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CRYPTO REVIEW

GOSS INSTITUTE OF RESEARCH

COLLEGE OF BUSINESS
CITY UNIVERSITY OF HONG KONG

B2 FINTECH SCHOOL

2020 VIRTUAL CRYPTO FORUM :

THE ROLE OF CRYPTOCURRENCY – BLOCKCHAIN IN THE POST-PANDEMIC WORLD

June 16, 2020 | Hong Kong Time Zone | Via Zoom Webinar

GOSS Institute of Research

CityU College of Business 香港城市大學 City University of Hong Kong

B2 FinTech Business School

CRYPTO REVIEW

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* The articles of this special issue are selected abstracts of speeches given on 2020 Virtual Crypto Forum on 16 June, 2020.

A MESSAGE FROM THE EDITOR-IN-CHIEF:

In this special issue, we present eight articles distilled from invited speeches during the 2020 Virtual Crypto Forum: The Role of Cryptocurrency – Blockchain in the Post - Pandemic World.

During the past year, significant developments have occurred in the cryptocurrency field. Decentralized ecosystems, such as Bitcoin, successfully endured great market volatility caused by the pandemic, economic recession, and political uncertainty. Meanwhile, a new wave of crypto financing experiment, DeFi, is flourishing across many blockchain platforms. Government backed central bank digital currency (CBDC) projects have gained increasing support in mainstream monetary discussions.

On the flip side, regulators have started to tame the "wild west" development of crypto industry, followed by private litigations against various parties accused of illegal activities. We believe this is just the beginning of an enduring struggle.

Therefore, we present the authors' perspectives without a subjective position. We believe market competition will naturally select the most adaptive idea in the long run.

Dr. Zhong Zhang
Editor-in-Chief

CONSENSUS SYSTEM IN AN UNCERTAIN WORLD

Zhong ZHANG,
Editor-in-Chief, Crypto Review

The speech focuses on the consensus mechanism of cryptocurrency and its functions in an uncertain world. It is stated here that cryptocurrency, represented by Bitcoin, has become a system out of our control.

The speaker first points out the intrinsic value of Bitcoin can be understood as "Intrinsic Certainty of Cryptocurrency". It is because a decentralized cryptocurrency forms a voluntary agreement, in other words, consensus. The consensus determines the cryptographic functions that secure the system and makes sure only the users with the correct private key can claim the Bitcoin stored in the associated address. In addition, the consensus regulates how the block space is utilized because Bitcoin's blockchain is a distributed database. The process of bidding for space in the network, occurring when submitting a transaction, is a completely free market. The rule of this market is also determined by the consensus.

It is important to notice that the system of Bitcoin is running smoothly without a central planner, law, or regulations. Looking back at our history, humans only agree to disagree. What we barely agree on are only those facts that are out of our control, for instance, the rules of mathematics, and the laws of physical science. In this way, Bitcoin is argued by the speaker as the first "human-made" global agreement out of our control.

The system achieves such agreement firstly by removing individual identity. Any user of Bitcoin does not have to reveal the ID because one can create new address at very low cost. Meanwhile, it is relatively difficult to discover who controls which address. Secondly, the system was designed from the beginning to be an open system. As long as the user can provide the correct private key, he or she or it is considered legitimate user of the system.

Moreover, the system removes hierarchy and center from this network. The P2P network of Bitcoin is designed to connect in a random way to remove any potential of creating a cluster or certain center node. In order to make sure all the system runs without a central planner or legal enforcement, the system has to be incentivized with the Bitcoin itself. These features are necessary for creating a well functioned, decentralized, apolitical and non-national currency.

The ongoing pandemic has magnified a lot of problems facing by the society, such as fake news, discrimination, irresponsible monetary policy, digital surveillance etc., created by the human-controlled system due to the node-wide design incentives. Under such circumstance, Bitcoin blockchain and other decentralized blockchains are of potential to solve these problems by performing as a platform beyond their monetary function. Although these platforms are still very young, immature, and volatile in terms of market price, in the long run, they may serve as a platform for us to out-source some social-economic functions to a system out of our control. Just like mathematics and physical science, the foundation of modern civilization, is out of our control. ■

Zhong Zhang

Dr. Zhang is currently a Senior Economist at Bates White Economic Consulting, a litigation consulting firm based in Washington, DC. He is an expert in the economic mechanism design, cryptocurrency and especially the blockchain technical features of Bitcoin's ecosystem.

