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Opportunities for digitising debt capital markets and applications for developing countries

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RAPID ADVANCEMENTS IN TECHNOLOGY HAVE TRANSFORMED THE WAY WE DO BUSINESS IN EVERY INDUSTRY, RANGING FROM ENERGY TO HEALTHCARE TO TRAVEL TO INFRASTRUCTURE. THE CAPITAL MARKETS ARE NO EXCEPTION. THE TRADING OF MOST LIQUID CAPITAL MARKETS PRODUCTS, SUCH AS FUTURES, EQUITIES, AND FOREIGN EXCHANGE, HAS BEEN REVOLUTIONISED OVER THE PAST FEW DECADES BY DIGITAL TECHNOLOGIES.

These products now trade almost entirely on electronic exchanges or other digital venues, such as single and multi-dealer pools and platforms. Each advance in the digital trading of these products has led to increased volumes, greater transparency, and decreased costs per trade. The COVID-19 pandemic has only served to accelerate this trend. If Gordon Gekko wanted to buy a large block of Bluestar Airlines today, he would almost certainly trade electronically through a dark pool.

It is striking, in that context, to consider how far behind is the debt side of the capital markets in terms of digitisation. Despite the hundreds of millions of dollars that have been spent by dealers on expensive new technologies, the way many bonds are issued, settled, and serviced over their life has stubbornly remained the same as it was thirty years ago.

While a significant part of the cash trading of on-the-run, G-20 government bonds is done electronically, the digitisation of credit products lags far behind. And, within credit, the trading of structured products and most emerging market currency bonds is truly a relic of an earlier time, having remained virtually untouched by technological advancements.

Against this backdrop, two emerging developments – the digitisation of workflows using technologies such as distributed ledger technology (DLT) and the exploration by central banks of digital currencies (CBDC) hold the potential to not only drive efficiencies in debt capital markets, but also serve as a template to increase transparency and lower transaction costs in middle- and low-income countries.

Debt capital markets today

Digitisation of capital markets instruments has generally worked best with highly standardised products, like public equities. Bonds, however, are intrinsically heterogenous. A single issuer can issue hundreds of different bonds, every single one of them with varying characteristics related to currency, size, maturity, coupon structure, yield, and so forth.

The process of issuing a bond is in equal parts science and art, with issuers and underwriting banks using several data points in primary and secondary markets and supplementing it with their knowledge and experience to determine the appropriate market, size, timing, and pricing for a new issuance.

Moreover, post issuance, the process is largely manual and fragmented. The same data are manually re-created and reconciled across multiple systems and legal documents and by several stakeholders including the underwriting banks, the paying and calculation agent/s, the domestic and/or international central securities depositories (ICSDs), custodians, investors, third parties such as Bloomberg, and the issuer itself.

This process of re-creation and reconciliation continues over the entire life cycle of the issuance – at every interest payment and corporate action (such as puts or calls) and all the way to final redemption on maturity date. These multiple checks and records ensure the accuracy of data. Indeed, the market has functioned well, and it is rare for an issuer to distribute incorrect or unscheduled payments to investors. The use of multiple systems and processes, however, means that high levels of accuracy come at the expense of cost and efficiency.

Reconciliation aside, the processing of payments itself is in many ways complex and opaque and can take several hours, especially in the case of cross border payments.

Consider the case of an investor that does not see their account credited with the expected interest amount. Even if the issuer has taken the necessary steps in a timely manner, problems at any of the intermediary parties such as the issuer's correspondent bank, the paying agent, the ICSD, the custodian, or the correspondent bank of the investor can create a bottleneck in the entire payment process. Importantly, it can be hard for any single party to know which step in the payment chain is resulting in delays, and resolution requires continuous follow-ups with each of the many stakeholders.

DLT and CBDC – the basics

DLT involves the use of independent computers (referred to as nodes) to record, share and synchronise transactions in their respective electronic ledgers (instead of keeping data centralised as in a traditional ledger). One common type of DLT is Blockchain, which organises data into blocks that are chained together in an append-only mode.

CBDCs are simply a digital version of cash—the physical money issued by central banks. CBDCs are like existing online payment platforms, with one key difference: money held on a CBDC app or website is equivalent to a deposit at the central bank. CBDCs can be operated on DLT under which only permissioned institutions like commercial banks can join and validate transactions.

Opportunities for digitising debt capital markets

While many of the stakeholders, including banks, paying agents, registrars, and clearing systems have a unique and necessary role to play, the emergence of new technologies, including DLT and the use of CBDC holds the potential to introduce efficiencies and transparency in processes and workflows involved in the servicing of debt securities.

Firstly, technology can facilitate the creation of a digital and golden source of data upfront in the process. With every participant in the chain operating off the same data source, there is no need for multiple checks and reconciliations, reducing processing times and operational risk.

Secondly, technology-enabled online and digital platforms can create process efficiencies and enable streamlined communication with market counter parts on trade documentation, ISIN generation, etc.

