Liquidity & Token Interchange

Problems in Computational Settlement

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Outline

1. Introduction

1.1   The Hard Problem of Settlement
Introduction to payments settlement as a computational problem; historical background.

1.2   Liquidity & Tokenisation
Definitions of liquidity, tokens, interchange, and the contemporary industry context.

1.3   Computer Science & Digital Finance
Overview of formal methods in Computer Science with application to finance.

1.4   Research Questions
Enumeration of primary research questions addressed by this project.

1.5   Structure & Contributions
Outline of subsequent sections; methodologies, publications, and key research outcomes.

1.4 Research Questions

2. Liquidity Automata

Liquidity Automata: A Computational Hierarchy of Money Forms

This chapter (and corresponding paper) will propose a correspondence between the Chomsky heirarchy of computational complexity and distinctive forms of money and settlement that have emerged over time.

The proposed hierarchy provides a theoretical framework for the relatioship between liqudity and technology that identifies four key innovations in its evolution - a process culminating with digital tokenisation and the arrival of computationally universality.

The chapter will include a review of the canonical literature relating to computation and economics. It will argue that the complexity of tokenised systems introduce an imperative to manage settlement risks through the development of agents.Although abstract, concepts introduced in this chapter will provide theoretical foundations for subsequent chapters.

3. Liquidity Logics

4. Liquidity Networks

5. Liquidity Schemes

6. Liquidity Agents

7. Conclusion