Before he joined Bates Whites, he was an Assistant Professor of Finance at College of Business at City University of Hong Kong. He joined CityU in 2014 after receiving his Ph.D. from Kelley School of Business at Indiana University. His dissertation is about measuring informed trading in limit order markets. Before doctoral study, Dr. Zhang obtained his M.A. in Economics from Indiana University, and B.S. in Mathematics from Zhejiang University.

He specializes in Financial Market Microstructure, Investment, and Derivatives. His current research focuses on informed trading, market liquidity, leverage, and their impact on security pricing and investment decisions.

He has taught Algorithmic Trading and Option Pricing at CityU, and serves as faculty advisor of CityU's award winning delegation to Rotman International Trading Competition.

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THE ESSENCE OF BLOCKCHAIN IS MACHINE TRUST: TECHNICAL AND REGULATORY CHALLENGES AND PROSPECTS

J. Leon ZHAO,
Professor and Director, Center on Blockchain and Intelligent Technology, School of Management and Economics, The Chinese University of Hong Kong , Shenzhen

This speech introduces the essence of blockchain – machine trust and recent developments of technical and regulatory challenges and prospects.

Trust has been studied from many perspectives such as subjects, content, sources, nature and motivations. Trust between two subjects, trust in character and ability, institutional trust, identity trust, and moral trust constitute the basic issues of trust. Computing trust is a new concept in trust, which may occur when a contract is executed through calculation and algorithms. Computing trust in blockchain ensures the trust of business logic, that the process is irreversible, that the results cannot be tampered with, that everyone can participate on the public chain, and creates a trusted environment.

Social science studies have shown that the level of trust and risk tolerance will have a strong impact on the types of contracts and types of relationships between companies. Hence, the essence of blockchain is a trust machine that can enhance trust between business entities and has been widely adopted in finance, healthcare, and education, though still in an early stage of experiments.

In finance, basically all the applications such as payments, clearing and settlement, KYC, digital assets, capital raising, etc., are possible because blockchain can improve trust and therefore improve the efficiency of regulation compliance in the financial industry. In addition, blockchain trust can reduce the regulatory costs of medical and health system, and can also improve the efficiency and cooperation capability of education systems.

Looking into the prospects of development and application of blockchain technology in China, the International Data Cooperation predicted that in 2020, China's blockchain market will rapidly expand with applications extending to cross-border payments, distributed governance, professional service certification, blockchain services, AI and blockchain, blockchain identity, distributed supply chain, digital rights management, blockchain infrastructure, and digital currency.

Facing a booming market in blockchain technology and applications, the Chinese Ministry of Education has instigated the National University Blockchain Initiative in April 2020. The initiative covers eight directions of research, four of which have to do with trust mechanism, including such topics as regulations, security, protection, and evaluation.

To conclude, the immutability of blockchain is the basis of trust mechanism. It can reduce the cost of information sharing and provide a technical foundation for developing new production relations. Hence, blockchain is the only technology that can affect human and business relations directly. However, the development and promotion of blockchain technology should be complementary with legal regulations. It is exciting to see the blockchain era has entered an implementation stage, and we look forward to more innovative studies and outcomes during the next few years. ■

