DISCUSSION OF "OPTIMAL DESIGN OF TOKENIZED MARKETS"

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OVERVIEW

❖ **BLOCKCHAIN TECHNOLOGY MAY FUNDAMENTALLY CHANGE THE SETTLEMENT IN FINANCIAL MARKET**

  ❖ Tokenized settlement, programmable asset
  ❖ Automatic execution when conditions met-----smart contract, getting rid of commitment problem (failure to deliver etc)
  ❖ *Page 4: Programmability enables traders in the tokenized market to enter trades that are de-facto insulated from credit and counterparty risk*

❖ **IS THIS ALWAYS GOOD?**

  ❖ This paper: not always as tokenized settlement materially alters the information environment for economic agents who then distort their strategies in equilibrium
    ❖ General perspective shared by Cong and He (2018)
  ❖ This fundamental "information" issue typically is ignored in Computer Science community

FLASH LOAN

❖ **BLOCKCHAIN-BASED AUTOMATIC SETTLEMENT STILL IN REMOTE FUTURE?**

    ❖ I think yes… but interesting development toward this direction

❖ **FLASH LOANS ON UNISWAP**

    ❖ Blockchain-based smart contracts allow to programmatically enforce the atomic execution of a transaction.

    ❖ A **flash loan** is a loan that is only valid within one atomic blockchain transaction---fail if the borrower does not repay its debt before the end of the "debt" transaction

        ❖ A blockchain transaction can be reverted during its execution if the condition of repayment is not satisfied

    ❖ Novel properties absent in traditional finance: No default, no collateral

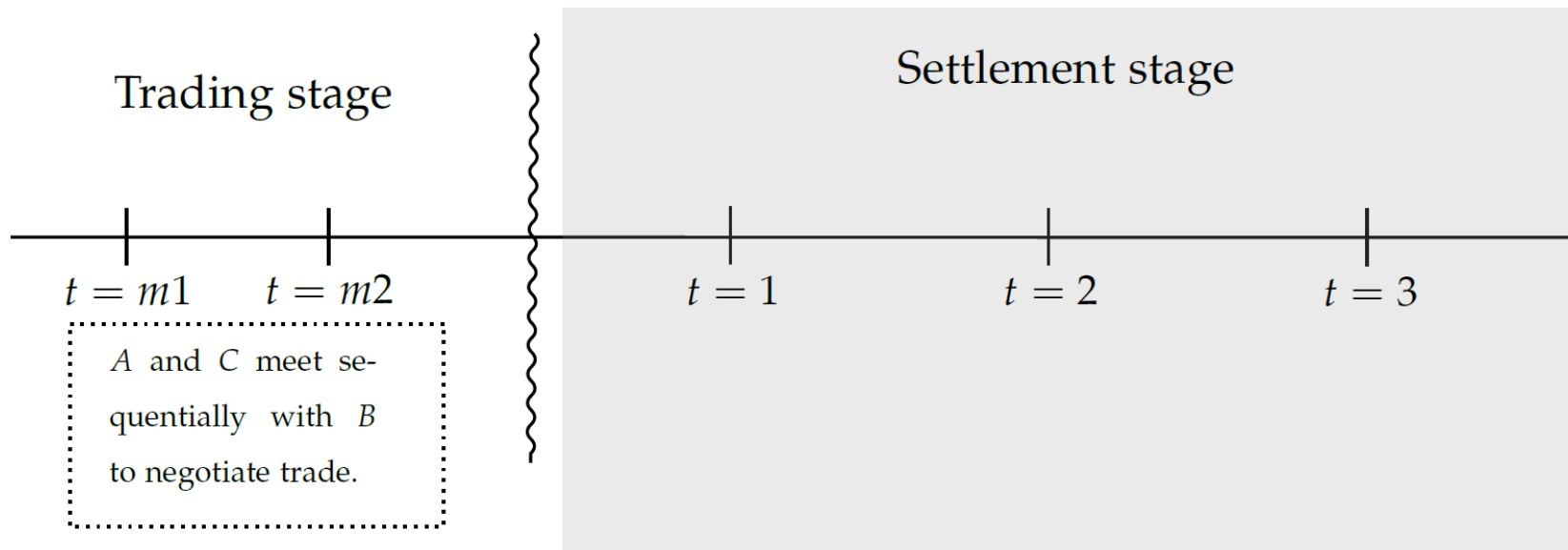   ❖ Allow for more possibility of "riskless arbitrage"?

