# BLOCKCHAIN BOOM & CORPORATE FINANCE REVOLUTION: A FUTURISTIC SOLUTION OR MERE SUPERSTITION?

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## ABSTRACT

Distributed ledger technology is widely touted as the next big innovation after the advent of the internet and the digital age. The system runs on a decentralised blockchain platform that is diametrically opposite to conventional centralised command engines. Blockchain systems provide unique advantages that may be realized across banking, finance, corporate, real estate, fashion and even Government sectors. This paper aims to study the scope of application of blockchain solutions in corporate finance systems. The paper will specifically focus on five capital raising avenues that are arguably mature enough and well-suited to benefit from the blockchain boom. They are post-trade plumbing in capital markets, electronic shareholder voting system, mining mutual fund units, peer-to-peer lending and online crowdfunding. The initial three systems relate to traditional capital market methods, whereas the latter two concern alternative finance. While discussing the scope for blockchain applications in these capital raising routes, the paper will analyse existing distributed ledger solutions implemented in foreign jurisdictions and understand the legal framework that exists with respect to the same. Following a discussion on the pertinent capital raising systems in India, the paper will delve into potential applications of blockhain technology in the Indian scenario and the legal ambiguities involved therein. Wherever relevant, the regulations that exist in foreign jurisdictions will be discussed to suggest legal changes in the Indian context. The paper will also deal with the disadvantages in implementing blockchain solutions, in order to provide a holistic picture of the scope for advancements in international financial markets through the implementation of distributed ledger technology.

## INTRODUCTION

Corporate finance is witnessing great technological advancements through the integration of blockchain with capital markets and businesses. Traditional financing systems like banks and equity capital markets are experimenting with blockchain applications that are touted to have the potential to replace them. International legal and accounting firms are also wary of DLT (Distributed Ledger Technology) developments and they scramble to incorporate blockchain applications into their service offerings to better address client needs and market demands. Businesses and Governments around the world are jumping on the blockchain bandwagon. Dubai aims to become the blockchain capital of the world by

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2020[42] while Sweden, Georgia and Ghana are employing blockchain applications to track land records.[43] Several Indian states such as Andhra Pradesh, Telangana and Maharashtra are undertaking pilot projects to identify blockchain solutions to e-governance hurdles.[44]

However, there is looming disconcert owing to regulatory uncertainty. Governments are in the process of understanding the unique regulatory questions posed by this technology-enabled disintermediation software. The UK, Australia and Singapore, among other countries have created regulatory sandboxes to nurture blockchain innovations in a controlled ecosystem. The UK Financial Conduct Authority prescribes limitations on client risk exposure and provides certain legal compliance exemptions to fintech innovators.[45] This approach reduces legal ambiguity and adopts a test-and-learn method of rule-making.[46] From the innovator's perspective, the lowered thresholds of compliance helps concentrate focus on building fintech wonders and provide better access to investments. India needs a regulatory sandbox approach to develop laws that achieve synergy between new technology, investor protection and effective regulatory oversight.[47]

The aim of this paper is to understand the immense potential that can be realised by introducing blockchain solutions to corporate financing avenues. The first part of the paper will provide a short note on DLT and the basic concepts behind the same. The second section will discuss a select few blockchain applications that are revolutionizing conventional capital markets. It will be followed by a discourse on the potential applications of blockchain in alternative finance, in the third section. With the help of five blockchain applications that augment existing corporate finance systems, the developing legal landscape in foreign jurisdictions will be discussed and the implications for India will be briefly visited. The paper will be concluded with a short note on the future of blockchain in corporate finance and capital markets.

