Discussion of Yiming Ma, Yao Zeng, Anthony Lee Zhang

“Stable Coin Runs and the Centralization of Arbitrage”

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Questions

- SC have different business models with different number of arbitrageurs
- … and different assets liquidity on SC balance sheet
- Why? and what are the tradeoffs?

Stylised facts

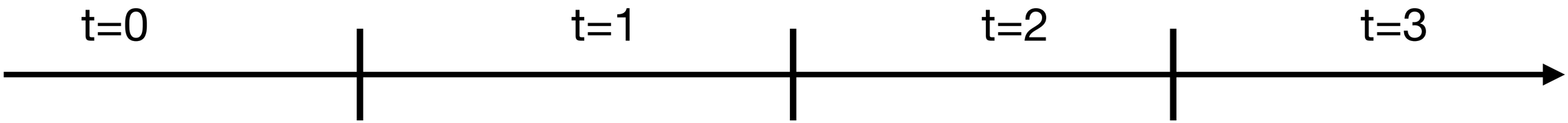
1. Arbitrageurs perform redemption and creation of SC in primary market. **Number of arbitrageurs varies by stable coin**.

2. SC with **fewer arbitrageurs** display **more price variability**.

3. SC engage in **different degree of maturity transformation** on BS.

What is the link?

Set up (timeline)



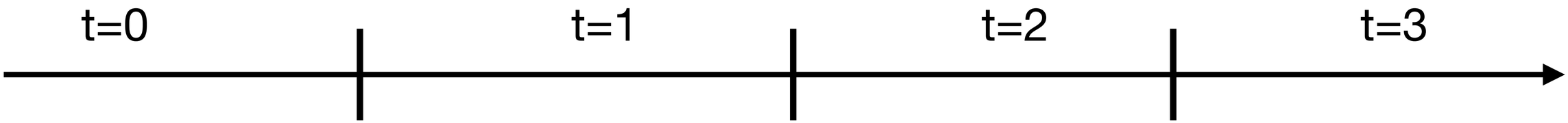
SC issuer

Arbitrageurs

Investors (measure 1)

Noise traders

Set up (timeline)



SC issuer

Res. 1

Arbit. n

Arbitrageurs

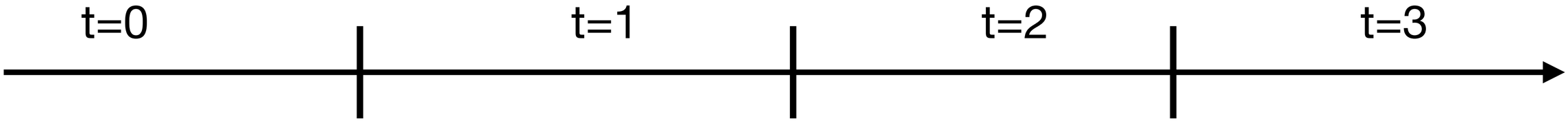
Investors Draw cost c

$c < \bar{c} \Rightarrow$ 1 SC

Noise traders

Endowed with 1 SC

Set up (timeline)



SC issuer

redeem / issue 1

Arbitrageurs

$(1 - p_1(\delta))\delta$

Investors

$c < \bar{c} \Rightarrow$ 1 SC

$p_1(\delta)$ → Double Auction price determination

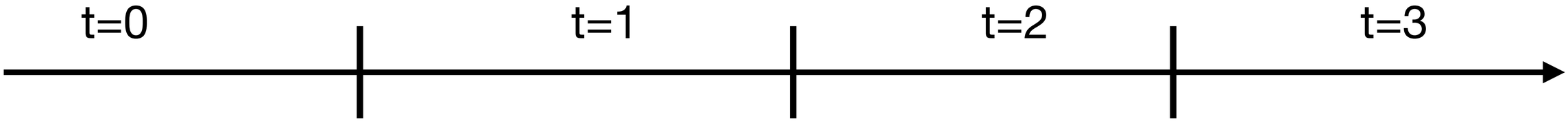
Noise traders

1 SC

$1/2$ → $\delta < 0$ (buy)

$1/2$ → $\delta > 0$ (sell)

Set up (timeline)



SC issuer

redeem / issue

1

Arbitrageurs

$(1 - p_1(\delta))\delta$

Cost to investors:

