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Blockchain-based Debt Issues

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Introduction

Debt is a major source of money for governments, corporations, municipalities, special purpose vehicles, and many others. In case of both central and state governments, debt is the only source of money that can be raised from capital markets. For corporations, apart from being a source of money, issuing debt in capital markets also helps in reducing the cost of capital so very important to identify profitable projects for increasing shareholder value.

Outstanding Central Government debt In India at the end of December 2021 is Rs. 128.4 lac crore and is likely to rise further over time. Outstanding corporate bonds in India stood at Rs. 32.5 lac crore at the end of fiscal 2020 and is likely to reach Rs. 65-70 lac crore by the end of fiscal 2025 according to the CRISIL. The additional debt funds likely to be mobilized during FY 21-25 by various issuers/sectors, as per CRISIL estimates, are – infrastructure Rs. 5.5-7.5 lac crore, corporates Rs. 2.5-3.0 lac crore, non-banking/housing finance companies (NBFCs/HFCs) Rs. 14-15 lac crore, banks Rs. 1.5-2.5 lac crore, and infrastructure through innovative solutions Rs. 7-10 lac crore.

There are various markets for debts – primary market, secondary market, repo market and others. Primary markets can be for short-term discount instruments like bills and commercial papers or for longer-term securities like corporate and government bonds and others.

In this article, I discuss the challenges faced by the key players in traditional debt issuance in the primary market and how blockchain technology along with smart contracts can help in overcoming some of the challenges and also reduce the time required for fundraising as well as the cost of issuance and the subsequent servicing. I will end the article by discussing some debt issues made in the recent past by the World Bank, European Investment Bank, and other corporate borrowers.

Key Players in a Debt Issue

Some of the key players are mentioned below.

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- 1) Issuer – The primary motivation is to be able to raise the money at the least cost. As mentioned above, the demand for debt capital by the issuers in India is likely to be approximately Rs. 35 lac crore during FY 21-25 as per CRISIL estimates.
- 2) Investors – They subscribe to earn a satisfactory return on their investments and expect adequate liquidity at the time of exit. The major investors in the Indian market are mutual funds (Rs. 5-6 lac crore), insurance companies (Rs. 6-7 lac crore), retirements funds like Employee’s Provident Fund Organisation (EPFO), National Pension System (NPS), and exempted trusts (Rs. 7-8 lac crore), banks (Rs. 2-3 lac crore), FPI and others (Rs. 2-3 lac crore). The figures in brackets indicate the likely investments by the class of investors during FY 21-25 as per CRISIL estimates. One can observe that the supply of debt funds during FY 21-25 is well below the demand to the extent of approximately Rs. 10 lac crore.
- 3) Merchant Banker/Investment Banker – Their primary function is to prepare the Term sheet and Offer document / Prospectus, undertake due diligence, and obtain regulatory approvals. They help in raising funds by advising the appointment of managers, brokers, and bankers to the issue.
- 4) Managers to the issue – They help in issuing the securities, coordinate with syndicate members, brokers and bankers and arrange book building and allocation of securities to the investors.
- 5) Regulator – All capital issues are regulated by the Securities Exchange Board of India (SEBI) in India. The merchant banker obtains the regulator’s approval before any public issue can be made.
- 6) Credit rating agency – They play a very significant role by rating the debt instruments, which is a mandatory requirement as per the Indian regulator. The agencies obtain the relevant information from the issuer for initial rating and review the assigned rating on an annual basis.
- 7) Bankers – They accept online applications and hold the collected subscriptions till the allotment is made. Any excess subscription is returned to the investors directly from the bank and the balance money is passed on to the issuer.
- 8) Depository institution – It is necessary to hold the debt securities in dematerialized form with National Security Depository Limited (NSDL) or Central Depository Services (India) Limited (CDSL). The investors can access the securities through depository participants.
- 9) Registrar to the issue – The main function is to maintain records of investors, process applications for the allotment of securities, and transfer securities to the demat accounts of the investors.

Process of a Debt Issue

Debt issues can be classified in many ways. They can be issued by the government (considered risk-free in the domestic currency), government agencies like NABARD whose debts are secured by the government, and municipalities who are protected by the ability to raise taxes from the citizens and by the support from the local government. Corporations who depend on their streams of net revenues for meeting the liabilities towards the debt investors. The classification may also be based on tenor – bill, note, bond or long band. Bonds differ in credit rating and get differentially priced. Debts can be secured against assets or be unsecured. Debt capital can be raised domestically or abroad. The underlying interest rates can be fixed or variable. Majority of debts are placed privately with the help of investment/merchant bankers. Public markets are also used in many cases.

