Blockchains and Applications

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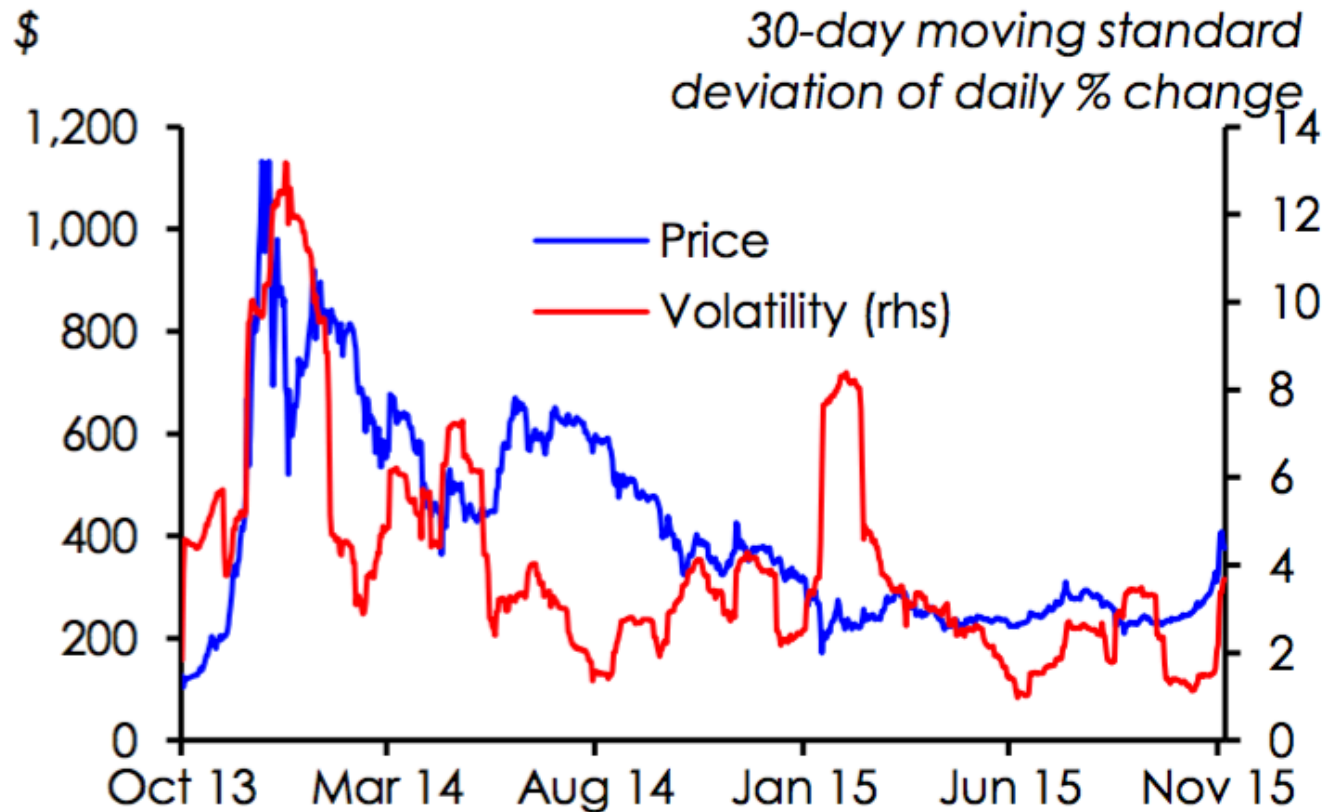