$-\alpha Var(p_1)$

Investors

$c < \bar{c} \Rightarrow$ 1 SC

$p_1(\delta)$

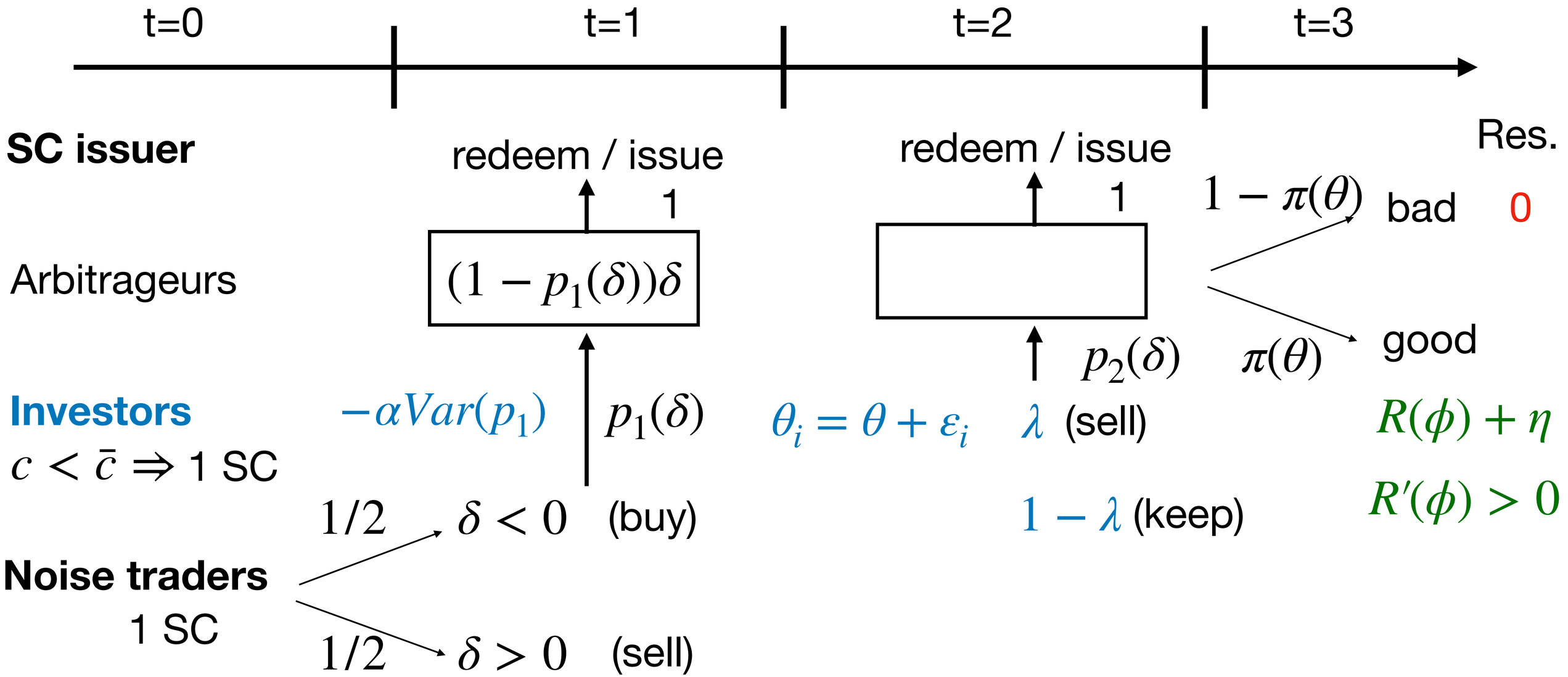
Noise traders

1 SC

