Liquity

Interest-Free Borrowing & Stablecoin

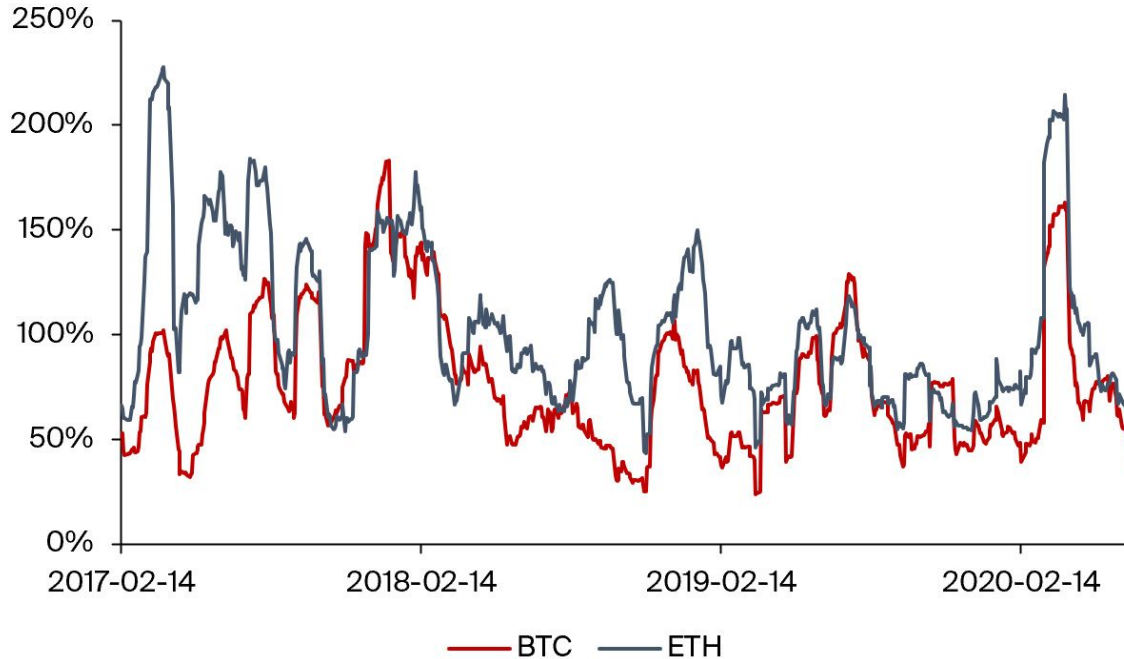## Cloud Field Trip to Liquity @ DukeKunshan

December 1, 2020

Agenda

1. Introduction to Stablecoins
2. Efficient liquidation mechanism
3. Price stability
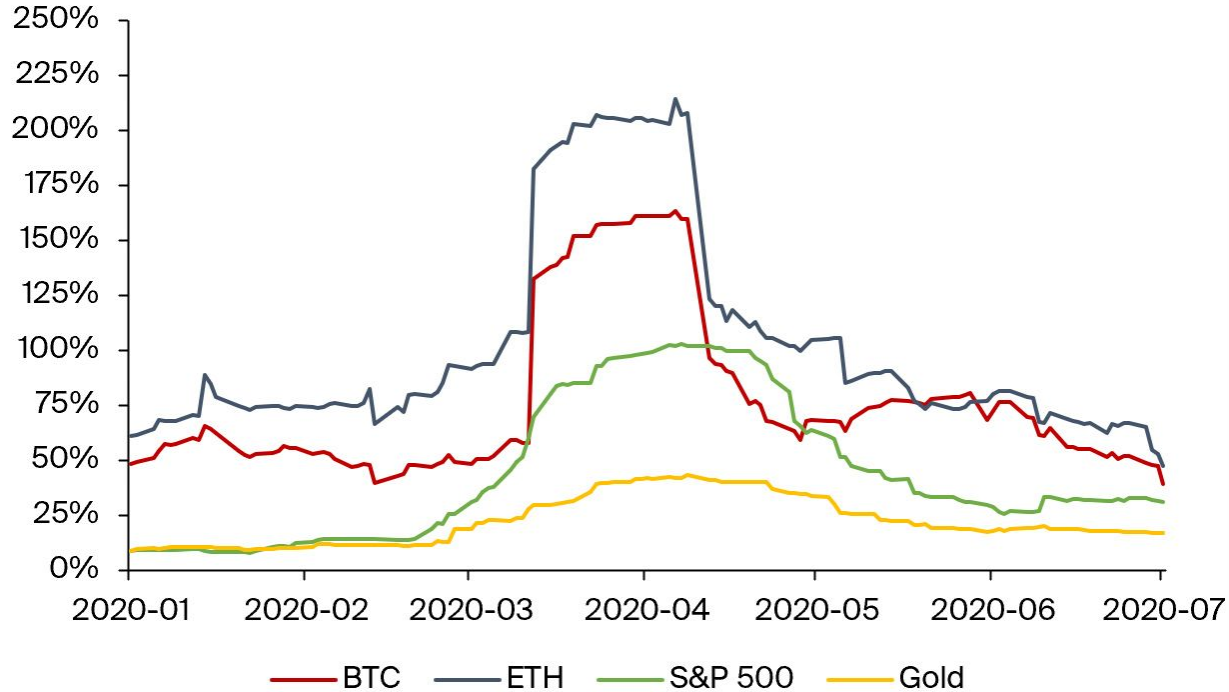4. Business model
5. How I started Liquity

Introduction to Stablecoins

Volatility of traditional cryptocurrencies

Annualized Bitcoin and Ether 30-day volatility (Source: coingecko.com, Bitcoin Suisse Research.)
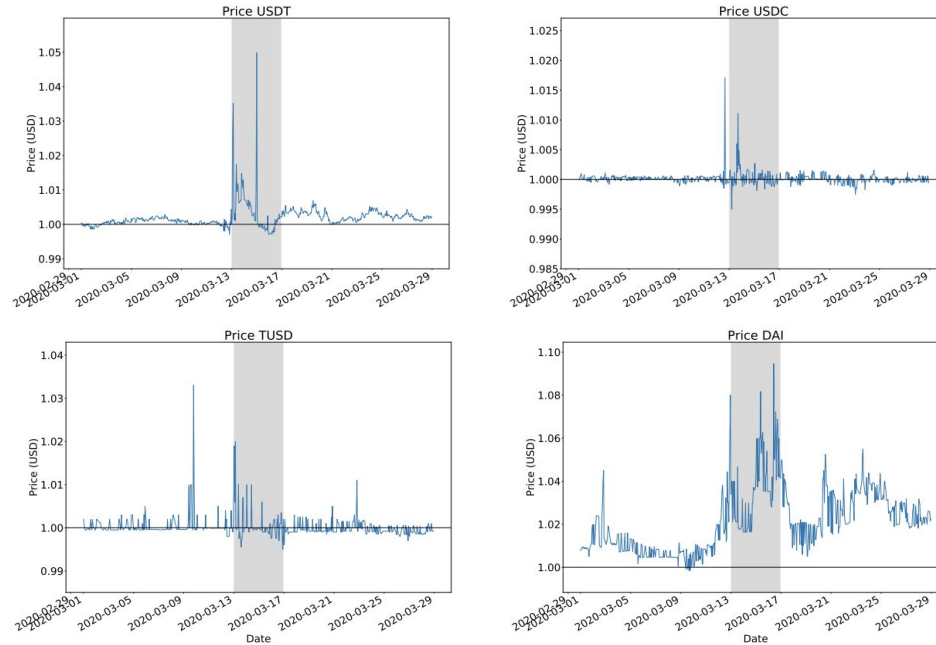
Comparison with traditional assets

(Source: coingecko.com, Bitcoin Suisse Research.)

Designing a truly stable coins is hard

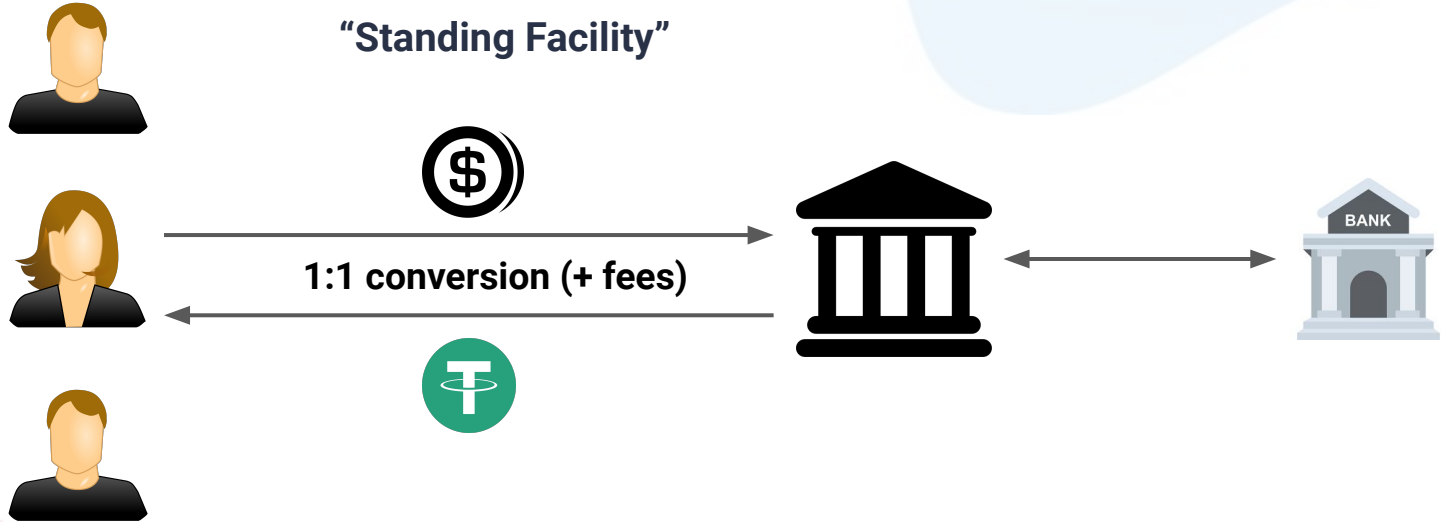Figure 14: Response of stablecoin prices to negative price shock of Bitcoin in March, 2020