## PART I: BLOCKCHAIN BASICS

Blockchain is a decentralised highly secure peer-to-peer system that removes the need for trusted third parties and facilitates instant transactions.[48] The blockchain system functions as a distributed ledger that records timestamped transactions that may not be unilaterally altered. The process of recording transactions on the ledger is called mining.[49] The originally envisioned blockchain prototype requires all

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[42] *Saqr Ereiqat,* Blockchain in Dubai: Smart cities from concept to reality, *IBM BLOCKCHAIN BLOG, April 10, 2017. Available at https://www.ibm.com/blogs/blockchain/2017/04/blockchain-in-dubai-smart-cities-from-concept-to-reality/*

[43] Will Blockchain revolutionise global real estate next?, *THE HERALD, September 19, 2017.*

[44] *The Governments are employing blockchain solutions with the help of Broadridge and start-ups such as SimplyFi, Zebpay and Snapper Technologies. See Mugdha Variyar & Varshal Bansal,* Blockchain tech is joining e-gov dots in AP, Telangana, *ECONOMIC TIMES, June 27, 2017.*

[45] Regulatory Sandbox, *FCA PRESS RELEASE, April 11, 2015. Available at https://www.fca.org.uk/firms/regulatory-sandbox.*

[46] Financial Conduct Authority provides update on regulatory sandbox, *FCA PRESS RELEASE, June 15, 2017. Available at https://www.fca.org.uk/news/press-releases/financial-conduct-authority-provides-update-regulatory-sandbox.*

[47] *Samraat Basu,* The future of crypto-financing in India, *MINT, October 3, 2017.*

[48] *Satoshi Nakamoto,* Bitcoin: A Peer-to-Peer Electronic Cash System, *BITCOINORG (2008).*

[49] *Judd Bagley,* What is Blockchain Technology? A Step-by-Step Guide For Beginners, *BLOCKGEEKS, 2016.*

transactions to be greenlighted by all nodes that form part of the distributed ledger. This ensures that hacking is nearly impossible and the system remains transparent. Complete transparency provided a solid basis for the reliability of the blockchain ledger that was not based on personal trust.

However, such a rigid method of authorisation leads to security concerns and cost and time inefficiencies in large-scale ledger facilitated transactions. Hence, the blockchain platform has been re-innovated to allow pre-identified nodes to approve transactions and retain control over alterations of the ledger. Similarly, several modified versions of the blockchain ledger exist in the market.[50] Ethereum is one such blockchain system and it supports smart contracts that have tremendous potential to revolutionize capital market transactions.

Smart contracts refer to ethereum applications that facilitate automatic performance of pre-negotiated contractual terms. This system removes the need for third-party intermediaries like lawyers and banks since the terms of the digital contract are coded in a distributed ledger that cannot be unilaterally altered. Agreements will self-execute once trigger events like deadlines are met as smart contracts incorporate algorithmic protocols that do not rely on a centralized commanding engine.

In brief, the key elements of a blockchain or DLT are fourfold:[51]

(1) A distributed ledger that records time-stamped information;

(2) A network of participants or nodes that can access the ledger and make alterations based on the specific configuration;

(3) A consensus mechanism that is essentially a set of algorithms that nodes execute to approve the records on the ledger; and

(4) Cryptography in order to secure storage and prevent hacking.

## PART II: DLT IN CAPITAL MARKETS

Smart contract applications are currently being employed by fintech companies for issue of private securities on Nasdaq[52] and Borsa Italiana[53]. Several more bourses such as those in Chile and Japan et al are in the process of implementing blockchain solutions. The primary areas in capital markets where blockchain can be applied are:[54]

(1) Post-trade plumbing, which refers to clearing, settlement and custody of securities.

(2) Regulatory transparency, which mainly entails periodic disclosures, provisions against insider trading and reporting and audit requirements; and

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[50] Building on the Blockchain, *Nasdaq Blockchain Report, March 2016.*

[51] *Evaluating DLT, ASIC Information Sheet 219 (INFO 219), issued in March 2017. http://asic.gov.au/regulatory-resources/digital-transformation/evaluating-distributed-ledger-technology/*

[52] Nasdaq Linq Enables First-Ever Private Securities Issuance Documented With Blockchain Technology*, NASDAQ RELEASE, December 30, 2015.*

[53] *The London Stock Exchange owns the Italian Stock Exchange. See* Roger Aitken, IBM's Blockchain Securities Collaboration With LSE Heralds New Trading Opportunities, FORBES July 19, 2017.