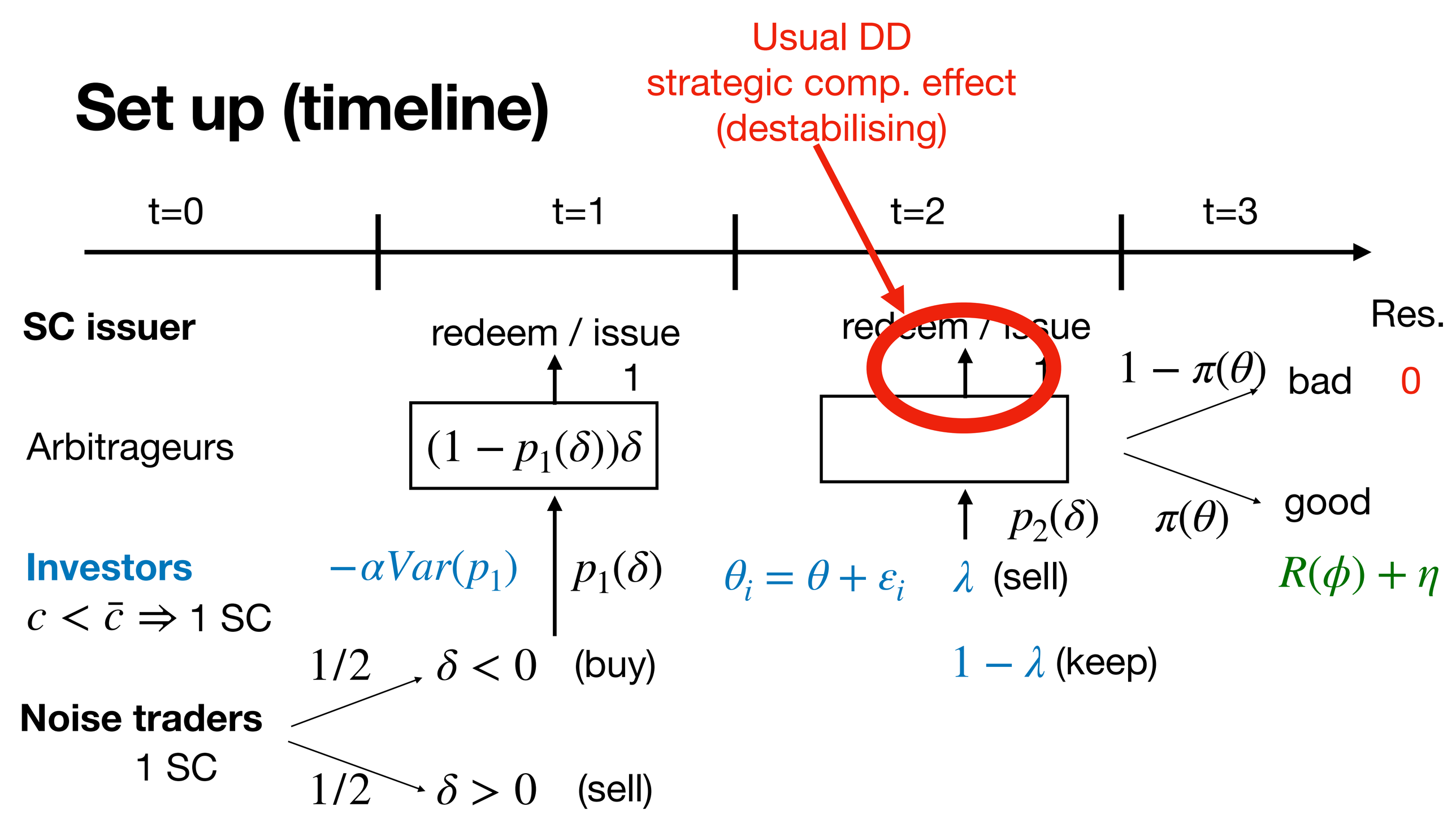
1/2 $\delta < 0$ (buy)

1/2 $\delta > 0$ (sell)

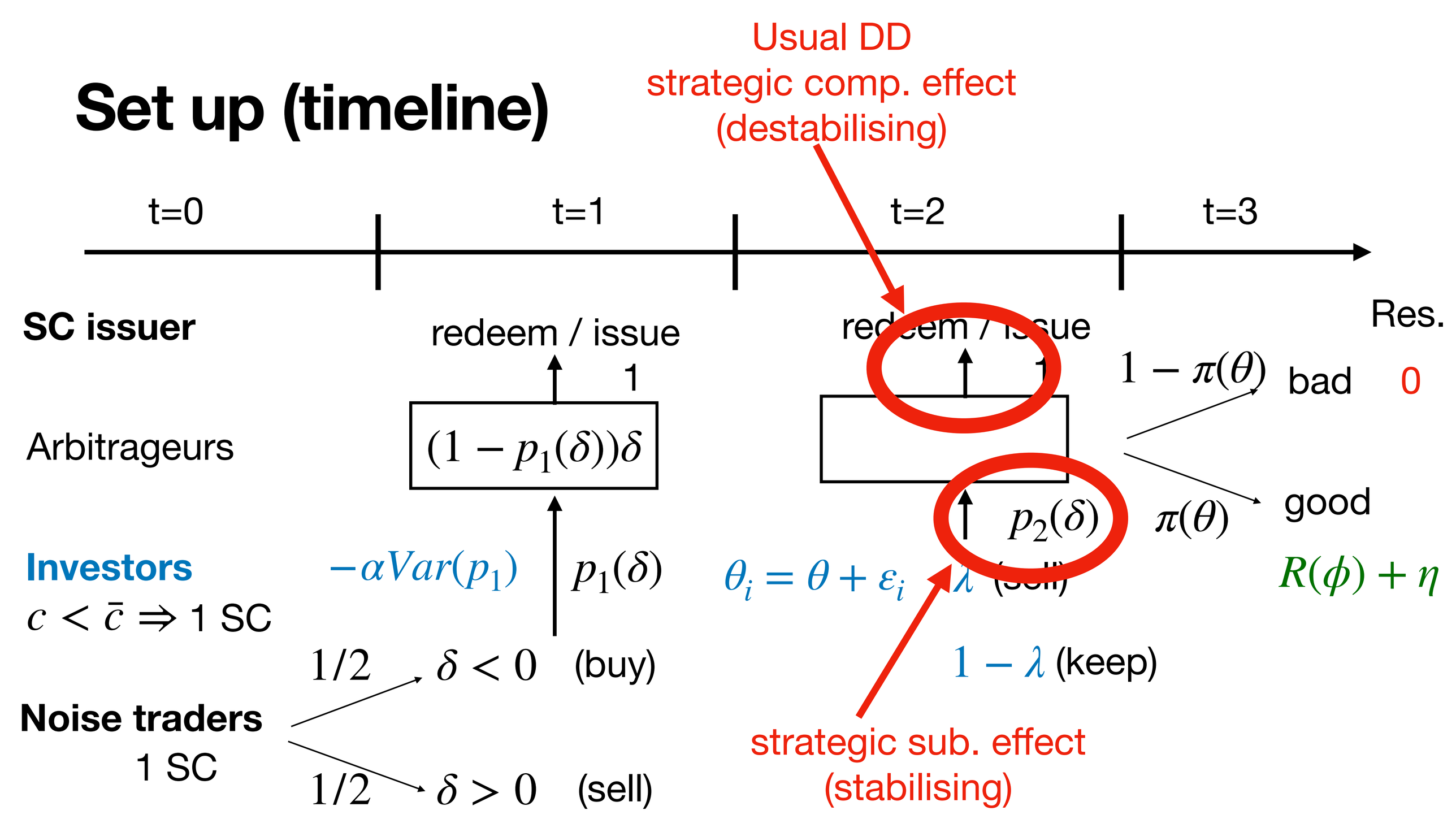
Set up (timeline)