Thirdly, the use of CBDCs can significantly cut down processing times for domestic and cross border payments, leading to faster settlement, and thereby reducing credit risk in the markets. Finally, the combined use of DLT and CBDC can improve market transparency by, for example, allowing permissioned parties such as issuers and other investors to know the identity of the holders of specific securities.

Issues experienced by participants in emerging market currency debt issuances is a case in point. With multiple intermediaries involved, payments of interest and principal amounts from an issuer to investor go through several steps. Sanctions or market liquidity impacting any of these intermediaries can delay or block the process.

The use of CBDC and digital platforms can not only make the process faster but also help track payments across all steps in the payment chain. Another use case for DLT and CBDC is the management of legacy floating rate notes (FRNs) that reference LIBOR. Fallback language on many FRN documents does not lend itself to an automatic transition to alternative reference rates such as SOFR.

In the absence of clear and transparent information on and ability to directly contact beneficial owners, issuers have had to follow costly, complex, and cumbersome exchange or consent solicitation offers - in some cases with sub-optimal results.

Risks

As with any new technology, digitisation of debt capital market workflows carries risks, all of which will require detailed analysis and mitigation. Many of these centre around technological and legal issues. For a start, the choice of technology, whether based on DLT, and the various flavours of these, requires a careful review. Choice of technology will depend in part on data ownership, security, cost, and maintenance, and must be considered in the context of scalability and sustainability, and impact on the environment.

On the business side, various traditional (banks and CSDs) and new (fintech firms) market participants are reported to have been exploring some of these solutions and challenges. Any solutions must comply with domestic and cross-border legal and regulatory standards. On the regulatory side, several governments and central banks are in various stages of research, review, and pilot projects to develop laws and policies around these issues.

There are, as of yet, unanswered questions related to how existing securities laws apply to entirely new forms of securities issuance. For example, one of the foundational principles of securities law is that the applicable law is determined based on the market where the securities are issued. However, in a borderless digital environment, determining the jurisdiction of issuance of a security may not be an easy matter.

In addition, there are a multiplicity of other legal uncertainties. How, for instance, do investor confidentiality regulations apply in a DLT based market where investors may all be known to each other? While some domestic markets already require such disclosure in the conventional market infrastructure, this is currently not the case in most markets across the globe.

Applications for developing countries

Very few developing countries have a well-functioning debt capital market. To the extent they exist at all in developing countries, they are generally very small, highly illiquid and dominated by government issuances. As a result, economic growth in these countries is often overly reliant on bank financing, which restricts the total amount of credit available to local businesses. And the path to creating a well-functioning debt capital market is not easy, due to the significant amount of market infrastructure that is required, from the establishment of central clearing systems, securities custodians, calculation agents, and rating agencies to the development of a securities trading and risk-taking culture at local banks.



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Digitisation holds the potential to permit developing countries to leapfrog the needs for some of this market infrastructure. Just like mobile phones have allowed some developing countries to skip building fixed-line technology and move straight to mobile technology, DLT and CBDC could allow a developing country to develop a local debt market relatively quickly and thereby transform the way its businesses are financed.

Imagine for example, a future in which farming cooperatives in remote rural areas, which currently are completely cut off from bank lending in many developing countries, could directly access small-scale debt financing through digital issuances that investors could purchase through their mobile phones.

Use of DLT and CBDC in the digitisation of domestic capital markets can provide the template for, and spur, development in middle- and low-income countries in myriad other ways as well. For example, recent geopolitical events in conflict-ridden countries have highlighted the need for access to alternative payment channels that can be deployed in emergency situations for project and/or administrative payments.

Similarly, according to a recent paper published by the Bank for International Settlements, central banks are considering how retail CBDC may help support financial inclusion. Much of the focus has been on ensuring that technology is low-cost and interoperable (enabling non-bank payment service providers) and facilitates enrolment and education (via simplified due diligence and electronic know your customer).

Together, these features can address a range of existing barriers to financial inclusion. Its use in debt capital markets with a targeted group of sophisticated and accredited market participants can help central banks and regulators test and resolve kinks in the use of both wholesale and retail CBDC.

Conclusion

Banks have spent enormous sums of money over the past several decades digitising all areas of their operations. Despite that, many areas of the debt capital markets look very much like they did at the start of the millennium. In comparison to many other areas of finance that have been wholly revolutionised by technology, aspects of the debt markets remain quaint and old-fashioned.

Traders, often using fixed phone lines, agree on trades, and those trade terms are then input into multiple systems all along the settlement chain. Bond traders, who were once lionised as “masters of the universe” in the 1987 novel *Bonfire of the Vanities*, now look more like dinosaurs in some respects.

But increasing digitisation of the bond markets appears inevitable. What exactly are the right solutions remains unclear and much work will need to be done to ensure the chosen technologies provide sufficient safety, scalability, and sustainability. Laws and regulations will also need to be adapted and coordinated to provide the clarity and consistency market participants will need to embrace these changes.

Regardless, the timing is ripe for innovations like DLT and CBDC to support the digitisation of debt capital markets and usher an era of increased efficiency and market transparency.

* The findings, interpretations and conclusions expressed herein are those of the authors and do not necessarily reflect the views of the World Bank or its affiliated organisations.

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