Simmons & Simmons

DIGITAL DAY 2017

BLOCKCHAIN & LAW

Dr Khanh Dang Ngo

April 27, 2017

#blockchain

#dialogue

#regulation

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#blockchain

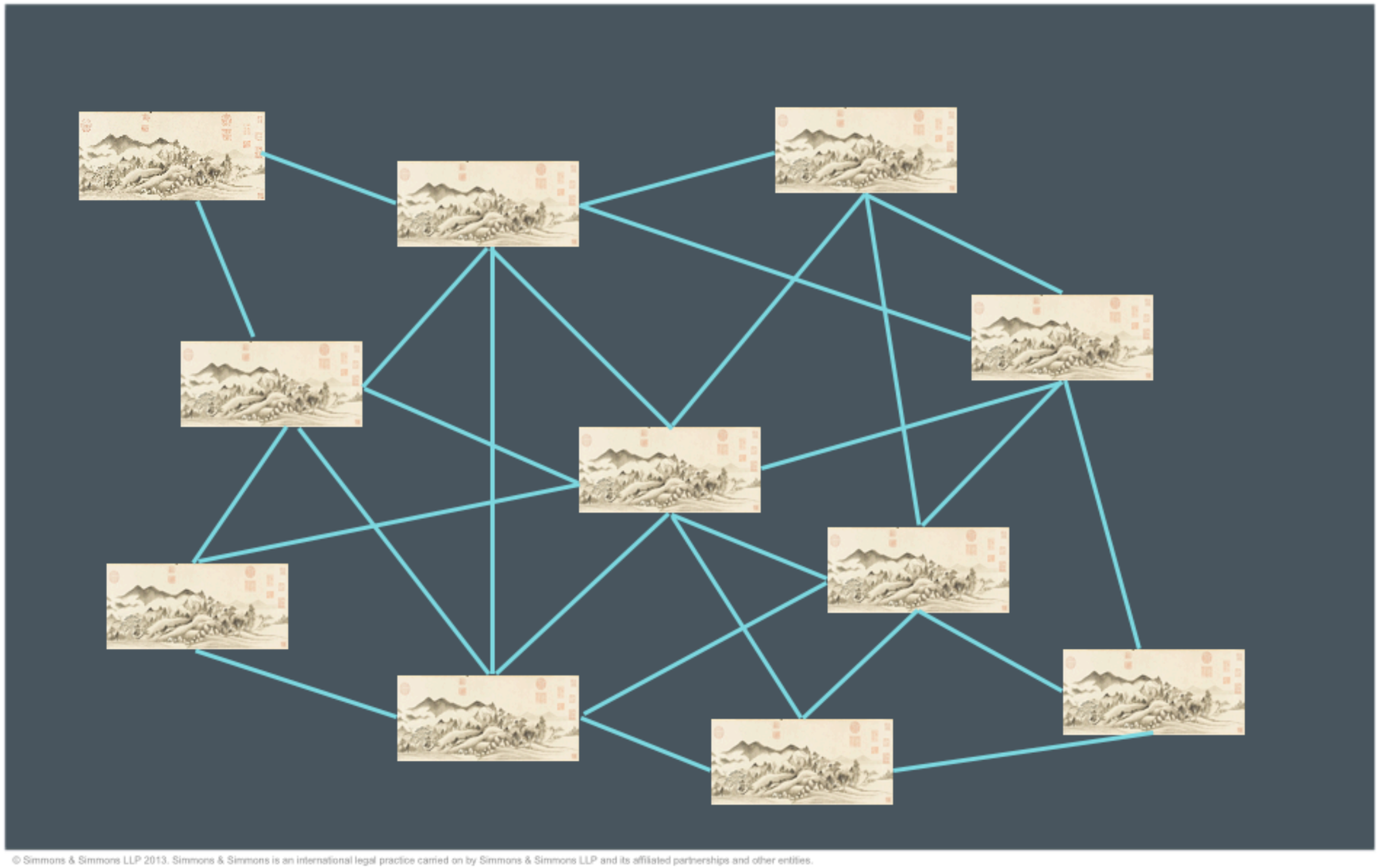
A history of ownership…

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#blockchain

...that is distributed.