[54] *Laura Shin,* Why Nasdaq Is Even More Optimistic About Blockchain Than It Was 3 Years Ago*, FORBES, February 23, 2017.*

(3) Issuer-investor relationship, which majorly involves contracting of terms and conditions, execution of the agreement and management of shareholding, collateral. Client onboarding KYC and AML

This section provides a brief discourse on the trailblazing blockchain solutions to mechanisms and processes in international financial markets and attempts to demonstrate their applicability to analogous systems operating in the Indian markets.

### *3. Post-Trade Plumbing*

The advent of algorithmic trading led to the operation of stock exchanges in a computerized platform that had the capacity to support around 10,000 transactions per second. Post-transaction plumbing takes longer time periods and actual transfer of ownership and delivery is generally delayed by a day or two. This leads to business latencies since capital that could otherwise be utilized, is unnecessarily stuck in the T+3 process. Shorter time intervals would also minimise counterparty risks and reduce collateral requirements. However, the extended settlement intervals applicable today are not the result of mere technological limitations. It is a combination of factors ranging from market practices to regulatory requirements.[55] Hence, blockchain implementation may not necessarily reduce the time period to T+0 without regulatory overhaul. It is important to note that in a T+0 system, short-selling of securities may not be possible, thereby eliminating a major chunk of market liquidity that comes from such sophisticated trade.

#### i) ***United States***

The Securities and Exchange Commission (SEC) recently replaced the T+3 formula and introduced a T+2 settlement system for shares, ETFs, municipal securities, specified mutual funds and certain limited partnerships that are listed.[56] The Treasury bill is the only security that can be settled in less than a day in the US.

#### ii) ***European Union:***

Target 2 Securities (T2S) is a service for Central Securities Depository that provides a single IT platform for settlement of all national and cross-border securities transactions in the Europe in Central Bank money.[57] The integrated model provides faster and easier settlement of securities in Europe and even facilitates settlement of foreign securities at significantly shorter intervals. T2S is a remarkable development upon the diverse settlement mechanisms that previously existed across Europe. The advantages of a uniform pan-European settlement method spills over into financial markets across the world.

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[55] *Milos Dunj*, Post-Trade Clearing & Settlement Processing Optimization: An Opportunity for Blockchain?, *May 3, 2016. Available at https://letstalkpayments.com/post-trade-clearing-settlement-processing-optimization-an-opportunity-for-blockchain/*

[56] *Sarah Lynch,* SEC shortens settlement cycle for securities trades, *REUTERS, March 22, 2017.*

[57] *Hans Degryse, Mark Van Achter & Gunther Wuyts,* Plumbing of Securities Markets: The Impact of Post-Trade Fees on Trading and Welfare, *SOCIAL SCIENCE RESEARCH NETWORK WORKING PAPER SERIES (October 2016).*

iii) ***Australia***

Australia recently announced a collaboration with JP Morgan Chase to build a blockchain solution to digitise the Australian Stock Exchange (ASX's) share registry.[58] ASX may not implement a holistic blockchain system owing to the troubling transparency of the DLT. Market participants would not want rival traders and brokers to track their trading activities. Hence, major modifications to the DLT are required before ASX can employ a blockchain application. The aim is to allow peer-to-peer trade clearance and create sub-networks for individual transactions. For instance, a chain of brokers may be configured to record the time, nature and the number of transactions and the price of shares traded. The ASX should also create an overarching centralised digital platform, alterable only by Government authorities.

iv) ***India***

Indian capital markets have followed the T+2 rolling settlement mechanism from the financial year 2003-4.[59] SEBI is mulling over the idea of introducing T+5 hours rolling settlement for certain types of equities, in the near future.[60] The existing Indian financial market system is relatively advanced for a developing country at this stage of economic growth.[61] Indian stock exchanges, depositaries and clearing corporations have shown willingness to adapt to technological developments in the past. It would not be surprising if NSE and BSE announce plans to adopt blockchain solutions to post-trade plumbing, as seen in the case of ASX.

