

Canada explores digital currency

Fintech collaboration vital to unlock promise

Carolyn Wilkins, Bank of Canada



The possibilities of digital money have sparked the interest of the private sector and the central banking community. Initial research into the implications for economies shows that strong regulatory regimes will be essential to ensure trust in the system.

Digital currencies aren't new. Most money in advanced economies is already digital: a bank account balance is but a computerised entry in a ledger at a commercial bank. However, the digital money of the future could have very different characteristics from present forms.

Consider currencies such as bitcoin, which are underpinned by blockchain, ie, electronic ledgers of transactions. There's no need for a central trusted issuer (although plenty of trust is still needed around the blockchain). This distributed ledger technology – where a database is spread across many sites – raises the possibility of central bank-issued electronic money circulating outside the confines of closed payments systems.

It's no wonder that the possibilities of new digital currencies have sparked the interest of the private sector and the central banking community. The questions raised are of fundamental significance to the core functions of central banks because they have implications for monetary policy, financial stability, funds management and currency issuance.

Research-driven decisions

The Bank of Canada is approaching the subject from three angles: research, experimentation and co-operation. The bank has been investigating questions related to private and central bank digital currencies for some years, and is building a set of research papers. It aims to examine the underlying benefits and risks of digital currencies to the functioning of the economy, and for the central bank mandate.

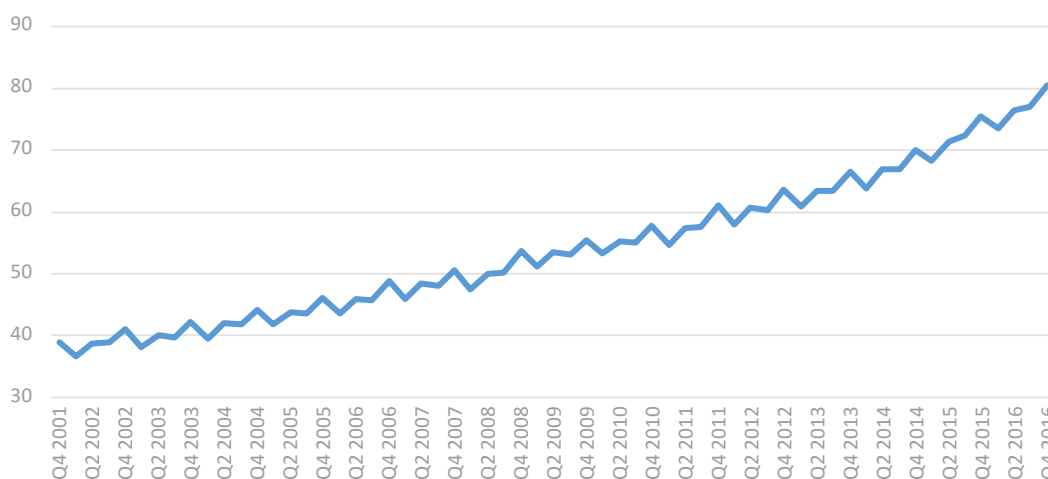
The US and Canadian experience with private and public issuance of bank notes in the late 1800s and early 1900s shows that a regime with private issuance of money can function reasonably well under certain circumstances. The main requirements are a strong regulatory regime, to ensure that all users can have trust in the system, and money that effectively satisfies three fundamental purposes: medium of exchange, unit of account and store of value.

Other research has highlighted the importance of making sure there is a need for the digital currency. If it simply provides another payment mechanism when cash is a viable alternative, there are circumstances under which the wellbeing of people could be reduced by its introduction.

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Cash in circulation in Canada continues to increase in line with GDP

Cash in circulation, C\$ bn



Source: International Monetary Fund, Central Bank Survey, OMFIF analysis

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Research on whether a central bank should issue a digital currency is still under way. The Bank of Canada has outlined a framework for analysis that highlights the importance of understanding the types of new economic activity that could be enabled. There are many considerations to be explored, not least who should have direct access to the central bank balance sheet and what this would imply for the transmission of monetary policy and financial stability.

While the bank's research shows that cash usage is declining in Canada as alternative electronic methods of payment gain market share, the amount of cash in circulation is still growing in line with nominal GDP. Bitcoin, along with other cryptocurrencies, plays a very small role in the Canadian market, so there is time to think through the issues.

Understanding through experimentation

The bank's second line of approach to digital currencies is through experimentation to help achieve a deeper understanding of new technologies. Project Jasper – the bank's distributed ledger technology experiment – is a joint initiative with national payment system operator Payments Canada, leading Canadian banks and the R3 technology consortium. The project has created and tested two proof-of-concept wholesale payment systems using a DLT-based settlement asset, dubbed 'CADcoin' or 'settlement coin'. One system was built on the open-source Ethereum platform, another on R3's Corda platform. The Corda-based system also built in a liquidity-saving feature to mimic the execution of centralised functions in a decentralised system.

The aim was to see how well the systems could meet CPMI-ISOCO Principles for Financial Market Infrastructures – the international standards for systemically important payment infrastructure. The bank also wanted to improve its understanding of how the private sector might interact with and adapt to a concrete DLT application and, at the same time, more deeply understand the technologies that may impact the financial system. To be clear, Jasper was not intended as an evaluation of platforms. That is better left to markets. Measured against the PFMLs, the test systems were able to meet principles of collateral, credit risk, money settlement and liquidity risk. The results were mixed on the principle of settlement finality. Other important gaps remain with respect to operational risk, as well as access and participation requirements.

There are several other lessons to date. One relates to the seeming contradiction in these systems; with some centralised functions but decentralised operations, the pay-off is not yet clear. For example, while decentralised operations could mean increased resilience, a similar outcome could also be achieved through a single operator running multiple sites.

Seeking long-term benefits

On cost, it appears that savings are more likely to come from streamlined reconciliation processes and fewer disputes, rather than from lower core system IT costs. That said, there would be strong potential for more savings if other applications were built upon a core cash payment DLT system, for example, financial asset clearing and settlement, and trade finance.

Then there's the matter of trade-offs between how widely transactions are verified by members of the system, and how widely information is shared. Ethereum uses a broadcast model where all participants can see all transactions on the system. Corda has a point-to-point model restricting information only to parties to the transaction and, if required, to a regulator.

The final aspect of the bank's approach to digital currencies is its work with peers worldwide, bilaterally and through forums such as the Financial Stability Board and the Committee on Payments and Market Infrastructures. It will collaborate further with academia and the private sector, monitoring developments in novel cryptocurrencies, developing other proof of concepts, and potentially using behavioural economics and industrial design to develop compelling user experiences and viable business models.

The bank's research, experimentation and co-operation have reinforced its belief that only by working together can central banks unlock the full promise of fintech, and support a smooth evolution to tomorrow's financial system. ■

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