(Source: Richard K. Lyons and Ganesh Viswanath-Natraj, What Keeps Stablecoins Stable?, July 2020)
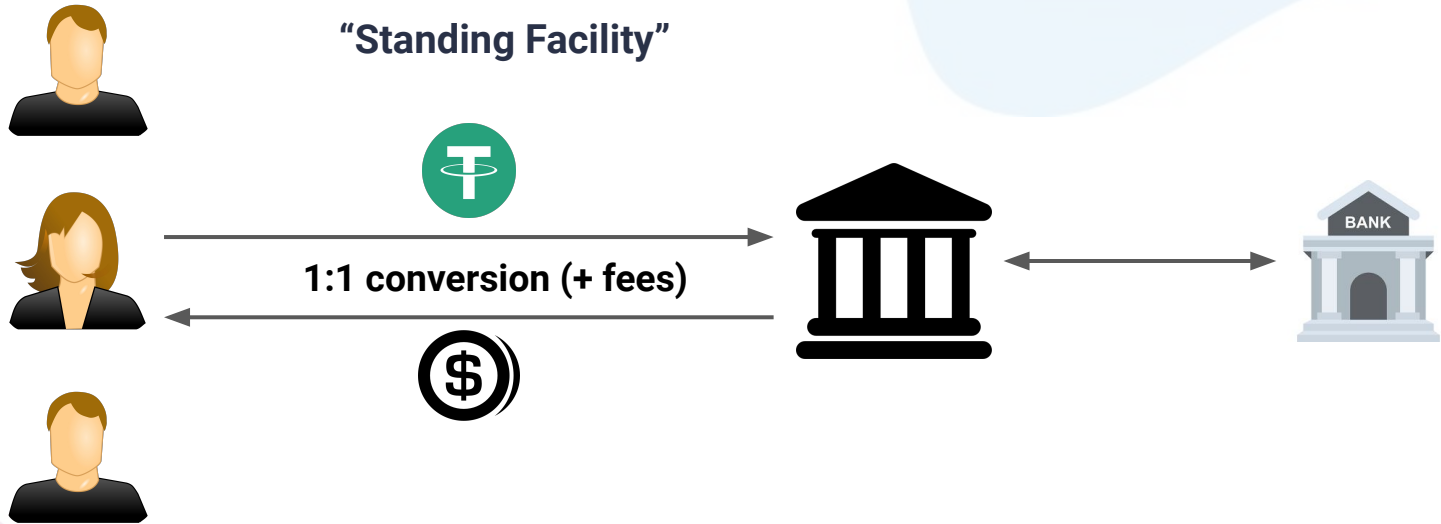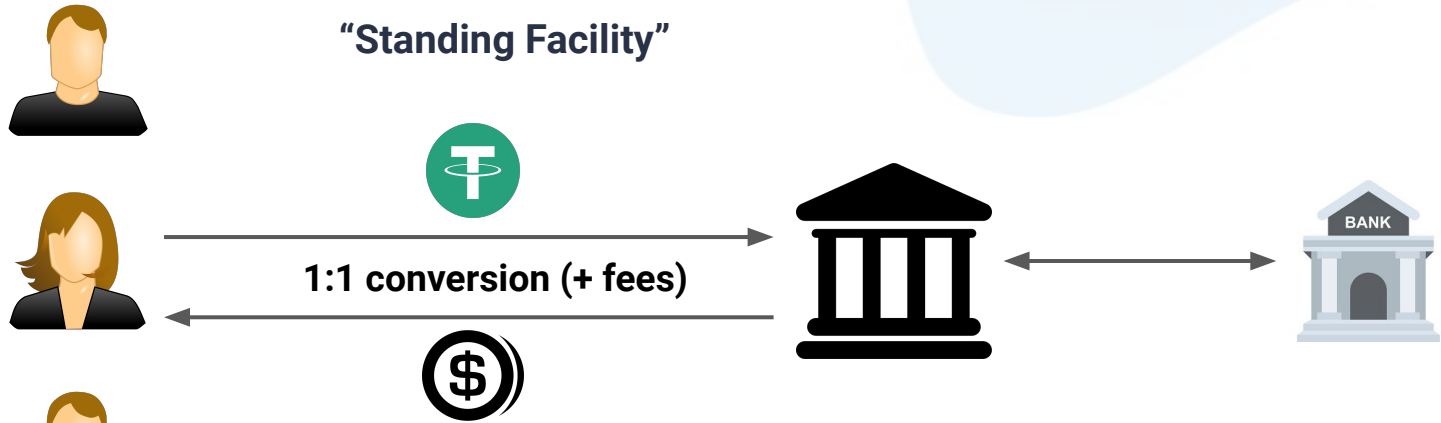
Types of stablecoins

Fiat-backed stablecoins: issuance

"Standing Facility"

1:1 conversion (+ fees)

Fiat-backed stablecoins: redemption

"Standing Facility"

1:1 conversion (+ fees)

Reserve currency = Peg currency

Fiat-backed stablecoins: redemption

"Standing Facility"

1:1 conversion (+ fees)

Not decentralized

Default risks & trust issues

Crypto-backed stablecoins
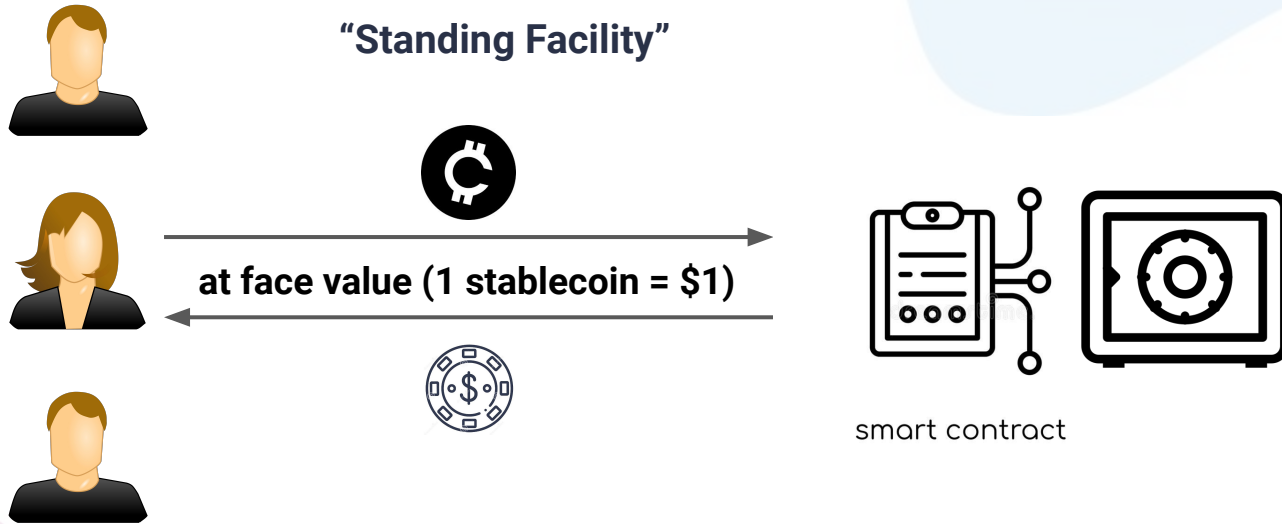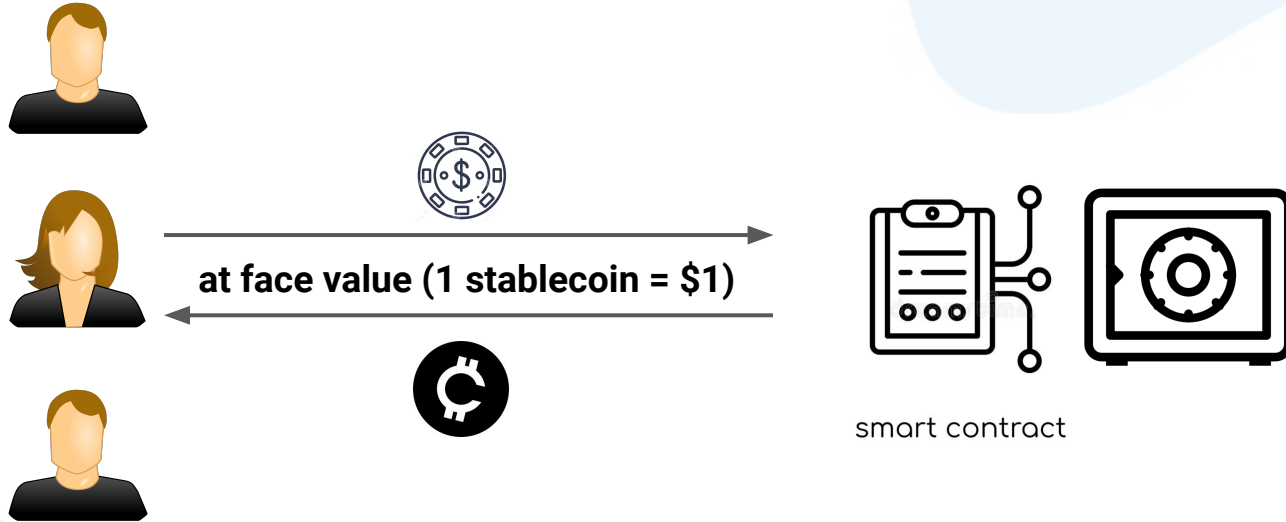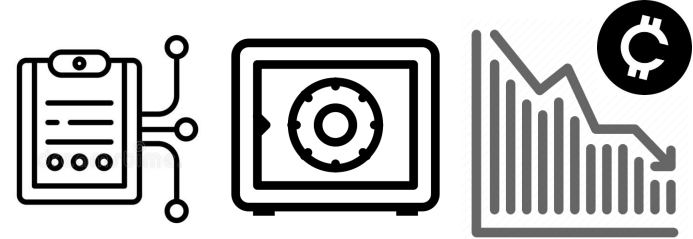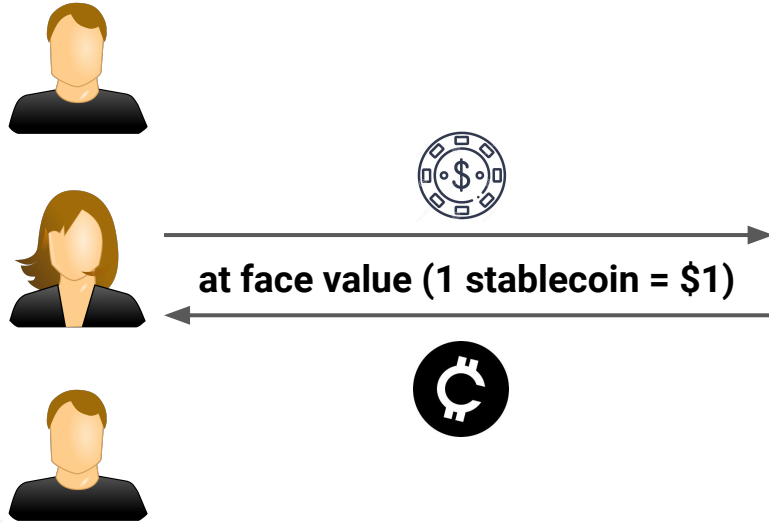
"Standing Facility"