Technological disruption of post-trade processing in international capital markets would be welcome. Blockchain platforms could be employed as the base for financial transactions in fully dematerialised markets such as Singapore. However, owing to the linear nature of the blockchain ledger, the potential of blockchain applications to support large-scale data retrieval and analytics that exist in traditional capital markets remains unclear.[62]

### *4. Electronic Shareholder Voting System*

Nasdaq successfully tested a blockchain solution to improve existing proxy voting system for companies listed in the Tallin Stock Exchange of Estonia. The DLT application supports remote voting and delegation of voting power. Delegation happens through transfer of tokens representing ownership to one's preferred proxy. The system allows for the votes to be tracked. Hence, shareholders

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[58] *Adrian Lee & KIHoon Hong,* How blockchain technology is about to transform sharemarket trading, *The Conversation-Australia, February 4, 2016. Available at https://theconversation.com/how-blockchain-technology-is-about-to-transform-sharemarket-trading-53807*

[59] T+2 rolling settlement-Cash Market- Risk Management*, SEBI Circular, SEBI/MRD/SE/AT/47/03, December 30, 2003.*

[60] *Badri Narayan,* How about T+3 hours settlement in stock market?, *BUSINESS LINE, November 4, 2016.*

[61] *Pallavi Sethi*, Financial Innovation In Indian Capital Market*, 2(11) INT'L J INN R&D (Nov. 2013).*

[62] *Christopher Tozzi,* To Conquer Financial Services, Blockchain Needs Scaling Solutions*, NASDAQ, August 17, 2017.*

have a way of ensuring that the proxy followed the instructions given, which is absent in the present system.[63]

In India, Section 105 of the Companies Act 2013, allows proxies to vote on behalf of members. The instrument of proxy must be duly signed and written and the proxy would not have any right to speak in a shareholder's meeting. There is no recourse available to shareholders under the Companies Act in cases where the proxies do not vote in accordance with the instructions given. Electronic shareholder voting on a blockchain platform would allow shareholders to configure the instructions into the ledger and thereby avoid breaches by the proxy. NSE and BSE should consider providing such DLT services to listed companies.

### *5. Mining Mutual Fund Units*

Nordic bank SEB and Nasdaq have announced a joint project to test a developed prototype for a mutual fund trading platform based on blockchain technology. The fund markets are seen by SEB and Nasdaq as ripe ground for a blockchain trial, because, in contrast to the equities market, which relies on a Central Securities Depository (CSD), the Swedish fund market lacks a central, primary point for registering holdings. The aim is to create a faster, simpler, more effective and reliable fund market that increases productivity, reduces manual work and the risk for errors. Using blockchain, the market can replace the costly processes that are normally used to ensure secure trading, including paper-driven processes and follow-up telephone calls. [64]

In India, there is a centralized body that oversees the listing of mutual fund schemes. Reg 32 of SEBI (Mutual Funds) Regulations, 1996 mandates the registration of close-ended mutual fund schemes. A close-ended fund is one that has a predetermined maturity period and allows subscription only at the time of launch.[65] Investors can trade in the units of the scheme on the stock exchanges where the units are listed.[66] Some close-ended schemes also provide periodic repurchase at NAV related prices.[67] But it is mandatory for at least one of the two exit routes to be provided. Peer-to-peer verification and confirmation may not be possible in such a strictly monitored system. However, under the overarching regulations, it is possible to implement blockchain solutions for trading in mutual fund units during the transaction, determination and settlement stages.

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[63] *Anna Irrera,* Nasdaq successfully completes blockchain test in Estonia*, REUTERS, January 23, 2017.*

[64] *Tom Turula,* Nasdaq and SEB are setting blockchain free on the Swedish mutual fund market, *BUSINESS INSIDER (NORDIC), October 2, 2017.*