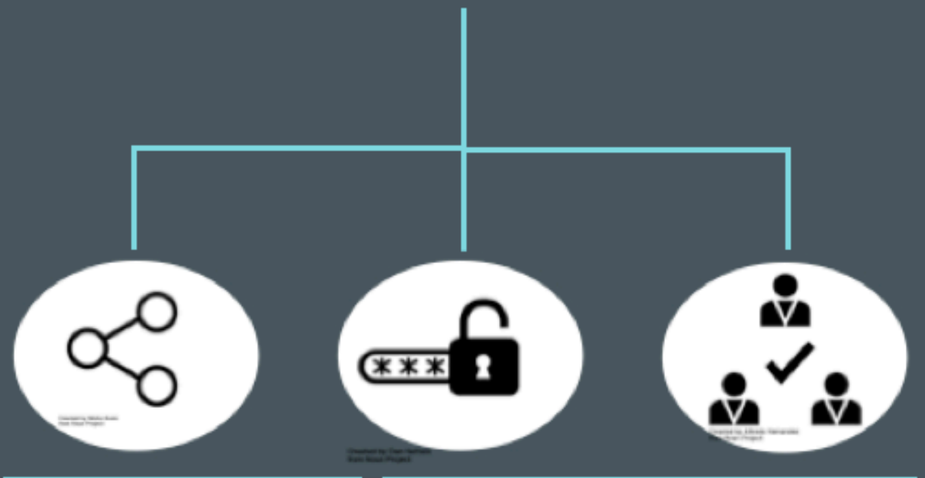
© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.



© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

Simmons & Simmons

#blockchain



notarization

verification

Peer-to-Peer network

Cryptography

Consensus Algorithm

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#blockchain

- Categories

  blockchain 1.0: currencies

  blockchain 2.0: contracts

  blockchain 3.0: beyond currencies, economics and markets

Source: MELANIE SWAN, BLOCKCHAIN - BLUEPRINGT FOR A NEW ECONOMY, O'Reilly Feb 2015.

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#blockchain - Potential Use Cases

Financial Institutions	Corporates	Governments	Cross-Industry
International Payments	Supply Chain	Record Management	Accounting
Capital Markets	Healthcare	Identity Management	Shareholder Voting
Trade Finance	Real Estate	Voting	Cybersecurity
Regulatory Compliance	Media	Taxes	Big Data
AML/KYC	Energy	Gov't & Non-profit Transparency	Data Storage
Insurance		Legisl, compl & reg oversight	IoT

Source: *Moody's Investors Service*.

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#regulation

- **Starting point**: The Law of the Horse Debate
- Legal issue: Do we need **a new body of law**?

A horse is a horse is a horse...

Property Law

Contract Law

Transit Law

No need for a new body of law

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

Simmons & Simmons

#regulation

- **Starting point**: The Law of the Horse Debate
- Legal issue: Do we need **a new body of law**?

A horse is a horse is a horse...	⟷	`"code is law"`
No need for a new body of law		code regulates by itself

