Centre for International Governance Innovation

OLIVER WYMAN

Conference Report – Special Session Held in Place of the Financial Regulatory Outlook Conference, October 6, 2021

Blockchain Technology and Crypto-assets as a New Form of Payment Tool

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About the Authors

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Giovanni has been minister of economy and finance within the Italian government, full professor of economics and dean of the Faculty of Economics at the University of Rome Tor Vergata, president of the Italian National School of Public Administration and member of the Board of Directors of the International Labour Office for the Italian government. He worked as an economic expert in many Italian institutions and government bodies and for international organizations. He is a member of the scientific committees of Italian think tanks and foundations and an editorialist for Italian newspapers.

Angelo Federico Arcelli is currently a CIGI senior fellow and a professor of economics of international institutions at Guglielmo Marconi University in Rome. Federico has served in several adviser roles, including at the European Investment Bank and at the Independent Evaluation Group (World Bank Group) and as a member of the executive board of the World Bank (in Washington, DC, 2008–2009) and of the consultative committee ("Osservatorio") on the European constitution in Italy's Ministry of European Union Affairs (2002–2004). In the private sector, he currently holds positions at Oliver Wyman and Marsh and McLennan Group. He holds an M.Sc. in economics and a Ph.D. in economic history, both from Bocconi University in Milan.

Andrea Federico is a partner at Oliver Wyman working in the Public Sector and Policy practice in Europe. Andrea joined Oliver Wyman in 1998, in London. His early career was devoted to advising major commercial and universal banks in Europe on their risk and financial resources management priorities. Since 2007 he has been based in Rome.

Following the global financial crisis, Andrea developed a deep interest in financial stabilization measures and policy issues related to the financial services sector as a whole.

As co-head of the firm's public sector and policy practice, Andrea is responsible for Oliver Wyman's financial services work with governments, central banks, supervisors and supra-national authorities, and multilateral and development banks. His work includes regulatory and financial sector reform, asset quality review and stress testing, resolution frameworks and strategies, and crisis management. More recently, Andrea has developed a keen interest in two distinct areas: climate change and anti-money laundering.

Introduction

This conference report summarizes the key points and discussions from a session held on October 6, 2021, in place of CIGI and Oliver Wyman's eighth annual Financial Regulatory Outlook Conference, given continuing travel restrictions due to the COVID-19 pandemic. The discussion was led by Giovanni Tria, a CIGI distinguished fellow, Angelo Federico Arcelli, a CIGI senior fellow and partner in Oliver Wyman, and Andrea Federico, a partner in Oliver Wyman, and included the participation of former ministers, high-level officials, senior central bank executives and private sector representatives. The session focused on the specific challenges for regulation and supervision in the financial ecosystem where new technologies such as blockchain are favouring the introduction of crypto-assets, which, de facto, represent a possible challenge to central banks' monopoly on monetary supply. This report first discusses the technical background on blockchain technologies, then examines crypto-asset markets and closes with the interconnections with monetary policy.

A New Form of Payment Tool: Background

In recent years, we have seen the development of a new technology (blockchain) enabling a new means of payment and exchange in the form of "virtual" currencies, which are not regulated or issued by any central bank — so-called cryptocurrencies.[1] The blockchain is a type of network architecture that allows for non-central verification of transactions by "blocks," which are progressively appended to an irreversible distributed ledger. From a more technical point of view, it is the combined application of two technologies widely used in computer science: a network of replicated databases — each containing the same list of information — visible, shared and synchronically updated by all the computers taking part in the network (for example, the distributed ledger and the nodes); and a cryptographic algorithm that makes it statistically impossible to add a block of record that is not coherent with the previous information of the database following a set of predefined rules. The combination of these elements provides a chain of immutable and self-consistent blocks of records.

A high-level description of how blockchain technology allows for a self-validating currency to exist is explained by the scheme of a standard transaction. A "request" is made by a specific user (we may call this one "A"), who wants to transfer a certain good to another user ("B"). This transaction is encrypted with a digital security code and represented online as a "block," which is broadcast to all computers in the network, known as "nodes." The nodes of the network validate the transaction, if coherent with the previous blocks (the ledger). The new block is then added to the front of the chain, which provides a permanent, immutable and transparent record of the transaction that all other network members can see and autonomously verify: any attempt to modify the order will cause a break of codes, voiding such a transaction. After the "validation," the transaction is complete and the goods move from A to B, or, in case of a cryptocurrency, the "credit" moves from A to B in exchange for goods or services.

1 Sources consulted as a background to this part include David Carlisle, "Cryptocurrencies and Terrorist Financing: A Risk, But Hold the Panic," Royal United Services Institute, March 2, 2017, https://rusi.org/explore-our-research/publications/commentary/cryptocurrencies-and-terrorist-financing-risk-hold-panic; Europol, "Two criminal groups dismantled for laundering EUR 2.5 million through smurfing and cryptocurrencies," press release, July 11, 2017, www.europol.europa.eu/media-press/newsroom/news/two-criminal-groups-dismantled-for-laundering-eur-25-million-through-smurfing-and-cryptocurrencies; Financial Action Task Force, "Virtual Currencies: Key Definitions and Potential AML/CFT Risks," June 2014, www.fatf-gafi.org/media/fatf/documents/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf. This conference report draws on the article "The rise of blockchain technology and cryptocurrencies" by the same authors and Emiliano Carchen in the section "The Evolution of Digital Assets: Blockchain Technology and Cryptocurrencies" in *International Business Law*, 2nd ed., edited by Lucio Ghia (Padua, Italy: Cedam, 2019).