[65] *SEBI FAQs for investors,* Investments in Mutual Funds, *May 2017*

[66] *Reg 37, SEBI (Mutual Funds) Regulations, 1996.*

[67] *Reg 33, SEBI (Mutual Funds) Regulations, 1996.*

## PART III: DLT IN ALTERNATIVE FINANCE

India's alternate lending sector is the third largest in the world and it provides capital access to numerous local fintech startups.[68] Alternative finance refers to capital raised using non-traditional instruments that may not be intermediated through conventional banking channels or capital markets.[69] The World Bank estimates that more than 20 crore small and medium-sized enterprises (MSMEs) in developing countries lack the ability to secure traditional bank loans owing to the informal nature of their businesses and their lack of collateral and credit history.[70] The post-recession caution of traditional banking systems against lending to MSMEs led to the creation of an alternative finance industry.[71] Alternative financing activities range from equity and reward based crowdfunding to private placements and standard peer-to-peer lending.[72] The broad spectrum of alternative financing activities are supported through shadow banking mechanisms that include cryptocurrencies and smart contracts built on blockchain platforms.

### *6. Online P2P Lending*

Peer-to-peer (P2P) lending entities operated in a regulatory lacuna until RBI notified them as non-banking finance companies in September 2017. The RBI further issued Master Directions on October 4, 2017 to regulate peer-to-peer lending platforms,[73] incorporating several proposals from its 2016 consultation paper on P2P lending firms.[74]

Faircent is an online P2P lending marketplace in India.[75] The lending process adopted by Faircent is threefold. After initial verification by the platform, the prospective borrowers and potential lenders are connected based on their specified requirements. Once the parties contract the terms of the loan, the escrow account of the lender is debited. Repayments are scheduled as EMIs credited to the lender's escrow account through the digital account of the borrower. The time duration of the transactions are extended due to the involvement of traditional banking intermediaries. Shifting to ethereum smart contracts would make the transactions quicker and more transparent and reliable.

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[68] *Abhishek Kothari,* How India's online lending startups compare to their global counterparts*, VCCIRCLE, 5 June, 2017. Available online at https://www.vccircle.com/how-do-indian-lending-firms-compare-to-their-global-counterparts/*

[69] *F.ALLEN, E. CARLETTI, J.QIAN & P.VALENZUELA, HANDBOOK OF THE ECONOMICS OF FINANCE,* Chapter 11: Financial Intermediation, Markets, and Alternative Financial Sectors *(2012).*

[70] *Roger Crook,* How Asia Is Adapting To The Alternative Finance Revolution*, FORBES, June 16, 2017. Available at https://www.forbes.com/sites/outofasia/2017/06/16/how-asia-is-adapting-to-the-alternative-finance-revolution/#49593b263d21*

[71] Small Business Lending in the United States 2013*, U.S. Small Business Administration, Office of Advocacy, 2014. https://www.sba.gov/advocacy/small-business-lending-united-states-2013; See also Rob Straathof,* 17 Bankable Facts about Alternative Finance in *2017, MONEY HIGH STREET, April 3, 2017.*

72 P.Baeck, L.Collins & B.Zhang, Understanding Alternative Finance: The UK Alternative Finance Industry Report 2014 (Cambridge University & Nesta)

[73] *Non-Banking Financial Company – Peer to Peer Lending Platform (Reserve Bank) Directions, 2017, RBI/DNBR/2017-18/57.*

[74] *Reserve Bank of India, Consultation Paper on Peer to Peer Lending, April 2016. Available at https://rbidocs.rbi.org.in/rdocs/content/pdfs/CPERR280416.pdf*

[75] *The official website of Faircent can be accessed here: https://www.faircent.com/*

### *7. Virtual Token Sales*

An initial coin offering (ICO) is a form of crowdfunding that allows companies to raises capital online through issue of tokens created using a blockchain platform.[76] For instance, Kik is a major teenage online chat app that is currently in the process of issuing cryptocurrency coins to its users for performing transactions on the application, thereby upgrading its payment systems to the blockchain.[77]

v) ***United States***

The SEC recognizes the legality of token sales funded through digital and fiat currencies.[78] The ICO shall fall under the ambit of Federal Securities laws[79] only if the token sale qualifies as offering, buying, selling or performing an activity involving *'securities'* as defined under S.2(1) of the Securities Act, 1933. Once SEC determines that an ICO token qualifies as a *'security',* SEC registration becomes mandatory and extensive reporting obligations under the Securities Exchange Act, 1934 come into play.

