Innovative Blockchain Solutions for Enhancing Transaction Transparency in Capital Markets

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Abstract

Blockchain invention is thus a positive significant factor for well- developed fiscal requests. Strategic Innovation is an approach that brings together all the creative means, capabilities and disciplines to an association in order to work together on producing advance ideas and driving new business growth. Also, to the rising of the Internet, Blockchain has the implicit to disrupt multiple diligence and make processes, further popular, secure, transparent, and effective. Entrepreneurs, incipiency companies' investors, global associations and governments have all linked Blockchain as a disruptive occasion to change the current paradigm. The main compass of this study will be relating what functions in the fiscal geography are suitable for a Blockchain grounded technology, fastening on banks in the Spanish region and further how strategic invention could help on planting this technology in banks. In other words, the advanced the situations of blockchain invention in these countries, the more developed the fiscal requests. This suggests that the presence of blockchain invention in fiscal requests spurs fiscal development. Banks are not characterized for being neither nimble nor fast when embracing new technologies due to their heritage system. still, times are changing and new technologies are being offered. The findings also indicate that macroeconomic factors similar as lagged fiscal development, GDP per capita, the growth rate of GDP, FDI and trade openness have significant and positive relationship with fiscal development in the two countries.

Keywords: Blockchain, Transaction Transparency, Capital Markets, financial markets,Strategic Innovation, secure, transparent.

I. INTRODUCTION

An arising use of blockchain is smart contracts (also appertained to as blockchain contracts, digital contracts, tone- executing contracts or smart property). A smart contract is a computer protocol that automatically executes the terms of a contract. In other words, a smart contract digitally facilitates and enforces a sale. For illustration, contracts similar as transferring plutocrat or entering products could be converted to computer law, stored and replicated on the system, and supervised by the network of computers. Blockchain, also known as distributed tally technology, has made significant raidsinto fiscal requests since it surfaced in 2009, particularly as the underpinning technology that powers the cryptocurrency Bitcoin. Because of the significance of blockchain technology, it has attracted huge attention and touched off multiple systems in different diligence. For illustration, fiscal requests are the primary druggies of blockchain, due to its well- known operation to the cryptocurrency Bitcoin. A smart contract thus serves to enable two anonymous parties to engage in deals with each other, without the need for a conciliator. Blockchain technology thus allows direct secure trading and deals, without a record keeper or middle- man. By barring interposers (mediators) in the fiscal request, blockchain reduces sale costs, saves time and removes conflict. Through blockchain, smart contracts, for illustration, can replace attorneys and banks involved in contracts for asset deals. The workings of fiscal requests, especially capital requests, involve time- consuming processes, complicated procedures, high costs, and pitfalls which could be lowered by the operation of blockchain technology. For illustration, stock request actors similar as brokers, dealers and controllers have to navigate complex processes which can take days to complete deals, due to interposers. Blockchain simplifies the processes by robotization and decentralization. Digital means similar as contracts, shares, and stock options can be traded as smart contracts. Blockchain reduces the high costs while easing deals. Blockchain thus has huge capabilities for fiscal requests, because it provides briskly exchanges, security, trust, threat reduction, and translucency [2].

II. LITERATURE REVIEW

Xiaodan Chen (2018) Corporate social responsibility disclosure, political connection and tax aggressiveness have become the focus of the media. By using samples of China's listed firms from 2008 to 2014, this study examines the relationship among corporate social responsibility disclosure, political connection and tax aggressiveness. The results show that corporate social responsibility disclosure significantly strengthens the possibility of tax aggressiveness; firms with no or less close political connections can make use of the disclosure of corporate social responsibility to do tax aggressiveness. Furthermore, the change of political connection can significantly weaken the positive association between corporate social responsibility disclosure and tax aggressiveness. However, some data are collected by hands and that may cause some deviations. These findings help governments, managements and investors evaluate firm's behavior and make decisions [1].

Daniele Venturi (2017) We put forward a new framework that makes it possible to re-write or compress the content of any number of blocks in decentralized services exploiting the blockchain technology. As we argue, there are several reasons to prefer an editable blockchain, spanning from the necessity to remove inappropriate content and the possibility to support applications requiring re-writable storage, to "the right to be forgotten." Our approach generically leverages so-called chameleon hash functions (Krawczyk and Rabin, NDSS '00), which allow determining hash collisions efficiently, given a secret trapdoor information. We detail how to integrate a chameleon hash function in virtually any blockchain-based technology, for both cases where the power of redacting the blockchain content is in the hands of a single trusted entity and where such a capability is distributed among several distrustful parties (as is the case with Bitcoin) [4].

