



Universität
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Regulating the Cryptoeconomy

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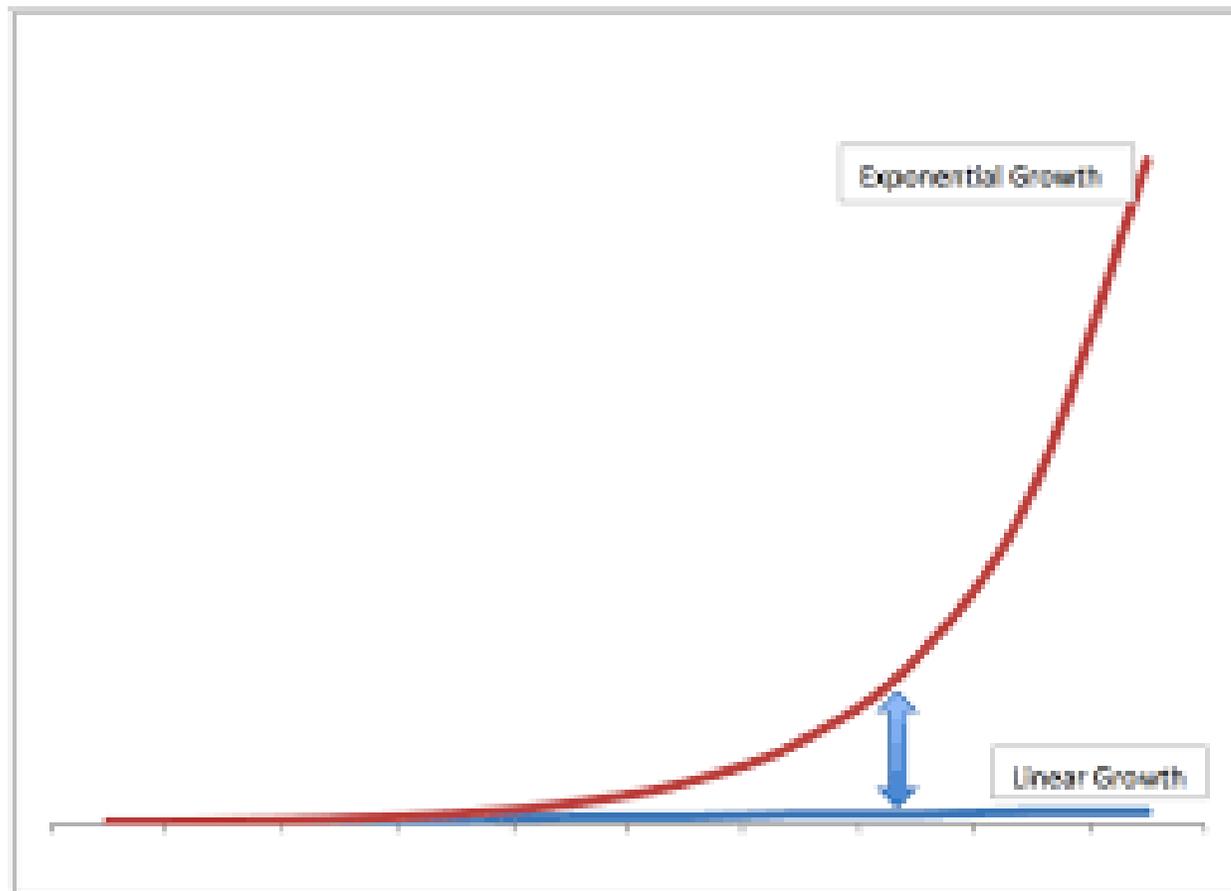
Key Points

- Introduction
- The Methodological Problem of Evolution vs Revolution
 - An example
- The problem of Complexity

Pace of technology and the pace of law

New technologies that used to have two-year cycle times now can become obsolete in six months, and the pace of change is not slowing. Moore's Law posits that computer processing power will double every two years, and this exponential rate of increase has also been shown to hold true in industries beyond computing. When combined with software that is 'eating the world,' new technologies can be developed, deployed, and iterated faster than ever. **This presents a unique timing challenge for regulatory agencies: Regulate too early and you risk stymieing innovators; wait too long and you risk losing the opportunity to regulate a technology or service before it becomes widespread, potentially harming consumers or markets in the interim."**

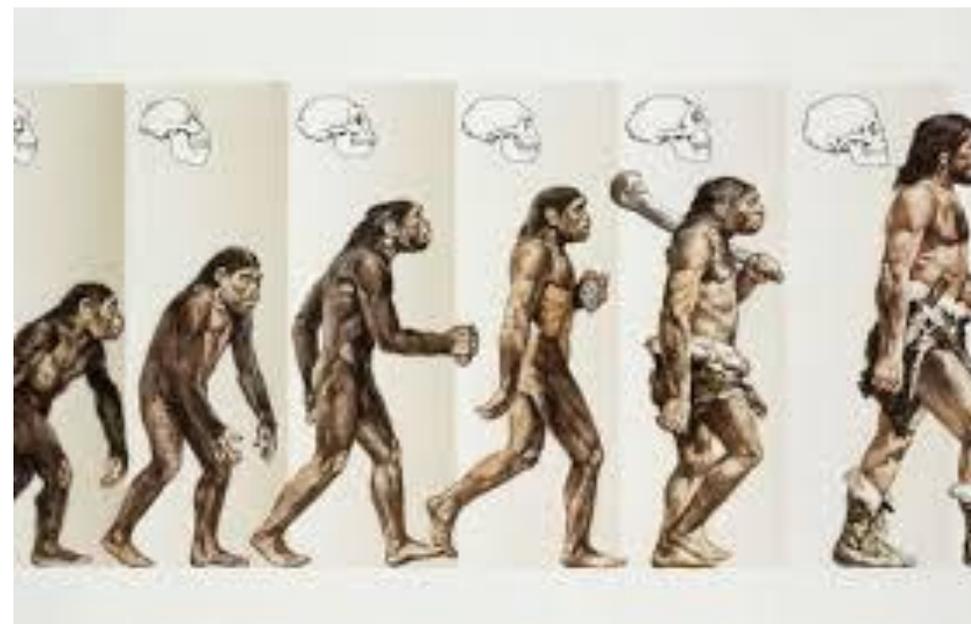
Pace of technology and the pace of law



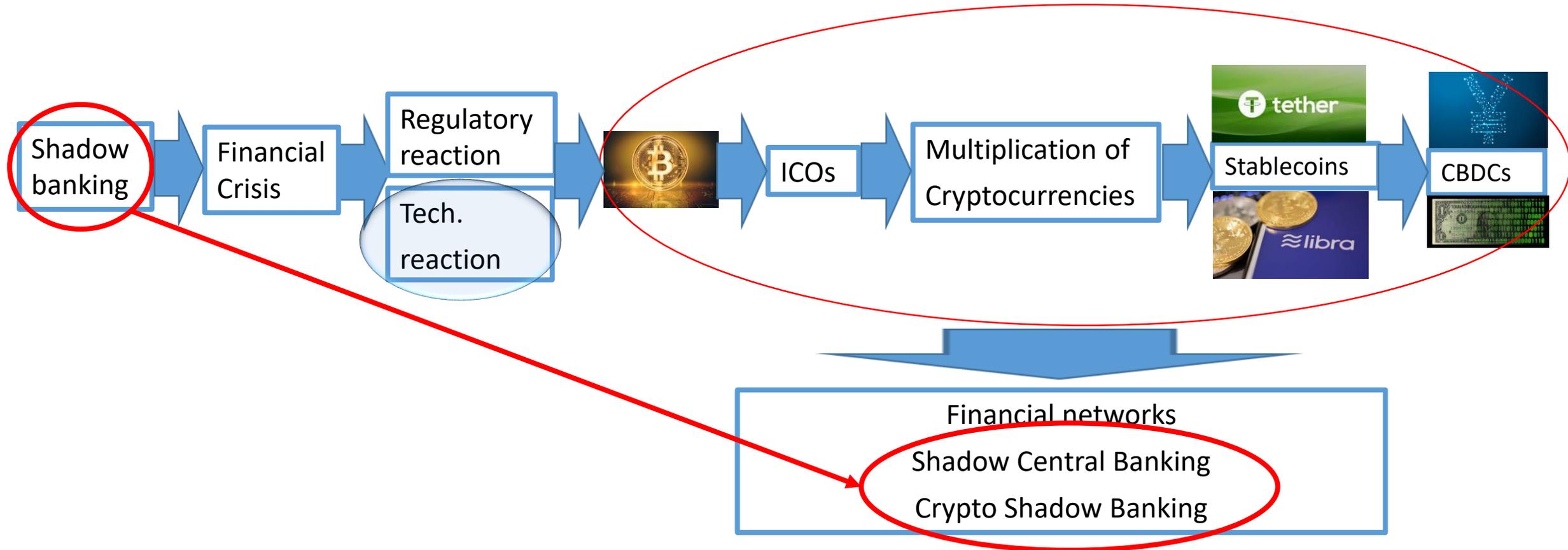
Regulatory Considerations

- Traditional rulemaking processes:
 - stable and presumptively optimal rules designed as a reaction to preceding events are the best approaches for policymaking activities.
- Dynamic regulation:
 - An approach emphasizing interconnected to preceding and succeeding events, and it is based on “institution-specific and decentralized information to facilitate feedback effects for anticipatory rulemaking.”
- Dynamic regulation as an adaptive tool is structurally connected to feedback effects:
 - reposing on some of the key elements of complexity, including networks and enhanced interaction between different constituencies of the society
- Assess the compatibility with (and re-assess the debate on):
 - Self-regulation vs. Public regulation
 - Principle-based vs. Rule-based approaches