The issue of debt securities including commercial papers is governed in India by the SEBI (Issue and Listing of the Non-convertible Securities) Regulations, 2021. The major tasks involved for issuing the debt securities are as follows:

- 1) The Merchant banker has to prepare the offer document after due diligence of all the information mentioned in the document and obtain the approval of the regulator, SEBI.
- 2) In-principle approval of the stock exchanges where the securities will be listed for secondary trading has to be obtained.
- 3) The issuer has to make arrangements with the Depositories for the dematerialization of the issued securities.
- 4) The issuer has to appoint a Debenture trustee to oversee the compliance of the terms of the issue of the securities. A trust deed has to be executed for this purpose.
- 5) All debt issues will have to be rated by approved credit rating agencies.
- 6) The issuer has to appoint a Registrar to the issue for all secretarial matters and coordination with the Depositories.
- 7) All issues will be done electronically.
- 8) The issuer will have to create a debenture/capital redemption reserve as per the Companies Act.
- 9) The issuer and managers to the issue will have to coordinate with the syndicate members, brokers, and bankers for raising the funds.
- 10) The issuer will have to make an allotment of securities as per the provisions of the SEBI regulations and arrange a refund of the excess subscription.

11) The issuer will have to make the necessary arrangement for remittance of the periodic interest amounts and the redemption money at maturity to the investors.

12) The issuer shall make arrangements for redressal of any grievances of the investors.

It is thus apparent that a successful debt issue needs a smooth flow of information – accounting, business, cash flows, commercial, compliance, marketing, investor education, secretarial, and others – among the key players at different points of time during the issue and thereafter.

Time and Cost for a Debt Issue

As is evident from the previous section, any successful debt issue calls for a high degree of coordination among the participants in the issue. Also, it is time-consuming because of the sequential processing of information, some of which are provided by the issuer and others arranged by the merchant banker during the due diligence process. Some time is also needed for getting approvals from the regulator, stock exchange, credit rating agency, and depositories. The time taken for raising money also depends on the process used like public offer or private placement.

The cost of the issue has primarily three components – regulatory expenses, expenses on intermediaries, and marketing expenses. The regulatory expenses include SEBI fees, stock exchange fees for processing, book-building, and listing, and depository fees. The payments to the intermediaries are for the services rendered by merchant bankers, registrars, credit rating agencies, auditors, legal counsels, and bankers. The marketing expenses are incurred for printing and stationery, roadshows, branding, advertising and media campaign, and brokerage and selling commission. One can also break up the activities associated with a capital market issue into three phases – pre-issue, marketing, and post-issue.

Can blockchain-based debt issues reduce the time taken and cost incurred in making a debt issue?

Use of Blockchain in a Debt Issue

A blockchain is a shared, trusted, ledger of transactions that everyone can inspect but that no single user controls. It is a cryptographed, secure, tamper-resistant distributed database. A blockchain is a perfect place to store value, identities, agreements, property rights, credentials, etc. Once you put something like a digital contract into it, it will stay there forever. It is decentralized, disintermediated, cheap, and censorship-resistant.

A blockchain is digitally recorded data in packages called blocks. Each block contains a timestamp and a link to the previous block. The records are saved by each node (user) in the network and are owned, maintained, and updated by each node. It is a peer-to-peer system. Then what could be the advantages of using blockchain technology in making a debt issue?

- 1) Debt securities will be stored as immutable, transparent, fully-digitized, smart securities.
- 2) Smart digital securities will be self-executable with automated computer programs carrying out the terms of the contract like payment of interest. These smart contracts will be more efficient with a reduction of the involvement of intermediaries and of manual intervention.
- 3) The smart digital securities will help maintain the history of transactions and track any change in ownership.
- 4) All participants to the issue will receive a unique shared transaction record maintained on a real-time basis, which will allow efficient direct dealing among all the participants – issuer, investors, merchant banker, and other authorized intermediaries. This will facilitate a quicker issuance of debt securities.
- 5) Issue expenses will reduce due to reduced involvement of multiple intermediaries.

Here are some debt issues using blockchain technology.

World Bank and the First Global Blockchain Bond (Bond-i) in August 2018

The World Bank (IBRD) issues between US\$50-US\$60 billion annually in bonds and has a 70-year track record of innovation in capital markets. The World Bank launched the Bond-i (a blockchain-operated new debt instrument), their first bond, created, allocated, transferred, and managed through its life cycle using distributed ledger technology. The two-year bond, lead managed by the Commonwealth Bank of Australia, was issued in August 2018 and raised AUD 110 million.

The platform utilized blockchain technology for issuance including launch, book building, allocation and the management of bond holdings throughout the bond lifecycle. The major features were (a) automated bond auction, bookbuild, and allocation, (b) electronic bid capture, (c) real-time updates and enhanced visibility according to participant's permissions, (d) auditable and immutable transaction records for probity and operational risk management, and (e) permissioned network of authorized participants.

The creation of the world's first blockchain bond demonstrated that blockchain can bring a number of potential benefits:

- **Automation** – Smart contracts apply rules, then automate and streamline processes.
- **Efficiency** – Reduced administrative overhead, elimination of manual paper storage due to electronic documentation, and easier reconciliation result in greater efficiency.
- **Transparency** – Real-time record keeping result in Improved price transparency and visibility.
- **Security** – Replicated and synchronized full dataset protects from cyber threats.

- **Risk mitigation** – Immutable records and the possibility of simultaneous oversight mitigates operational risks.
- **Productivity** – The issue management process is more productive due to the reduction of low-value operational activities.