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

Simmons & Simmons

#regulation

- Law and Blockchain - Perspectives

Conceptual

Interaction

System

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

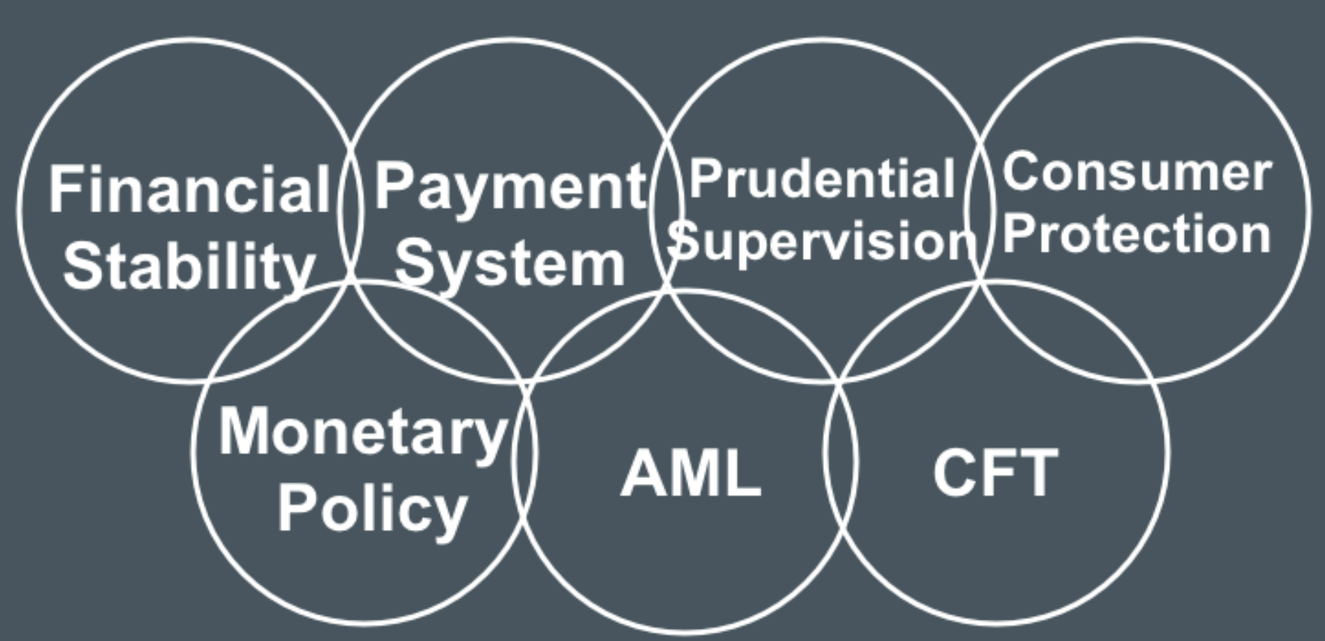
#regulation

- System
  - blockchain systems cannot be regulated in the same way as traditional centralized systems
  - blockchain enforces “ex ante” like architecture
  - regulation must target the operators of blockchain to regulate behavior

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#regulation

- Interaction - virtual currencies
  - legal challenges



© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#regulation

- Interaction - virtual currencies
  - legal challenges

Financial Stability

- high exchange rate volatility
- uncertainty about the survivability of the scheme
- impact remains negligible...

...unless (1) VC usage increases in regular payments, (2) make greater inroads into the real economy and (3) nothing is done to increase stability

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#regulation

- Interaction - virtual currencies
  - legal challenges

Payment System

- designed to transfer money
- could spread to other VCs and transmit shocks to the traditional payment system
- impact likely if...

... (1) large financial institutions embrace VC and/or
(2) VC use to pay for commercial transactions

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

Simmons & Simmons

#regulation

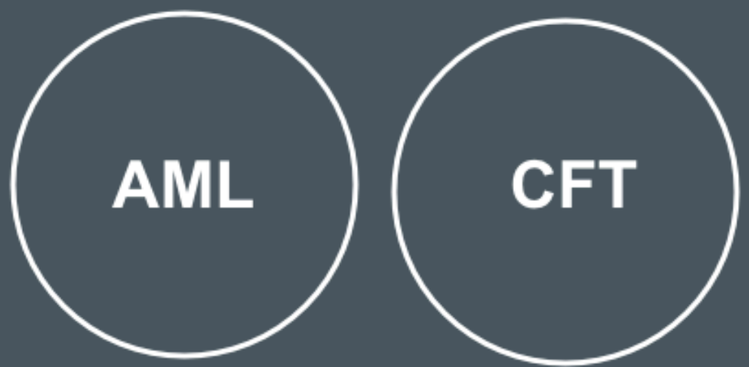
- Interaction - virtual currencies
  - legal challenges

- lack of regulatory protection in case of losses
- platforms are un-regulated
- unlawful use (AML)
- Tax liabilities
- payments cannot be reversed

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#regulation

- Interaction - virtual currencies
  - legal challenges



- level of anonymity
- no identification and verification of participants
- law enforcement cannot pinpoint central location
- multiple jurisdiction may apply

