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Financial Technology and National Security

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The fast-growing financial technology industry is claiming an increasingly important role in the broader financial services domain, from payments to lending, clearing and settling, new virtual assets and currencies, and beyond. These new financial technologies pose a range of threats and opportunities to U.S. national security.

What is Financial Technology?

Financial technology is a broad term that describes an array of technologies applied in the financial arena. It can encompass several decades of digital payment technology evolution, from credit cards to early-version mobile phone payment applications, to more contemporary peer-to-peer or bank-to-bank payment platforms, exchanges, and settlement mechanisms. In cross-border payments, for example, financial technology developers include longstanding incumbents such as SWIFT, as well as new companies exploring blockchain-based settlement mechanisms and new transmitters.

Financial technology also describes decades of developments designed to increase efficiency and versatility, and decrease costs, in investing, trading, insurance, and compliance, among other activities. More recently, there has been a speculative explosion in digital currencies based on distributed ledger technology. Despite the initial bubble's bursting in 2018, digital currencies still had an overall market capitalization of more than $175 billion as of early May 2019, demonstrating that they are likely to remain part of the financial landscape.[1]

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While distributed ledger technology is the basis for digital currencies, it is also an important emerging technology of its own. It underlies many new financial technology applications and is being tested in supply chain management and contracts relevant to tracking illicit actors, including sanctions evaders. It can offer a community of users an immutable, decentralized, auditable record of interactions.

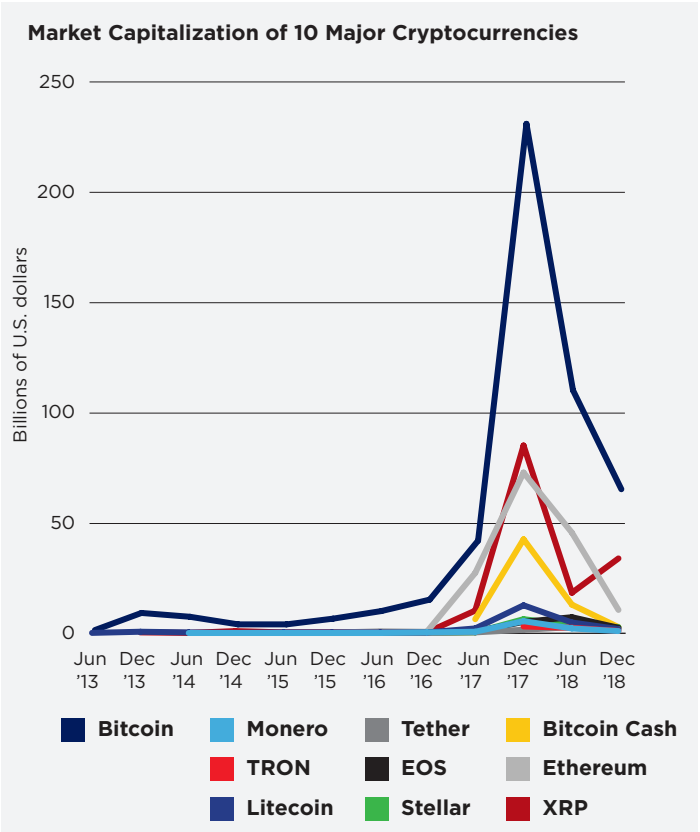
There are other emerging technologies not designed specifically for financial applications that may be used to deliver financial services or otherwise have relevance for financial activity, including the implementation and effectiveness of sanctions. These include artificial intelligence (AI) and machine learning (ML) to find patterns in large amounts of data. Such technologies can be resources for banks and government officials tracking evolving methods for illicit financial activity. Conversely, cryptography for the provision of anonymity, including for digital currencies, is another technology that could facilitate money movements outside the view of U.S. officials.

Who Develops and Uses Financial Technology?

Technologists in the United States have historically been leaders in the development of financial technologies, along with counterpart communities in Canada, Singapore, South Korea, and the United Kingdom. In 2018, of the $111.8 billion invested globally in financial technology companies, U.S. companies received $52.5 billion, almost half of global investment.[2]

However, in recent years some new entrants, including Chinese entrepreneurs, have made a strong push to lead development in the field. In 2018, the $14 billion investment in Ant Financial, a spin-off company of Alibaba, was the second largest global financial technology deal.[3] The widespread adoption of mobile payments, as well as a regulatory environment that discriminates against foreign companies, has allowed Chinese financial technology companies to scale up at a speed unseen in other regulatory environments.