at face value (1 stablecoin = $1)

smart contract

Crypto-backed stablecoins

at face value (1 stablecoin = $1)

smart contract

Reserve currency ≠ Peg currency

Crypto-backed stablecoins

at face value (1 stablecoin = $1)

smart contract
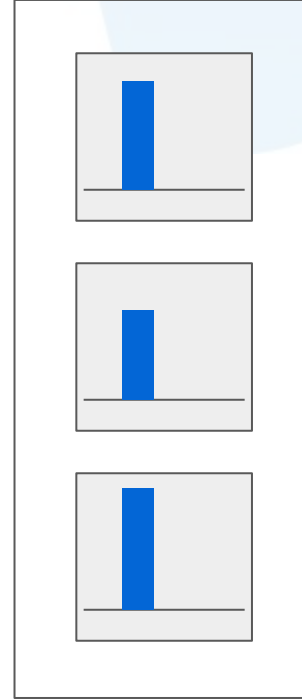
Reserve currency ≠ Peg currency

Crypto-backed stablecoins

at face value (1 stablecoin = $1)

smart contract

Terra

RESERVE

celo
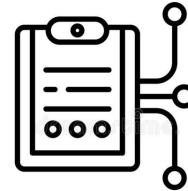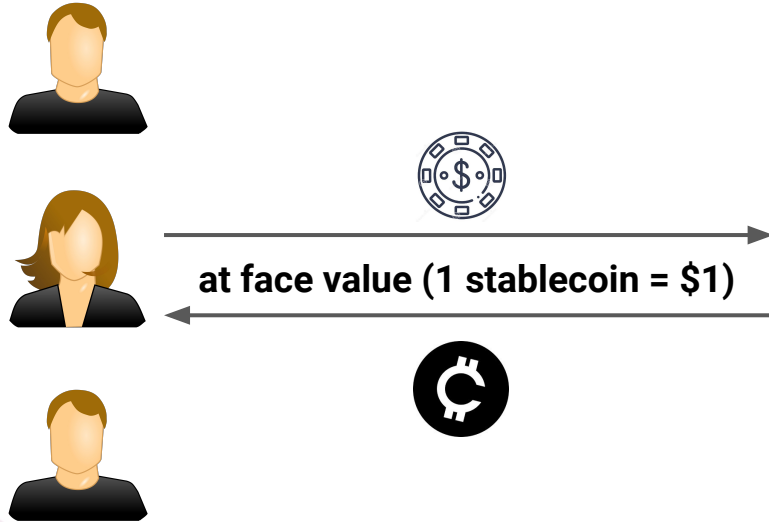
Reserve currency ≠ Peg currency

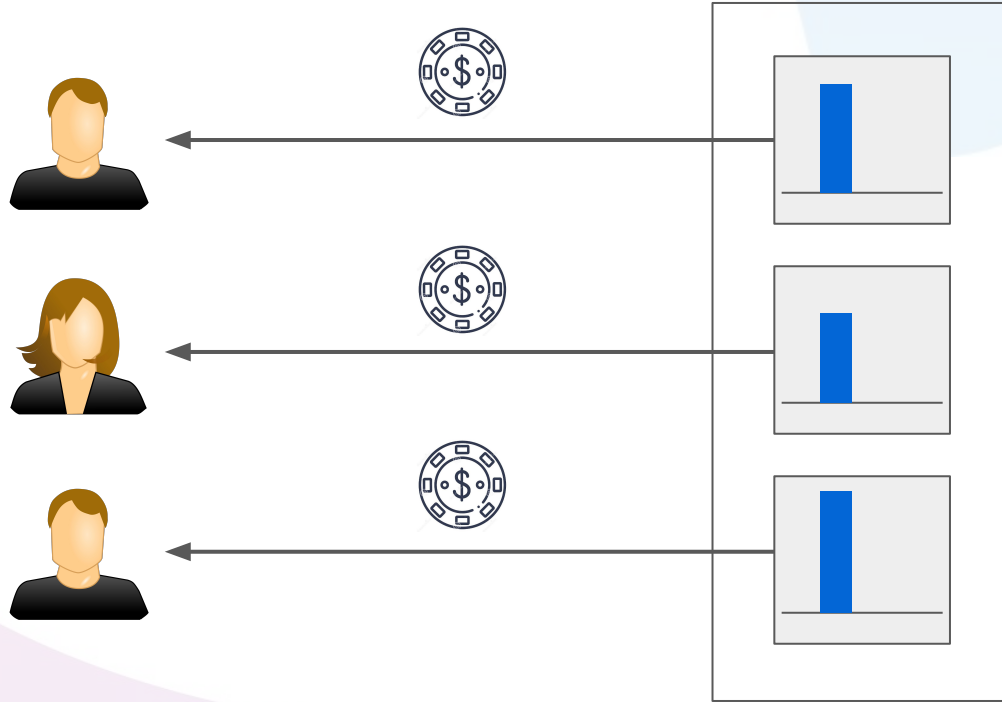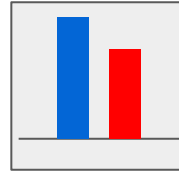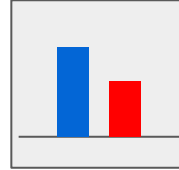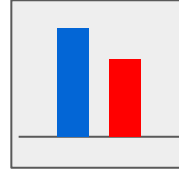# Crypto-**debt** backed stablecoin
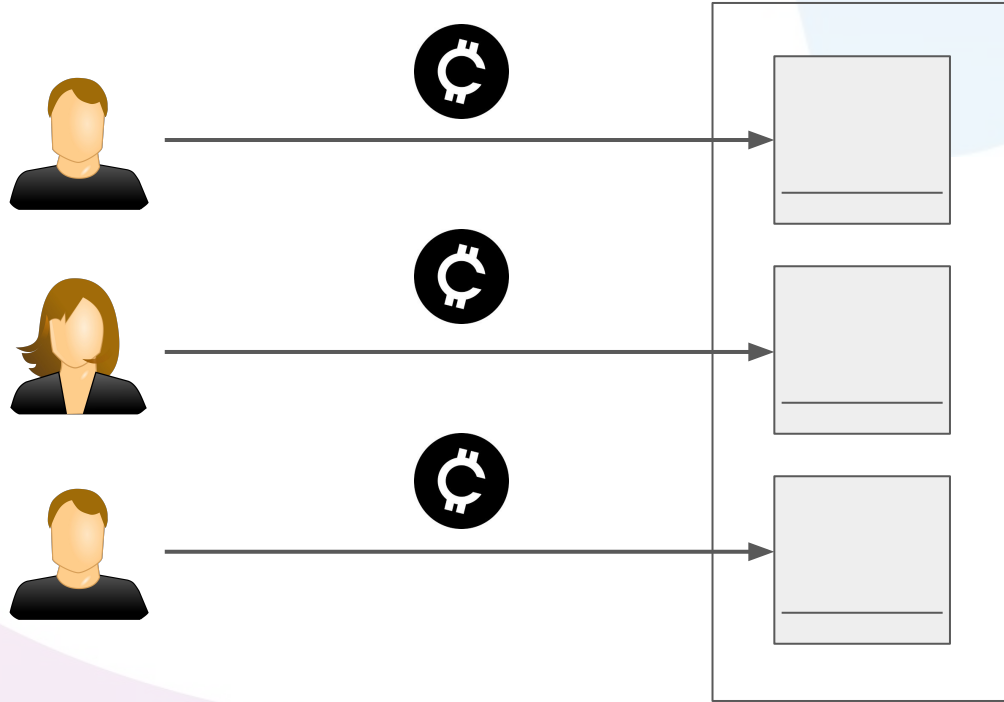
Crypto-debt backed stablecoin