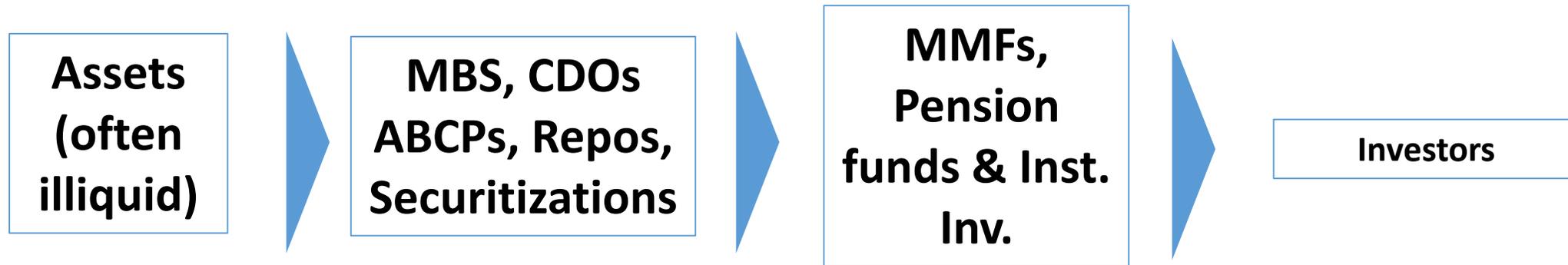
An Easy Question : Revolution or Evolution?



Post-Modern Finance?

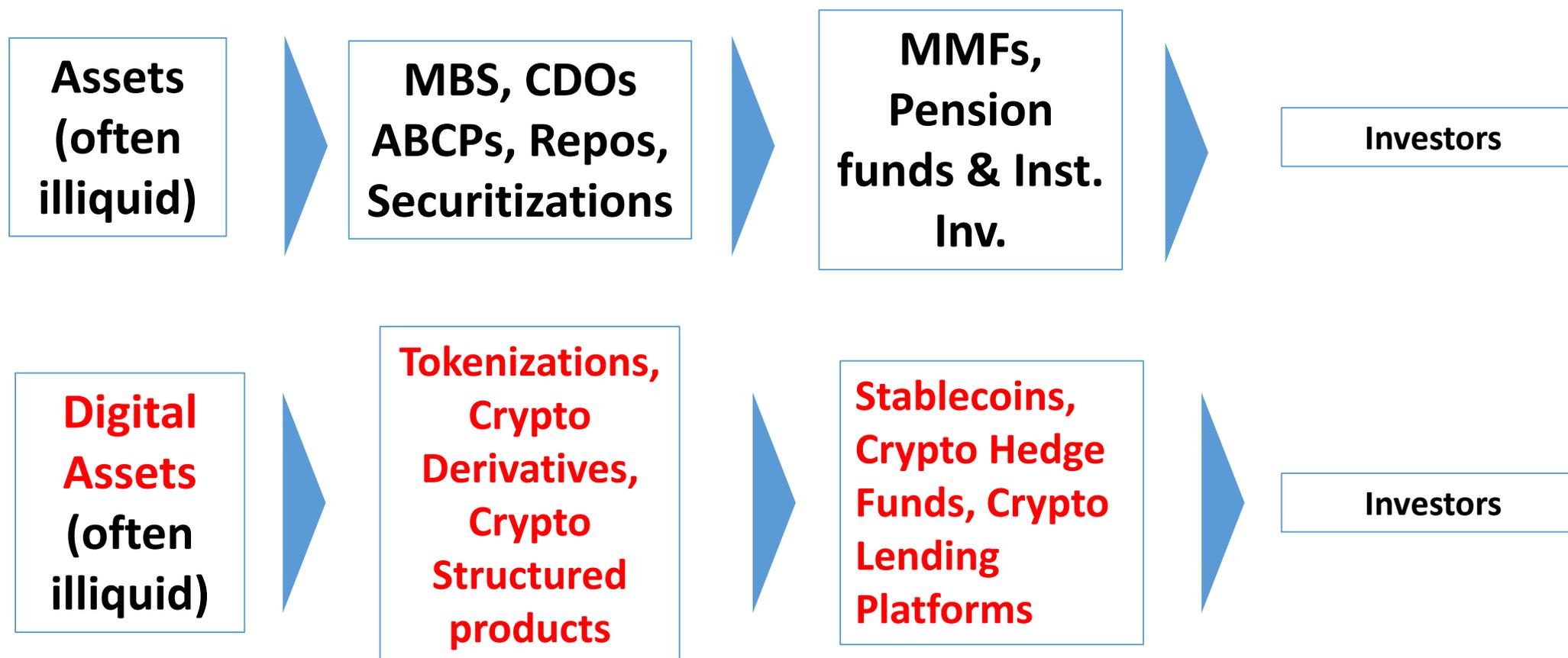


Shadow banking



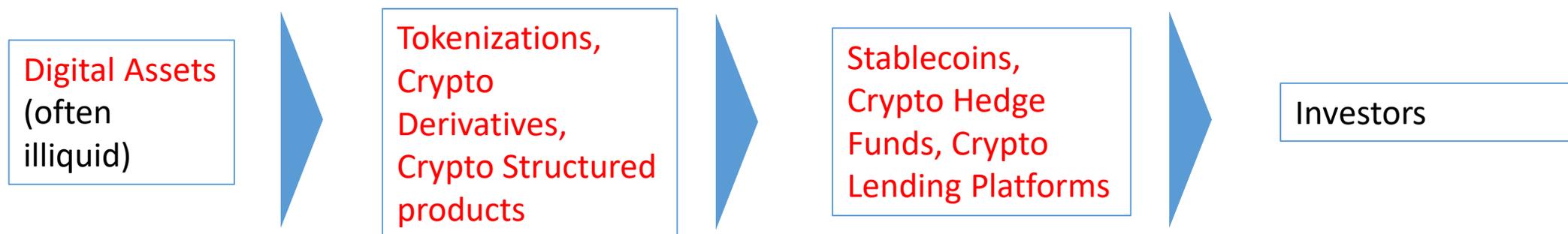
- Connect commercial & consumer borrowers to investors in capital markets
Liquidity & credit maturity transformation
- Causes of its establishment
 - Financial need : collateral
 - Regulation: De-regulation & Banking regulation
 - Competition
 - Innovation: Financial engineering

Shadow banking vs Crypto Shadow Banking



Crypto Shadow banking

➤ A network of financial institutions and financial instruments



➤ Causes of its establishment

- Financial need : Demand for faster (and informal) means of investment
- Regulation: Slow regulatory response
- Competition:
 - Traditional Banks, Asset managers, service providers (such as prime brokers)
 - Shadow Banking
- Innovation: Financial engineering + Technological Infrastructural innovation

Shadow Central Banking

- The role of technology
- An escalation in the strenght of the initiatives
 - E-money
 - Pre-Bitcoin digital currencies (based on cryptography)

- Bitcoin



- Stablecoins

- 3 categories: on- & off-chain; alg.