Understanding how Blockchains reduce financial complexity **December 2015**

Bitcoin Market

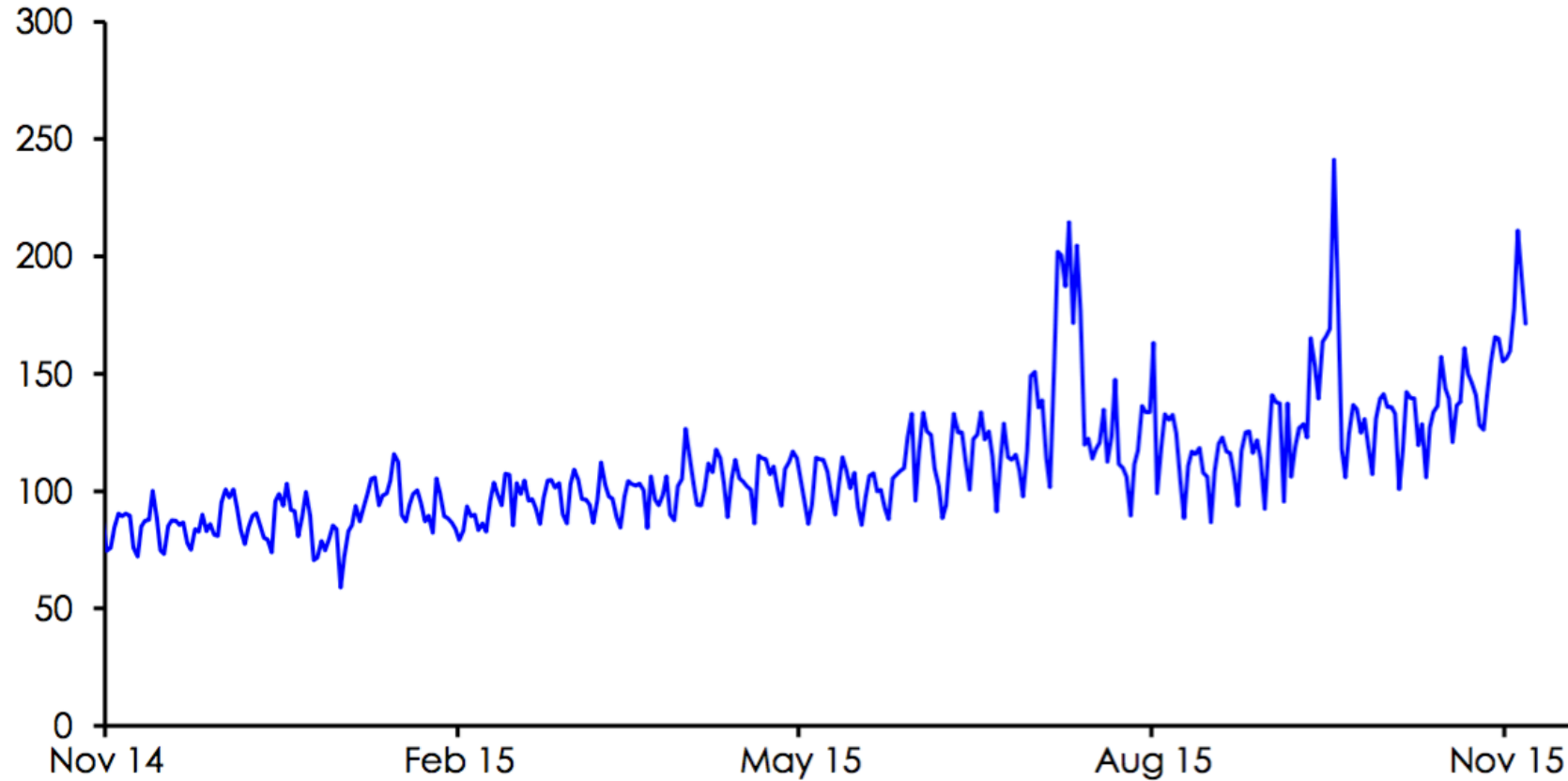**Bitcoin Price and Volatility**

Source: www.bitcoincharts.com, IIF.