J. Leon Zhao

Professor and Director, Center on Blockchain and Intelligent Technology School of Management and Economics, The Chinese University of Hong Kong, Shenzhen. He was Chair Professor in Information Systems, City University of Hong Kong (CityU), where he was Head of Information Systems from 2009 to 2015. He was Interim Head and Eller Professor in MIS, University of Arizona. He holds Ph.D. in Information Systems from Haas School of Business, UC Berkeley. He is currently director of the CityU Center on Global Internet Finance (since 2015), the CityUSRI Lab on Enterprise Process Innovation and Computing (since 2007), and CityUCRI Center on Blockchain-centric Business Innovation (since 2017). His research has been funded by CityU, NSF, NSFC, RGC, SAP, IBM, Shenzhen Government among others; as PI, he has received over 20 million HKD in total research funding (including two recent grants on blockchain). He received IBM Faculty Award at the University of Arizona in 2005 and Chang Jiang Scholar Chair Professorship at Tsinghua University in 2009. His research is in information technology and applications, with a special focus on FinTech and Blockchain. He has been co-editor of Springer journal on Financial Innovation, Senior Editor of Decision Support Systems, and Associate Editor of IEEE Transactions on Service Computing, ACM Transactions on MIS, and Electronic Commerce Research and Applications among others. Since 2003, He has co-edited over 20 special issues in various academic journals; Since 2003, He has co-edited over 20 special issues in various academic journals; most recently, he is co-editor of Big Data Special Issue for MIS Quarterly (published in December 2016) and co-editor of FinTech for Information Systems Research (to be completed in 2020). He has chaired numerous conferences and is the lead founder of several academic conferences including China Summer Workshop on Information Management (since 2007) and International Conference on Smart Finance (since 2016).

INTERPRETING THE DIGITAL DOLLAR PROJECT

YAO Qian ,
Head, Technology Supervision Bureau of the China Securities Regulatory

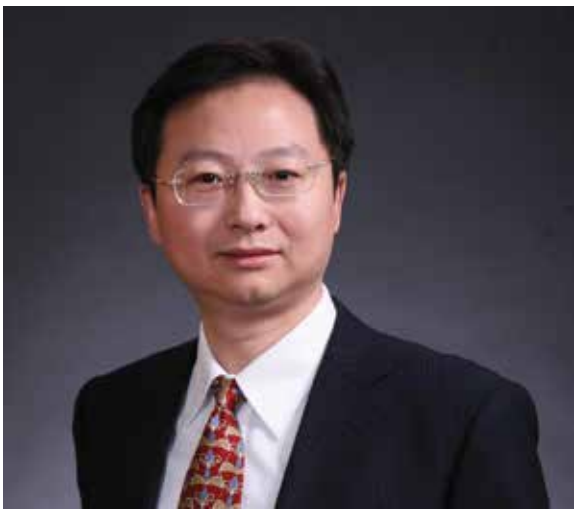
This speech focuses on the Digital Dollar Project and analyzes the value attribute, generating currency, technology roadmap and regulatory considerations of digital dollar.

Firstly, The Digital Dollar Project's first white paper clearly states that the value attribute of digital dollar is direct liabilities of the Fed. It emphasizes that the central bank money plays a special role, particularly in wholesale payments and foremost in securities trading. In the United States, regulators and market participants have a strong preference for using central bank money because it mitigates risks and offers settlement finality. This is consistent with the viewpoint in Principle Nine "money settlements" of the Principles for Financial Market Infrastructure (PFMI). PFMI also emphasizes that the financial market infrastructure should use central bank currency for currency settlement when practical. From a security perspective, perhaps the CBDC based on direct central bank liabilities should be given priority over the CBDC based on private liabilities.

Secondly, generating CBDC via issuance or exchange depends on the positioning of the CBDC. The white paper states that a US CBDC would be a liability of the Fed denominated in dollars and form an integral part of M0. It would be distributed like, and act as a complement to, dollar bills and could be used in transactions conducted in currency and reserves. The white paper emphasizes that the digital dollar has a neutral impact on monetary policy and will not affect the Fed's impact and control on monetary policies and inflation. It also gives a two-tier distribution model of physical cash and tokenized digital dollars, making it clear that digital dollars are obtained through exchange. However, we cannot rule out the possibility that the digital dollar will become a tool for the Fed to expand its balance sheet.

Thirdly, different parties have different views on whether the technology roadmap for CBDC should be account-based or token-based. At present, the CBDC experiments basically choose the latter one. Similarly, the white paper also clearly states that its vision is to tokenize the dollar and make the digital dollar a new and more dynamic central bank currency. It believes that "tokenization provides unparalleled opportunities for innovation in the areas of payment and financial infrastructure." It also points out the ultimate shortcomings of the settlement of the account-based model is that the transactions cannot be fully completed because it could still be reversed until their respective debit and credit transactions are recorded, reconciled, and settled.