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#regulation

- Interaction - smart contracts

```
function buy() returns (uint amount){
    amount = msg.value / buyPrice;
    if (balanceOf[this] < amount) throw;
    balanceOf[msg.sender] += amount;
    balanceOf[this] -= amount;
    Transfer(this, msg.sender, amount);
    return amount;
}

function sell(uint amount) returns (uint rev
    if (balanceOf[msg.sender] < amount ) thr
    balanceOf[this] += amount;
    balanceOf[msg.sender] -= amount;
    revenue = amount * sellPrice;
    if (!msg.sender.send(revenue)) {
        throw;
    } else {
        Transfer(msg.sender, this, amount);
        return revenue;
    }
}
```

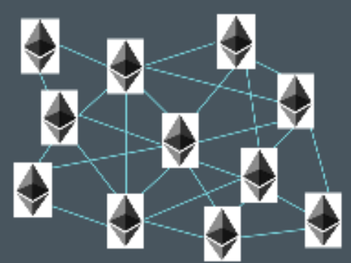
Smart Contracts

"A" Definition:

*"A smart contract is a **self-executing** and **self-enforcing** agreement written in a **computer language**"*

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

Simmons & Simmons



Application Layer

Fabric Layer

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

Simmons & Simmons

#regulation

- Interaction - smart contracts
  - Two categories

Smart Contract Code	&	Smart Legal Contract
- performs a small set of simple operations - Recorded on the chain - Code controls on-chain assets - Executed by the blockchain		- in the finance and law world, the term refers to a specific use case of smart contract code - Use of code to articulate, verify, and enforce an agreement between parties
Self-executing, permanent & censorship resistance		Smart Contract Code & (usually additional) Legal Language

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#regulation

- Interaction - smart contracts
  - Immutability & Censorship Resistant

Legal Enforceability

Good Faith Defense

Arbitration Procedures

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

Simmons & Simmons

#regulation

- Interaction - smart contracts
  - Pseudonymity & Trust

Identity Fraud

Liability & Accountability

'Distributed' Trust

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#regulation

Existing Legal & Tech Solutions

- Multisignature Structures
- Arbitration - Nodes
- Parallel Contractual Agreements
- Regulation and Oversight

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

Simmons & Simmons

#regulation

- Interaction - decentralized apps

Securities Transactions

Pre-Trade

- Enhancing KYC Processing
- Transparent and Verifying Assets
- Reduced Credit Risk

Trade

- Real-Time Transaction Matching
- Automated Settlement (DvP)
- Automated Reporting
- Facilitating AML

Post-Trade

- No Central Clearing
- Automated Margin & CollMa
- Self-enforcing Smart Contracts