THE MODEL
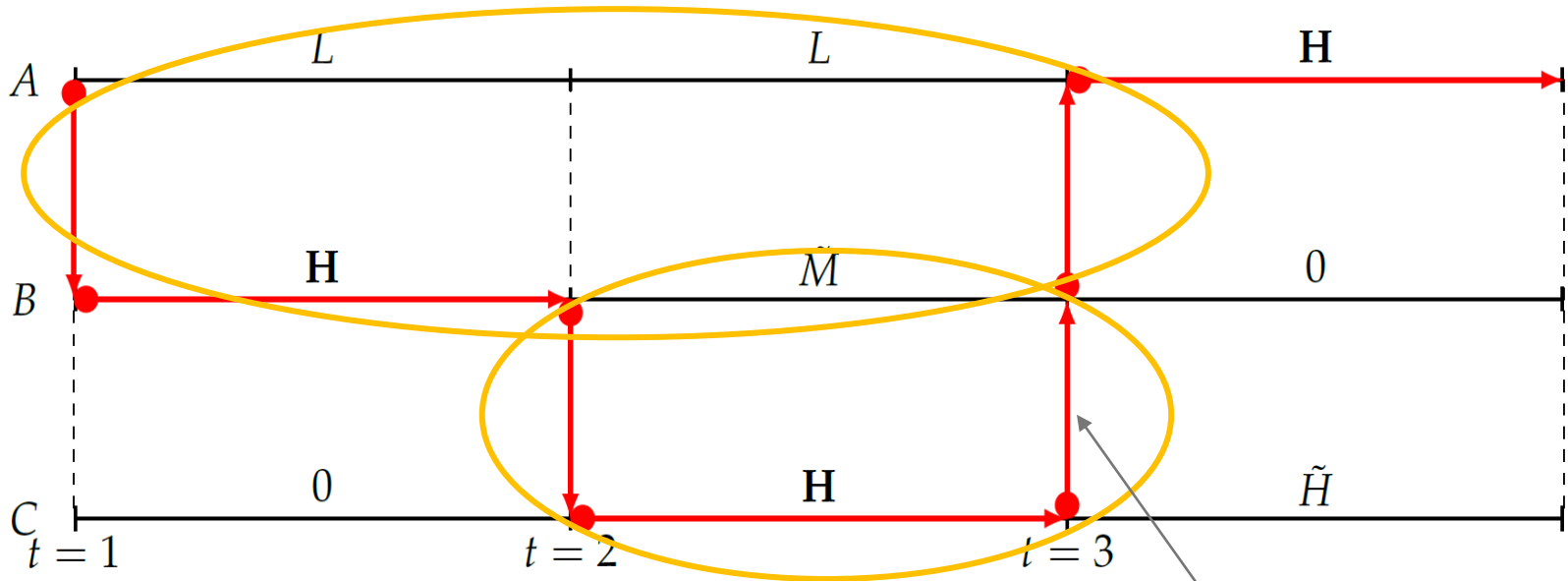
Limited commitment issue kicks in when $\widetilde{H} = H - \varepsilon$

❖ **EFFICIENT TRADE**

- ❖ $\mathcal{C}^{13}_{AB}$: B gets asset from A at time 1, and return at time 3
- ❖ $\mathcal{C}^{23}_{BC}$: C gets asset from B at time 2, and return at time 3
- ❖ Question: do you need these "repo" contracts?

LEGACY SYSTEM (1)

Trading stage

Settlement stage

$t = m1$ $t = m2$ $t = 1$ $t = 2$ $t = 3$

A and C meet sequentially with B to negotiate trade.