Last but not least, credible identity is the foundation for the stable operation of modern economy and society. The white paper has chosen the token-based technology roadmap and also expressed concerns about privacy protection and compliance supervision. It believes that when developing digital dollars, the designers and regulators should consider where to draw the line to respect personal privacy, and meanwhile to properly enable the necessary compliance and regulatory procedures, including customer identification (KYC), anti-money laundering (AML), Anti-terrorist financing (ATF), anti-fraud, etc. It recommends exploring technical solutions that can simultaneously achieve appropriate regulation and privacy protection. ■



YAO Qian

Prof. Qian YAO is currently the Head of the Technology Supervision Bureau of the China Securities Regulatory. He was the former General Manager at China Securities Depository and Clearing Corporation (CSDC), and the first Director of the PBoC's Digital Currency Research Institute. Prof. YAO is a professor level senior engineer. He is also a Researcher at Counsellors' Office Financial Studies Center, General Secretary at China Financial Standardization Technical Committee, the member of Blockchain Expert Committee at Chinese Institute of Electronics, and Academic Committee of Center for Post-doctoral Studies at People's Bank of China Financial Studies Institute.

CONSTRUCTING THE SYSTEM OF DIGITAL ASSETS TRANSACTIONS BY BLOCKCHAIN TECHNOLOGY

DU Ping ,
Chairman, Researcher, Shuju Bay Area Big Data Research Institute

This speech shares two perspectives on constructing the system of digital assets transactions by blockchain technology.

Firstly, it is argued that blockchain technology is a major technology to ensure that data elements can be trusted and used safely.

With the acceleration of networking, digitization and intelligence, online data has shown explosive geometric growth in all aspects of human society's production, circulation, transaction, and distribution. However, in general, the development and utilization of data elements is still in its infancy.

Almost all types of platforms based on data management and Internet technology are centralized structures, having the potential threats to national security, business confidentiality and personal privacy. Blockchain technology with its basic features such as encrypted transmission, non-tampering, distributed accounting, and decentralization, can better compensate for the technical and operational loopholes, as well as the management limitations of the above-mentioned platforms. It can also effectively solve the problem of information asymmetry between the data rights owner and the platform owner, help reconstruct the credit system, promote the data value creation, transmission and appreciation through its natural Token incentive mechanism.

In addition, the fundamental purpose of data collection is not to keep the data confidential, but to achieve the maximum value of data. The difficulty in determining the classification standards for data confidentiality, the lagging of data desensitization and decryption legislation, the unclear definition of data ownership, and the absence of a data trading market system, have made digital platform owners and operators easily deviate from the legal and compliant use of data, as well as their responsibilities and obligations of security management. It has also led to some government departments and enterprises having no inherent motivation for data sharing. Large-scale commercial development and utilization of data elements hence lack application scenarios.

Secondly, Blockchain technology is an important tool and infrastructure for digital asset securitization and market trading system construction.

Asset digitization and digital assetization are the two basic paths for the development of the current digital industry. How to make good use of blockchain technology to become a boosting and hedging tool is a hot research and practice field in China.

On the one hand, the in-depth application of blockchain technology will inevitably be inseparable from the TOKEN mechanism, which will form a so-called TOKEN economy. Specifically, we can chain all online data generated by consumer behavior, investment behavior, and social behavior in online communities, and then give token incentives allowed by current domestic policies and regulations, that is, a credit point system, to promote the value realization of data resources.

On the other hand, we can use the advantages of blockchain technology and system support for specific application scenarios to conduct compliance assessment and review according to existing domestic laws and regulations. On this premise, we can conduct reasonable evasion to promote the construction and operation of the central digital asset trading system in China, including trading platform, mechanism and rules, trading platform operation technical support, trading risk control system, and trading supervision system.

Going forward, blockchain technology can enable digital currency transactions and financing activities. Giving full play to and making good use of the comparative advantages of blockchain technology in terms of right determination, traceability, deposit evidence, smart contract matching, and digital asset transactions are major issues and tasks we are currently facing. ■

DU Ping

Mr. DU Ping is currently the Chairman of Shuju Bay Area Big Data Research Institute, Secretary-General of the National Development Planning Expert Committee of the "Thirteenth Five-Year Plan", Secretary-General of the National Strategic Emerging Industries Development Expert Advisory Committee.