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Bitcoin Transactions
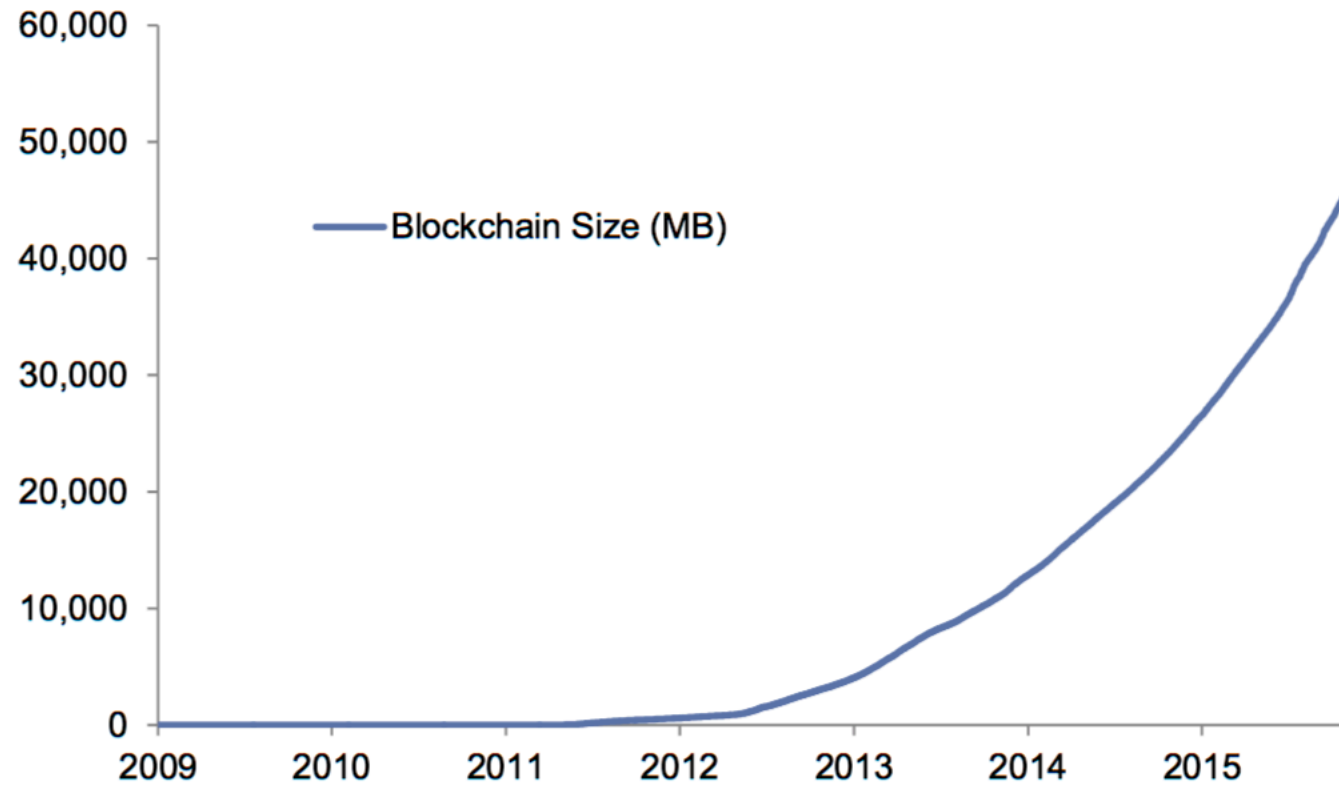
Number of Bitcoin Transactions per Day

Source: blockchain.info.