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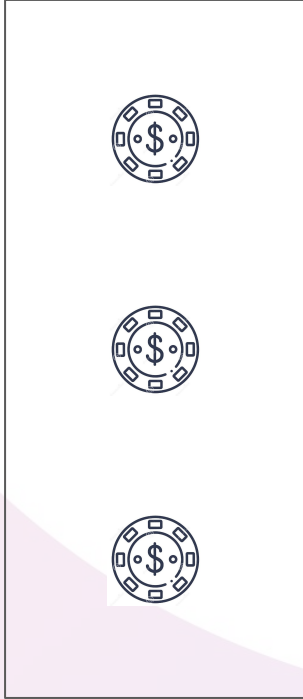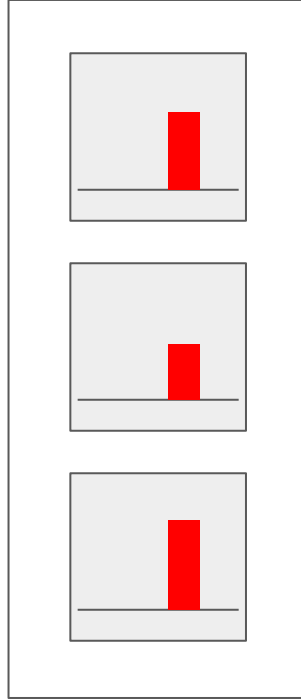
Crypto-**debt** backed stablecoin

Total stablecoin supply = **Total debt** < **Total collateral**
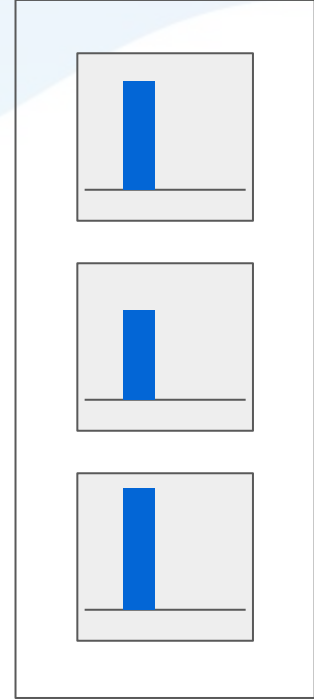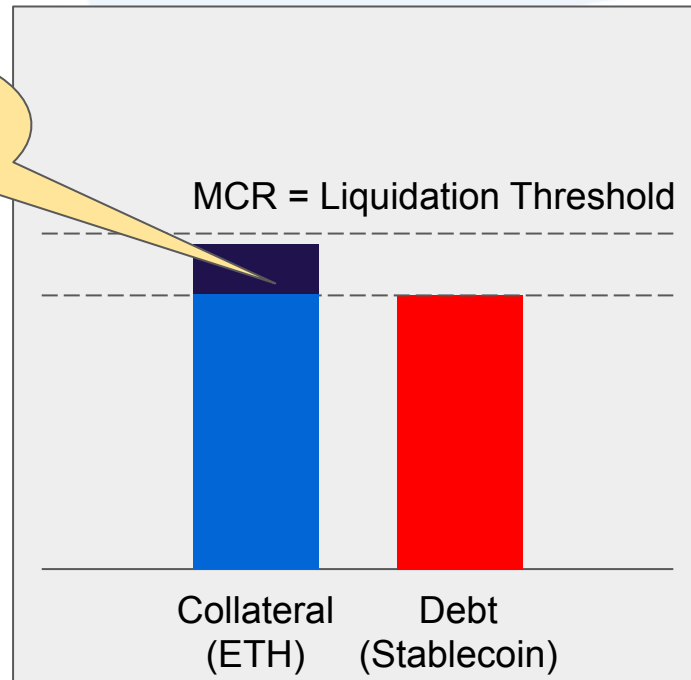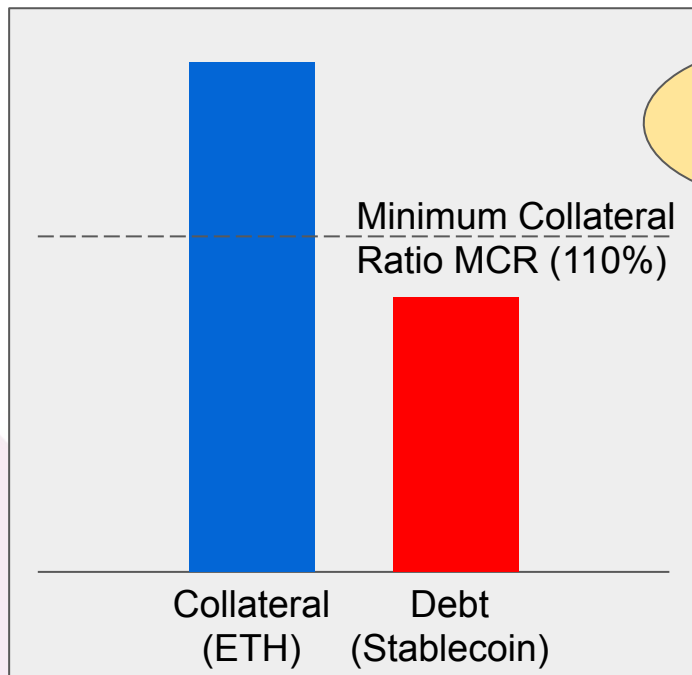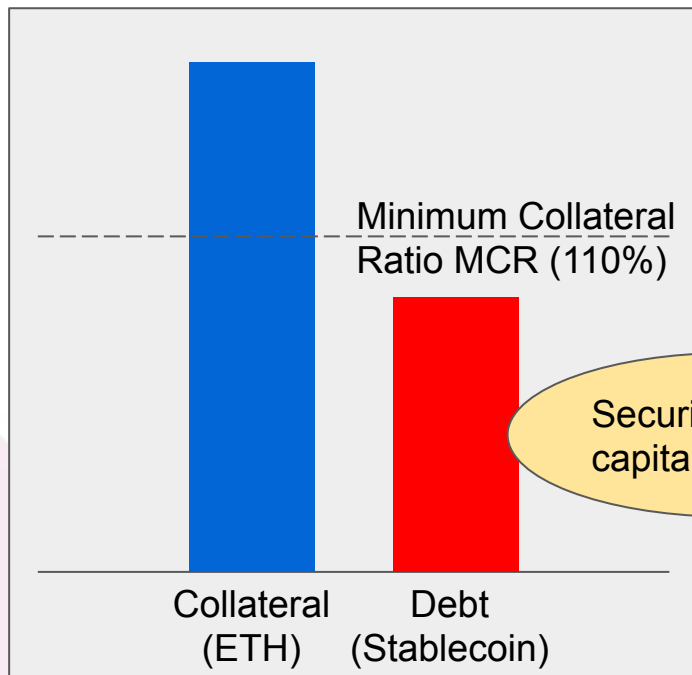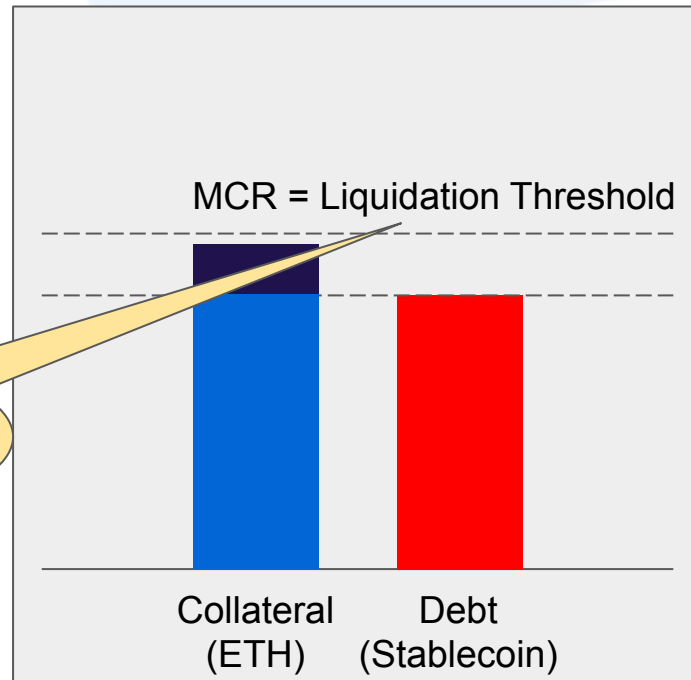
Collateralized Debt Position CDP (Vault, Trove)

Collateralized Debt Position CDP (Vault, Trove)

Efficient liquidation mechanism

Liquidation of undercollateralized positions

Existing CDP platforms

Collateral auctions
Fixed-price collateral selloff (fire sale)

⬇

Slow, inefficient and fragile
Auctions take time and are fragile
Fixed-price selloffs require discounts

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Instant liquidation mechanism
Use existing stakeholders to liquidate "troves"

⬇

Fast and efficient
No need to find a buyer / bidder
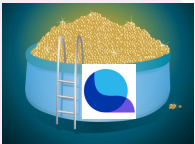No risk of further price drops during liquidation process

Liquidation of troves with collateral ratio < 110%

Total System Collateral Ratio ≥ 150%
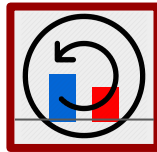
1 —— **2**