Alexander W Peters (2017) Blockchain technology and cryptocurrencies could remake global health financing and usher in an era global health equity and universal health coverage. We outline and provide examples for at least four important ways in which this potential disruption of traditional global health funding mechanisms could occur: universal access to financing through direct transactions without third parties; novel new multilateral financing mechanisms; increased security and reduced fraud and corruption; and the opportunity for open markets for healthcare data that drive discovery and innovation. We see these issues as a paramount to the delivery of healthcare worldwide and relevant for payers and providers of healthcare at state, national and global levels; for government and non-governmental organisations; and for global aid organisations, including the WHO, International Monetary Fund and World Bank Group [8].

Hong-Ning Dai (2017) Blockchain, the foundation of Bitcoin, has received extensive attentions recently. Blockchain serves as an immutable ledger which allows transactions take place in a decentralized manner. Blockchain-based applications are springing up, covering numerous fields including financial services, reputation system and Internet of Things (IoT), and so on. However, there are still many challenges of blockchain technology such as scalability and security problems waiting to be overcome. This paper presents a comprehensive overview on blockchain technology. We provide an overview of blockchain architechture firstly and compare some typical consensus algorithms used in different blockchains. Furthermore, technical challenges and recent advances are briefly listed. We also lay out possible future trends for blockchain [2].

John Domingue (2016) The ‘blockchain’ is the core mechanism for the Bitcoin digital payment system. It embraces a set of inter-related technologies: the blockchain itself as a distributed record of digital events, the distributed consensus method to agree whether a new block is legitimate, automated smart contracts, and the data structure associated with each block. We propose a permanent distributed record of intellectual effort and associated reputational reward, based on the blockchain that instantiates and democratises educational reputation beyond the academic community. We are undertaking initial trials of a private blockchain or storing educational records, drawing also on our previous research into reputation management for educational systems [3].

Blockchain

The Blockchain story started back in 2008 when an anonymous person under the alias of Satoshi Nakamoto wrote a paper that intended to start a revolution in digital payments by setting up the frame for a new a cryptocurrency system named Bitcoin. Bitcoin is a network that allows its druggies to change a digital asset that has the same name of its network Bitcoin. The main difference regarding to the former digital means networks is that with Bitcoin the problem of double spending(which consists in being fluently replicable and allowing the stoner to double spend them) is answered and also the need of having a central counterparty for deals between two realities. The public database where the deals are distributed and duly recorded by the network knot has the same as the technology (Blockchain) [3].

Principles of Blockchain Technology

The conservation of the participated tally among distributed bumps can be reduced to a fine problem known as the intricate Generals’ Problem, which is used to avoid being deceived and confused by vicious bushwhackers when people need to change value with strange opponents. In the specialized field, the intricate Generals’ Problem can be epitomized as how each knot in a network can reach an agreement without a trusted central knot and trusted channel. Blockchain technology solves the well- known intricate problem by evidence- of-work (POW). To insure the safety of the tally, blockchain combines distributed storehouse, agreement medium, and cryptography technology. To automatically apply contract terms, utmost blockchains incorporate smart contracts.

Distributed storage: In blockchain, data storage is n't handled by a central knot, but rather by all bumps on the network working together. Each knot maintains a complete dupe of the tally, meaning that indeed if a knot fails, data can still be recaptured from other bumps. This distributed storehouse approach ensures data security and trustability to a lesser degree.

Consensus mechanism: Consensus algorithms relate to how bumps in a distributed network make agreed-upon opinions. Because blockchain data storehouse is distributed, agreement must be reached between each knot to insure that all tally clones are the same. Common agreement mechanisms include evidence- of-work, and others. In the evidence- of- work medium, bumps need to complete certain computational tasks to gain the right to record deals, thereby icing the credibility of data, whereas, in the evidence- of- stake medium, bumps need to retain a certain quantum of digital means to gain the right to record deals.