Size of Bitcoin Blockchain

Source: blockchain.info, Goldman Sachs

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VC Funding of Blockchain Startups
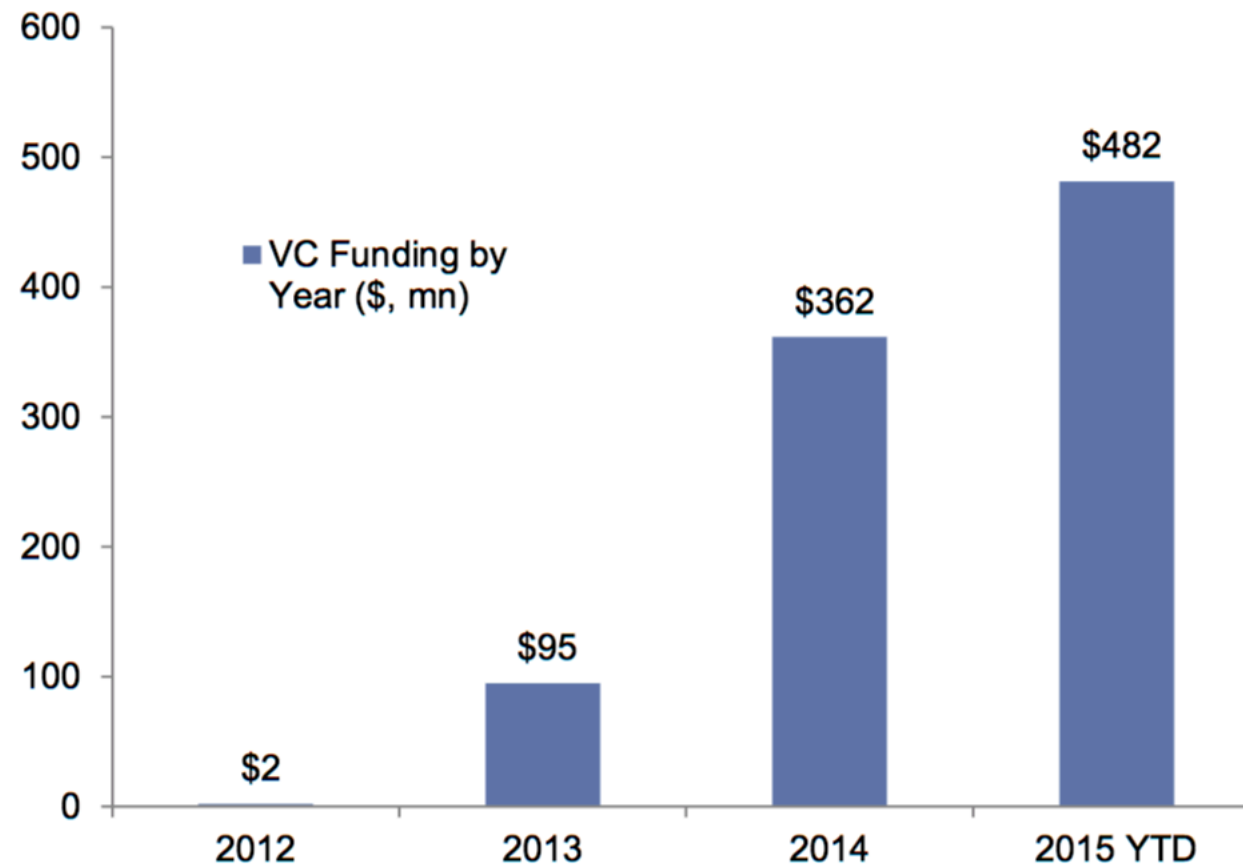
Source: Coindesk, Goldman Sachs

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Overview of Blockchain transactions compared to traditional transactions