Stability Pool

Debt & collateral get **absorbed** by the Stability Pool

Redistribution

Debt & collateral is **redistributed** across all borrowers

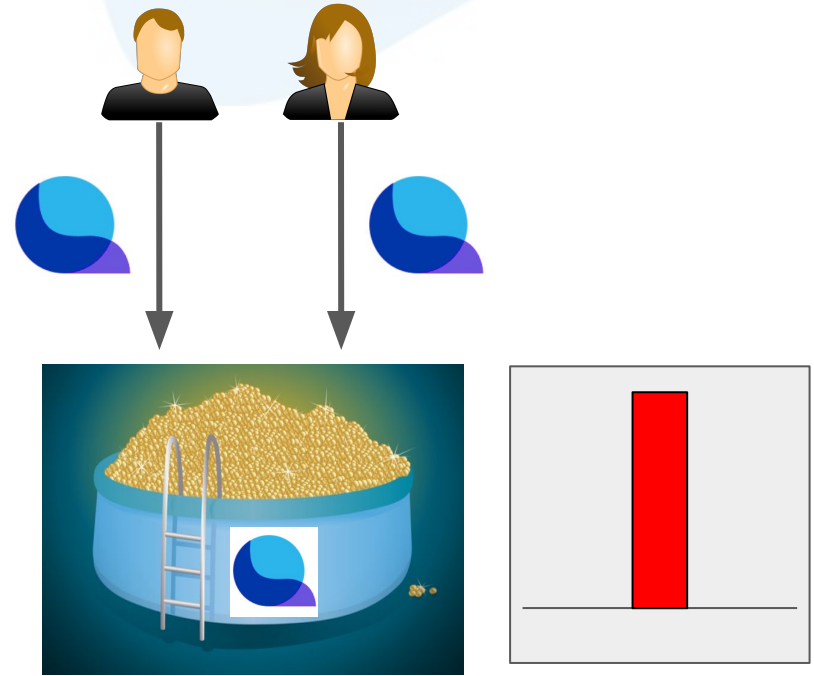## Total System Collateral Ratio < 150%

3

Recovery Mode

The most at-risk troves up to a collateral ratio of 150% may be liquidated as an **ultima ratio.**

Liquidation process favors the Stability Pool
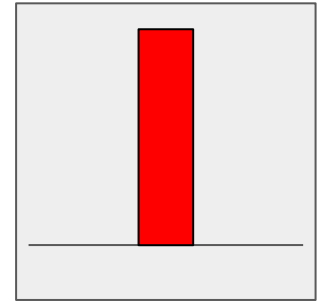
Self-negating deterrent
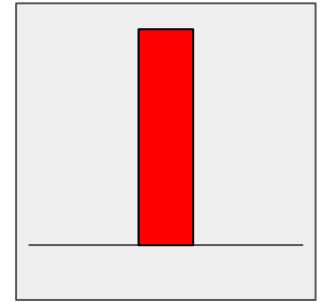
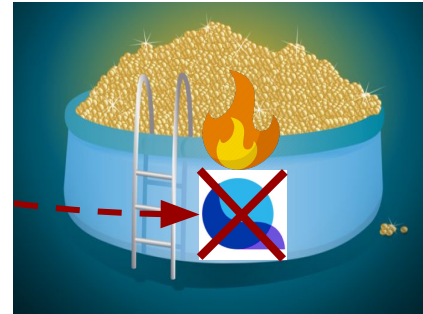# Holders can deposit LUSD to the Stability Pool...

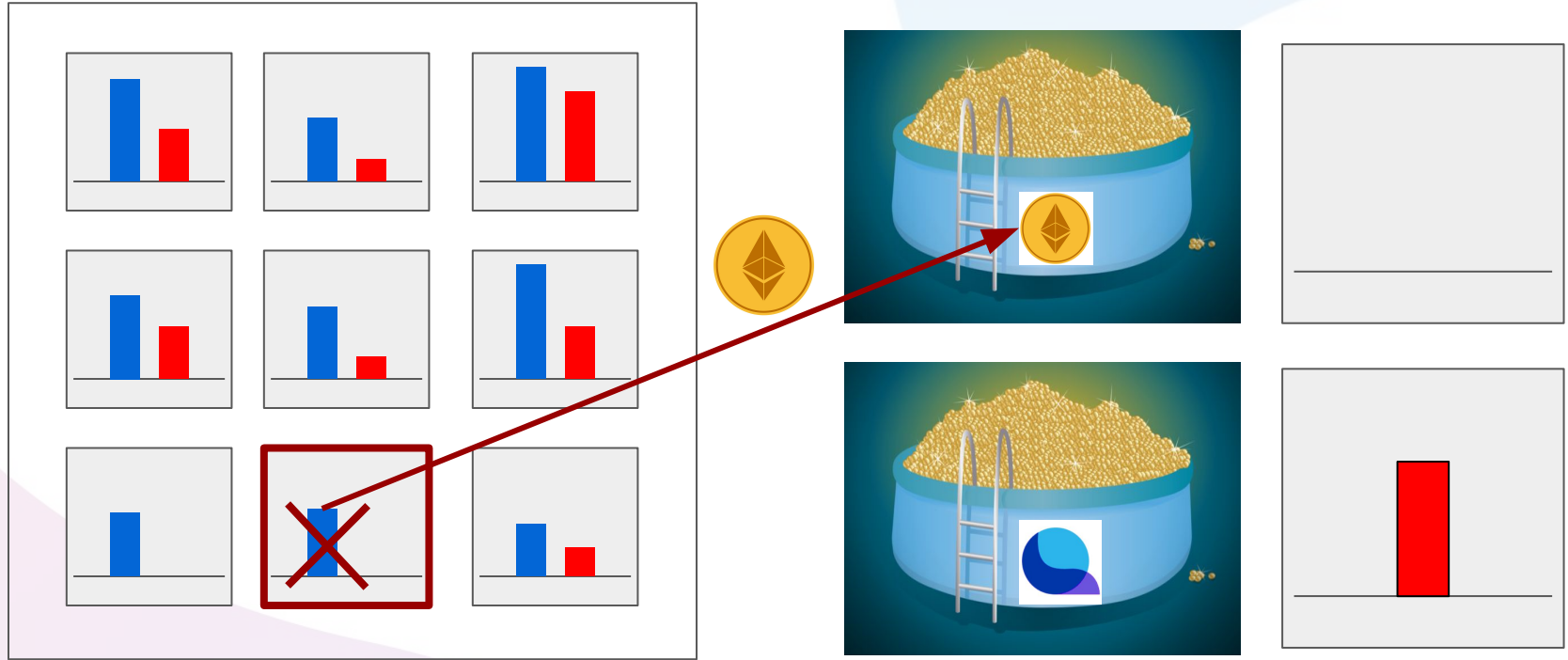# ... which also contains a pool for collateral gains
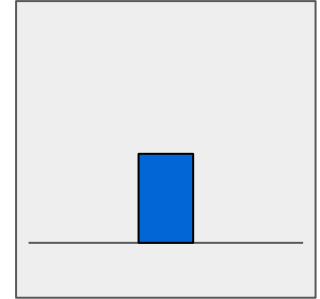
When a trove becomes undercollateralized…
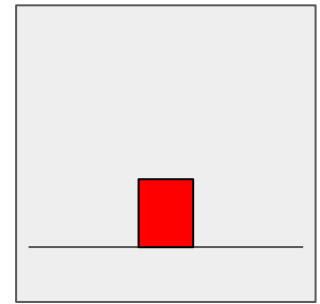
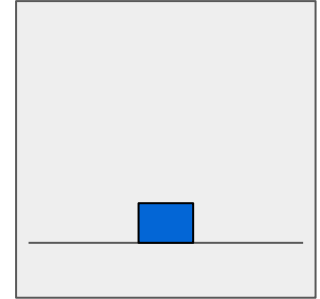# ... LUSD in the pool is burned to offset its debt

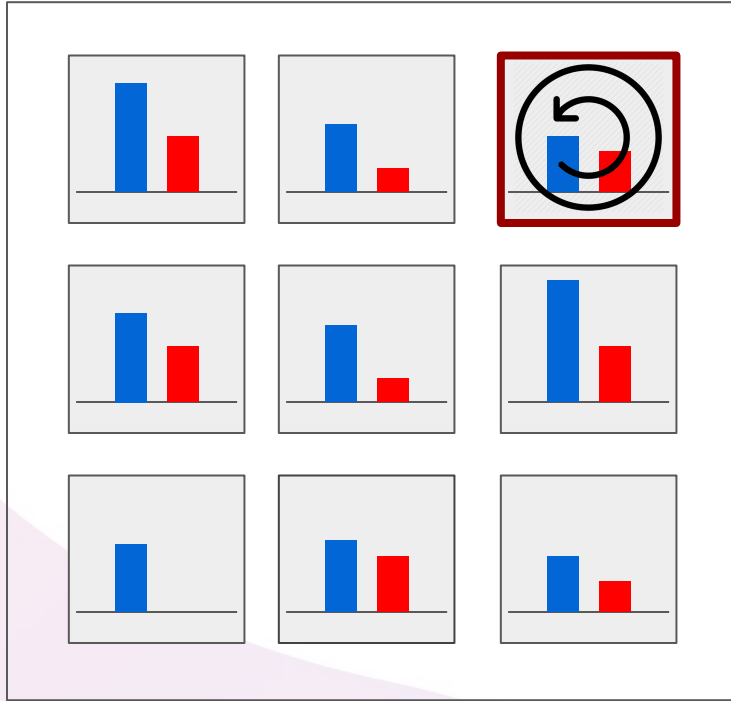# and its collateral is sent to the collateral pool...
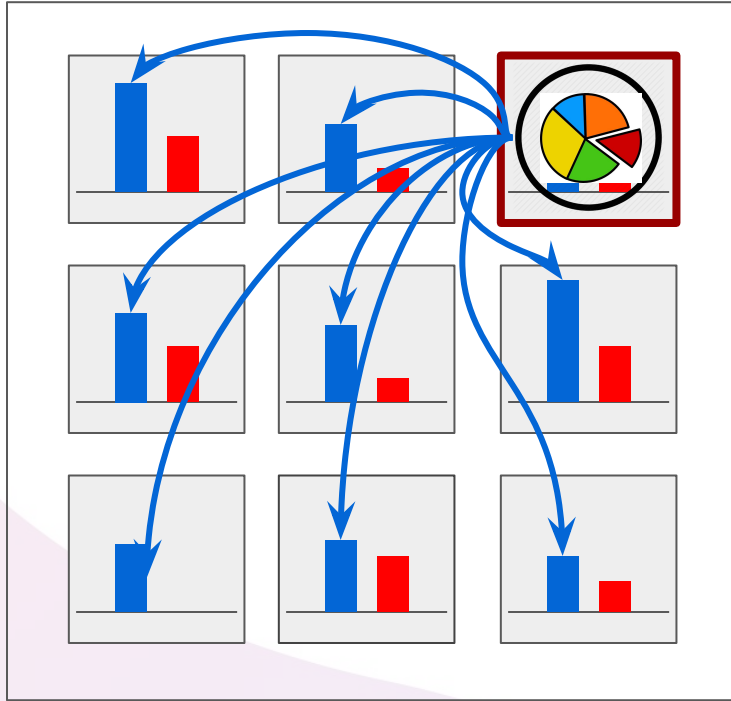
… such that the trove gets liquidated