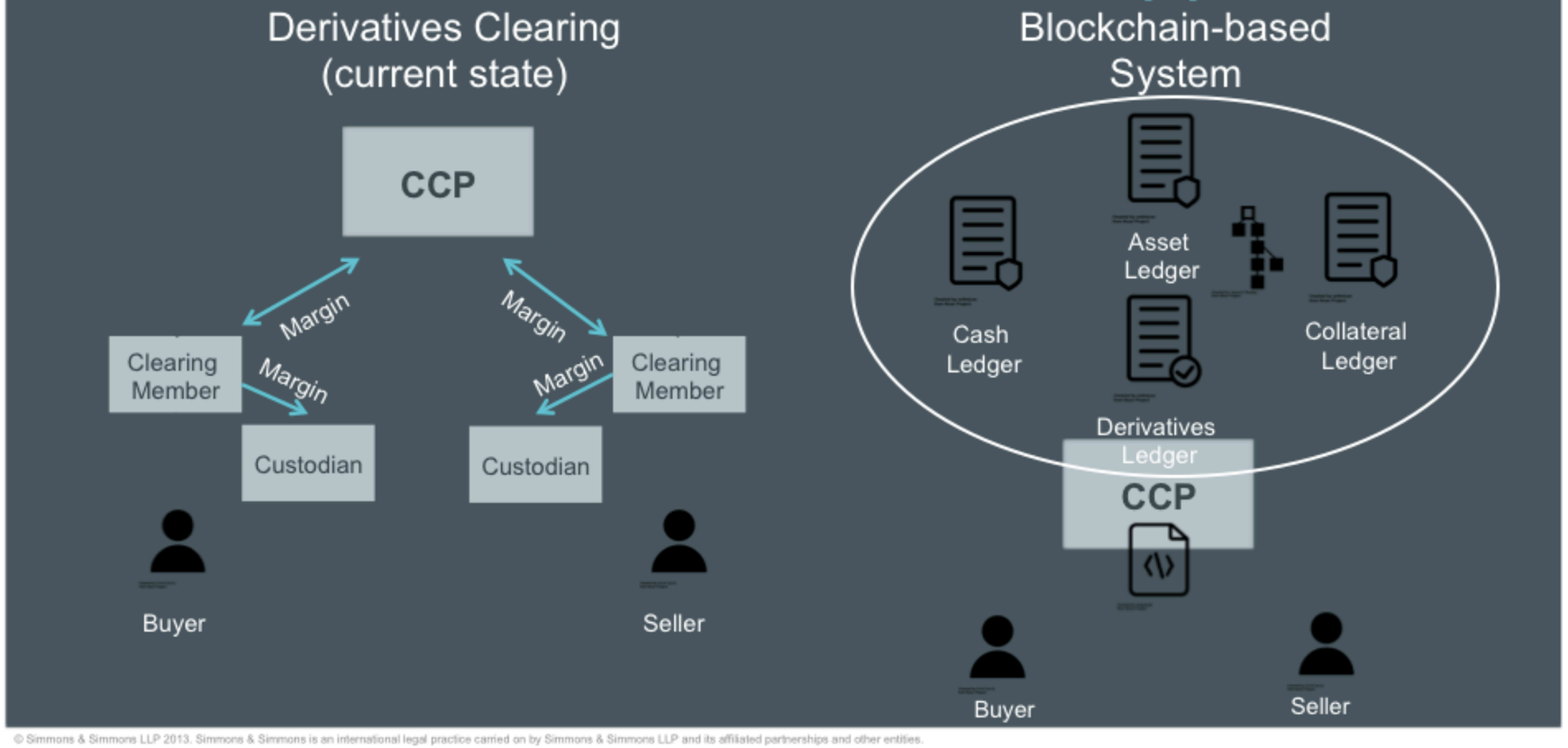
Asset Servicing

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

Simmons & Simmons

#regulation

- Interaction - decentralized apps



© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

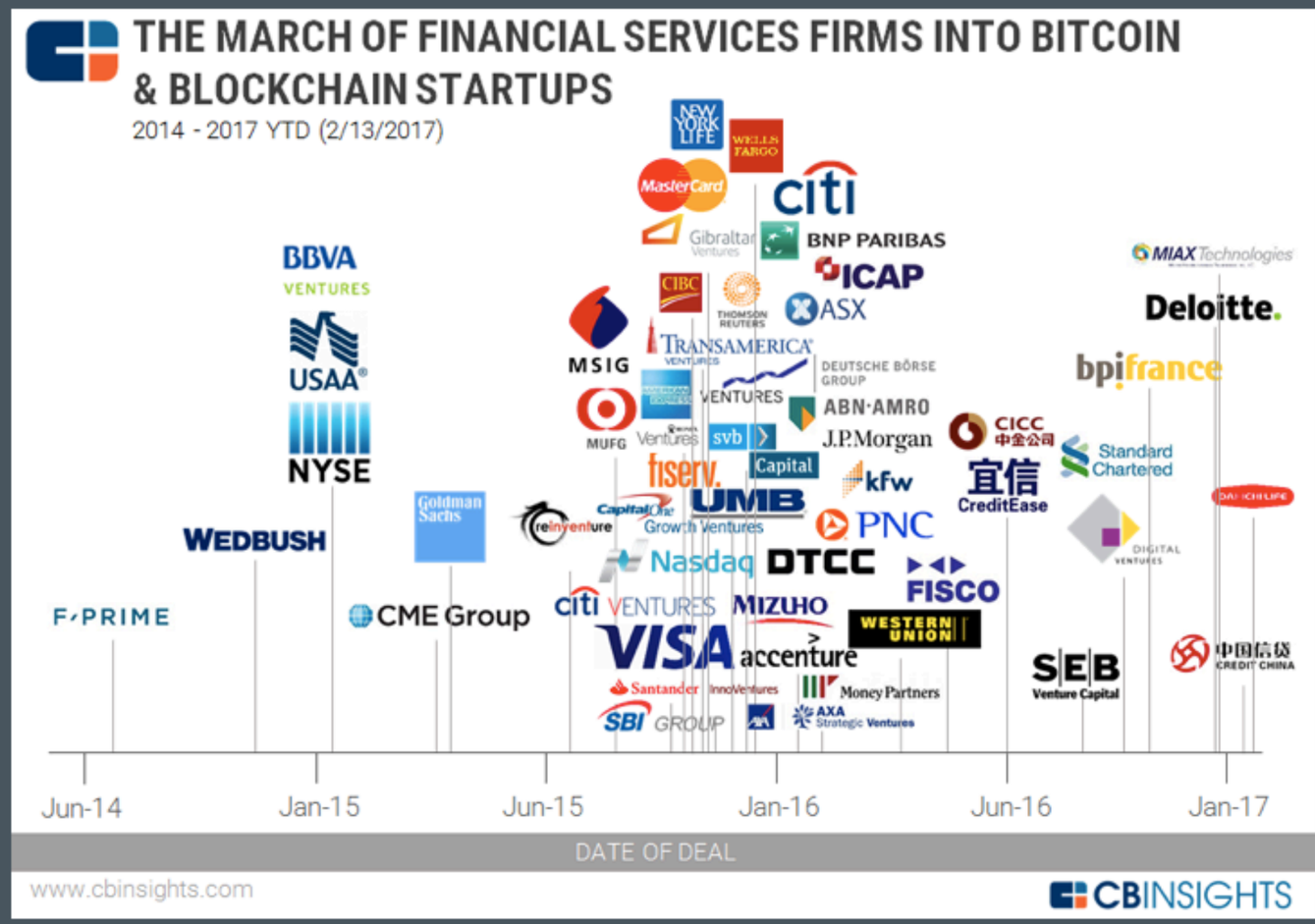
Simmons & Simmons

#regulation

Existing (Centralized) Legal Framework

Clearing Activities	• European Market Infrastructure Regulation (EMIR) • Settlement Finality Directive (SFD) • Markets in Financial Instruments Regulation (MiFIR)
Settlement Activities	• Central Securities Depositories Regulation (CSDR) • Settlement Finality Directive (SFD)
Safekeeping and Record Keeping	• Markets in Financial Instruments Directive (MiFID2) • UCITS V / AIFMD
Regulatory Reporting	• Markets in Financial Instruments Directive (MiFID 2) • European Market Infrastructure Regulation (EMIR) • Securities Financing Transactions Regulation (SFTR)

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.



Source: CBInsights Feb 2017

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

#conclusion

- "wait and see" approach of EU regulator
- decentralization is conceptually different from traditional regulation
- interaction between technology and law challenges both concepts equally
- law should understand blockchain, while blockchain should implement law

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

Simmons & Simmons

Blockchain

Dr Khanh Dang Ngo
Rechtsanwalt, Finance & Blockchain
T +49 69 9074 544 36
E dang.ngo@simmons-simmons.com

simmons-simmons.com
elexica.com

This document is for general guidance only. It does not contain definitive advice. SIMMONS & SIMMONS and S&S are registered trade marks of Simmons & Simmons LLP. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated practices. Accordingly, references to Simmons & Simmons mean Simmons & Simmons LLP and the other partnerships and other entities or practices authorised to use the name "Simmons & Simmons" or one or more of those practices as the context requires. The word "partner" refers to a member of Simmons & Simmons LLP or an employee or consultant with equivalent standing and qualifications or to an individual with equivalent status in one of Simmons & Simmons LLP's affiliated practices. For further information on the international entities and practices, refer to simmons-simmons.com/legalresp. Simmons & Simmons LLP is a limited liability partnership registered in England & Wales with number OC352713 and with its registered office at CityPoint, One Ropemaker Street, London EC2Y 9SS. It is authorised and regulated by the Solicitors Regulation Authority. A list of members and other partners together with their professional qualifications is available for inspection at the above address.

© Simmons & Simmons LLP 2013. Simmons & Simmons is an international legal practice carried on by Simmons & Simmons LLP and its affiliated partnerships and other entities.

/ L_LIVE_EMEA2:13937508v2