Centralised Ledger

Clearing House

Distributed Ledger

Source: InnoVentures
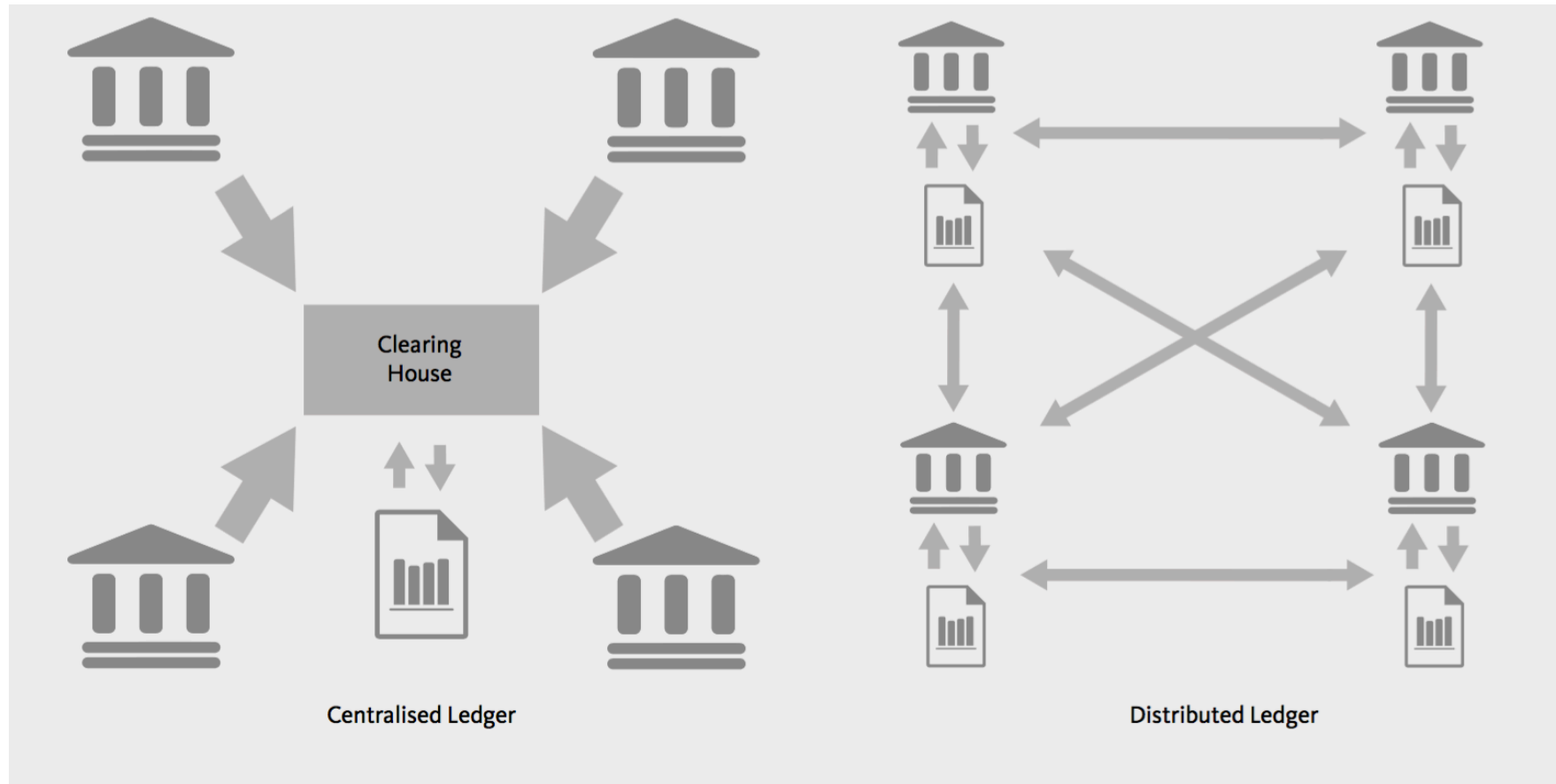
Schematic of International Financial Transactions