- Private experiments

- JPMCoin



- Libra Coin

- Hedera Hashgraph



Perfect cryptocurrency

Medium of exchange

Store of value

Unit of account

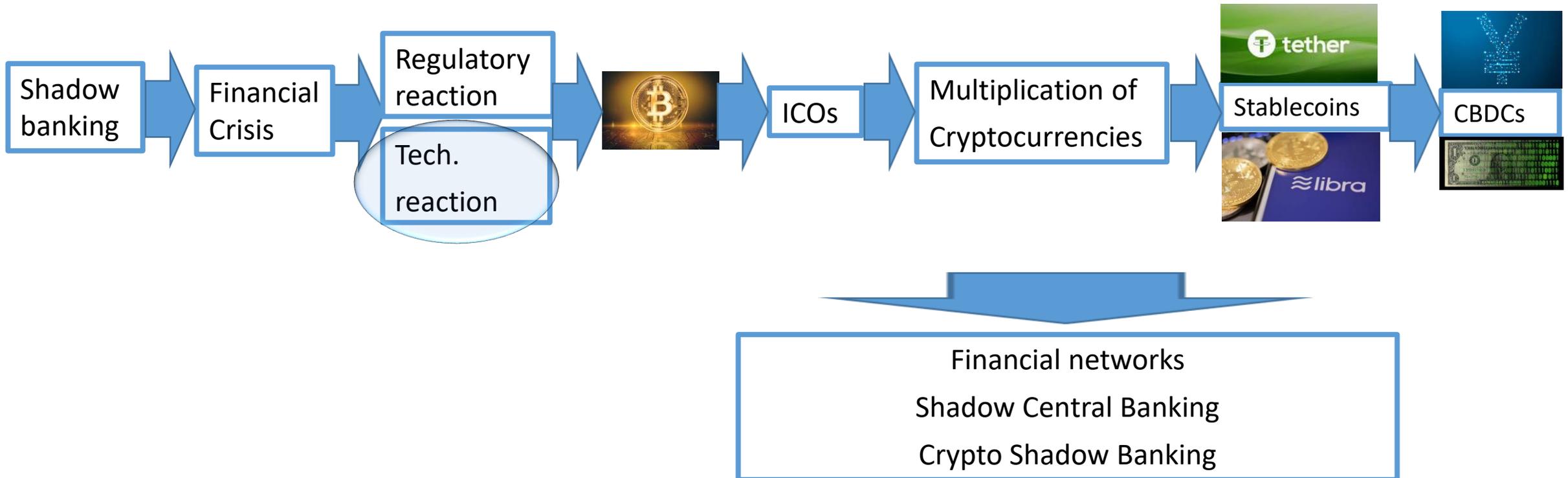


Shadow Banking & Shadow Central Bank

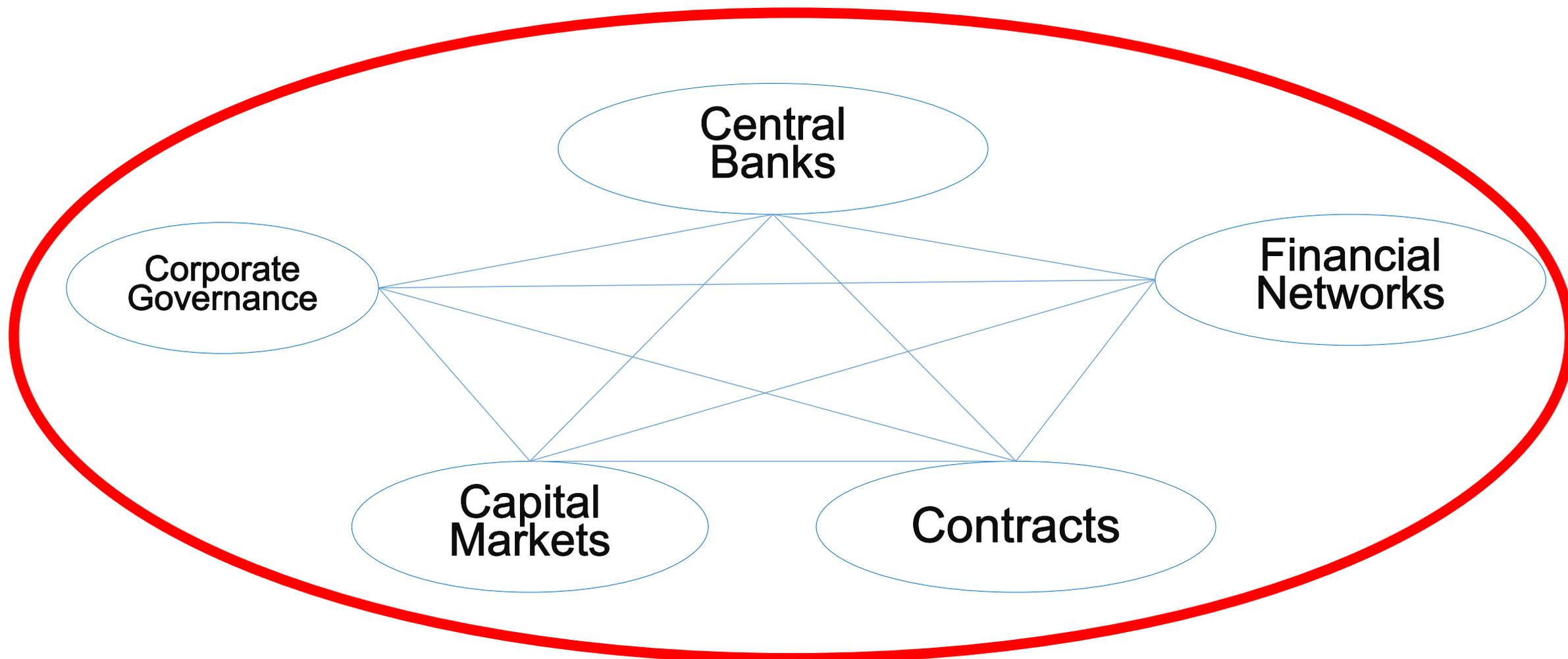
Similarities

- A network with a cross-border vocation
- An invasion of activities performed by regulated institutions
- Causes:
 - Need for a specific good
 - Regulation
 - Competition
 - Innovation
- A new paradigm? Private banks & money value depending on reserves?
- New Problems?

Post-Modern Finance?