The World Bank raised a further AUD 50 million in August 2019. This issue expanded market participation with three lead managers: Commonwealth Bank of Australia, RBC Capital Markets, and TD Securities. It also expanded the investor community with the participation of offshore investors.

European Investment Bank (EIB) - Digital Bond issue in April 2021

EIB raised Euro 100 million by issuing a 2-year bond. The issue was launched in association with Goldman Sachs, Santander Bank, and Societe Generale Bank. This debt issue was undertaken in partnership with the national bank of France (Banque de France) and the money collected from the investors was represented as CBDC (Central Bank Digital Currency).

Daimler, Germany - Pilot issue of Euro 100 million Bond in June 2017

Daimler AG, the German car manufacturer, floated part of its Euro 100 million German bonds using blockchain technology in June 2017. The pilot project was among the first of its kind and the type of bond referred to as the Schuldschein bond provided access to global investors. In the process, Daimler could borrow money from a small group of private investors. It was issued on the private version of the Ethereum blockchain.

Other Noteworthy Issues

I present now some other noteworthy digital securities issued in the recent past. The examples cover corporate bonds, PTCs (pass-through certificates) issued by a Special Purpose Vehicles (SPV), short-term commercial paper, and structured products in various countries in Europe and Asia including India.

1) Singtel Group Treasury, Singapore - Digital USD 100 million Bond Issue in April 2022

Singtel wanted to support sustainability and digitize the financial ecosystem, and successfully floated 3.56% coupon 5-year USD 100 million digital Sustainability-linked bonds. This was lead managed by United Overseas Bank, Singapore, and issued on the private market investment platform of ADDX, Singapore.

2) Vasakronan, Sweden - Euro 50 million Green Note issue in December 2021

Vasakronan AB is a real estate company in Stockholm. It issued 18-month Euro 50 million digital Green Note. The issue was directly placed with Deka Bank, and settlement and registration of investment were done on

the Firstwire marketplace connected to Deka Bank's SWIAT (Secure Worldwide Interbank Asset Transfer) – a blockchain-based platform for real-time transactions.

3) Societe Generale Bank, France - Structured Product issue in April 2021

Societe Generale Group had set up a subsidiary, Societe Generale – Forge with the objective of offering crypto assets to their professional clients. This subsidiary would structure, issue and exchange crypto assets and provide custodial services. As part of the development process, the bank had offered covered-bond Security Token worth Euro 100 million to be settled in Euros on the Ethereum blockchain in April 2019, and further Tokens worth Euro 40 million to be settled in CBDCs issued by Banque de France in May 2020. Furthermore, in April 2021, Societe Generale issued Euro Medium-term Notes worth Euro 5 million as Security Token registered on Tezos public blockchain.

4) Longbond Ltd., China – Digital Bond issue in November 2020

Longbond Ltd. was a securitization SPV in China with the sole purpose to issue digital bonds and deposit the proceeds with China Construction Bank Corporation (CCB). The bonds were to be fully secured by the balance sheet of CCB, the world's second-largest bank. The target was to raise USD 3 billion in US dollars and Bitcoins at an annualized rate of 6-month LIBOR + 50 bps. The lead arranger was CCB and the blockchain-based debt security was to be publicly listed on the FUSANG digital exchange for direct access by retail investors.

5) Banco Santander, Spain - Digital Bond issue in September 2019

Banco Santander issued digital bonds worth USD 20 million with quarterly coupon rate of 1.98%. The end-to-end digital bond used the Ethereum blockchain platform. The bank wanted to test out the new disruptive blockchain technology. Hence the investor, tokenization agent, and custodian of digital keys, and dealer for issuance and after-sales service were all other units belonging to the Group.

6) YES Bank, India - Commercial Paper issue in July 2019

YES Bank facilitated INR 100 crore commercial paper issue for Vedanta Ltd. using blockchain technology in July 2019, for the first time in Asia. They used the blockchain solution developed by MonetaGo, New York using Corda enterprise technology developed by R3. The solution ensured very efficient mechanism for the commercial paper issuance and redemption.

Conclusion

How then is blockchain technology useful in debt issuance? It enables faster, more diverse, and cost-efficient transactions. Analog methods being practiced since the 19th century are slow, expensive, and heavily dependent on establishing the identity of the participants and legal sanctions and have evolved over decades.

However, though decentralized public blockchain applications as in crypto assets are steadily increasing since their origin in 2009, permissioned enterprise blockchains (accessed by users with permission) are yet to take a firm root in the world of business. Further, global regulations and accounting standards for blockchain-based transactions are yet to evolve. According to Gartner, the leading consultancy organization, it may take about 10 years for large-scale adoption of blockchain technology by business organizations.

So, how would the adoption evolve? According to Capgemini, we would see more prototypes being tested in the first phase like the debt issues undertaken by Banco Santander in 2019 as mentioned above. It would be useful to try out the concept first in a controlled environment with all the participants belonging to the same institution. One can then bring in others like syndicate members to expand the scope, understand the effectiveness and take any corrective actions. The last phase will be to allow all the market participants to join the permissioned blockchain network. The implementation process may take some time but is worth reaping the benefits of the new disruptive blockchain technology.

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