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A (Legal) Perspective on Blockchain

Reference: CapLaw-2016-47

Before the background of the growing importance of financial technologies (FinTech), blockchain technology is gaining more and more of the public spotlight. Given that the existing legal framework has been designed for the traditional financial services industry rather than for technology-based business models, both regulators and legislators are facing the challenge of potentially adapting the existing regulation to the new needs of blockchain providers. In this context, a number of related regulatory and legal issues may arise; they are summarized in a nutshell in the present article.

By Luca Bianchi / Edi Bollinger

1) Introduction

FinTech has received a continuously increasing interest from entrepreneurs, banks, regulators, and legislators. In the past, from a regulatory perspective the attention has frequently been lying on virtual currencies (e.g., bitcoins). In the last three years, however, the focus has shifted from bitcoins to its underlying technology – the blockchain. Blockchain technology may have the potential to disrupt existing financial services business models. Its significance is often compared with revolutionary historical milestones such as the introduction of the internet. Substantial investments by banks and venture capitalists emphasize the hopes that many people in the financial industry have in new blockchain business models.

After giving a short overview on blockchain technology, this article aims to briefly flag some of the related regulatory and legal key issues.

2) A Primer on Blockchain Technology

a) What is a Blockchain?

A blockchain can be described as a digitally distributed, decentralized transaction ledger, which records the assets that are held, and the transactions that are entered into, by investors, thereby allowing the transfer of a broad range of assets or values between parties. A blockchain is composed of numerous blocks that, for their part, store information and consist of the following key components: a message (e.g., a transaction including its content such as instructions or the parties involved), a block header comprising metadata (e.g., reference back to the previous block), a time stamp, and a hash (the entire process broken down into a single number).

For a transaction, blockchain software converts the respective information into a data block and encrypts it. The block is then sent to all participating members of this peer-to-peer network (“miners”) who verify the transaction by completing cryptographic computations. The resulting competition – the successful miner may be rewarded with

virtual money – aims to ensure the functioning of this validation process, *i.e.*, of the blockchain technology *per se*. After every positive validation, which takes only about ten minutes, a new block is added to the front of the other blocks – the blockchain is growing.

Blockchain technology providers aim to benefit from several special characteristics of the blockchain technology:

- By distributing the blockchain across the miners, each of them owns a copy of the entire blockchain. Due to this decentralization, neither the validation nor the authentication or processing of transactions requires central authorities or intermediaries such as traditional banks or securities dealers.
- To verify transactions, *i.e.*, to add new blocks, the technology requires widespread consensus (usually more than 50%) among the miners. This mechanism also aims to increase the security and stability of the system.
- Its continuous growth process shall ensure irrevocability and immutability. Modifications should only be possible to the extent they are foreseen in the blockchain rules.
- The time stamp allows information to be tracked and verified.
- Its encryption allows tracing transactions back to (anonymized) identities but at the same time maintains confidentiality of the content and the participants. Blockchain, however, also provides transparency by enabling access to all previous blocks, *i.e.*, to the complete transaction history.
- Blockchains can be public (“unpermissioned”) or private (“permissioned”). Whereas data on the former is fully public and can be read or written by anyone (*e.g.*, bitcoin), permissioned blockchains may only be updated by a limited number of participants who are known in advance.

Finally, a separate note should be made in relation to smart contracts. A smart contract consists of pre-negotiated contract terms that are converted into the code of a programming language. Based on pre-programmed conditions, smart contracts are automatically executed once the defined contractual conditions have been fulfilled. Blockchain technology may be used to record trigger events and to verify the smart contract's execution.

b) Potential to Transform Industries

Presumably, blockchain technology will have its main function in the financial services industry. Besides its application as a validation device, it could be used as a digital ledger for (cross-border) payments, offerings of securities or other assets, as well as

the clearing and settlement of securities or other assets. Blockchain technology may, potentially, also be utilized for more efficient processing of interbank trading, trade financing or the processing of claims or illiquid assets (to the extent permitted by legal form requirements). Hence, blockchain technology is not only expected to speed up work and considerably reduce costs, it could also partially substitute (central) banks, clearing houses, or depositaries.

In addition, there are many other sectors that might profit from blockchain technology. Possible applications range from intellectual property (e.g., music or entertainment), property and real estate, consumer and energy markets to life sciences and health-care. It goes without saying that governments or agencies may benefit too (with regard to transparency, e.g., regulatory compliance tracking and reporting, or in terms of pensions or e-voting).