Multidimensionality in Technology



The subparts of International Finance

**Corporate
Governance**

Capital Markets

Contracts

Central Banks

**Financial
Networks**

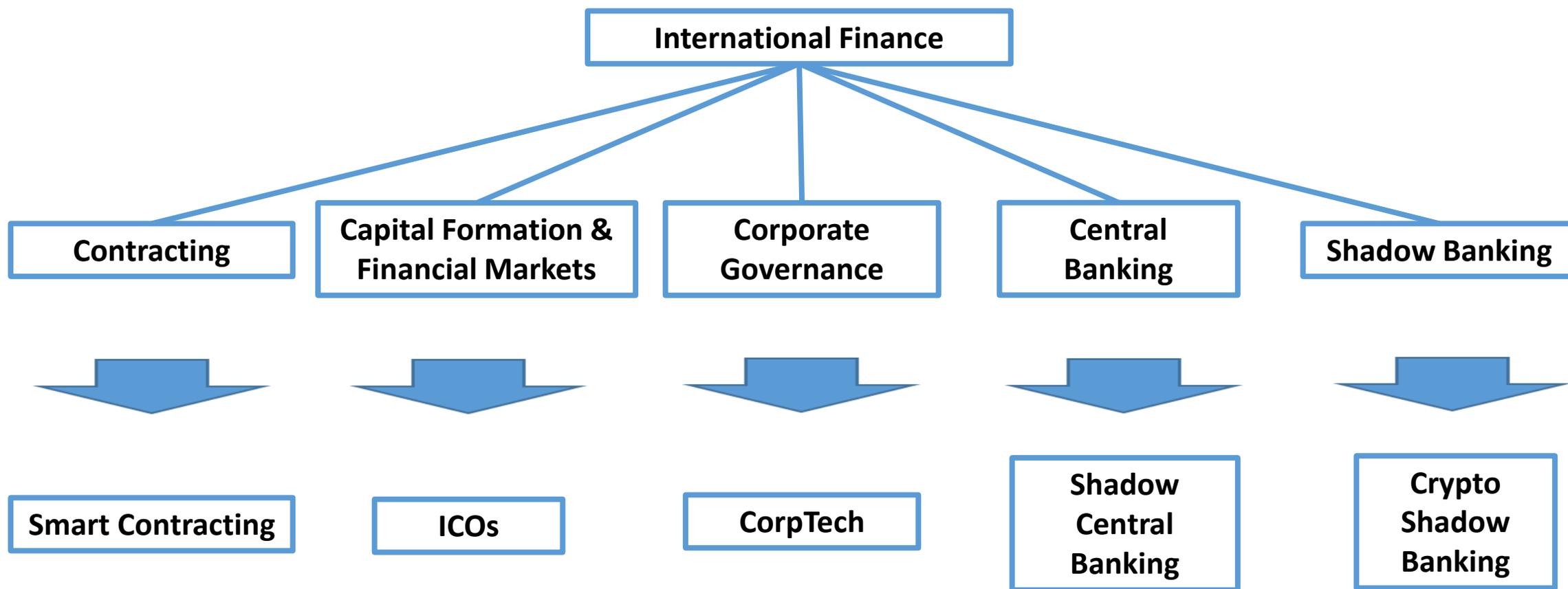
Complex Adaptive Systems

- **System:**
 - any object (abstract or concrete) studied in some fields, and identifies “a set of connected or interdependent” parts
 - Systems: stock-markets, human bodies, immune systems, termite colonies
 - Common scheme: some patterns of behavior (sustainability, viability, health and innovation)
- Systems can be complex, simple chaotic
 - **Complex systems** are highly composite, with large numbers of mutually interactive subunits “whose repeated interactions result in rich, collective behaviors that feeds back into the behavior of the individual parts”.
- **Adaptive:** the fundamental property of complex systems to “alter or change”, corresponding to the “ability to learn from experience.”
- Complex Adaptive Systems:
 - History Dependency : what came first affects the following subsequent developments
 - Far-from-equilibriums.

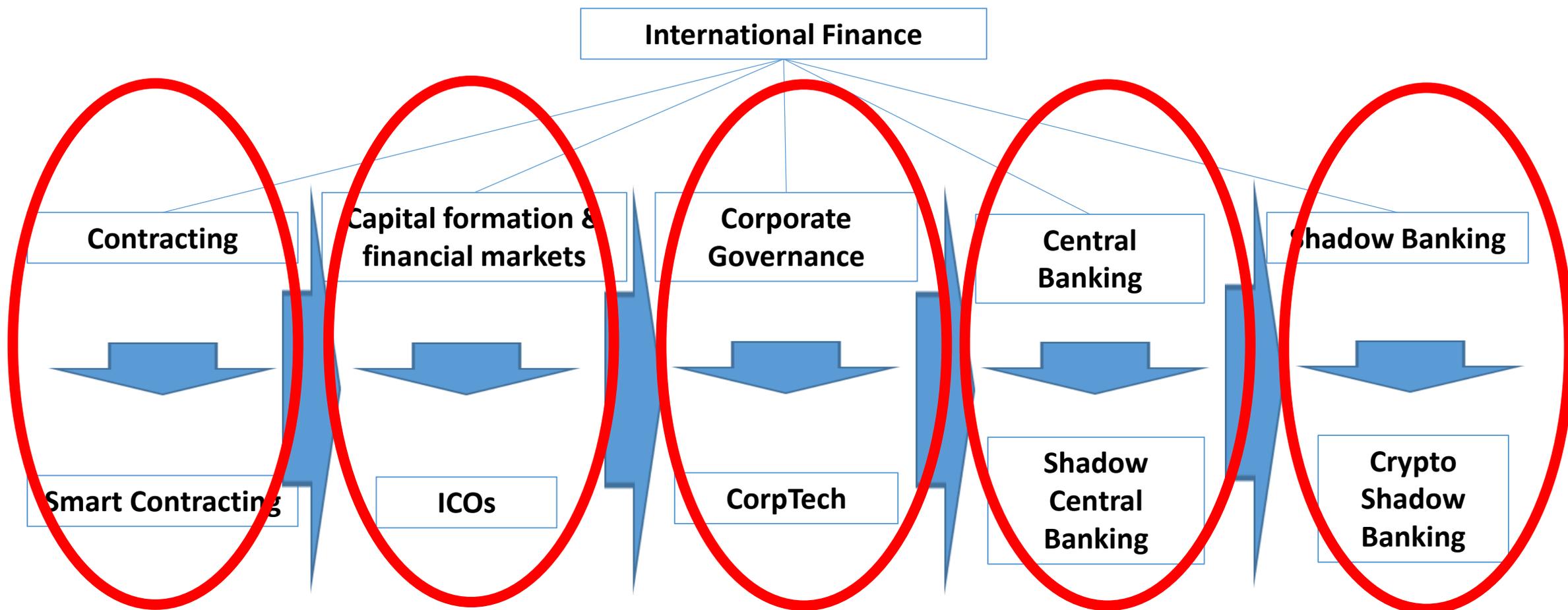
Complexity Science

- Focus: the relevance of systems effects, with an emphasis on the inter-agent connections and the system-wide effects emerging from such connections.
- Dynamism as opposed to stability
 - Change and emergence.
- Complexity science applied to social systems:
 - approach differs from both small-number agent models (bilateral game theory) and large-number models (including law and econ models)
 - Majority of social science models includes “either very few (typically two) or very many (often an infinity) agents to be tractable” but **fails in explaining intermediate situations.**