He was the former Executive Deputy Director of the National Information Center, Director of the National E-Government Extranet Management Center, Director of Engineering Center at National Development and Reform Commission, and Director of China Smart City Research Center.

He is also the Vice Chairman of China Information Association, Vice Chairman of China Regional Economics Association, Vice Chairman of China Cloud System Pioneer Strategic Alliance, and Executive Director of China Sustainable Development Research Association.

CRYPTO & BLOCKCHAIN - PLACEBO OR CRISIS INHIBITOR?

Marie-Line RICARD ,
Associate Partner of Sia Partners (Paris Office)

On one hand, Covid-19 crisis and blockchain share, as strange as it may seem, numerous common grounds: both subjects are broad, international, multifaceted, and mainly unknown, they both need to be taken seriously, with doubts and humility, because they show the limitations of existing systems, and impact people and businesses at large, with a speed never seen before …

But on the other hand, one destroys lives and businesses, whereas the other builds new ecosystems and products – and helps people starting from a blank page.

So, while preparing my presentation, I asked myself: Could blockchain & cryptos help us to be more ready and to timely handle emergency during the next crisis? Could it be financial, sanitary or ecological?

My presentation " Is it a placebo or a crisis inhibitor?" tries to answer this question in 3 steps, starting from the genesis -bitcoin-, then going through what we saw during the actual crisis, and trying to project ourselves in the future.

Yesterday: Bitcoin, is, by essence, a response to the 2008 subprime financial crisis. It has been created to address the flaws of the financial system of the time by introducing a deflationary currency. Bitcoin is the first crypto-assets, and the source of other crypto-assets and Blockchain.

The use cases that have been developed in the last 11 years are totally fractal: they have impacted all businesses, in finance, energy, health, retail, schools … all the sectors, everywhere in the world with POCs first, and then moved out of the labs.

Today: both Bitcoin and Blockchain have been resilient during the lockdown. The ecosystem did not stop developing and had a fairly significant impact. One example is Meditect, a French startup that has raised 1.5M€ from BPI France in May 2020 for their medicine traceability solution. Indeed, the covid-19 crisis has caused major disruptions across global supply chains. Many factories have shut down due to safety concerns and there is an unprecedented demand for certain goods, especially medical supplies. This high demand forces many users to source supplies without knowing their origin or quality. Long supply chains cause needless opacity, making it difficult to forecast and plan supply accordingly. Blockchain is particularly suitable for supply chains because it can connect all stakeholders in a supply chain and provide a single source of shared knowledge.

Tomorrow: Blockchain is not a distant dream. It can play a pivotal role in accelerating post crisis digital transformation initiatives and solving those problems highlighted in the current system.

Combined with AI, for instance providing intelligent solutions for identifying symptoms caused by coronavirus for treatments and supporting drug manufacturing, it could deliver even more promises.

Used in the future, blockchain could also result in having more masks available and to timely handle public health emergency, and in far more efficiency around clinical trials and easier data verification, thus in a lot of lives saved.

As a conclusion, innovation is here. Just use it to create new businesses and save the lives we have created. ■

Marie-Line RICARD

Ms. Marie-Line Ricard is an Associate Partner of Sia Partners (Paris Office), leading “Blockchain & Crypto assets” cross-industry practice at international level. Former Partner in charge of Risk & Regulatory Department of PwC France, and founder of the Blockchain Lab for the same firm, she is an engineer with 23 years of experience in developing new businesses, and leading complex transformation / innovation programs.

THE DIGITAL CURRENCY WORKS AS A PAYMENT INSTRUMENT

XIAO Feng ,
Vice Chairman and Executive Director of China Wanxiang Holding Co., Ltd., Chairman and CEO of Shanghai Wanxiang Blockchain Inc.

This speech analyzes digital currency from two dimensions: the manifestation of credit attributes and the payment function.