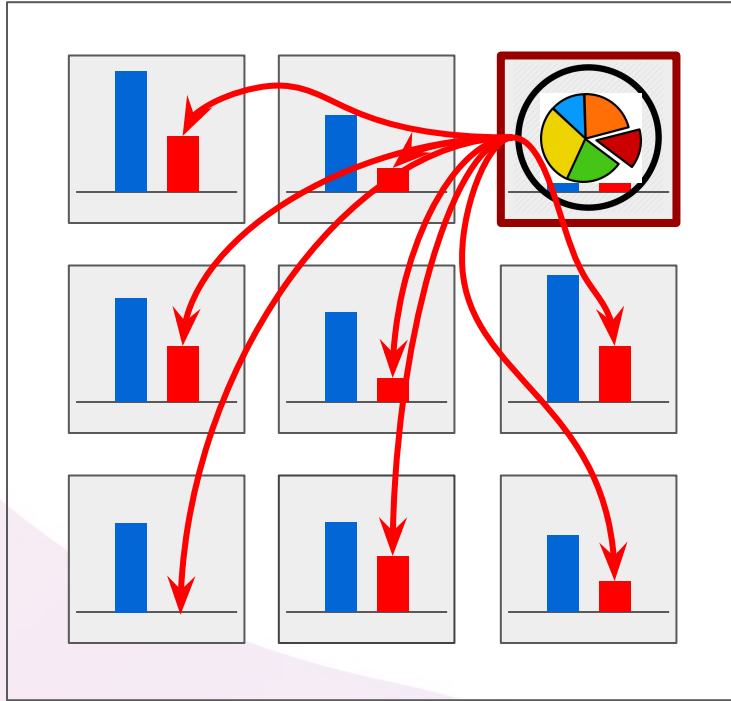# What if undercollateralized debt > LUSD in pool?

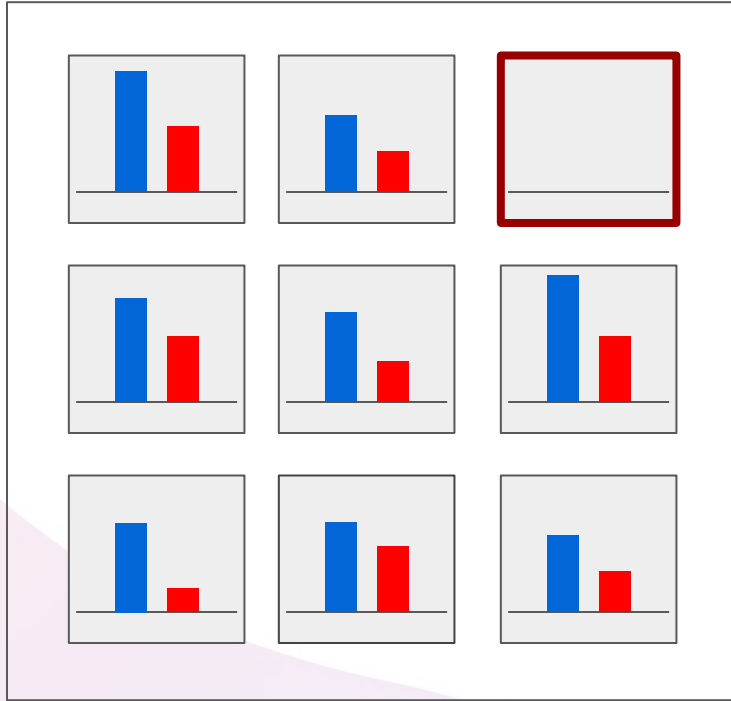# Fall back to a trove redistribution mechanism...

and redistribute the collateral proportionally

Similarly, redistribute the debt

Similarly, redistribute the debt

Price stability mechanisms

How CDP platforms achieve price stability

Existing CDP platforms

Variable interest rate for loans

Human governance adjusts interest rate

Stablecoin **not redeemable** in general

⬇

Soft peg mechanism:
Stablecoin > 1$ or interest ↓ : Loans ↑
Stablecoin < 1$ or interest ↑ : Loans ↓

Liquity

0% interest rate

Algorithmically controlled "one-time" fees

Stablecoin **redeemable** at face value against ETH
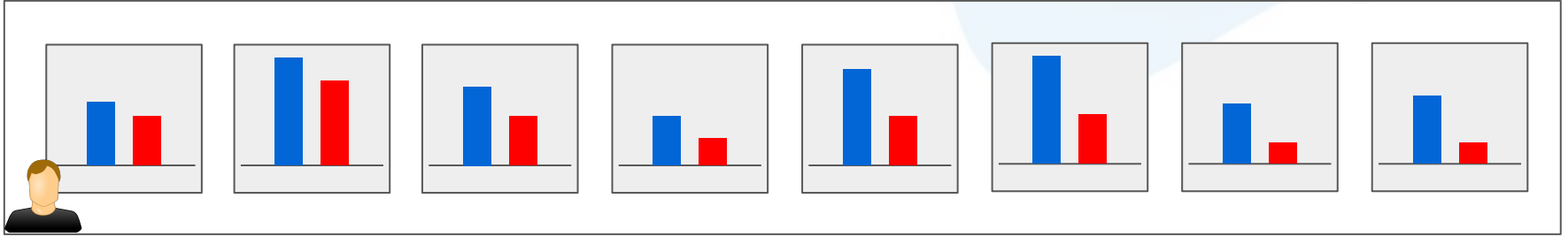
⬇

Soft and hard peg mechanism:
Price floor ↓ around **$1**
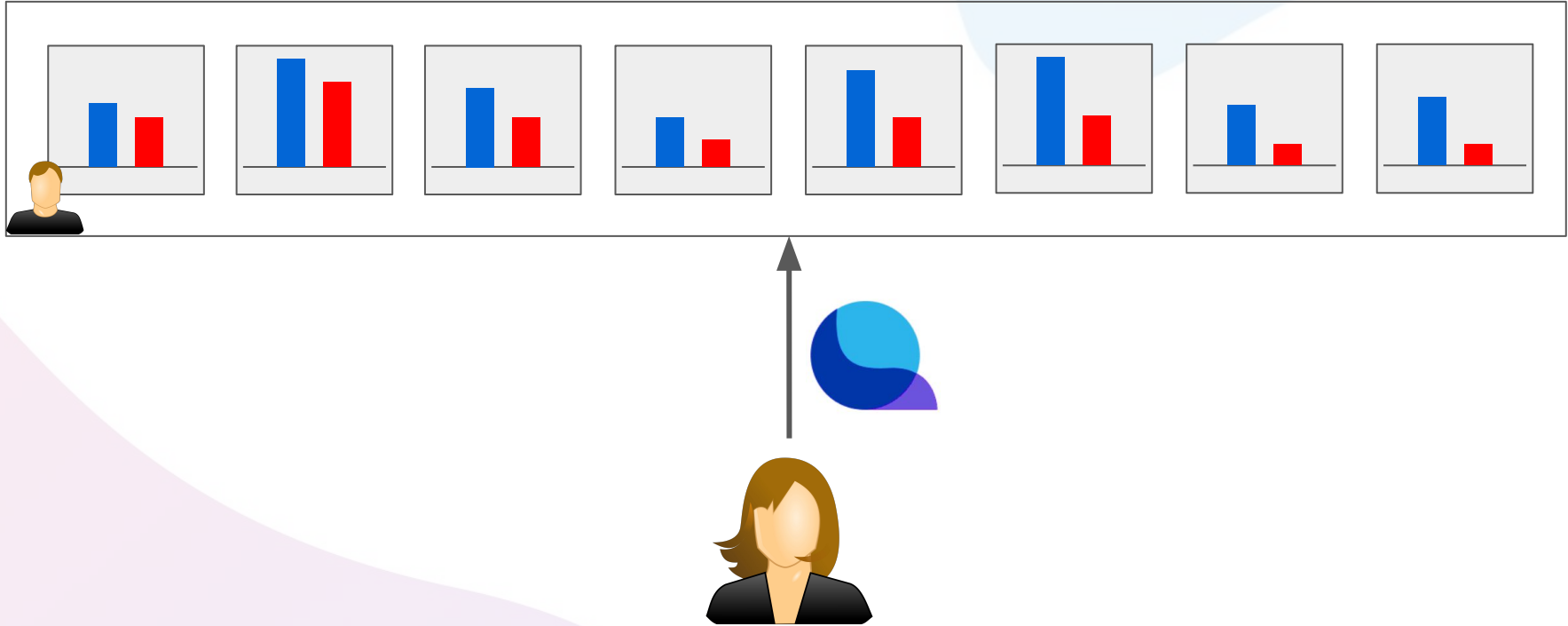**Price ceiling** ↑ at **$1.10**