Dynamic (Evolutionary) Complexity

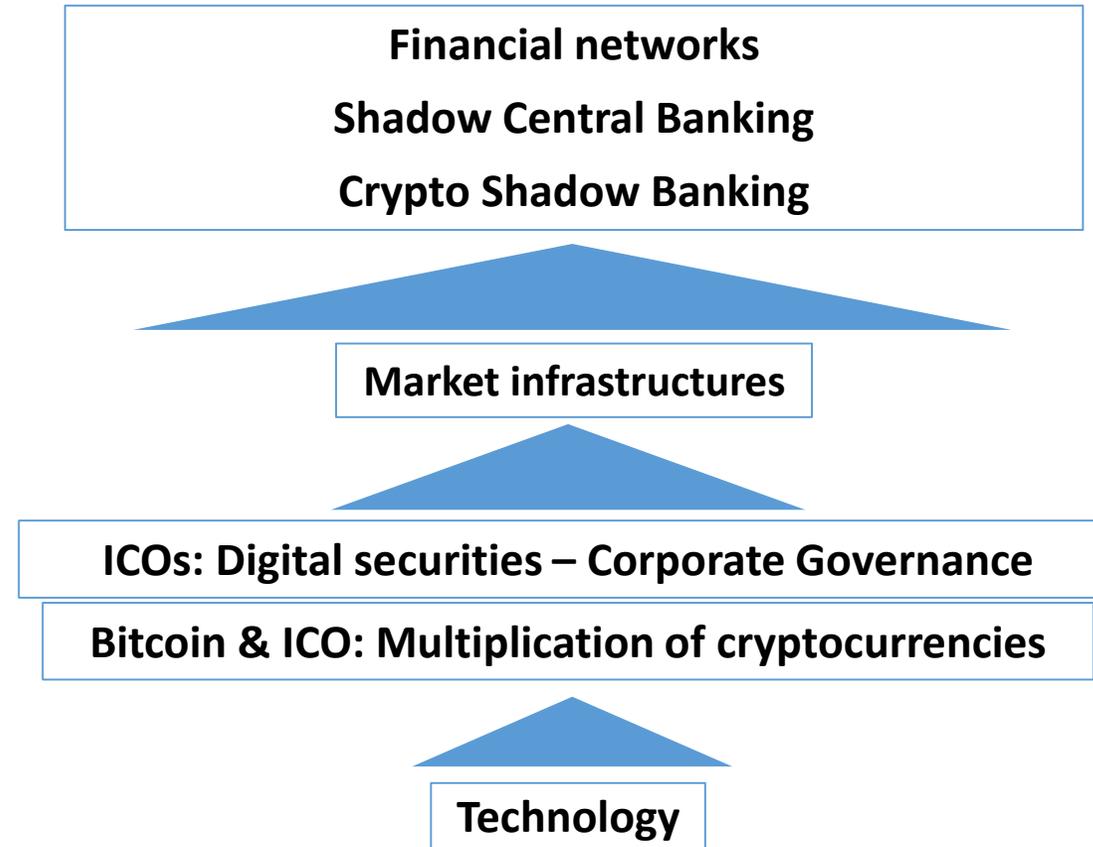


Dynamic Complexity



An ascending climax

Decentralized finance



The Ascending Climax of ICOs

**Corporate
Governance**

Tokenized money

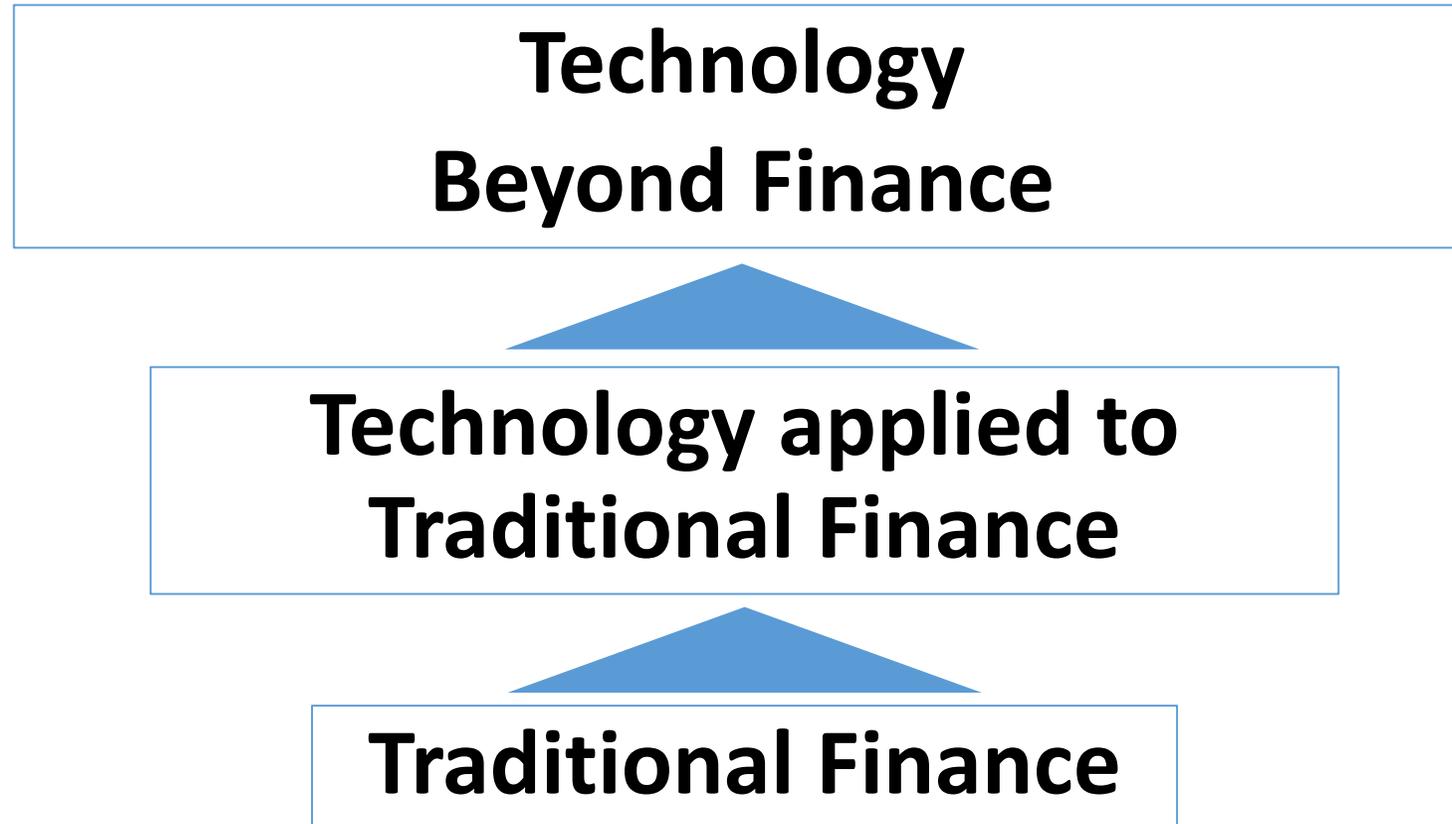
Tokenized (Real) Assets

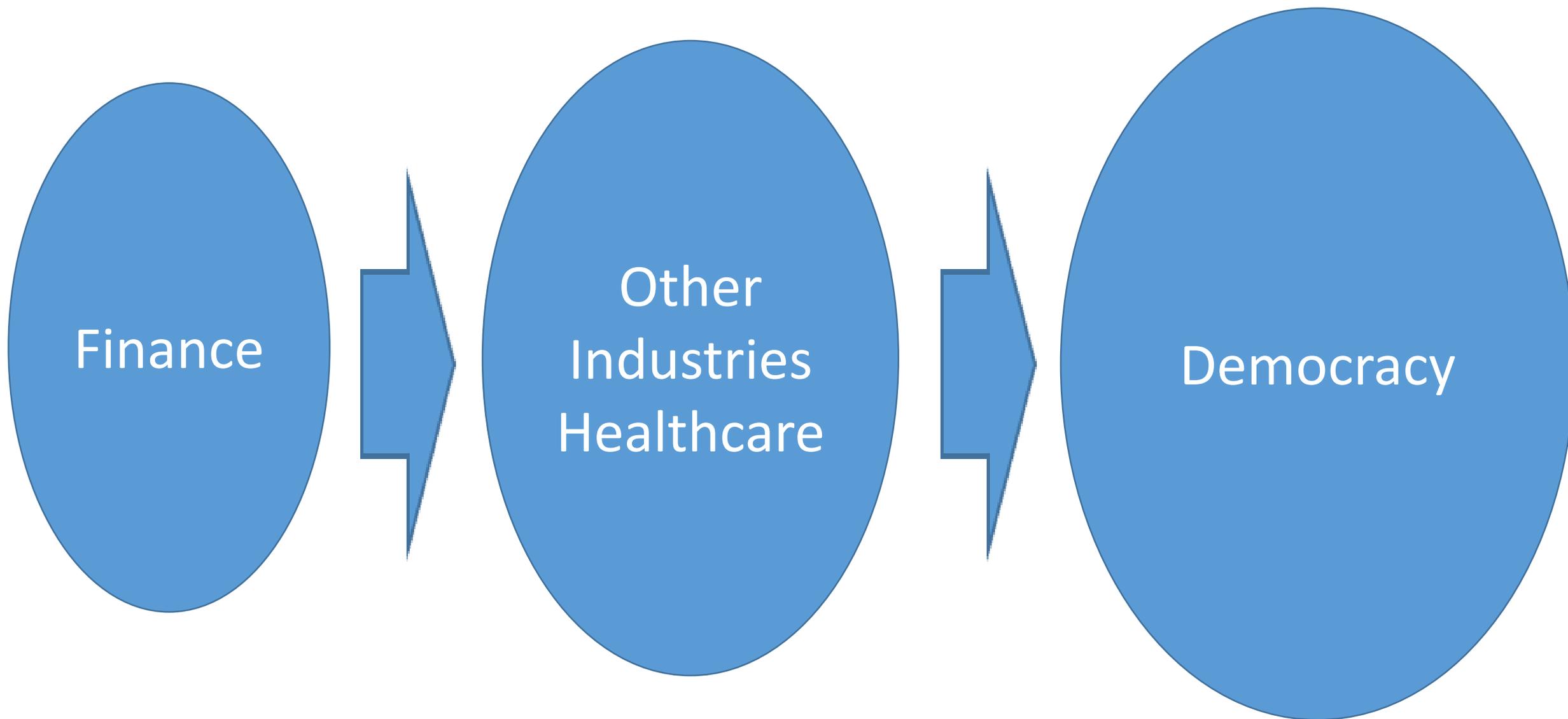
Crypto Assets & Tokenization

Digital Securities

ICOs

The Layers of Complexity





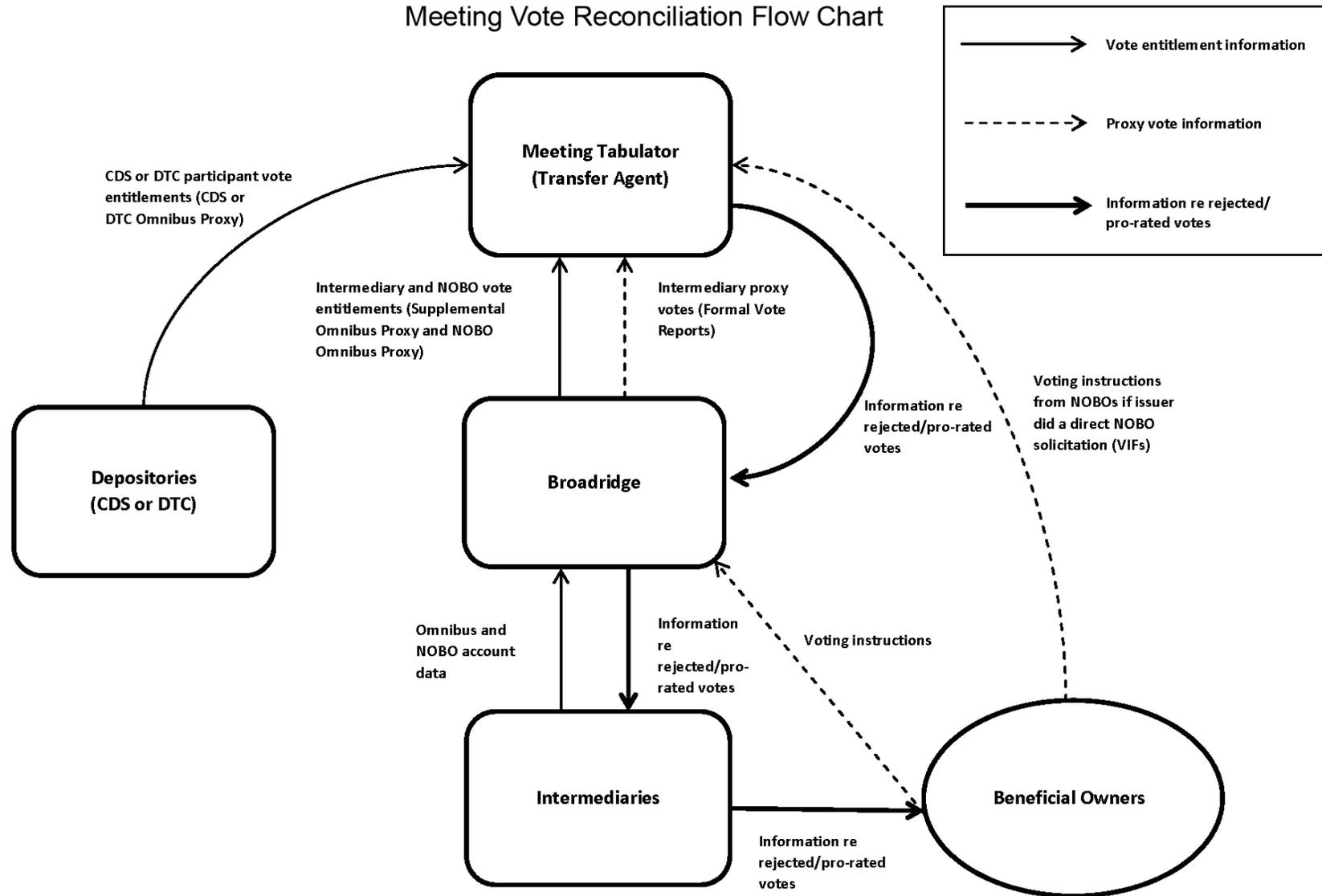
 Deloitte.