The speaker firstly defined three types of currency based on the credit attributes of currency: sovereign currency, cross-sovereign currency and non-sovereign currency. Regarding the technical support for currencies with different credit attributes, sovereign currency does not necessarily need blockchain technology, while cross-sovereign currency, such as Libra, requires the use of consortium chain technology. As for non-sovereign currency such as Bitcoin, it is a decentralized virtual credit currency that does not require permission and is issued peer-to-peer based on a decentralized blockchain network. Its credit attributes are based on a set of encryption algorithms with the idea of decentralized equality as well as on the market rules and business logics recognized by the digital currency circle.

From the perspective of currency issuers (institutional or private issuers), currency issuers can also be basically classified into three types: individuals, commercial organizations and institutions with the right to issue fiat currency. However, considering the nature of currency and its credit attributes from such perspective, it is found that there are no strict legal restrictions on the three issuance behaviors. When these currencies with different credit attributes are issued, they are out of controls of the issuers and enter the payment system or financial system. Thus, the ownership of these currencies is transferred. In this way, Sovereign currency like CBDC is unlimited legal tender.

On the other hand, although Bitcoin is a non-sovereign digital currency "issued" by a decentralized network. Because of its decentralized characteristic, it is impossible for an intermediary to use leverage for currency operations, neither to overissue Bitcoin. Therefore, albeit its fluctuating market price, Bitcoin can also be regarded as a highly secure currency.

The second focus of this speech is on the payment function of digital currency. By overviewing the evolution of paper currency in the history of commodity transactions in human society, the speaker argued that the emergence and application of an encrypted digital wallet and currency based on blockchain encrypted digital technology symbolized by Bitcoin and Ether have opened a new era of the fourth-generation personal payment tools and payment system.

The speaker also compared the three different models of encrypted digital currency payment system, Bitcoin system, cross-sovereign encrypted digital currency payment system, and CBDC or DCEP. For Bitcoin system, while aiming to develop into a personal payment system that is widely used in the transaction process, it is still facing certain technical obstacles. However, we have reason to believe that with the maturity of Lightning Network technology, the market competitiveness of Bitcoin's peer-to-peer payment system will become more prominent. Similarly, Libra as a commercial organization, also has the potential to create such payment network tightly

integrated with business scenarios. Its vitality is obvious.

As for the third payment model, CBDC, issued by the central bank, it is expected to establish a supervised peer-to-peer payment system. However, it should not only focus on mobile payments but be used in other broader application fields to exert its powerful functions of sovereign currency, especially in the field of digital economy that requires sovereign credit endorsement. The market is eager for the introduction of digital currency to truly realize economic digitization. This is the core function and value of CBDC. ■

XIAO FENG

Dr. Feng Xiao is currently the Vice Chairman and Executive Director of China Wanxiang Holding Co., Ltd., Chairman and CEO of Shanghai Wanxiang Blockchain Inc., Vice Chairman of MinSheng Life Insurance Co., Ltd., Chairman of Wanxiang Trust Co., Ltd., Chairman of Minsheng Tonghui Asset Management Co., Ltd and Chairman of All-in Payment Network Services Co. Ltd., and DATAYES Inc., Chairman of ZheShang Fund Management Co., Ltd. He holds a PhD in Economics from China Nankai University. Dr. Xiao has over 20 years' experience in Chinese securities and asset management industry. He was the founder of Bosera Funds, which is one of the first and largest mutual funds in China.

A BRIEF DISCUSSION ON THE SUPERVISION OF TAIWAN'S SECURITY TOKEN OFFERING (STO) MARKET

Frank KAO,
Product Manager, BitoEX

The speech introduced the Security Token Offering (STO) market in Taiwan, with specific focuses on Taiwan's Crypto Exchange, Taiwan Financial Supervisory Commission, the basic principles of STO and the market supervision in Taiwan, the issuance size of STO in Taiwan, and current conditions of STO trading rights.

The crypto exchange with the largest trading volume in Taiwan has a unique feature that the fiat currency can enter the exchange directly. Investors can remit cash in Taiwan dollar from the bank to the exchange's proprietary account and then conduct transactions with Bitcoin or any virtual currencies issued on the chain in this crypto exchange.

In 2018, the Taiwan Financial Supervisory Commission (FSC) promulgated the trading regulations on Taiwan's STO market. The regulatory function of the FSC is to cover all financial institutions in Taiwan. From the perspective of FSC's regulatory functions and from its supervision on the virtual currency trading businesses, the STO market falls into the regulatory scope of securities firms. Therefore, institutions or investors who want to engage in STO businesses in Taiwan must clearly understand the FSC's STO rules, laws and regulations.

