Bridging DLT and Smart Contracts with the SWIFT Network and Existing Bank Systems

Sponsored by and in collaboration with
**Smart Contract Securities**

**Smart Contract**: a digital agreement that is tamper-proof, because it is run on a decentralized computing network.
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**Smart Contract Securities**

**Smart Contract**: a digital agreement that is tamper-proof, because it is run on a decentralized computing network.

- Industry-wide Interoperability
- Fully Automated Bank Processes
- Faster Dispute Resolutions
- Most Settlement Risks Eliminated
- Direct Access For Regulators

**Smart Contract**

- Market Regulator
- Data Provider
- Risk Analysis
Oracle: middleware that gives a smart contract access to systems outside its decentralized computing network.
Key Questions During Initial Implementation

• How will blockchains interact with banks to enact payments to and from existing bank accounts?
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• How will asset servicing work for smart contract securities? (signatures, dividends, collateral, etc…)
Key Questions During Initial Implementation

• How will blockchains interact with banks to enact payments to and from existing bank accounts?

• How will asset servicing work for smart contract securities? (signatures, dividends, collateral, etc…)

• How will regulators and compliance interact with smart contract securities?
Fully Connected Smart Contract Securities

Market Data

- Individual Bank Interest Rate
- Individual Bank Interest Rate
- Individual Bank Interest Rate
- Individual Bank Interest Rate
Fully Connected Smart Contract Securities

Market Data

1. Individual Bank Interest Rate
2. Individual Bank Interest Rate
3. Individual Bank Interest Rate
4. Individual Bank Interest Rate

Smart Contracts

- Market Rate Smart Contract
- Market Rate Smart Contract
- Market Rate Smart Contract
- Market Rate Smart Contract

- Chain Link
- Chain Link
- Chain Link
- Chain Link

- 0101101101
- 0101101101
- 0101101101
- 0101101101
Fully Connected Smart Contract Securities

Market Data

- Individual Bank Interest Rate

Smart Contracts

- Market Rate
- Smart Contract Security (Bond)
Fully Connected Smart Contract Securities

Market Data

Individual Bank Interest Rate

Smart Contracts

Market Rate Smart Contract

Smart Contract Security (Bond)

Individual Bank Interest Rate

Market Data

Credit Data

Debt Score
Fully Connected Smart Contract Securities

**Market Data**

- Individual Bank Interest Rate
- Individual Bank Interest Rate
- Individual Bank Interest Rate

**Smart Contracts**

- Market Rate Smart Contract
- Smart Contract Security (Bond)
- Market Data
- Credit Data
- Debt Score

**SWIFT Payments**

- Payment
Fully Connected Smart Contract Securities

Market Data

Individual Bank Interest Rate

Smart Contracts

Market Rate Smart Contract

Smart Contract Security (Bond)

SWIFT Payments

Payment

Credit Data

Debt Score

Standard & Poor’s
Fully Connected Smart Contract Securities

Market Data

- Individual Bank Interest Rate
  - 01011011

Smart Contracts

- Market Rate Smart Contract
  - 10101
- Smart Contract Security (Bond)
  - 10110101110001010

SWIFT Payments

- Credit Data
  - 10101
- Debt Score
  - 10101
- Confirmation
  - 0101101110

Individual Bank Interest Rate
- 01011011

Market Data
- 01011011

Smart Contracts
- 01011011

SWIFT Payments
- 01011011
Fully Connected Smart Contract Securities

Market Data

Smart Contracts

SWIFT Payments

Individual Bank Interest Rate

Individual Bank Interest Rate

Individual Bank Interest Rate

Market Rate Smart Contract

Smart Contract Security (Bond)

Payment

Credit Data

Debt Score

01011011

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Fully Connected Smart Contract Securities

Market Data

- Individual Bank Interest Rate

Smart Contracts

- Market Rate Smart Contract
- Smart Contract Security (Bond)
- Credit Data
- Debt Score

SWIFT Payments

- SWIFT Payments
- Confirmation
- Payment

Smart Contract Securities Defined Using ISO20022

creditDebitIndicator = "DBIT";
dayCountBasis = "30E/360";
Fully Connected Smart Contract Securities

Market Data

- Individual Bank Interest Rate
- Individual Bank Interest Rate
- Individual Bank Interest Rate

Smart Contracts

- Market Rate Smart Contract
- Smart Contract Security (Bond)
- Credit Data
- Debt Score

SWIFT Payments

- Payment 0101101101101101
- Smart Contract Securities Defined Using ISO20022
- CreditDebitIndicator = "DBIT"
- dayCountBasis = "30E/360"

Easily Accessible by Regulators
Understandable for Risk Analysis
**Demonstration**

**Smart Contract Securities Status Dashboard**

**Smart Bond #54765**

- Smart Bond Interest Payment Initiated
- SWIFT Credit Transfer Generated
- SWIFT Credit Transfer Sent
- SWIFT Payment Confirmation Received
- Smart Bond Interest Payment Completed
Connecting Smart Contracts to Bank Systems

USB Token for Secure Messaging

Secure VPN Connection over WWW

Alliance Lite2 SWIFT via Cloud

Member Banks

Secure connection

Bank Back-office Applications and Core Systems

0101101
Connecting Smart Contracts to Bank Systems

USB Token for Secure Messaging

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Member Banks

Secure connection

Bank Back-office Applications and Core Systems

Connecting Smart Contracts to Bank Systems
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Secure connection
Alliance Lite2 SWIFT via Cloud
Member Banks
Bank Back-office Applications and Core Systems
SmartContract Securities Across Multiple Networks Public and/or Fully Private
Banks as Secure Smart Contract Resources

Rapidly Growing
Securities Volume

120+ Members

intel IBM HYPERLEDGER
Banks as Secure Smart Contract Resources

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Rapidly Growing Securities Volume

Blockchain Middleware Selling Bank Services

Global Banking Infrastructure

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Intel

IBM

Hyperledger

On-Chain Command 00101100001

Market Regulator

Risk Analysis
Banks as Secure Smart Contract Resources

- Rapidly Growing Securities Volume
- Blockchain Middleware Selling Bank Services
- Global Banking Infrastructure

- 120+ Members
- Intel, IBM, Hyperledger
- On-Chain Command 00101100001
- ChainLink
- SWIFT
- Market Regulator
- Risk Analysis

Compliance

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