Set up (timeline)



Set up (timeline)



Tradeoffs

- Many arbitrageurs:
  — low $Var(p_1)$…. desirable, but
  — p_2 high —> increase incentive to sell (early) than to hold.

- *Maturity transformation ⇒ fewer arbitrageurs*
  Long maturity = high cost to liquidate ϕ
  Liquidation more costly ⇒ want to reduce run risk
  Reduce run risk ⇒ fewer arbitrageurs

- Clean tradeoffs, model is simple yet interesting

Counterintuitive: Low p2 —> less run risk

- Counterintuitive that few arbitrageurs (with limited resources) associated with more stability… but right in the context of this paper

- Interesting to analyse the informational content of p2

- p2 is a (public) signal that many investors believe things are not well

- Which weight to give to public vs private (global game) signal?
  —> agents place order without observing the price

Clarify the link between markets

- Variability in prices (p_1) seems orthogonal to run story
- … but seems it should be related
  —> lower p_1 means that arbitrageurs have used some of their resources
  —> higher p1, means the SC issuer has more resources?
  —> stabilising noise traders : what do noise traders do with their SC purchased at date 1?
  —> can the SC use (at date 2) the resources of minting new SC at date 1?
- In data SC price can be above 1. p_2 always below one. p_1 sometimes above one - how do we map p_1 and p_2 in the data?

Endogenize maturity transformation

- The choice of maturity transformation defines a business model
    A. No maturity transformation —> Narrow bank (USDC in late 2021)
    B. Some maturity transformation —> (fractional reserve) Banking (USDT)

- Different redemption possibilities: USDT engages in more maturity transformation but also has redemption fees (>1% or $1’000 per redemption) and sorts of “gates” (minimum transaction size of $100’000)

- Endogenous MT: In equilibrium, either both models co-exist (or only one)

- Coexistence requires
  —> Clients have to be indifferent (or different preferences)
  —> Expected profit has to be equal across SC design.

- Would allow to talk meaningfully about efficiency

Clarify the role of balance sheet + inventories

- What does matter?
  The number of arbitrageurs, or
  The balance sheet (BS) capacity of arbitrageurs?

- With large BS, arbitrageurs may prefer to hold than to redeem
  Arbitrageurs could lean against the wind
  —> go back to the link between markets

- Arbitrageurs should also get a signal
  —> If arbitrageurs get good signal, they may want to buy/hold
  —> If arbitrageurs get bad signal… they may trigger the run.

Another theory

- Arbitrageur concentration -> introduce a game b/n arbitrageurs (not here)
  —> related to sequential service constraint in DD

- Arbitrage collapse when arbitrageurs believe the issuer is bankrupt
  —> arbitrageurs redeem and no longer hold onto SC

- The belief and information of arbitrageurs leads to market malfunction and excessive redemption

Final quibbles

- η captures the long term gain for investors of holding a successful SC.
  - Why is η decreasing with run probability?
  - Why doesn't the SC issuer also consider the LT profit from staying afloat?

- What is the message?
  - profit making stable SC without the backing of the State is illusory?
  - structure SC as MMF shares?

Conclusion

- Very nice contribution to SC, highlighting the role of arbitrageurs
- Give life to arbitrageurs!
- Endogenize the balance sheet of the SC issuer
- Fine tune the message