BY ANNA KOVNER

Digital Assets and Blockchain Through an Economics Lens

t seems like everyone is talking about "crypto" these days. The word spans a diverse array of financial products and services, which collectively I'll refer to as "digital assets." Digital assets have developed into a complicated ecosystem, with a foundation in blockchain technology. Blockchain is a decentralized and distributed database, similar to a massive virtual ledger where each block is an entry. A blockchain can often be public and permanent, meaning no one owns it, everyone can see everyone's accounts, and transactions, which are updated in real-time, cannot be reversed once they are confirmed.

Building upon this ledger are an array of components: *applications* connecting crypto to the traditional financial system; *smart contracts*, including decentralized exchanges and lending; *assets*, such as tokens, stablecoins, and cypto-currencies; and finally, settlement in the blockchain. Assets like Bitcoin and Ethereum receive the most attention, but without the other components of the ecosystem, the impact of cryptocurrencies and stablecoins would be limited.

Money is a payments mechanism and store of value. This is why measures of the money supply extend beyond the amount of currency in circulation to include balances in bank accounts (M1) and retail money market mutual fund shares (M2). Private money was prevalent in U.S. history before the 1930s when private banks issued circulating bank notes. The variety of notes led to challenges, including counterfeiting, volatile exchange rates, and redemption risks arising from risky banks.

Digital technologies solve some of these issues. Some digital assets are decentralized and "distributed," meaning that data are stored across peer-to-peer networks without a centralized official database. The result can be a dataset that facilitates settlement (transactions are public and recorded as public blocks) and is resilient (if any node goes down, the network remains robust).

Distribution may add resilience, but blockchain approaches to currency can be inefficient as data are replicated across the network, a more costly approach than relying on a trusted central intermediary. Some of the earliest crypto currencies like Bitcoin have had values that fluctuate widely, impairing their use as money but making them potentially valuable assets for a diversified investment portfolio. In response, we have seen dramatic growth in stablecoins since 2020. Stablecoins (for example, Tether, USDC, and Binance) are usually pegged to a reference asset like the U.S. dollar, allowing their holder to use them as a dollar-denominated asset and potentially as payment in cross-border transactions. Currently, the most common use case for stablecoins is within the digital ecosystem, where they are involved in 80 percent of trading.

Late last year, the overall value of digital assets approached \$3.8 trillion, reflecting continued growth in cryptocurrencies, stablecoins, and other related financial products. Why are so many people interested in them?

First, digital assets can be an investment. As institutional asset managers develop the ability and legal framework to hold digital assets, cryptocurrencies may become part of the saving strategies of institutional investors and private individuals. University endowments, in particular, have been leaders in allocating assets to novel investments with higher risk and higher returns, and they have been increasingly allocating parts of their portfolios to these assets. Digital assets could be similar to commodities such as gold whose value exceeds its intrinsic value due to scarcity, its historical use as a store of wealth, and its properties as an inflation hedge. Further harmonization of the regulation of digital assets may also affect their investment value.

Second, such technologies can allow for the tokenization — or digitization — of real and financial assets. Tokenization would allow for trading outside of market hours, realtime settlement, and fractional ownership, as transactions, settlement, and custody are facilitated by the blockchain. Through decentralized physical infrastructure networks (DePIN), individuals may contribute their own physical resources like data storage, mobile hotspots, or even EV chargers to be shared and tokenized.

Third, digital assets can allow for smart contracts and reduce inefficiencies associated with institutional financial markets settlement and cross-border frictions. It is worth noting here that unless stablecoins or cryptocurrencies take over from traditional currencies completely, traditional exchange rate variability would remain a cross-border issue.

Finally, digital technologies can allow for increased financial inclusion and fractional payments. More than 4 percent of U.S. households do not have a bank or credit union account, with the share of unbanked much higher among Black, Hispanic, and American Indian or Alaska Native Americans. Almost a quarter of American households do not have credit cards, preventing them from making digital purchases and restricting access to credit. If adopted in scale, digital assets may result in lower payment costs for these groups and for all of us. **EF**

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