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Gary Gensler: How blockchain can solve the payments riddle

Gary Gensler | 3/09/2018 9:00 am

Peer-to-peer electronic cash systems could lower costs, risks and economic rents in the financial system – if the technical and security challenges can be overcome.



Pizza Hut launched **PizzaNet** and made its first online sale in 1994, but money still changed hands with delivery. Amazon and eBay opened in 1995. Commerce was quickly looking for solutions to move payments across this new network. The internet and World Wide Web are built on open protocols – without trusted central intermediaries – and exchange data in the form of information packets. Efforts to achieve peer-to-peer payments, such as DigiCash and CyberCash, failed. By 1996, new

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A payment revolution

So what does this mean for money and finance? A decade later, the Nakamoto innovation must be taken seriously. Commonly referred to as blockchain technology, it establishes a **consensus protocol** among multiple, possibly distrusting, participants to build an immutable chain of blocks containing data (a 'blockchain') forming an auditable database. In Bitcoin, that is a record of who owns which coins. This database is secured using cryptography, so every entry can be widely verified.

Modestly, Nakamoto started that ground-breaking **2008 e-mail** with this: "I've been working on a new electronic cash system that's fully peer to peer, with no trusted third party." The first recorded transaction of Bitcoin for a physical good was in 2010: 10,000 Bitcoin for – yes – two pizzas.

Money is but a social and economic construct built on consensus, having taken on many forms and technologies over the millennia. Africans used cowrie shells, and on the island of Yap, large disks known as rai stones were money. The Chinese, Greeks and Romans minted money from bronze, silver and gold. Paper money was an innovation representing a store of value in a central repository. This led to privately issued bank notes and fiat currencies issued by governments. With the coming of the telegraph and Morse code, we had the first electronic money transfers. Today, the principal methods of payments and most money are electronic.

Cutting out the middleman

Regardless of whether Bitcoin and other cryptocurrencies yet adequately exhibit the three roles of money – a store of value, a medium of exchange and a unit of account – blockchain technology does provide a means to move value and run computer code on the internet without relying upon a central intermediary.

That ties blockchain technology and cryptocurrencies directly to the essential plumbing of the financial sector, which at its core has the role of efficiently moving and allocating money and risk within an economy. Though there are many technical and commercial challenges – scalability, efficiency, privacy, security, interoperability and governance – to overcome, I'm optimistic. This new technology could lower costs, risks and economic rents in the financial system, which represents 7.5% of US gross domestic product (GDP).

Modern financial systems bring great benefits to economies, but also, repeated, instability and occasional crises. The 2008 global financial crisis wreaked havoc, affecting millions of bystanders far and wide. Fiat currencies have had bouts of inflation associated with unsound monetary or fiscal policies. Centralised intermediaries concentrate risks and collect economic rents. The World Bank estimates that payment systems cost 0.5% to 1% of GDP and that 1.7 billion people were unbanked in 2017.

Potential uses of blockchain technology include cross-border payments, clearing and settlement systems, digital identities, trade finance and supply chain management. In the 21st **Geneva Report on the World Economy**, colleagues and I review a wide range of applications.

Crypto finance's \$250bn market cap, though modest in comparison to global debt and equity markets of more than \$300,000bn, has caught the attention of financial sector incumbents due to its volatility,

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To reach its potential and gain public confidence, though, the world of crypto finance must fit into **long-established public policy frameworks**. As with any other technology, we must guard against illicit activities such as tax evasion, money laundering, terrorist financing and avoiding sanctions. We must ensure financial stability. And we must protect investors and consumers.

Cryptocurrencies have given bad actors new ways to conduct old crimes. Dark markets conduct sales of illegal drugs and other contraband using cryptocurrencies. State actors, such as Venezuela and Russia, have used crypto finance to undermine US policies. And it adds new challenges to global tax compliance.

Most crypto exchanges are unregistered, manipulative behaviour goes unchecked, and billions of dollars in customers' tokens have been stolen. Illicit activity is particularly challenging to thwart on new, decentralised crypto exchanges. Safeguards to date – treating crypto exchanges and digital wallet providers through money transmission laws in the same manner as Western Union or MoneyGram – have been unsatisfactory. Crypto activity is more complex and harder to trace than traditional money transfers.

Through a new form of crowdfunding, thousands of initial coin offerings (ICOs) have been issued, raising more than \$20bn and counting. Debates have ensued about how this new form of crowdfunding fits within existing securities and derivatives laws, but one thing is clear from **academic** and **market** studies: the ICO market is rife with scams and frauds.

Furthermore, it is a false distinction that so-called 'utility tokens' sold for future consumption are not investment contracts. By their very design, ICOs mix economic attributes of both consumption and investment. ICO tokens' realities – their risks, expectation of profits, manner of marketing, exchange trading, limited supply and capital formation – are attributes of investment schemes. In the US, nearly all ICOs would meet the Supreme Court's 'Howey test' defining an investment contract under securities laws. In essence, as poet James Whitcomb Riley wrote more than 100 years ago: "When I see a bird that walks like a duck and swims like a duck and quacks like a duck, I call that bird a duck."

Central banks are studying blockchain technology and expanding their use of central bank digital currency (CBDC). They already issue digital currencies in the form of bank reserves, so the strategic consideration is whether (and if so, how) to give the public access to central bank payment systems and digital reserves.

Reacting to rapid changes in payment methods, such as mobile payments and digital wallets, central banks may also find themselves competing with private sector issuance of 'stable value' tokens backed by fiat currency. In some countries, commercial banks are experimenting with issuing digital currency, such as the Philippine ePiso and Senegal eCFA. With half of sub-Saharan Africa unbanked and about half of the unbanked having mobile phones, Safaricom's M-Pesa has led the way in providing mobile digital wallets and payment solutions. Tunisia is experimenting with e-Dinar mobile prepaid wallets.

Token experiments

While no retail CBDC has yet been issued, the ongoing work of two countries – one in distress and one strong – is noteworthy. Venezuela, facing hyperinflation and economic instability, is promoting public use of an oil-backed token, Petro. In Sweden, use of paper-based krona has declined and the Riksbank

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Nakamoto's innovation, now 10 years old, can be a catalyst for change in the world of money and finance. Blockchain technology goes directly to the plumbing of finance, providing a peer-to-peer alternative to centralised 'costs of trust'. Broad adoption, though, will mean complying with public policy norms, particularly guarding against illicit activities and protecting investors. Furthermore, private sector cryptocurrencies and public sector CBDCs, though still largely a social, economic and technological experiment, cannot be ignored. Though first used for two pizzas, they are perhaps yet another step in the long evolution of money.

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