There are three basic principles of the supervision in Taiwan STO market: 1) Supervision of issuers; 2) Supervision of exchanges or trading platforms; 3) Supervision of investment in STO.
Besides, the issuance size of an STO in Taiwan must be limited to NTD30 million. This is due to the restrictions in the Taiwan Crowdfunding Act, that is, any fundraising activities conducted under the nature of crowdfunding are strictly limited to NTD30 million. According to the requirements of Taiwan's STO market supervision regulations, if any institution wants to issue STO in excess of NTD30 million, it must apply for a sandbox experiment. The current FSC regulations define four rights for security tokens: 1) equity rights; 2) creditor's rights; 3) profit sharing rights; 4) asset rights. At present, only profit sharing rights and creditor's rights can be implemented in STO issuance, while equity rights corresponding to the token must be included in the sandbox.

As a result, there emerge three issues regarding the STO rights, the limitation of STO issuance size, the trading rights of STO, and investors in the STO market. Under the restrictive regulations currently implemented by the FSC, the speaker concluded that more bold innovative designs and tentative experiments should be carried out, based on the experience in supervision and practice, to promote the innovative development of the STO market in Taiwan.

Although Taiwan's overall investment market size is not large compared with international financial centers such as Singapore and Hong Kong, it has its unique advantages. The current savings insurance market in Taiwan is about NTD600 billion. If Taiwan can continue to introduce more innovative financial investment products and further reform regulatory measures, the value of this huge amount of savings insurance funds can be increased. The FSC can consider relaxing restrictions on

investors based on the needs and development of the Taiwan market, allowing both professional investors and ordinary investors to participate. In addition, it can expand the license scope of special securities firms, or increase the issuance size from the current limited size of NTD30 million to NTD500 million or NTD1 billion. The introduction of such new regulatory measures will further activate the investment market and promote the innovation and development of the financial market in Taiwan. ■

Frank KAO

Mr. Kao is currently the Project Manager of BitoEX, and General Manager of Insight Software. His former positions include Solution Manager of Advantech, Software Department Manager of, Software Supervisor and Product Marketing Manager of AVerMedia Technologies Inc., etc. Mr. Kao has rich experience in product design, marketing, and ICO & Blockchain project management.

INTRODUCTION OF PAYMENT CHANNEL TECHNOLOGY

Alex YANG,
CEO, V SYSTEMS

Second layer protocols aim to expand blockchain protocols without changing anything in the underlying blockchain, which are regarded as potential solutions for transaction jam caused by frequent micropayments like on Bitcoin network. The payment channels as second layer protocols attempt to take the majority of transactions off-chain and settle the final state with a single on-chain transaction. Only the two involved parties of any payments are required to know the details of their transactions, so it is unnecessary for the entire blockchain to know every single transaction that happened between them. It is possible for transacting parties to continue to pay each other, delaying the final settlement to a single on-chain transaction when they are satisfied with the final state. This can drastically reduce the money and time needed to perform all the transactions, resulting in lower on-chain stresses. In this article we first introduce existing approaches including Lightning Network, Sidechains and RSK, then we elaborate a newly implemented Payment Channel by V Systems.

The basic idea for Lightning is that by using a 2-party multi-signature wallet, either party can sign transactions online that output different amounts to the two parties. The correct state of the payment channel is ensured by punishing parties that attempt to broadcast old states. If one of the two parties attempts to cheat by broadcasting an older state, the protocol allows the other party to obtain all the funds in the channel. The punishment mechanism helps on the security of the channel.

Sidechains are another proposed method of solving scalability issues in blockchain protocols Sidechains seek to solve this problem through a two-way peg between two blockchains, allowing users to transfer main chain coins for coins on this sidechain and vice versa, usually at a set exchange rate. This means that it would be possible for main chain users to utilize the advantages of the sidechain without the need to change the main chain's protocol.