3) Key Issues

a) Regulatory Aspects

In Switzerland, the adaption of financial markets regulation to FinTech has entailed several (de)regulatory and legislative developments, of which the possibility of a regulatory sandbox deserves particular mention (see *CapLaw-2016-31*). However, as of today, many blockchain technology-based business models may be subject to supervisory and/or regulatory licensing requirements and approvals:

- The Financial Market Infrastructure Act (FMIA) may request a regulatory license if the specific business comprises either a securities settlement system, a trade depository, a digital payment system, or a transaction registry; certain business models might even be qualified as a stock exchange (and trigger respective licensing duties).
- The Banking Act (BA) can, potentially, apply to virtual currencies-related trading activities. Thus, a banking license may be required for financial intermediation (e.g., accepting virtual currencies from customers or managing virtual currencies-linked accounts).
- Under the Stock Exchanges and Securities Trading Act (SESTA) securities dealers, or blockchain providers that qualify as such, require a regulatory license as well.
- Besides, financial intermediation and the operation of financial market infrastructures fall in the scope of the Anti-Money Laundering Act (AMLA). Also, the duties of care under the revised anti-money laundering (AML)-regulations apply to virtual currencies.

- The Financial Services Act (FIDLEG) – which will enter into force earliest in 2018 – will contain further regulatory requirements and obstacles that are relevant for blockchain providers.

Furthermore, a new FinTech regulation shall be implemented in Switzerland. It will, presumably, comprise specific regulatory amendments, the sandbox, as well as a new FinTech license (see next CapLaw edition for further details).

b) Further (Selected) Legal Issues

Additional legal problems may occur in relation to data protection: Despite the encryption of any data – particularly regarding permissionless blockchains – the risk of tracing identities always remains (e.g., via quantum computing). At the same time, however, anonymity might cause problems for both government authorities and private operators in terms of counterterrorism, Know your Customer (KYC)-rules or AML-regulations.

With regard to dispute resolution the following questions arise. What are the legal implications of coding errors? In case of a breach of contract, may legal redress be sought in court and, if yes, how can contracting parties identify their anonymized counterparty? Which (central) authority is deciding disputes and – given the blockchain's immutability – which (retroactive) implications would jurisdictional or regulatory interventions have (i.e., enforceability)?

Smart contracts are particularly challenging with respect to contract law. Will they be regarded as legally binding without an identified counterparty? Can these contracts be void due to a lack of legal capacity, duress, or misapprehension? Also, with the exception of intermediated securities, the Swiss Code of Obligations (CO) still requires written form to transfer claims or book-entry securities.

4) Conclusion and Outlook

Despite the number of potentially applicable laws, blockchain technology is still not adequately regulated. *Prima facie*, implementing new FinTech regulations appears to be a promising first step in order to increase the attractiveness of Switzerland as a domicile of blockchain companies.

In the long run, however, integrating blockchain technology into an adequate legal and regulatory framework is inevitable. In particular, with regard to the subject of regulation, the type of blockchain is crucial. In a permissioned blockchain system, regulating its proprietor (via legal code) might be easiest. In an unpermissioned system without a formally responsible legal entity, however, responsible authorities might rather regulate the respective business (e.g., exchanges or wallet providers) by applying regulation through technical code, define the blockchain's rules, or, most likely, regulate through a combination of both legal and technical code.

Furthermore, most blockchain transactions involve a certain amount of currency. With regard to the objects of regulation this could be addressed by specifically regulating virtual currencies. Legislators might therefore consider issuing special licenses for companies dealing with virtual currencies. However, legal barriers for blockchain should generally be reduced in order to allow a new and promising industry to further develop.

Luca Bianchi (luca.bianchi@nkf.ch)

Edi Bollinger (edi.bollinger@nkf.ch)

30. Forum Financial Market Regulation – Common Ownership, Competition, and Top Management Incentives

Thursday, 1 December 2016, University Zurich, Zurich

http://www.finreg.uzh.ch/dam/jcr:121b4e38-548c-4a46-bf3a-000ae62adfeb/FFEderer30_Invitation.pdf

FinSA and FinIA (FIDLEG und FINIG)

Friday, 2 December 2016, SIX Convention Point, Zurich

https://www.dike.ch/image/data/Veranstaltungen/GesKR_Tagung_FIDLEG_FINIG_2016_Programm.pdf

Zukunft Finanzplatz Schweiz: Wie wird die Schweiz zum Asset Management Platz?

Friday, 13 January 2017, Weiterbildungszentrum Holzweid (WBZ-HSG), St. Gallen

<https://hsgalumni.ch/de/finanzplatz/programm-2017/>