❖ **KEY ISSUES**
  ❖ Trading stage
    ❖ A, C meet with B sequentially, no recall
    ❖ A and C make take-it-or-leave-it offer to B
    ❖ **Hold-up** problem is reflected in some **low** price to B offered by C
  ❖ Settlement stage
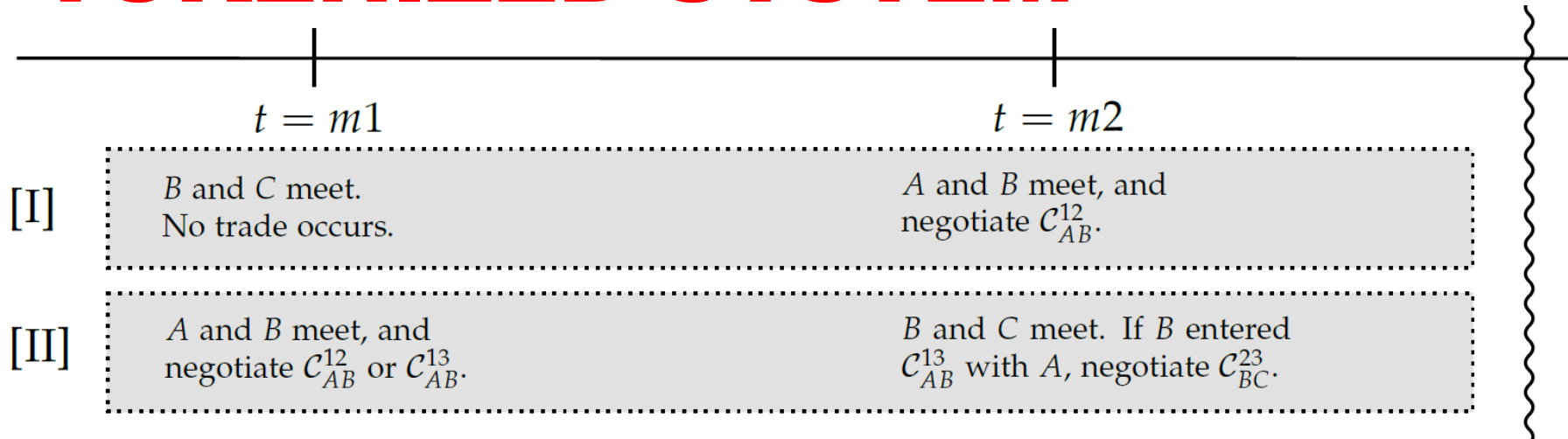   ❖ C may renege, **limited commitment**

LEGACY SYSTEM (2)

❖ **COMMENTS**

  ❖ It is quite clean on limited commitment issus
  ❖ The delivery of hold-up can be significantly improved (extremely hard to read)

❖ **THE KEY LOGIC**

  ❖ For C, ideally he is facing B who is stuck with asset, offering a price of $\mathrm{E}[\widetilde{M}] + \lambda_C \Delta$
    ❖ $\mathrm{E}[\widetilde{M}]$ is B's holding value in period 2,
  ❖ If C is unsure, the price is higher $L + \lambda_C(H + \Delta)$
    ❖ B gains "bargaining power" by opacity
  ❖ In equilibrium, B randomize to make sure unsure
  ❖ B as intermediary benefit from uncertain ownership

TOKENIZED SYSTEM

	$t = m1$	$t = m2$
[I]	B and C meet. No trade occurs.	A and B meet, and negotiate $\mathcal{C}_{AB}^{12}$.
[II]	A and B meet, and negotiate $\mathcal{C}_{AB}^{12}$ or $\mathcal{C}_{AB}^{13}$.	B and C meet. If B entered $\mathcal{C}_{AB}^{13}$ with A, negotiate $\mathcal{C}_{BC}^{23}$.

❖ **TWO INEFFICIENCIES**

   ❖ **Random sequential meetings** so only trade with half probability

      ❖ Ideally, A meets with B first who then trade with B. B serves as intermediary from A to C

      ❖ But what if C meets B before A meets B? Because in tokenized system every trade needs instant settlement, intermediation fails.

         ❖ Unfortunately, B cannot recall C in this situation

      ❖ Could be empirically relevant, depends on applications

   ❖ **Worsening hold-up problem**, as C now knows for sure B has the owned the asset

CONCLUDING REMARKS

❖ **FRESH AND INNOVATION PERSPECTIVES**

  ❖ Information affects the equilibrium pricing and intermediation

  ❖ In Cong and He (2018), blockchain technology alters the nature of monitoring among firms in Green-Porter (1984)

❖ **WILL BE NICE TO DISCUSS THE DETAILED APPLICATION ON ASSET SETTLEMENT**

  ❖ Which asset class? Derivatives or Treasuries?

  ❖ Contingent execution?