RSK is a Bitcoin sidechain, aiming to enable turing complete smart contracts, and faster transaction confirmations. There are security concerns for sidechains due to a difference in computing power between the parent chain and its child chains. RSK currently solves these security issues, including the job of locking up and releasing coins on each blockchain, by utilizing a trusted third party. This is of course, not ideal.

V Systems (VSYS) has designed a unidirectional payment channel by utilizing a set of simple mathematical constraints to ensure its security without using multi-signature, punishment collateral or involving a third party. Basically we store three key variables of the protocols that can bookstrap all the transactions and their corresponding amounts at any given time. The payer could top up fund anytime and send funds without transaction fees, and the receiver can collect the funds at any point without the need to close the payment channel. This payment channel protocol drastically reduces the number of interactions and complexity of opening a payment channel, and does not require users store a new secret for every on-chain transaction made. ■

Alex YANG

Dr. Alex Yang is CEO of V Systems, a blockchain project led by Sunny King, a legendary developer and creator of Proof-of-Stake consensus. As CEO of VSYS, Alex is driving the project to solve the core scalability and stability problems in the development of the blockchain industry. His deep experience of the industry has been gained through his investing activity where he has sponsored many worldleading blockchain foundations.

Prior to moving into venture capital investing, Alex was based in Hong Kong as head of APAC structured rates trading at Nomura International, and VP of exotic derivatives trading at UBS. He started his career as a quantitative developer at Jump Trading in Chicago.

Alex has a PhD from Northwestern University and a BA in Mathematics from Peking University.

2020 Crypto Virtual Forum
The Role of Cryptocurrency - Blockchain in the Post-Pandemic World Special Issue Vol.1

June 16, 2020 | Hong Kong Time Zone | Via Zoom Webinar

Welcoming address by

Prof. Way KUO
President and University Distinguished Professor,
City University of Hong Kong

Morning Session
09:00-12:30

* Speakers are in alphabetical order by last name

Chair:
Prof. S Joe QIN (Organizer)
Dean of School of Data Science,
Director of Hong Kong Institute for Data Science,
Chair Professor of School of Data Science,
City University of Hong Kong

Prof. Steven KOU
Questrom Professor in Management and
Professor of Finance,
Questrom School of Business,
Boston University

Dr. Lawrence MA
President of Hong Kong Blockchain Society

Prof. YAO Qian
Head of the Technology Supervision Bureau
of the China Securities Regulatory Commission,
Former Head of China's Central Bank
Digital Currency Initiative

Prof. Harald UHLIG
The Bruce Allen and Barbara Ritzenthaler Professor,
Economics and the College,
University of Chicago

Prof. Jerome YEN
Head of Centre for Innovation and Entrepreneurship
Distinguished Professor of Department of
Computer and Information Science of Faculty of
Science and Technology, University of Macau

Dr. Zhong ZHANG (Organizer)
Editor-in-Chief
Crypto Review

Prof. J. Leon ZHAO
Chair Professor of Department of
Information Systems at College of Business,
City University of Hong Kong

Afternoon Session
14:30-18:20

Chair:
Dr. Michael WONG (Organizer)
EMBA Programme Director and
Associate Professor of Finance,
City University of Hong Kong

Mr. BAO DanRu
Independent Director of China Construction Bank
Pension Management Co., Ltd.
Former Deputy Director of the Shanghai
Human Resources and Social Security Bureau

Prof. Emil CHAN
Chairman
Fintech Committee of Smart City Consortium

Mr. DU Ping
Chairman
ShuJu Bay Area Big Data Research Institute

Mr. Frank KAO
Product Manager
BitoEX, Taiwan

Prof. Jason LAU
Chief Information Security Officer (CISO)
Crypto.com

Ms. Marie-Line RICARD
Associate Partner of Sia Partners

Dr. XIAO Feng
Vice Chairman and Executive Director
China WangXiang Holdings

Dr. Alex YANG
CEO of V. SYSTEMS

Details and Registration

https://cityu.zoom.us/meeting/register/tJMvc-uprTsuHNXYxY9Tfj_sHB0yi07vgbEN

Organizers:

Prof. Houmin YAN
Dean
College of Business
City University of Hong Kong

Prof. QJ GAO
President
GOSS Institute of Research Ltd

Mr. Dadu LEE
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