vi) ***Australia***

Based on the circumstance of the ICO, it may only be subject to the general law and the Australian hhhconsumer laws regarding the offer of services or products. In certain cases, the ICO may fall within the ambit of the Corporations Act. Information sheet 225 provides guidance on the classification of ICOs based on the attributes of the offerings regardless of whether ICO is hosted in Australia or abroad.[80]

vii) ***India***

India's first ICO was kickstarted on October 1st, 2017 to fund social service activities and the tokens are termed as *'indicoins'*.[81] However, Indians have invested in numerous ICO across jurisdictions. BitcoinGrowthFund's recent successful ICO to retail investors saw 50% retail investment coming from India.[82]

A sector in the Indian alternative finance market where blockchain could be applied is online marketplaces for trading in private securities. The biggest digital platforms soliciting investments with promises of high returns are GREX Alternative Investments Market (GREX), LetsVenture, Termsheet, Equity Crest and Tracxn.[83] Electronic crowdfunding platforms charge listing fees, fund raising commission (circa 2-6% of funds raised) and in some cases, seek 0.5-1% equity in companies for whom

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[76] *Charlie Morris,* Bitcoin is not a fraud – it's dotcom 3.0*,* *MONEYWEEK, September 22, 2017.*

[77] *Robert Hackett,* Cryptocurrency Gets Its Biggest Test Yet, *FORTUNE MAGAZINE, July 21, 2017.*

[78] Investor Bulletin: Initial Coin Offerings*, US Securities and Exchange Commission, July 25, 2017.*

[79] *Federal Securities laws include Securities Act of 1933, Securities Exchange Act of 1934, Investment Company Act of 1940, Investment Advisers Act of 1940 and Trust Indenture Act of 1939, as amended subsequently.*

[80] *Initial Coin Offerings, ASIC Information sheet 225 (INFO 225), issued in September 2017. Available at http://asic.gov.au/regulatory-resources/digital-transformation/initial-coin-offerings/*

[81] Indicoin – India's first ICO to begin on 1st October, *NEWSBTC, September 27, 2017.*

[82] BitcoinGrowthFund raises ₹ 95 cr via initial coin offering, *BUSINESSLINE, June 1, 2017.*

[83] *Anirudh Laksar,* Sebi taking a fresh look at crowdfunding norms, *MINT, March 17, 2017.*

they have raised capital. Because of such active involvement, there is an expectation of return created. The researcher shall focus specifically on GREX since the virtual organisation has been in the limelight recently.

GREX is a virtual market that facilitates primary capital raising and secondary market transactions in unlisted companies. It has successfully escaped the scrutiny of SEBI by structuring itself in such a way that it would not qualify as a stock exchange and also stay clear of equity crowdfunding, which is illegal in India.[84] Recently, SEBI sent notices GREX and the unlisted companies obtaining online funding through the webpage.[85] SEBI argued that it is an offer to more than 200 people and thereby a deemed public offer under S.42(4) of the Companies Act, 2013. Further, SEBI argued that the nature of the transactions facilitated by GREZ make it a stock exchange. Grex was accused of being in violation of Securities Contracts (Regulation) (Stock Exchanges and Clearing Corporations) Regulations, 2012 since it does not meet the 100 crore net worth threshold[86] and 1000 crore minimum transaction requirement[87]. Earlier, upon a single click, all the information in relation to the specified unlisted companies were available. SEBI argued that the information contained all the essentials of a private placement offer letter and concluded that since it is freely available to anyone with internet access, the 200 limit is exceeded. Subsequently, GREX revamped its operations and now companies are required to submit their latest PAS-5 and GREX estimates the number of share allotments that have already happened in the particular financial year. Based on the figure, dedicated mailing lists are created and the company information is shared with a limited number of potential investors so as to not exceed the 200 threshold prescribed under S.42(2) of the Companies Act, 2013.

