holdings or transfers of CBDC to contain it, even though this would limit the functionality of CBDC as money. However, these risks are perhaps overstated. Over many decades, considerable effort has gone into making the safety of bank deposits indistinguishable from that of cash, through bank regulation, deposit

2 There are many historical examples of such behaviour. One is the American Savings and Loan Association, which, in the 1980s, was in a squeeze due to a combination of long-term mortgage loan portfolios and deregulated deposit rates. Many responded with imprudent (and, in some cases, criminal) behaviour. The disruptions to financial institutions in that period are discussed in the next section of this paper.

insurance, bank resolution frameworks, and central banks' liquidity provision and lender-of-last-resort facilities. In this context, those bank runs that do occur primarily reflect fears about a specific institution rather than the ease and safety of an alternative asset.[3] In any event, no advanced-economy central bank has yet announced plans to create a CBDC, largely for the opposite reason: questions about whether, given the availability of other methods of payment, a CBDC would have sufficient uptake to warrant the public investment needed to launch one.

Another important design element is the distribution model: how CBDC would be made available for use by the public. While, in principle, consumers could interact directly with the central bank, most central banks have been considering a two-tier structure, whereby the CBDC is issued by the central bank but held in wallets maintained by banks or other service providers. These wallet providers would be responsible for transferring CBDC to make payments, as well as for holding information about the identity of their clients. The main arguments for such a two-tier structure (which is comparable to the role of banks in distributing and processing cash in most countries) would be comparative advantage and privacy. Advanced-economy central banks, such as the ECB and the Bank of England, have indicated that they would favour a two-tier distribution model if they were to issue a CBDC; that is also the model used in the People's Bank of China's digital renminbi pilot. A two-tier distribution model does not address the disintermediation issue, since a CBDC is, by definition, a direct liability of the central bank, but it might allow banks to earn fee income that would help compensate for their loss of deposit funding.

Disruption

In the longer run, digital assets, including widespread tokenization of a range of assets, can offer the potential to radically simplify the architecture for carrying out and recording financial transactions. Some major financial institutions have been exploring the potential for using DLT in this way.[4] This could create important efficiencies that could reduce costs as well as enable new kinds of transactions and services.

Ultimately, such a disruption of established ways of doing business could have major benefits for the public, including both households and companies. But, of course, the other side of simplifying transactions is eliminating many margins and fees that are a major source of revenues for established financial institutions. Some financial institutions' business models could become obsolete. Clearly, financial institutions need to be nimble to spot the opportunities in a new environment — those that are left behind may face substantial risks that could also spill over to the wider system.

The system may be faced with a transformation that is, in some respects, analogous to what it experienced in the 1980s (particularly in the United States) as deregulation and competition cut into banks' net interest margins. While there were a number of resulting bank failures, the majority survived by shifting their business models to rely more on revenues from a variety of trading spreads, fees and other non-interest income, including those from capital markets activities.[5] But now, with the prospect that more financial transactions (such as making markets in financial assets) could be tokenized and transacted on distributed ledgers, that could cut into many of those sources of income — both those associated with capital markets and those with retail customers. If this occurs, it would create a new imperative to "evolve or die." There could be a new wave of bank consolidation and probably some failures — some involving risky behaviour — with obvious potential to create systemic risk.

Another potential concern is that greater speed and efficiency in financial transactions could also enhance interconnectedness, increasing the speed with which stress spreads through the system. Cross-sectoral flows could take place much more rapidly, making financing flows less predictable. At the international level, we could witness faster cross-border flows, including capital flight and sudden stops and reversals of capital flows. It could

3 This was certainly true of the runs that triggered the 2023 bank failures in the United States, which primarily reflected government bonds with market prices below the valuations reported in those banks' financial statements.

4 An example is the Canton Network, established with the participation of a number of major financial institutions. See Digital Asset (2024).

5 Arguably, that reliance on capital market activities was also an important factor setting the stage for the 2007–2008 global financial crisis.

be more difficult to apply capital controls in such a setting. If policy makers are not ready, we could see a less stable international monetary order, which could translate into greater systemic financial risk.

Conclusion

Digital assets do not yet pose systemic risks, given their relatively small size and the limited purposes for which they are used. But that could quickly change as technology advances, and as markets and platforms for digital assets become ever more closely interconnected with mainstream finance and with the real economy. Also, digital assets could become seriously useful, and thus could also become seriously disruptive, rendering existing business models obsolete. If that occurs, the situation would need to be managed carefully to limit systemwide spillovers.

What, then, are regulators to do? They need to maintain a consistent set of norms, balancing the need to prevent abuses while aiming for proportionality to avoid the stifling of innovation. It will still be important to guard against old-school problems, including fraud, mismatched exposures and connected-party lending. Global cooperation is also essential, given the cross-border interconnections these products entail, to avoid regulatory gaps and inconsistencies that can be exploited. More generally, it is essential for regulators to be vigilant to wider risks that could emerge, and to prepare to take action to address them.

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