Correspondent Bank

Correspondent Bank

Correspondent Bank

Correspondent Bank

Respondent Bank

Liquidity Costs

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Source: InnoVentures
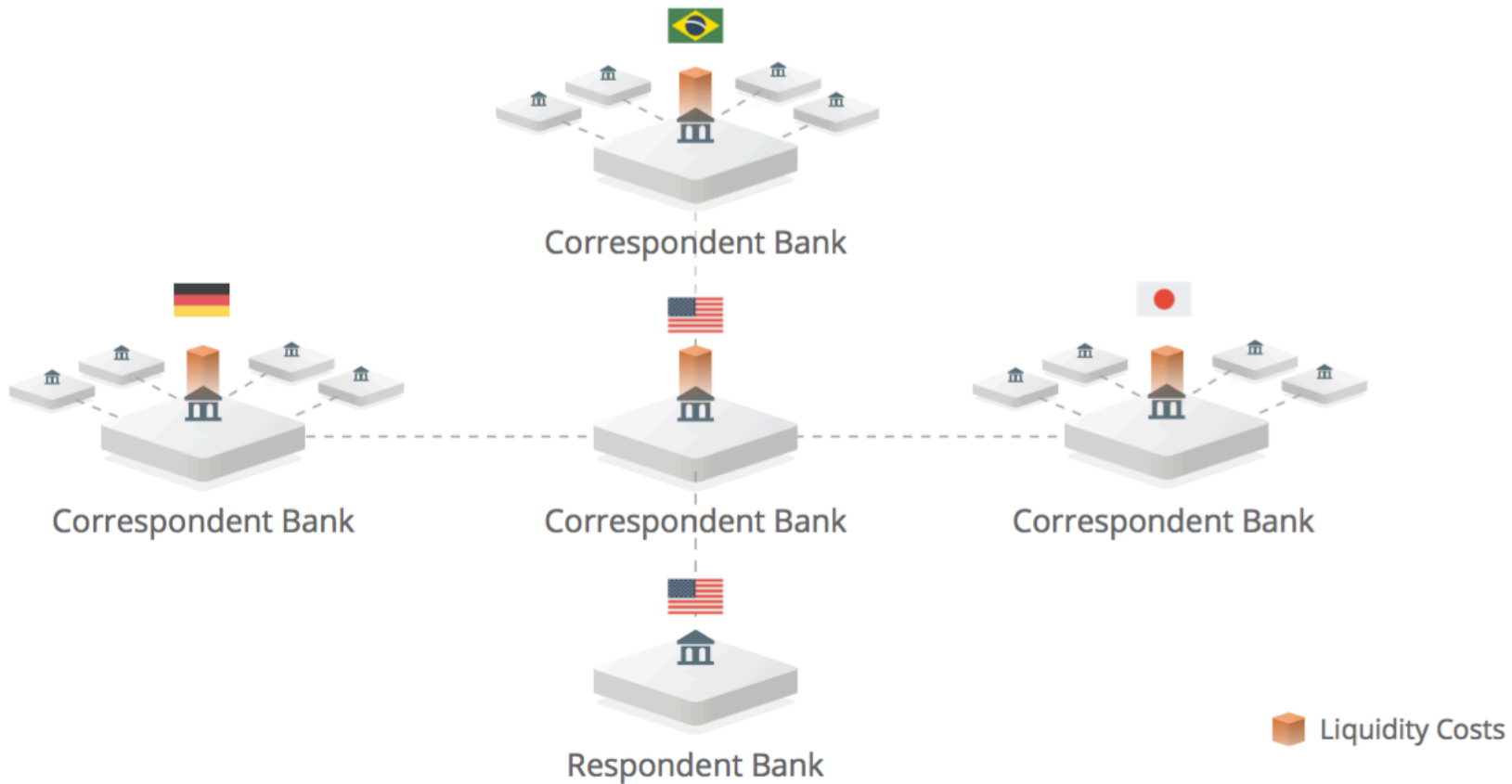
Bottlenecks of Financial Transactions