The first network based on blockchain technology was bitcoin, created in 2009, and it offers to its participants the possibility to transfer units of account (i.e., bitcoin) whose total number is limited and predetermined: in this sense, the ledger of bitcoin is the record of all transactions completed since its creation. Because of its high portability and low commission, several internet communities (for example, online gaming) began to use bitcoin as medium of exchange and store of value: the word cryptocurrency was then coined, as was bitcoin. While the distributed ledger technology was initially designed to be publicly accessible (open network) and avoid any central management, today we see a growing number of distributed ledgers controlled by a central agent in industrial applications where mutual control, traceability of records and visibility of data are required by all members of the network, including the supply chain, to manage and sign contracts and audit product provenance, voting platforms, deed management and so on.

"Crypto-money" has no intrinsic value, no regulator and no monetary policy. It will never be subject to all the basic features that we would consider normal according to the definition of money that we use every day. Nevertheless, it can and is used for transactions. From a broader perspective, cryptocurrencies are just one of the several types of virtual digital assets: the ones commonly called cryptocurrencies are in fact convertible virtual currencies, which include payment tokens and are designed to be used as a medium of exchange, are convertible to and from fiat currencies, and utilize distributed ledger technology (for example, the blockchain).

Cryptocurrency Market Structure and Counterparts

The world of digital currencies is far more complicated and fragmented than one may expect; the complexity of users, providers of services, and platforms active in each market goes well beyond that of simple traders or investors in bitcoins. The main stakeholders in such an environment are all native digital "platforms" and they range from exchanges, which provide exchange services between cryptocurrency users or between fiat and cryptocurrencies, to trading platforms that provide users with tools to speculate on the volatility of the value of cryptocurrencies and on opportunities for arbitrage. Other platforms provide to market participants a repository to prevent the loss of digital assets (for example, the loss of the password allowing for the digital assets to be spent on the blockchain), with a function comparable to the one of custodian banks in the regulated and fiat world: these private and unregulated service providers are called "wallet providers." Here, wallets are intended to be a digital repository protected by some technological defence, for storing and transferring cryptocurrencies, allowing these "wallets" to contain and guarantee the users' cryptographic keys. Other platforms are the virtual financial assets (VFA) agents, which provide advisory services to parties interested in VFA space and act as gatekeepers for access to VFA products and services; finally, there are the famous "miners," which validate transactions by solving cryptographic puzzles and are rewarded with cryptocurrency that they themselves "mine."

Malta was one of the first jurisdictions to be open to a large-scale trade in cryptocurrencies, followed by Seychelles, Hong Kong, Singapore and, in fifth place, the United States. In fact, Malta has fostered a welcoming environment for cryptocurrency businesses and blockchain solutions, introducing specific legislation to regulate cryptocurrencies and hosting two of the top five exchanges (Binance and OKEx, now known as OKX) and likely to attract ZB.com, the fifth-largest exchange of cryptocurrencies. Seychelles is home to Huobi (second-largest exchange in 2017), while the British Virgin Islands are home to Bitfinex (fourth-largest exchange in 2016).[2]

More recently, countries such as Ecuador "legalized" the use of bitcoin as a national "currency," but other countries have a very different attitude: China is trying to reduce the scope for investments in such "currencies," while the United States considers bitcoins and other cryptocurrencies as "crypto-assets," thus taxing the eventual profits gained by trading in such assets.

2 Coinmarketcap.com data as of August 20, 2018; Oliver Wyman analysis.

Risks and Regulators

The overlap among regulated and non-regulated providers, trading places and repositories, as well as the plethora of tools and currencies, are some of the most significant causes of risks for end-users. And, also, of headaches for regulators. In fact, while any activity performed by a regulated entity (for example, a bank) needs to be supervised, activities performed by non-regulated international players entail high risk because they are not generally supervised. Further, with unregulated parties, there is a degree of uncertainty about the legal title and ground for disputes, and, in case of default, no type of insurance is applicable and none of the normal safety nets for a regulated environment are available. If there are regulated parties (for example, banks offering specific services to their clients) active in this environment, there may be a risk of a lack of a coherent legislative/regulative framework between regulated and non-regulated entities. When a regulated party enters in an unregulated space, this entails a potential risk that its customers may erroneously believe that they are covered by regulations (and related safety nets) that are not actually there, or, if they are fully aware, they might be intentionally taking a speculative decision expecting to gain an adequate return on investment to compensate for the extra risk taken. Significant compliance and reputational risks, among others, will thus represent a restraint for regulated parties to operate in such markets. This is leading regulators (particularly in the financial services domain) to take actions by defining policies about how such new tools might be recorded, how associated risks (material or reputational) should be mitigated and how appropriate weighting and capital assessment are defined.