GREX case is just one example of the regulatory lacuna surrounding online crowdfunding in India.[88] SEBI issued a consultation paper on crowdfunding in 2014.[89] It is expected to issue guidelines by the end of 2017 mainly to provide eligibility criteria for start-ups based and digital trading platforms.[90] SEBI also issued a caution note to investors in 2016, warning against unauthorized electronic platforms that are '*similar to stock exchanges*'.[91] Though crowdfunding investments made in India are not regulated by SEBI, similar investments made abroad are curtailed by remittance thresholds. However, such investments are not considered share purchase in India regardless of whether the ICO involves equity-based crowdfunding or not. This creates problems because the ICO could eventually be termed as an

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[84] *Only reward-based crowdfunding and donor-based crowdfunding are legal in India. See* Is Crowdfunding Legal in India? SEBI Regulations & It's Implications*, ZINGOHUB CROWDFUNDING HANDBOOK, 17 October, 2016.*

[85] *Shailesh Menon,* Sebi warning turns off crowdfunding tap for startups*, ECONOMIC TIMES, September 9, 2016.*

[86] *Reg 14(1), Securities Contracts (Regulation) (Stock Exchanges and Clearing Corporations) Regulations, 2012.*

[87] Exit Policy for De-recognized/ Non-operational Stock Exchanges, *CIR/MRD/DSA/14/2012, SEBI Circular dated May 30, 2012.*

[88] Shwetha Chandrashekar, *Equity-Based Crowdfunding as an Early-Stage Financing Alternative: Critique of the Regulatory Proposals in India*, INDIAN CORPORATE LAW, March 27, 2016.

[89] Consultation Paper on Crowdfunding in India, *SEBI, June 17, 2014.*

[90] *Anirudh Laskar,* Sebi close to finalizing crowdfunding norms*, MINT, August 14, 2017.*

[91] *PR No.: 137/2016.*

offer of securities in the concerned foreign jurisdiction. Owing to the non-involvement of SEBI, the Indian investors would not be liable to the reporting requirements that the investors from the host jurisdictions will be subject to. Something similar happened in the case of DAO wherein the US SEC held that the tokens issued by the virtual organisation qualify as securities.[92] This changed the nature of the transactions closed by investors from across the globe and raised several legal questions. Fortunately or unfortunately rather, no legal consequences ensued in this particular case since the digital entity in question went defunct soon after the completion of the ICO. Hopefully, SEBI will soon clarify the legal position on equity- ICO investments made by Indians abroad and crypto-token sales in India.

## CONCLUSION

It is unlikely that any significant overhaul of international corporate finance will result from blockchain applications in the near future. It may be reasonably predicted that the DLT solutions will mainly exist within the existing infrastructural ecosystem to increase the efficiencies of current processes. The fundamental issue in the widespread expansion of blockchain technology lies in its inherent scaling limitations. The distributed ledger can only support a limited number of blocks of transactions at efficient speeds. Beyond that, the mining speed would reduce and transactions would be delayed.

Further, there has been no proof of concept for any sustainable solution to address failure of the DLT. There is a pressing need for post-hack recovery mechanisms, answers to data feed issues, and upstream security issues and problems that affect the execution timeframes at al. The lack of replacement options within the blockchain ledger is also concerning. A major function of intermediaries is to ensure that if one counterparty is unable to fulfill their part of a transaction the others can be saved from loss and systemic risk is thereby reduced. There is no blockchain prototype to resolve such unanticipated issues and provide risk mitigation. The concept of sidechains is being mooted, however. Sidechains are blockchains backed by pre-identified central authorities that verify, approve and record transactions on the ledger. The concept of a sidechain defeats the aim of decentralised medium but it is the only tenable alternative. For instance, if a clearinghouse is providing services on a DLT, it could also operate sidechains to be prepared for contingencies.

Hence, it is likely that blockchain solutions will not replace the current capital markets ecosystem, at least in the next two decades. This technology has the potential to fundamentally re-architect processes global finance industry. It is crucial that countries create a regulatory sandbox to foster such fintech revolutions. Right now, this new technology will work simply to make existing solutions more efficient. In the near future, applications of blockchain technology will satisfy needs that cannot be met with

[92] Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO*, Securities and Exchange Commission, Release No. 81207 / July 25, 2017.*

today's technological advancements. The next phase is when blockchain will deliver solutions to address needs that business and markets did not realise they had.