Settlement: up to 3 days

The Federal Reserve

U.S. Correspondent & Liquidity Provider

$ · ↻ · ¥

Japanese Correspondent

Bank of Japan

Lifting fees
Operational costs

FX cost
Operational costs

Lifting fees
Operational costs

Operational costs

Operational costs

U.S. Bank

Limited transaction visibility

Japanese Bank

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Source: InnoVentures
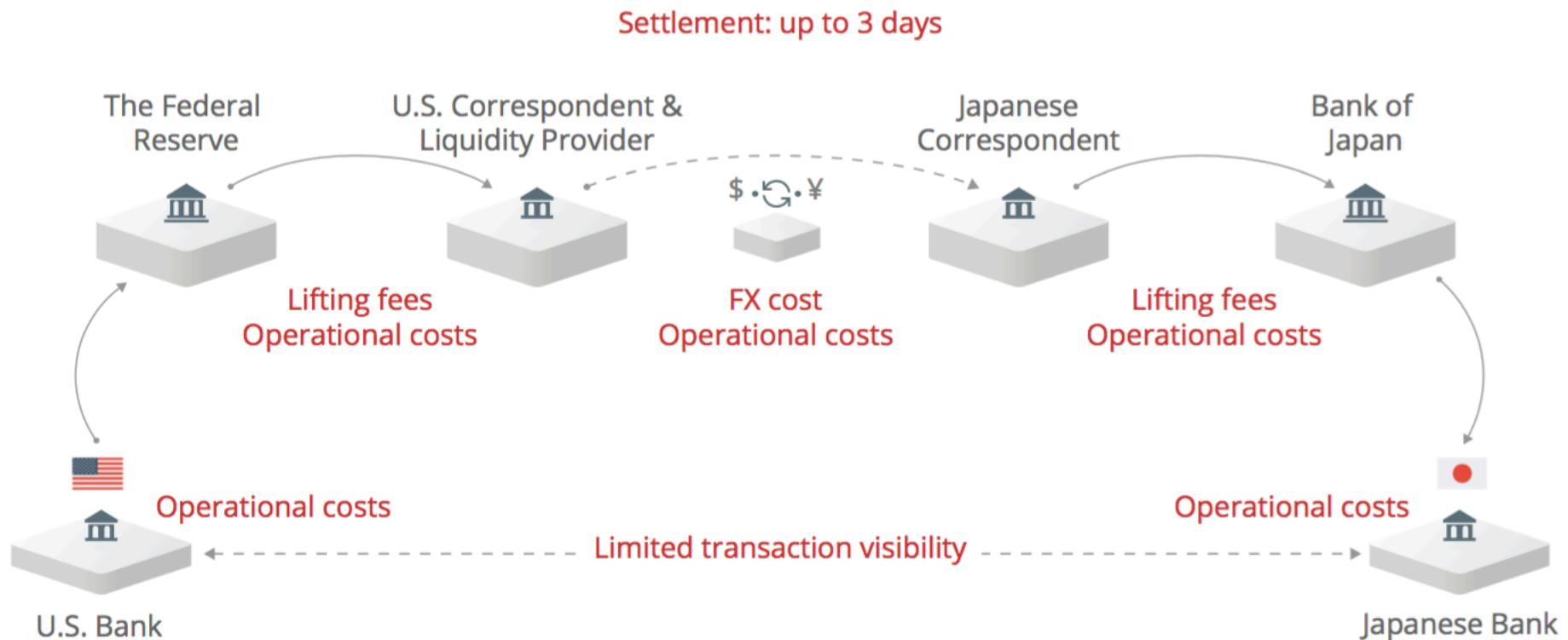
Division of financial transactions

International Payment Servicing - Cost Breakdown

- Foreign Exchange
- Currency Hedging
- Treasury Operations
- Liquidity
- Payment Operations
- Basel III (LCR)