By being completely decentralized, the blockchain has some features — beyond the disintermediation of the banking sector — that are distinctive from those of traditional centralized platforms, including complete visibility by all participants and historical traceability of records, since the ledger cannot be modified without hacking most of the network. There are, of course, risks and advantages of such a structure. For some users, the advantages could be relative anonymity (transactions are visible but there is no entity performing, for example, anti-money-laundering [AML] checks on single counterparts, and there is no way to see who is behind an entity that is part of the chain), global reach (being digital, a cryptocurrency is not limited by any territorial area of usage) and implicit venue privacy. For others (including regulators, given obvious "know your customer" [KYC] issues), these same features would constitute risks. In fact, all transactions within this structure currently remain outside the standard protections of the regulated system of currencies issued by central banks of sovereign states.

Unlike the case of the owner of the "normal" tender bill (or equivalent securities deposited in a traditional, regulated bank), who accepts legal controls and can rely on all the protections provided by the authorities, in the case of cryptocurrencies, the lack of a central regulator (a central bank) prevents owners from having the usual set of protections (which range from the stability of the currency or the relative certainty about the intrinsic purchase value, to the controls and the insurance for deposits in regulated institutions). In a nutshell, cryptocurrencies are more like digital goods than actual currencies, and their value is determined by a free, digital, unregulated global market. So, among the risks that the newcomer may incur, there is also price volatility, which is hard to predict in the absence of a central bank with the role of stabilizing its value. The cryptocurrency itself is, de facto, a "digital right" to own a block in the chain and fully subject to market risks.

Implications for the Financial Sector and Regulators

The concerns with such disruptive digital innovation depend on one's perspective. From the point of view of the incumbents, it is the ability to continue dominating the financial sector; for central banks and financial sector regulators, it is about keeping abreast of digital transformation from blockchain and other technologies and their implications for both financial sector stability and monetary policy. From a different perspective, digital transformation has changed the market and forced incumbent institutions to enhance their customer-centric approach both to retain customers and to avoid losing ground on new services offered by new competitors, which could, in the medium

term, lead traditional customers to leave banks. Banks, however, could enter new commercial domains, ancillary to their core services, to compete with challenges that were not on the radar until recently. Ultimately, for banks, the key to being successful will possibly entail them promoting a dialogue with the client, to offer not only traditional services, but also new ones in a cost-effective way.

Given their status of regulated entities, a dialogue with authorities will also be required to define the scope and limits of eventual new activities performed, so as to avoid impacts on regulatory capital, solvency and liquidity. Also, a clear definition of limits in responsibility and compliance and the introduction of some ways to comply with AML/KYC issues could be a relevant part of any new regulatory framework. But if such issues appear to have been identified as part of the debate on new digital tools, the actions taken from regulators are still limited and traditional. Regulated banks tend to avoid or substantially limit any presence in the cryptocurrency space. Cases such as Bermuda and a few others where regulators are starting to be active in the domain are still too limited to represent a signal of any new trend.

The birth of new forms of quasi-currencies and non-banking intermediaries has created new, uncharted territory for traditional regulators, including central banks, and disrupted their role in maintaining financial sector stability. These new forms of "money" used to settle payments or by major e-trade players on the market have, on one side, created a new layer of money supply, out of the full control of any authority, and, from another point of view, also created a market where the traditional forms of insurance for depositors and protections for customers are absent. Further, there is no way any authority could effectively exercise the roles that central banks have traditionally played with bank intermediaries or the ones that other financial regulators have covered in their respective domains.

Fearing that cryptocurrencies might become a threat to monetary policy, some central banks are working to create a "digital" version of their "traditional" currencies. It is likely too early to assess if current initiatives by central banks will have a real impact on cryptocurrencies. In fact, the initiatives being tested in China and studied in Europe (the European Central Bank is targeting no earlier than 2025 for the digital euro project) are aimed at offering a digital version of a currency, which will by definition entail all safety nets provided by regulators and cope with a certain degree of AML issues (depending on the IT infrastructure behind it), as digital anonymity is lower than the anonymity enjoyed by the bearer of paper money. But cryptocurrencies (which cannot be defined as money, legally speaking) do have relevant fluctuation in value that traditional money does not. So, the speculative side associated to the detention of cryptocurrencies will never apply to digital money, which may lead to the belief that digital currency will never be a real substitute for cryptocurrencies.

In general, the continuing rise of digital assets and crypto-assets to a primary role in the international financial markets will pose problems for both domestic and international regulation, as well as for monetary sovereignty. This situation could lead to the creation of a "renewed" International Monetary Fund, or a parallel entity focusing on digital currencies. It could also lead to a kind of "privatization" of supervision and to a world where the role for lawyers will be minimal, if not reduced to one of simple arrangers of the legal platforms behind the trades. A reflection about the growing impact of digital technology in payment settlement and in the new definition of money, including the primary role that data control might play in the future, will likely be a core part of the forthcoming international debate on new digital currencies.

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