Cryptography technology: Blockchain uses cryptography technology to insure the security and sequestration of data. What we're substantially concerned with then are hash functions and public-private crucial encryption algorithms. A hash function is a one- way function that can convert arbitrary- length data into a fixed- length hash value, and it's insolvable to reverse the hash value to the original data. Public-private crucial encryption algorithm refers to the use of a brace of keys, one of which is a intimately available public key, and the other is a private key that's kept secret. Data translated with a public key can only be deciphered using the corresponding private key, icing the confidentiality of data.

Smart contract: Smart contract is a set of commitments defined in digital form, including agreements on which contract actors can execute these commitments. They aim to automate the prosecution of contracts, thereby barring interposers and reducing sale costs. Smart contracts can be programmed to apply colorfulconditions and constraints, similar as automatically executing payments grounded on specific events or times, checking account balances, creating digital means, and more [4].

Blockchain System Classification

Grounded on the degree of centralized control, blockchain can be grouped into public chain, alliance chain, and private chain. These three types of blockchains have their own advantages and disadvantages, which can be epitomized as below

Public Blockchain: The public blockchain is an open, transparent, and decentralized network that's accessible to all blockchain service guests. This high degree of translucency and responsibility is a crucial point of the public blockchain. All bumps that share can collaboratively corroborate, record, and store sale information. The data on the public blockchain is intimately visible, allowing anyone to view and corroborate its authenticity.

Alliance Blockchain: An alliance blockchain is a controlled network conforming of specific members. The actors are confined and certified realities or associations who establish trust connections by concertedly maintaining and vindicating sale information. Compared to public blockchains, alliance blockchains are more flexible as they can be designed and managed according to specific requirements and rules.

Private Blockchain: A private blockchain is a network that's simply controlled and managed by a particular reality or association. Only authorized bumps can pierce it, and data can be read and modified according to predefined rules. Private blockchains insure high security and sequestration protection as all data is private and only accessible to authorized bumps. Also, they offer high performance and outturn since they don't bear an agreement algorithm or mining process [7].

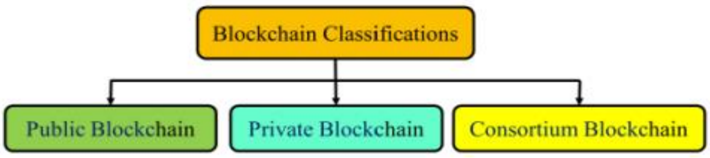

Figure 1: Classification Of Blockchains

Achieve Blockchain Verification

Blockchains constitute law blocks linked together and depend on the agreement between parties where the sale occurs. There are multitudinous bumps of similar nonstop blockchains on the blockchain network. It operates as a decentralized tally. Whenever a new block is created, the sale receives a digital hand point that cannot be changed and is comprised of hash tag functions from the antedating block with a unique affair. When the outgrowth is altered without being checked, the sale holds no validity and becomes unverified. This implies that all network bumps must get the same result when executing the hash. The sale is validated if the revision passes this test.

- The history of the sale is inapplicable. Also, the balance of the sender's portmanteau address is vindicated.

- The philanthropist's address is also validated.

However, the request is granted, if all of these criteria are fulfilled. The demand and the sale's private keys combine to produce a digital authentication hand. Next, all this is transmitted and verified across all network bumps for crucial and hand matching using an affair complicated mincing algorithm. Bumps fight with one another to break the hash, guaranteeing the blockchain verification process doubly.

Figure 2: To Achieve Blockchain Verification, The Following Steps Are Involved

The bumps are linked and are bitsy high- end setups that can answer the law mentioned over for the correct result. They also broadcast the outgrowth to the network's other transacting miner bumps to corroborate that the result is right. This guarantees that all bumps continuously cover the transactions and that they're publicly validated.

Security and Privacy Considerations

The integration of blockchain technology into fiscal account systems introduces a paradigm shift in security and sequestration considerations. As associations explore the benefits of translucency and data integrity offered by blockchain, they must contemporaneously address the challenges of securing sensitive fiscal information and clinging to sequestration regulations. It's essential to estimate the security measures taken to cover the integrity of the blockchain and the associated data crucial security considerations include the following Consensus mechanisms Different agreement algorithms impact security evidence of work(PoW) and evidence of stake(PoS) have distinct security features that should be assessed grounded on the association's requirements. Cryptography The encryption ways employed within the blockchain system, including mincing and digital autographs, play a vital part in securing data. Smart contracts auditing Rigorous auditing of smart contracts is pivotal to identify vulnerabilities and implicit exploits [9].