“increasing the security, privacy, and interoperability of health data. This technology could provide a new model for health information exchanges (HIE) by making electronic medical records more efficient, disintermediated, and secure. While it is not a panacea, this new, rapidly evolving field provides fertile ground for experimentation, investment, and proof-of-concept testing”

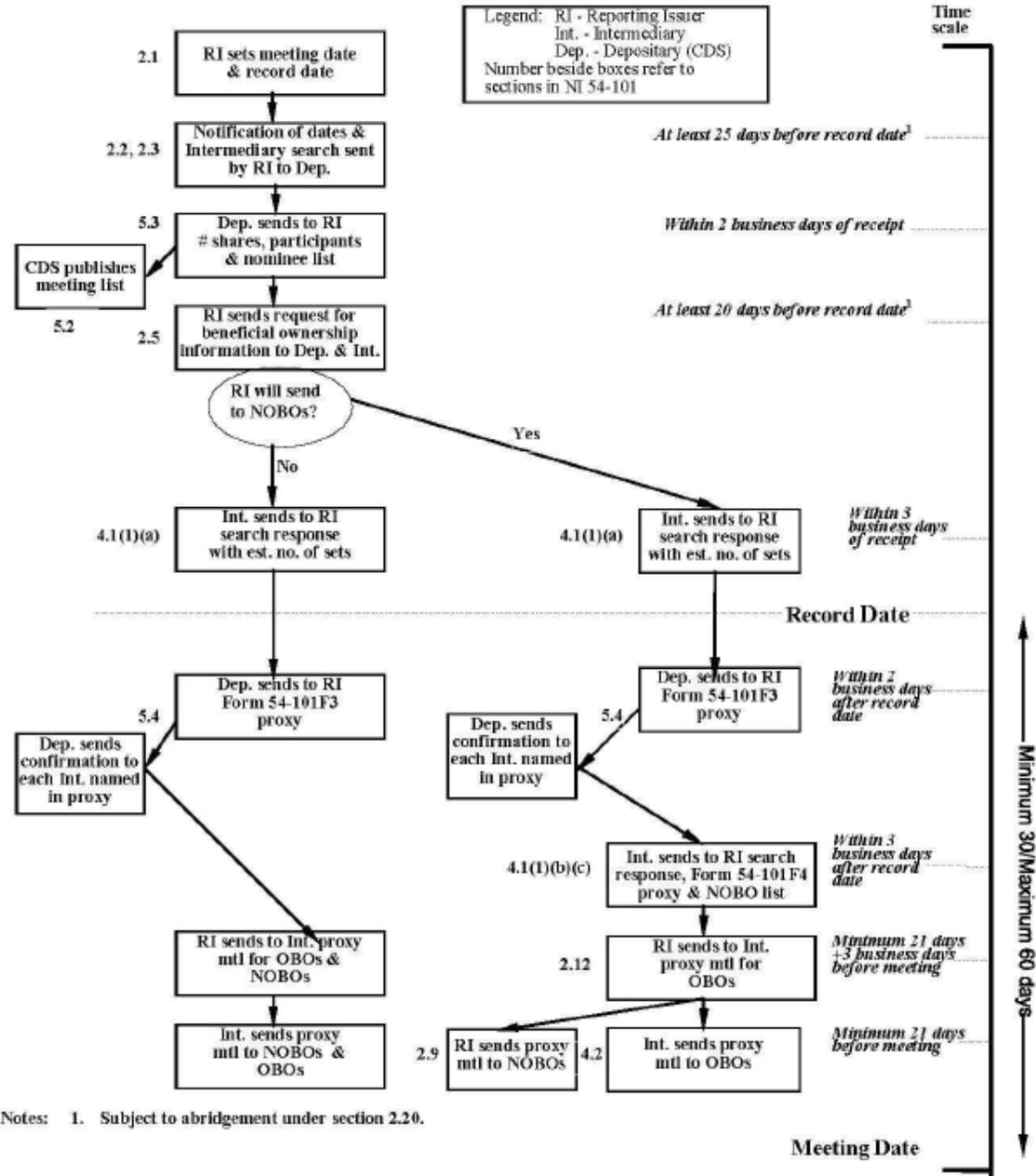
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Meeting Vote Reconciliation Flow Chart



Appendix A Proxy Solicitation under NI 54-101



Notes: 1. Subject to abridgement under section 2.20.

