P.R.I.M.E. Finance
Panel of Recognized International Market Experts in Finance

Some legal issues on Blockchain, Virtual Currency and Smart Contract

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Blockchain in Financial Markets

• Distributed Ledger Technology
  – Permissioned (Closed)
  – Permissionless (Open)

➢ Distributed Record Keeping
➢ Settlement and Payment without intermediaries
➢ Virtual Currencies
➢ Smart Contracts
Legal Nature of Virtual Currency

- Bitcoin: Intangible, no issuer, recorded on Blockchain
- What is the legal nature of virtual currencies and various transactions (sales, deposit, security, loan, swap) of virtual currencies?
  - Financial Markets Law Committee’s discussion paper in 2016: “virtual chose in possession”
- Blockchain: Technology to record intangible value and make it easier to trade such value.
  - The need to develop legal theories to handle various digital values appropriately
A held a virtual asset through B and B went bankrupt. Who is the owner of the asset? Could A get recovery of the Asset?

Traditional rules of private international law: property law issue should be governed by law of the place where the subject is situated (lex rei sitae)

Indirect holding: PRIMA Approach? Direct Holding: ?
B directly held virtual asset recorded on Blockchain, but C stole B’s asset, then C transferred the asset to D who is in good faith.

No situs, no intermediary
⇒ If the asset is debt, the law of the location of issuer or the governing law of the debt
⇒ If not, traditional approach would not be appropriate and a new approach should be developed

Permissioned (closed) Blockchain:
- Law agreed by parties, if any
- Law of the location of the administrator, if any

Permissionless (Open) Blockchain:
- Application of the governing law of contract to proprietary aspects between contract parties
- The law of the location of the party against whom property right is asserted
Smart Contract

• Smart Contract
  – computer protocols that record the terms of a contractual agreement and can be stored in an indelible, immutable blockchain so that, once agreed, they can be left to “self-execute”” (Euroclear & Slaughter and May, Blockchain Settlement, Nov. 2016, at 8)
Smart Contract

- automatic calculation of exposures
- automatic call for additional collateral
- automatic settlement at maturity

Client A ↔ Client B

Cash Ledger → Derivative Ledger → Asset Ledger

Automatic settlement at maturity

Derivative Ledger ↔ Collateral Ledger

Automatic transfers of collateral (margin)

Reference Data Source

see, Oliver Wyman and Euroclear, Blockchain in Capital Markets (Feb. 2016), at 11
Smart Contract

• Some key features
  – automatic performance/ no non-performance (↔possible non-performance)
  – no enforcement cost (↔In case of non-performance, enforcement by lengthy or expensive legal procedure is necessary)
  – zero tolerance, no flexibility (↔various exceptional situations)
  – clear and unambiguous (↔intentionally ambiguous)
  – possibility of bugs/ imperfect programming (↔possible errors)
Smart Contract

• Smart contract and law of contract
  – Code is law?
  – a tool for parties to perform their obligations
• Need for legal review and intervention if necessary
  – the outcomes of the automated process must meet parties' intention
• Need for some emergency stop device
  – regulations, force majeure, fraud, bugs, imperfect programming…

How could law intervene?