10.0 %
12.0%
27.0%
23.0%
21.0%
7.0%

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Source: InnoVentures
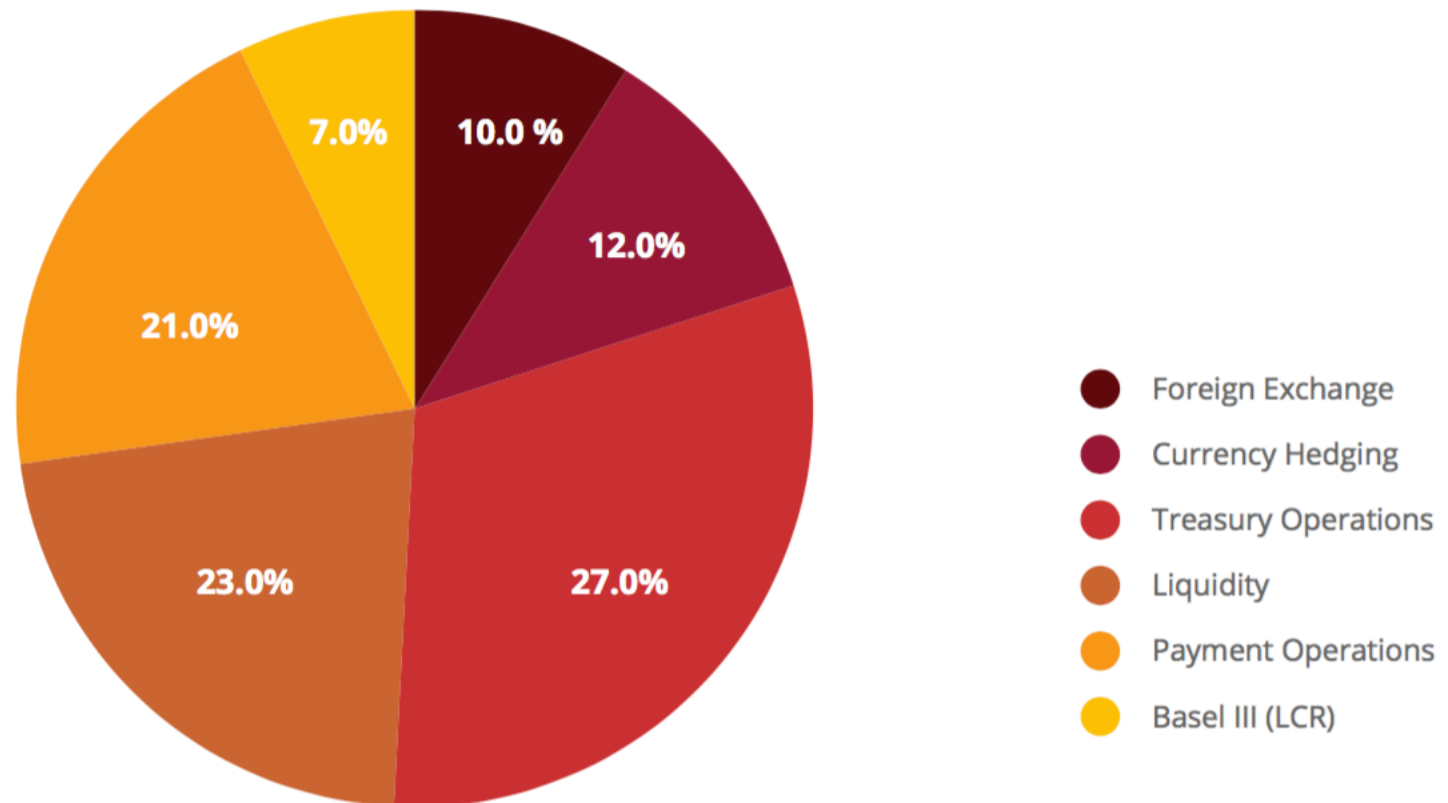
Flow of transactions on a blockchain

Pre-trade	Trade	Post-trade	Custody & securities servicing
• Transparency and verification of holdings • Reduced credit exposures • Mutualisation of static data • Simpler KYC/KYCC[1] via look through to holdings	• Secure, real-time transaction matching, and immediate irrevocable settlement • Automatic DVP on a cash ledger • Automatic reporting & more transparent supervision for market authorities • Higher AML[2] standards	• No central clearing for real-time cash transactions • Reduced margin/ collateral requirements • Faster novation and efficient post-trade processing • Fungible use of assets on blockchains as collateral • Auto-execution of smart contracts	• Primary issuance directly onto a blockchain • Automation and de-duplication of servicing processes • Richer central datasets with flat accounting hierarchies • Common reference data • Fund subscriptions/ redemptions processesed automatically on the blockchain • Simplification of fund servicing, accounting, allocations and administration

Conclusions

1. Bitcoin continues as the largest blockchain with the highest potential to implement mass market smart contracts
2. Current financial transactions have major bottlenecks that could be solved by blockchain applications
3. Blockchains have advantages in pre-trade, trade, and post-trade situations

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