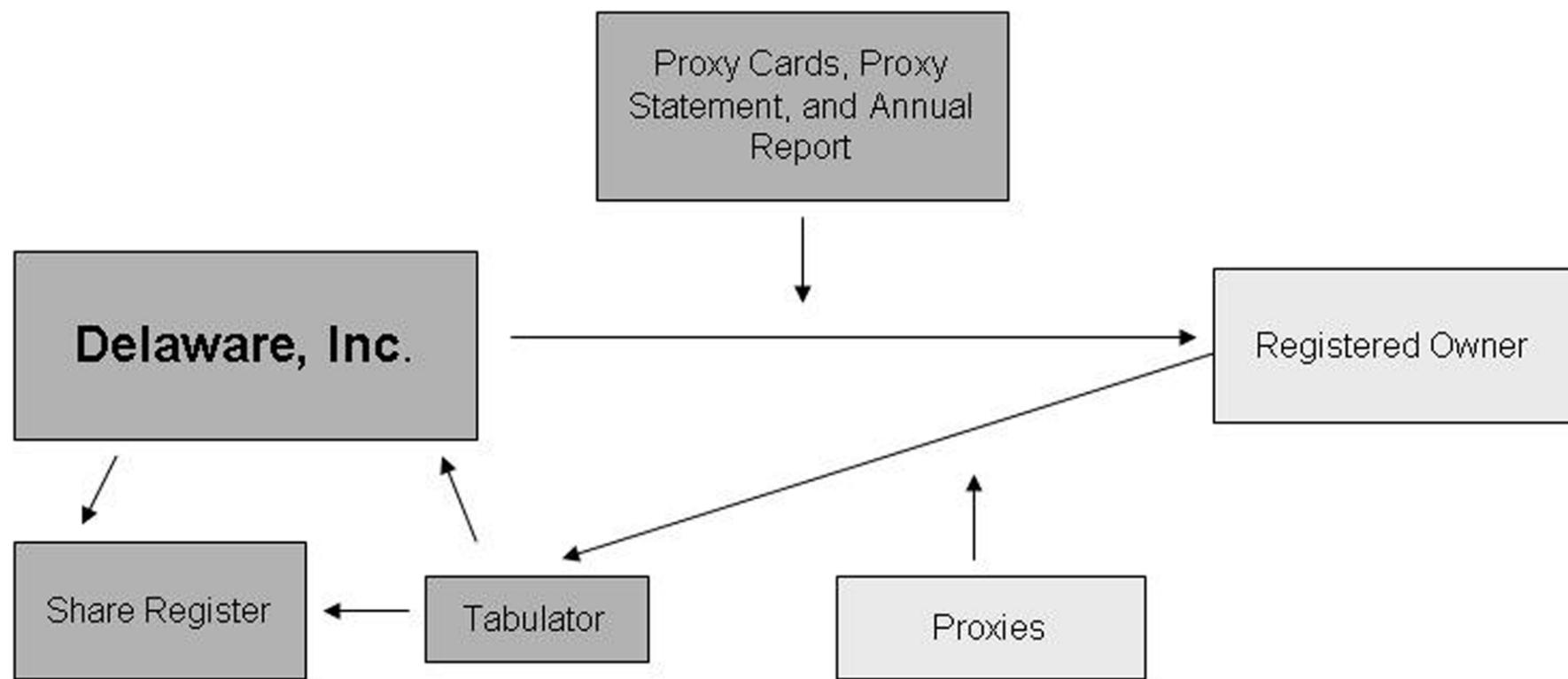


Figure 1. Voting by Registered Owners

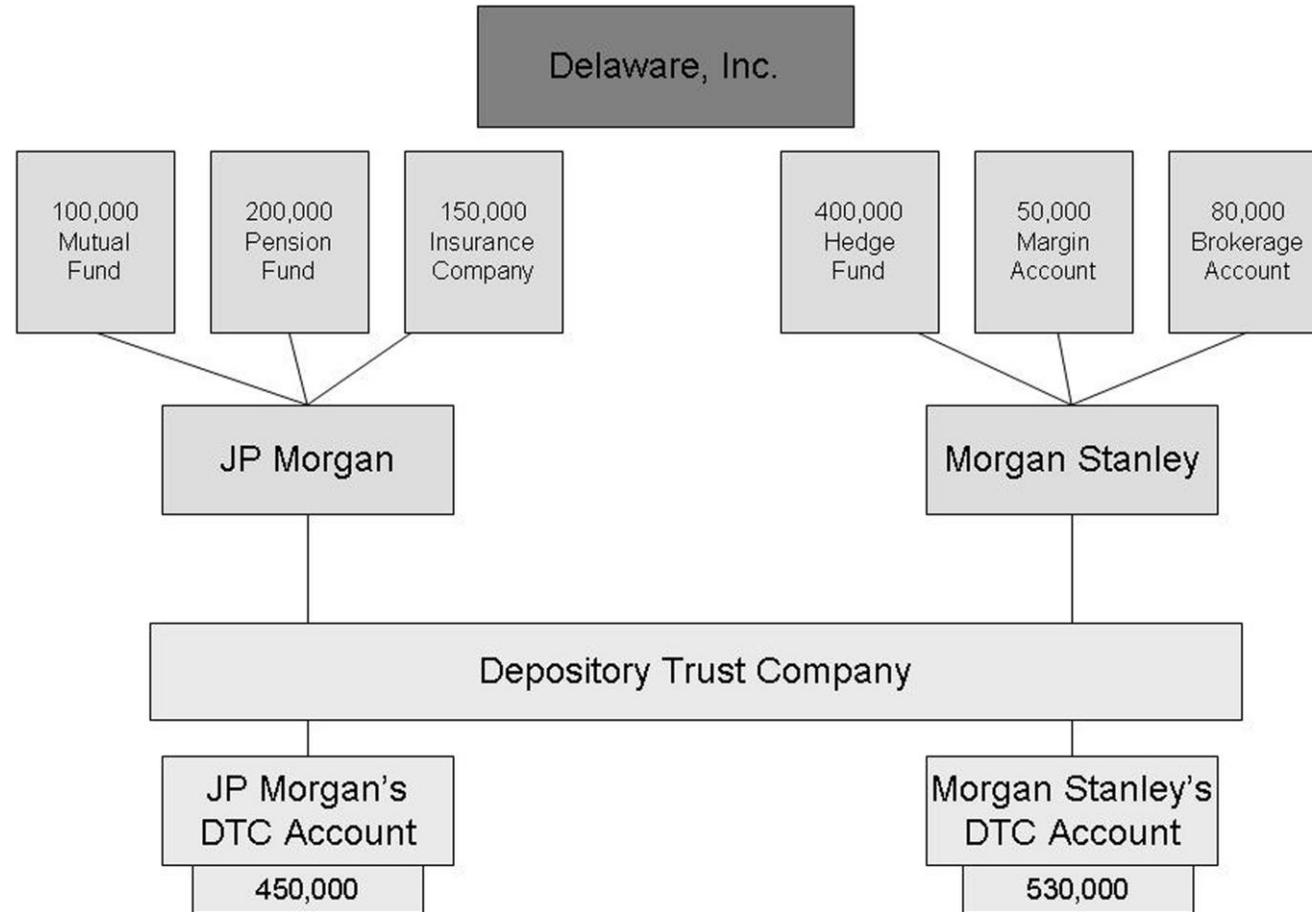


Figure 2. How Nominee Shares Are Held

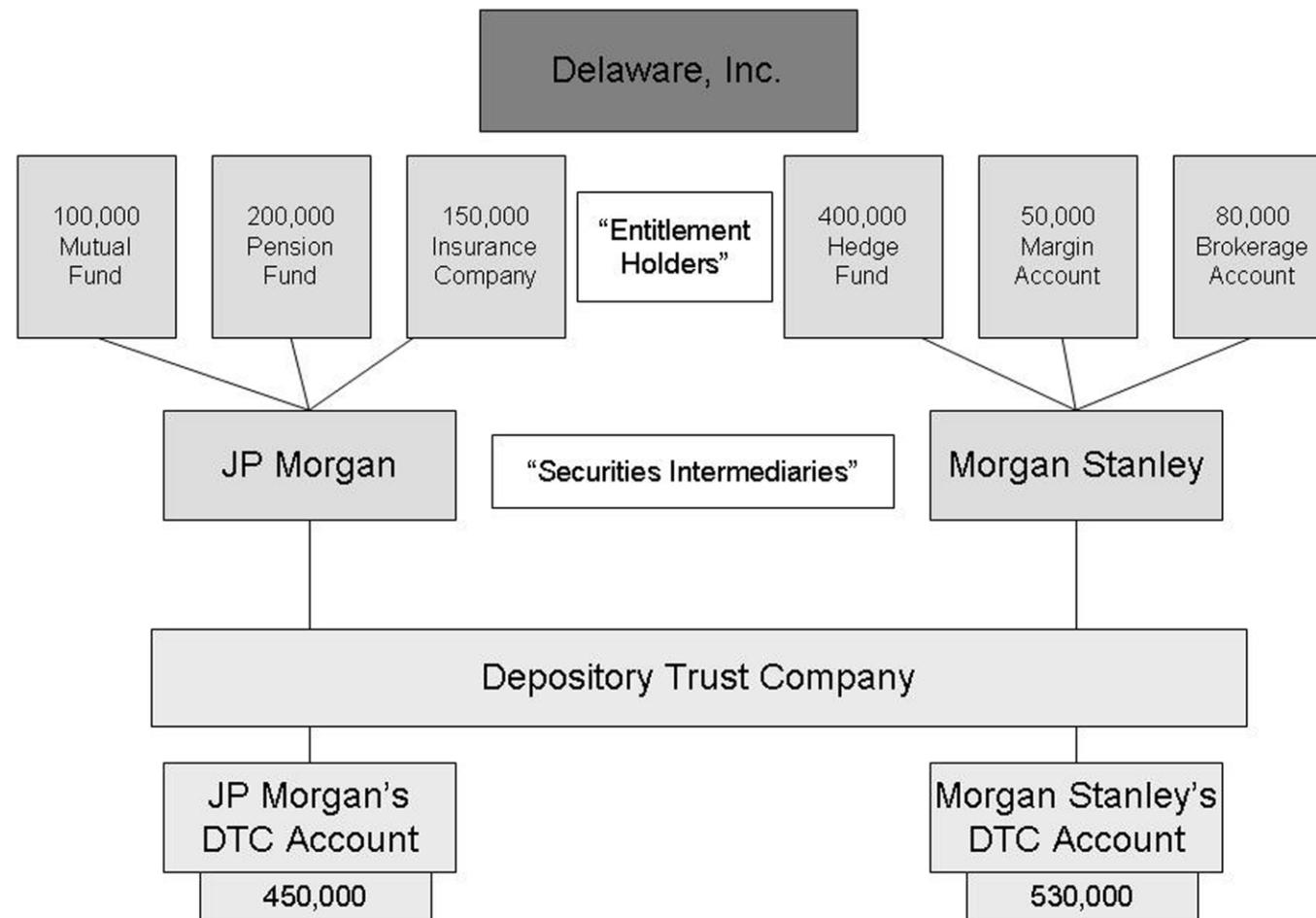


Figure 3. How Nominee Shares Are Owned

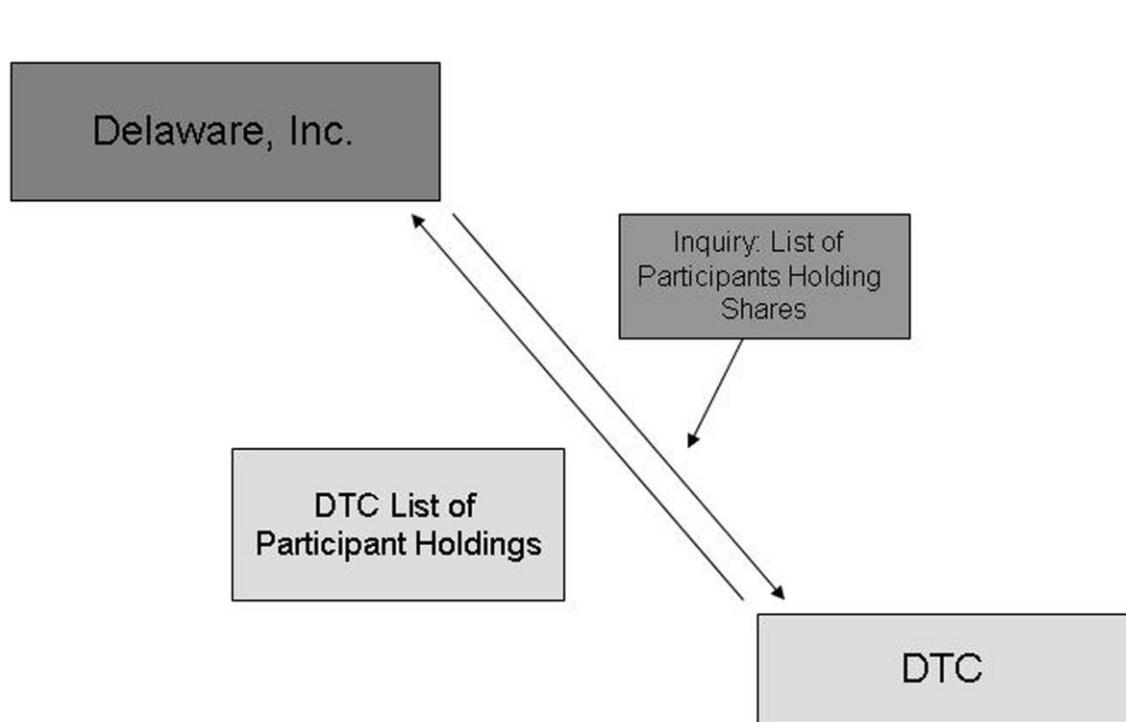


Figure 4. Finding the Beneficial Owners: Issuer Inquiry

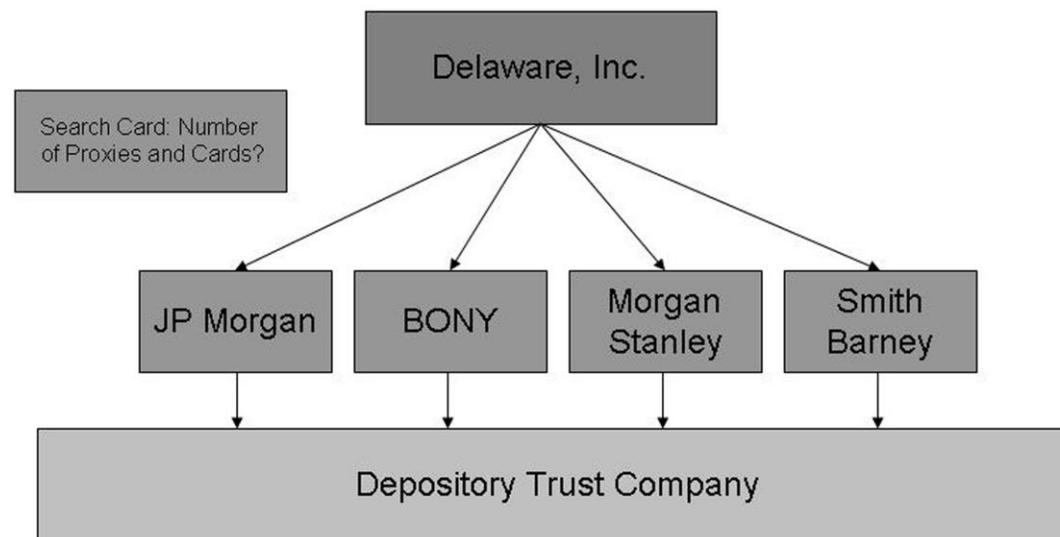


Figure 5a. Finding the Beneficial Owners: Search Cards