Borrower operations vs. redemptions
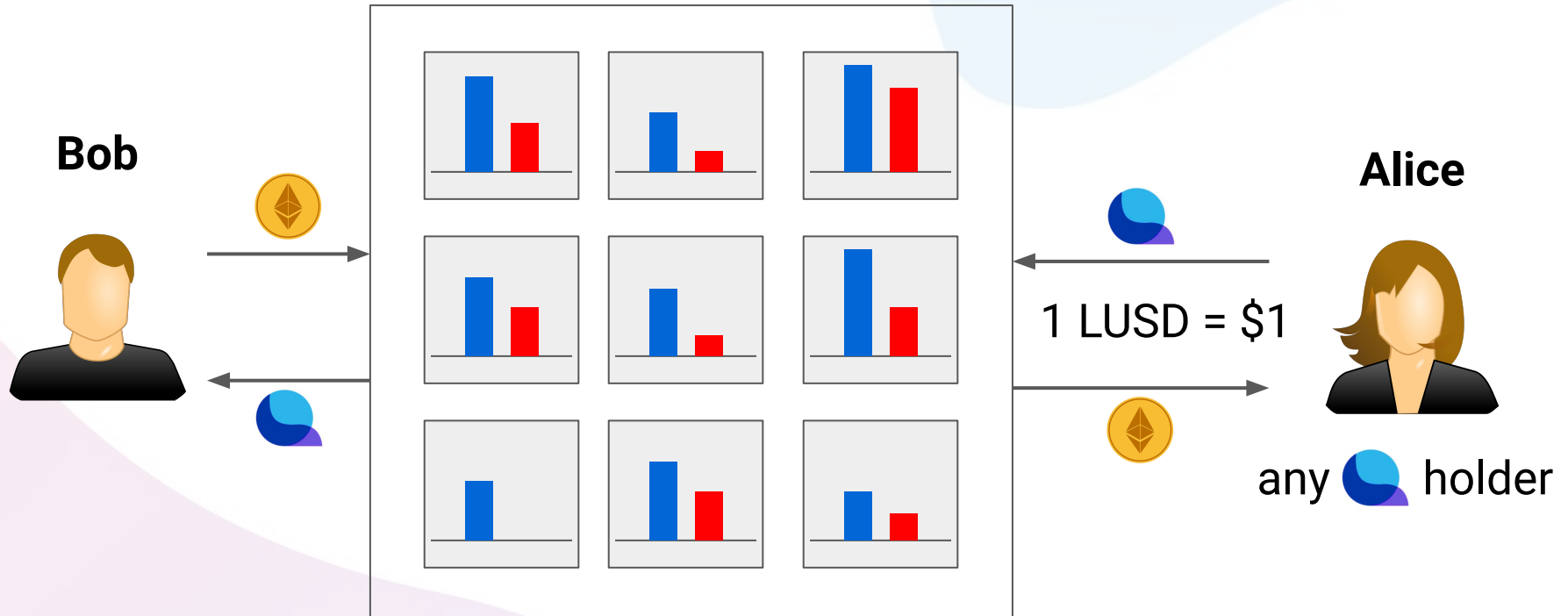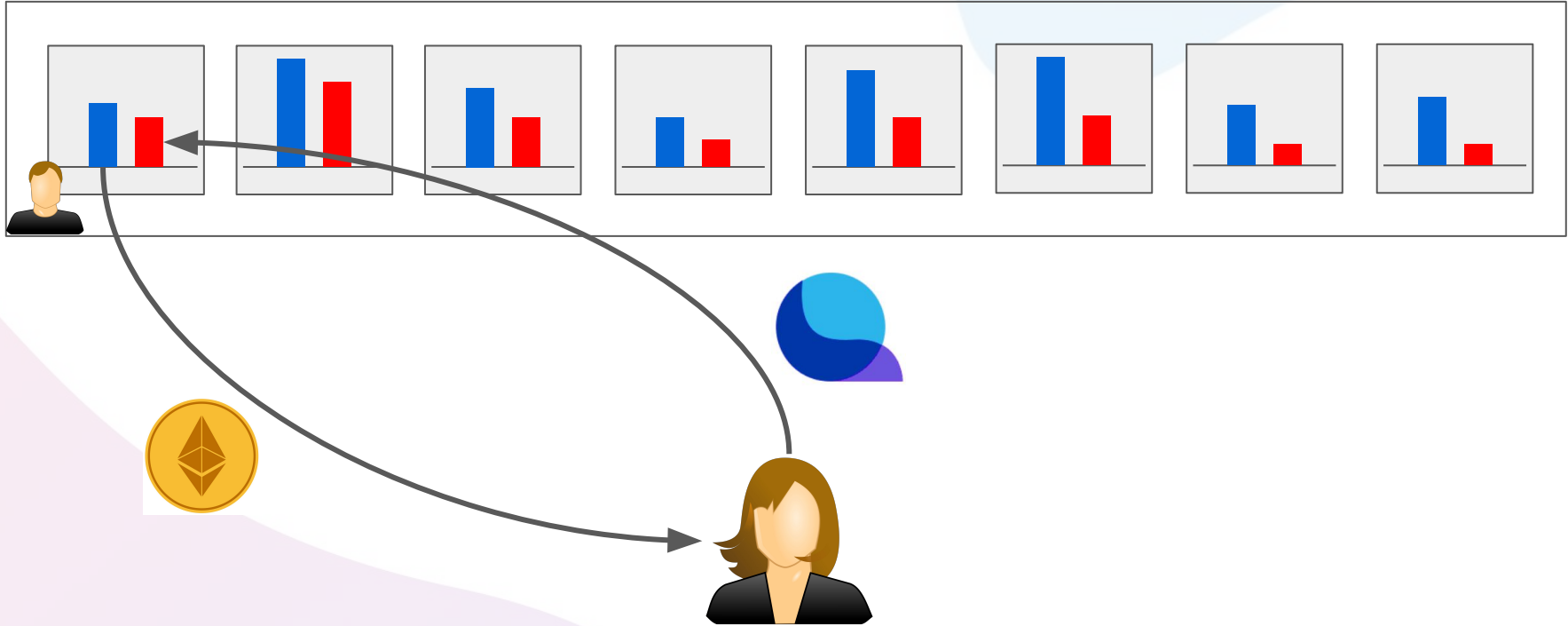
The troves are sorted by collateral ratio

When Alice wants to redeem her LUSD tokens...
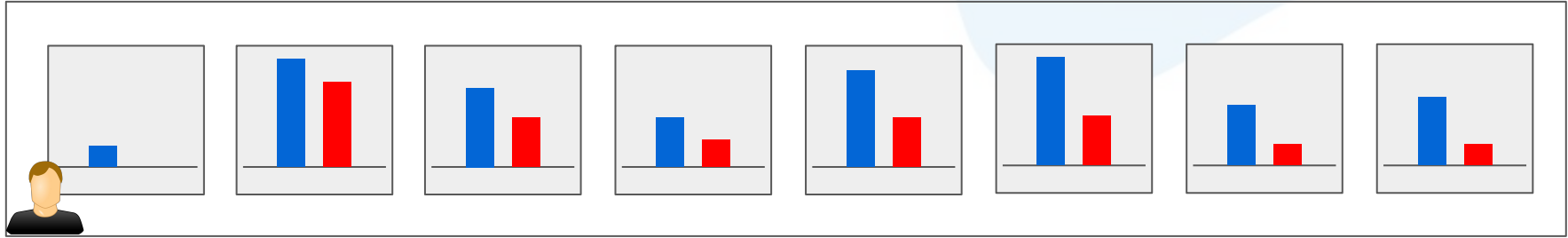
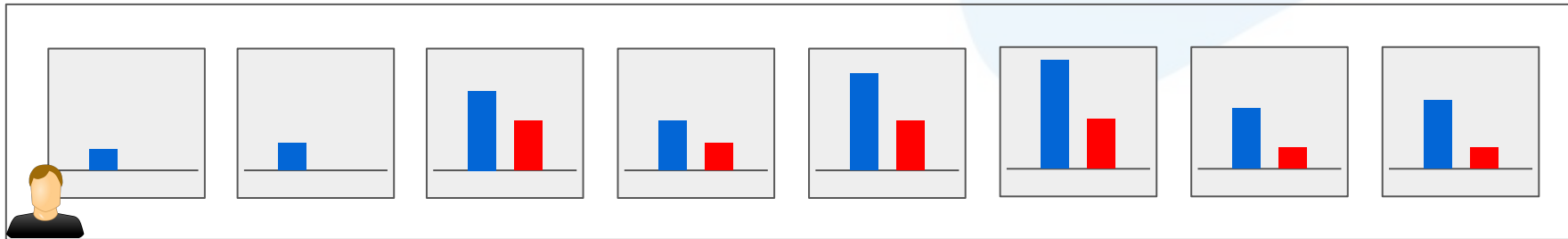# LUSD is redeemed against the "riskiest" trove