Regarding digital currencies, a majority of mining activity now occurs in China. However, China has recently subjected cryptocurrency activities to significant regulatory oversight, including contemplating a ban on cryptocurrency mining.[4] Other countries, such as Russia and Venezuela, are working on developing national digital currencies. Both



Despite the digital currency bubble's bursting over the course of 2018, digital currencies have maintained substantial market capitalization and are likely to remain a significant financial asset class.

Source: "Top 100 Cryptocurrencies by Market Capitalization," Coinmarketcap.com, January 4, 2019, https://coinmarketcap.com/. Note: Market capitalization data as of the last day of each month. With the exception of Monero, all of the digital currencies above were in the top 10 in market capitalization as of January 4, 2019. Monero was 13th.

national cryptocurrencies have yet to succeed, and they will be constrained by the same problems that befall their fiat currencies. Other central banks, such as the Central Bank of Iran, are considering issuing a digital currency.

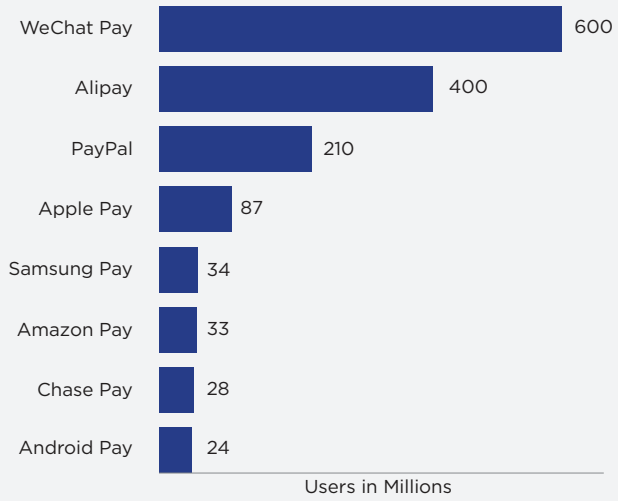
Separately, the People's Bank of China is pursuing digital currency technology aggressively. It is seeking to develop its own digital currency that could combine the features of a digital currency with the backing and scale of the traditional financial system. A central-bank-backed digital currency issued by a country with an economy the size of China's would have potentially huge impacts on financial stability by affecting credit allocation, could ultimately eliminate the use of cash, and could provide a platform for more easily transacting in renminbi globally.

Security Implications of Financial Technology

Criminals, including terrorists, proliferators, and anti-establishment iconoclasts dodging detection and sanctions, were relatively early experimenters with emerging digital currency and payment mechanisms. In the recent past, North Korean agents have used digital currency exchanges to launder Bitcoin into Monero, a type of digital currency known as a privacy coin, which uses cryptographic protocols to obscure user identities and transactions from external parties.[5] Services known as mixers or tumblers also allow users to disguise transactions even when using Bitcoin or other digital currencies that are only pseudonymous. Even without those methods, illicit actors are often able to move digital currency through exchanges that have weak anti-money-laundering (AML) and know-your-customer controls.

Although individual customers often value the perceived privacy of cryptocurrency, a number of major industry players have argued that the industry needs more transparency, stability, and careful stewardship.[6] There have also been signs that the United States is able to maintain some leverage over foreign cryptocurrency exchanges and can use that leverage to reduce the ability of illicit actors to use cryptocurrency. Binance, the largest cryptocurrency exchange in the world, moved its headquarters four times in 2018 to avoid regulators, but it began to implement serious AML controls after a report from the New York State Attorney General's Office recognized it as one of the exchanges lacking transparency around its security, compliance, and listing procedures.[7] Binance also suspended services in Iran after OFAC identified Iranian-linked cryptocurrency activities in November 2018.[8]

Number of Users of Leading Mobile Payments Platforms



Rapid adoption of mobile payments has been a major part of financial technology development, particularly in China. Nevertheless, it is unlikely that new digital payments technologies or cryptocurrencies will provide a meaningful method for evasion of U.S. coercive economic measures in the short-term.

Data Source: "Number of users of leading mobile payment platforms worldwide as of August 2017," Juniper Research; Fung Global Retail & Technology; Statista.com, https://www.statista.com/statistics/744944/mobile-payment-platforms-users/. Note: Users measured as of the end of August 2017.

The Future of Financial Technology

As financial technology investment and innovation reshapes the broader financial industry, it has the ability to enable both the strengthening and weakening of U.S. national security. If the United States is able to promote investment and a sound regulatory environment, it will remain a leader in financial technology development and ensure that financial technology developments largely benefit U.S. national security and economic prosperity.

Endnotes

1. "Top 100 Cryptocurrencies by Market Capitalization," Coinmarketcap.com, Updated May 5, 2019, https://coinmarketcap.com/.

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