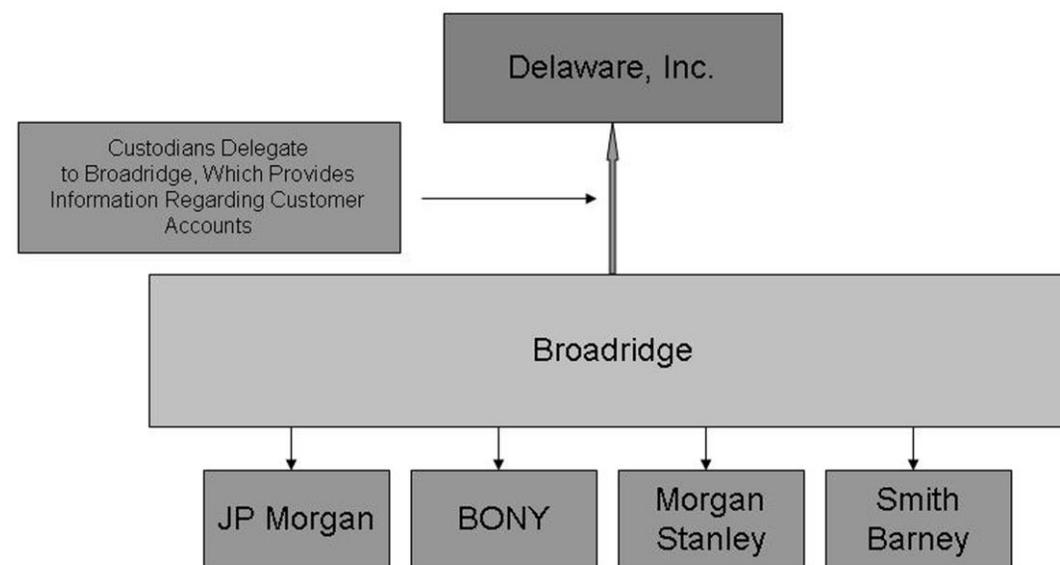


Figure 5b. Identifying the Number of Accounts and Shares



Conclusion

- Develop:
 - Appropriate Methodology
 - Appropriate Regulatory Tools
- Understanding the factual and concrete implications of Evolution vs Revolution
- Emphasizing the importance of dynamism and complexity to
 - Understand and appropriately anticipate specific transformations
 - Identify cross-sectorial/multidisciplinary approaches that might be useful.

Thank you!