III. RESEARCH METHODOLOGY

Identify pain points and inefficiencies in current capital request sale systems. Research being blockchain results and their operations in capital requests. Engage with controllers, investors, and request actors to understand their requirements and enterprises. Choose a suitable blockchain platform (e.g., Hyperledger Fabric, Corda, or Ethereum, financial) grounded on scalability, security, and smart contract functionality. Design and develop smart contracts to automate sale workflows, insure data integrity, and enable real- time shadowing. Develop a data operation system to integrate with being request structure, icing flawless data exchange and storehouse. apply robust security measures to cover sensitive data and insure compliance with nonsupervisory conditions. unite with request actors to conduct a airman perpetration of the blockchain result. Choose a suitable smart contract language (e.g., reliability, Chaincode, or Rust) grounded on the named blockchain platform. Design a data storehouse result that ensures data integrity, security, and scalability apply robust security measures, similar as encryption, access controls, and auditing, to cover sensitive data. Assess the delicacy and trustability of data stored on the blockchain estimate the effectiveness of security measures in guarding sensitive data. Develop a smart contract- grounded result to automate sale workflows, insure data integrity, and enable real- timeshadowing. Design a mongrel blockchain result that combines the benefits of public and private blockchains to insure scalability, security, and translucency.

IV. DATA ANALYSIS

The study relies on carrying primary data from the study sample via the questionnaire list system, whether distributed via electronic accounts via the internet or through particular interviews, to identify the study sample's opinions and trends on the extent to which the digital metamorphosis toward the operation of blockchain technology in banks contributes to perfecting the quality of counting information and enhancing the commercial governance effectiveness.

Table 1: The Study Community Categories

Categories	**Count**
Financialmanagers	50
Auditors	130
Financialanalysts	70
Total	250

The study may solve the below equation by substituting 106 for n(sample size). Because thefield study community is divided into three distinct groups, the relative weight of each order of the study community was considered so that the exploration sample is as representative of the community as possible. As a result, an aggregate of(125) questionnaire lists were given to the colorful groups. Table 2 indicates the number of questionnaire lists distributed as well as the number of entered and accurate questionnaire lists.

Table 2: The Accurate Questionnaire And Distributed, Received, Lists

StudySamplecategories	**Questionnairelists**		
	Distributed	**Receivedandaccurate**	
	Count	**Count**	**%**
Financialmanagers	35	26	26.40%
Auditors	50	41	39.39 %
Financialanalysts	40	39	34.19 %
Total	**125**	**106**	**100 %**

Table three shows that majority of the respondents were male (85.84%) and they were within the age group of 31–50 years old approximately Two-thirds (69.8%), also the majority of the respondents hold a Bachelor degree (69.81%) while 24.52% of them hold Master degree.

Table 3: Profiles Of Respondents

Category	**Frequency**	**Percentage(%)**
Gender		
Male	**91**	85.84
Female	15	14.15
Total	**106**	**100.0**
Age		
21–30	5	4.71
31–40	26	24.52
41–50	48	45.28
51–60	24	22.64
<60	3	2.83
Total	**106**	**100.0**
EducationLevel		
Bachelor	74	69.81
Master	26	24.52
PhD	6	5.66
Total	**106**	**100.0**
Experience		
2–4	18	16.98
5–7	16	15.09
8–10	52	49.05
<10	20	18.86
Total	**106**	**100.0**

Most of the respondents had more than 8 years of working experience (49.05%). Hence, the demographic profile of the respondents revealed that they had adequate knowledge and experience to join the survey and provide reliable data as shown in Table 3.

V. CONCLUSIONS

The integration of innovative blockchain results in capital requests has the implicit to revise sale translucency, security, and effectiveness. Real- time shadowing and recording of deals, enabling controllers and stakeholders to cover request exertion more effectively inflexible and tamper- evidence storehouse of sale data, reducing the threat of fraud and cyber-attacks robotization of processes, reduction of interposers, and briskly agreement times, leading to cost savings and bettered request liquidity. As the capital requests continue to evolve, the relinquishment of blockchain technology is anticipated to play a vital part in shaping the future of sale translucency. By embracing innovative blockchain results, capital requests can promote trust, stability, and growth, eventually serving investors, controllers, and the broader frugality. Accounting has served greatly from the use of blockchain technology.Blockchain technology differs from traditional databases in numerous ways, similar as distributing and participating sale logs among druggies, which makes it more transparent. Numerous account operations are performed automatically, performing in low data trustability and a high mortal error rate. Ameliorate nonsupervisory compliance and reduce inspection time by automating colorful inspection processes to make them presto, easy, and nonstop.

REFERENCES

1. Xiaodan Chen, "Corporate Social Responsibility Disclosure, Political Connection and Tax Aggressiveness: Evidence from China's Capital Markets", Open Journal of Business and Management, issn: 2329-3292, Vol.6, No.1, 2018 jan, pages.
2. Hong-Ning Dai, "An Overview of Blockchain Technology: Architecture, Consensus, and Future Trends", Conference: 6th IEEE International Congress on Big Data, Issn: 2150-4938, 2017, DOI:10.1109/BigDataCongress.2017.85
3. John Domingue, "The Blockchain and Kudos: A Distributed System for Educational Record, Reputation and Reward", Conference: European Conference on Technology Enhanced Learning, issn: 1611-3349, 2016, DOI:10.1007/978-3-319-45153-4_48
4. Daniele Venturi, "Redactable Blockchain – or – Rewriting History in Bitcoin and Friends", IEEE European Symposium on Security and Privacy, issn: 2375-1207, 2017, pp. 111-126, doi: 10.1109/EuroSP.2017.37.
5. Buterin, V., "A next-generation smart contract and decentralized application platform", Ethereum, 2013, https://ethereum.org/en/whitepaper/.
6. Buterin, V., "Secret sharing DAOs: The other crypto 2.0", Ethereum, 2014, https://blog.ethereum.org/2014/12/26/secret-sharing-daos-crypto-2–0/.
7. Brown, R.G, "Blockchain Technology in Finance", IEEE Computer Society, issn: 0018-9162, Volume. 50, Issue. 9, 2017, Pages. 14-17. DOI: 10.1109/MC.2017.3571047
8. Alexander W Peters, "From blockchain technology to global health equity: can cryptocurrencies finance universal health coverage?", BMJ Global Health, issn: 2059-7908, vol. 2, issue. 4, 2017, https://doi.org/10.1136/bmjgh-2017-000570
9. Lotti L. "Contemporary art, capitalization and the blockchain: On the autonomy and automation of art's value", Finance and Society, vol.2(2), 2016, pages.96-110. doi:10.2218/finsoc.v2i2.1724
10. G. P. Girish, "Speed of Adjustment of Capital Structure in Emerging Markets", Theoretical Economics Letters, issn: 2162-2086, vol.6, 2016, pages.534-538.
11. Franklin, M., "The Policy Role in the Stock Markets", Theoretical Economics Letters, vol.2, 2012, pages.230-231.
12. Gu, T., "Distorted Factor Markets, Government Intervention, and Excess Capital Accumulation: The Case of China", Theoretical Economics Letters, issn: 2162-2086, vol.4, (2014), pages.806-814.
13. Yu, H. "On the Qing Tributary System from the Per-spective of Transaction Cost", Theoretical Economics Letters, issn:2162-2086, vol.6, (2016), pages.228-233.
14. Alghalith, M. "General Closed-Form Solutions to the Dynamic Optimization Problem in Incomplete Markets", Applied Mathematics, issn: 2152-7393, vol.2, (2011), pages.433-435.
15. A. Martin Wiegelmann, "Institutional Economics, Risk Management, and Breakdown of Corporate Social Responsibility: Towards a New Architecture of Financial Markets," iBusiness, issn: 2150-4083, Vol. 5 No. 3B, 2013, pp. 190-199.
16. Vitale, P. "Call Auction Markets with Risk-Averse Specialists", Theoretical Economics Letters, issn: 2162-2086, vol.2, (2012), pages.175-179.
17. Chen, M. "On Information Creation and Its Effect in Incomplete Financial Markets", Technology and Investment, issn: 2150-4067, vol.3, 2012, pages. 149-153.