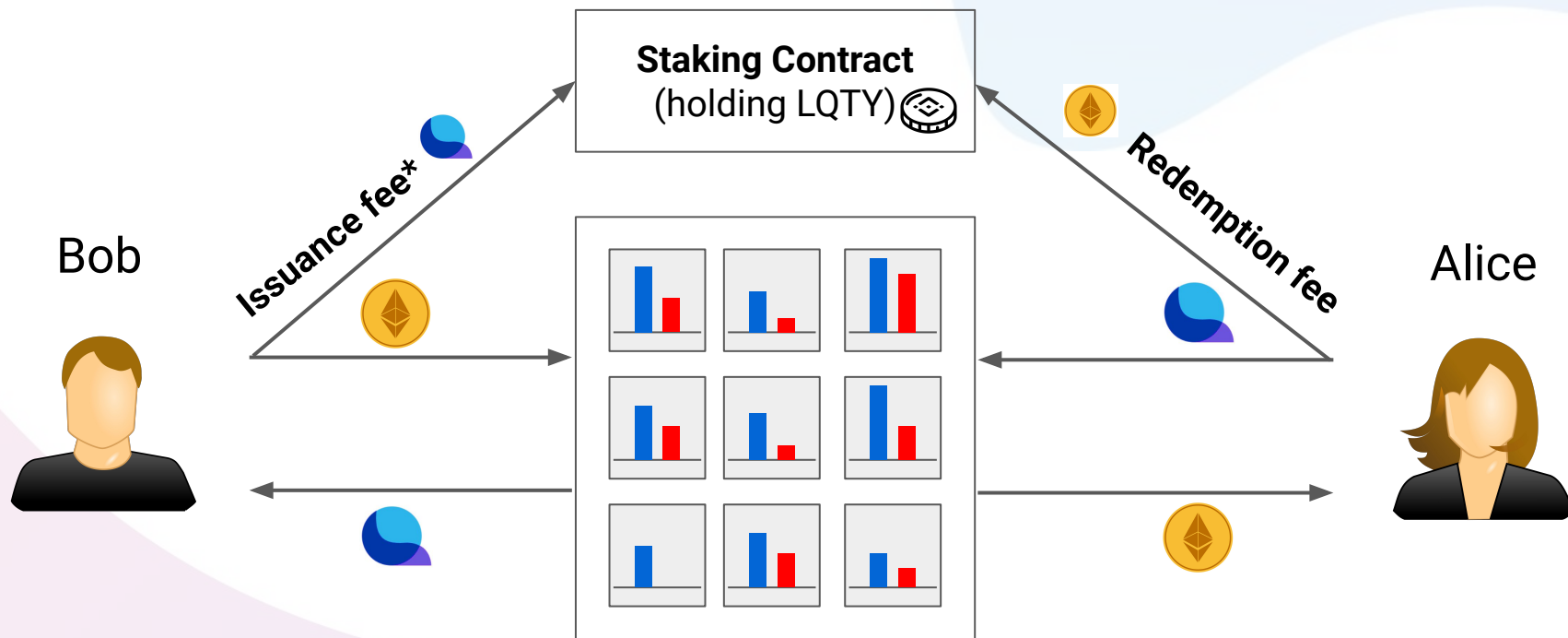# ... surplus collateral is retained for its owner

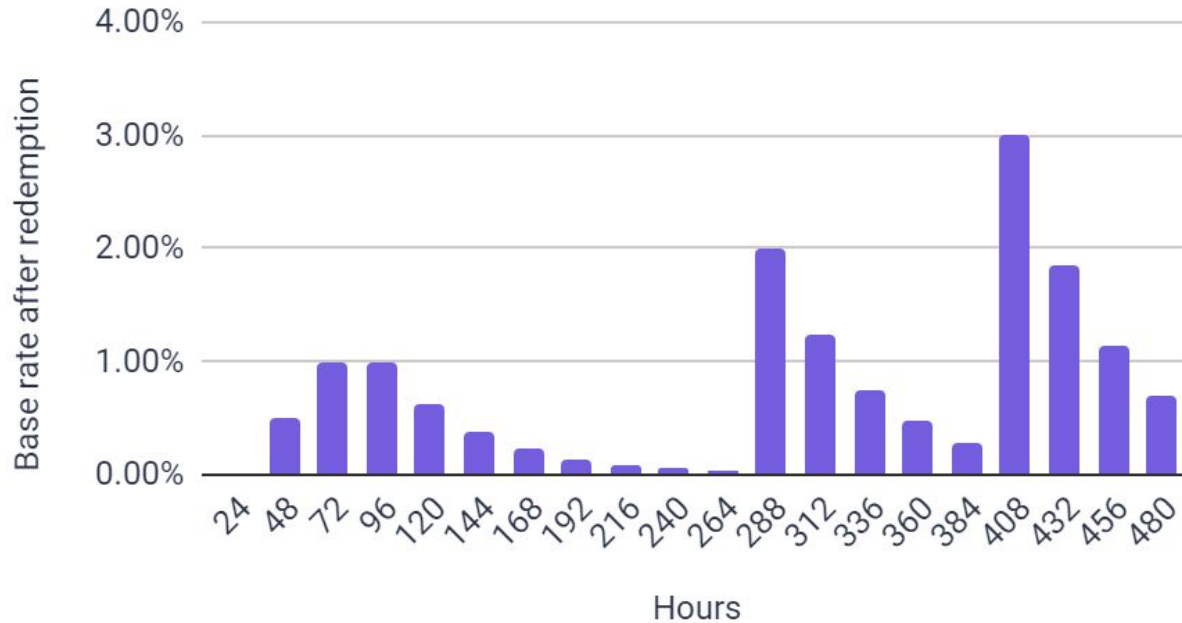# If more ETH is needed, it proceeds with next one

and so on...

Loan issuance and redemption fees

*Immediate effect on new loans, throttling the growth of the stablecoin supply

Rate of redemptions determines base rate

Base rate after redemption with time decay

Soft peg and hard peg

LUSD:USD

Arbitrage strategy: take out maximum loan (**110%** collateral ratio) and sell the 🔵

Price ceiling

$1.10

Soft peg incentives to take out or repay loans keep price close to $1

$1
(minus fee)

Price floor

Arbitrage strategy: buy 🔵 for < $1, redeem it for 🟡 at $1 and sell the 🟡

$0

t
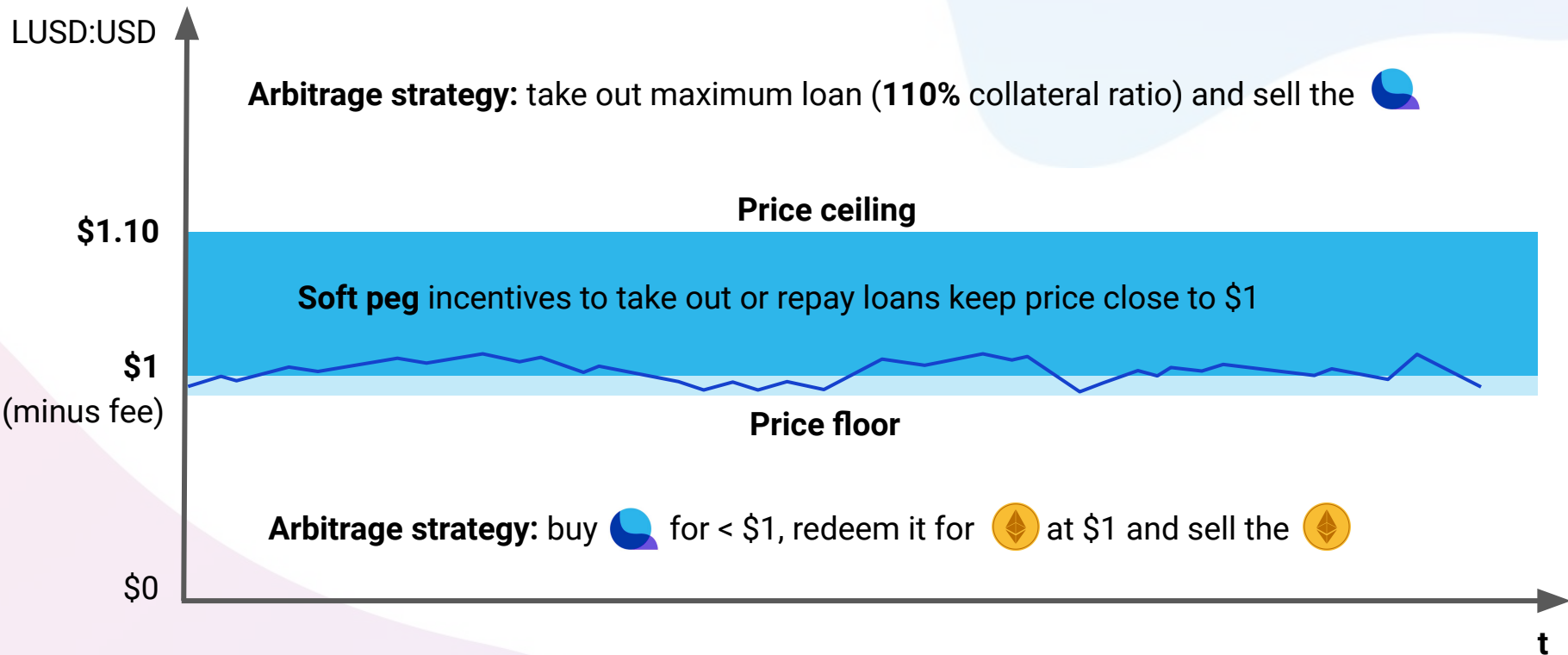
Business Model
(Token Economy)

LQTY

LUSD

Ether
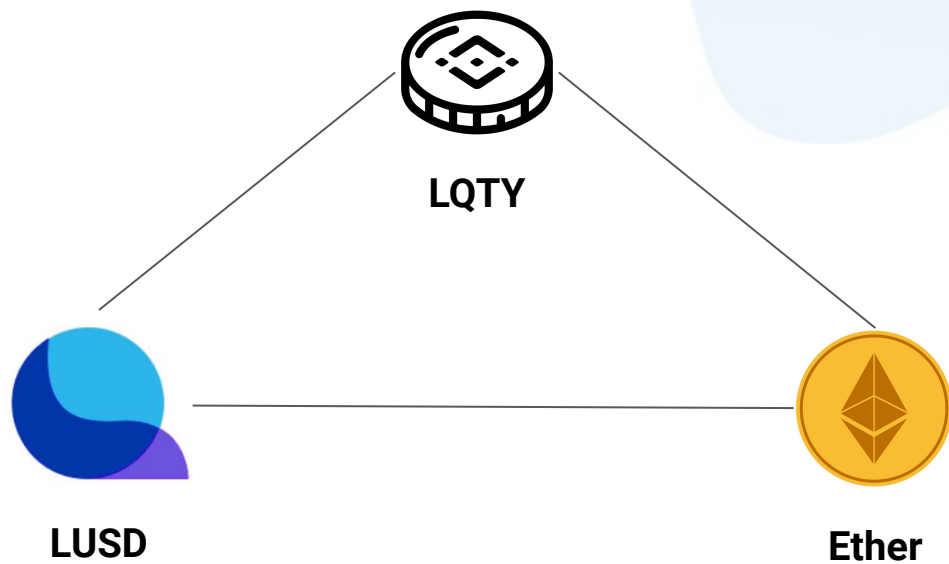
Issuance of LQTY Tokens

FRONT END
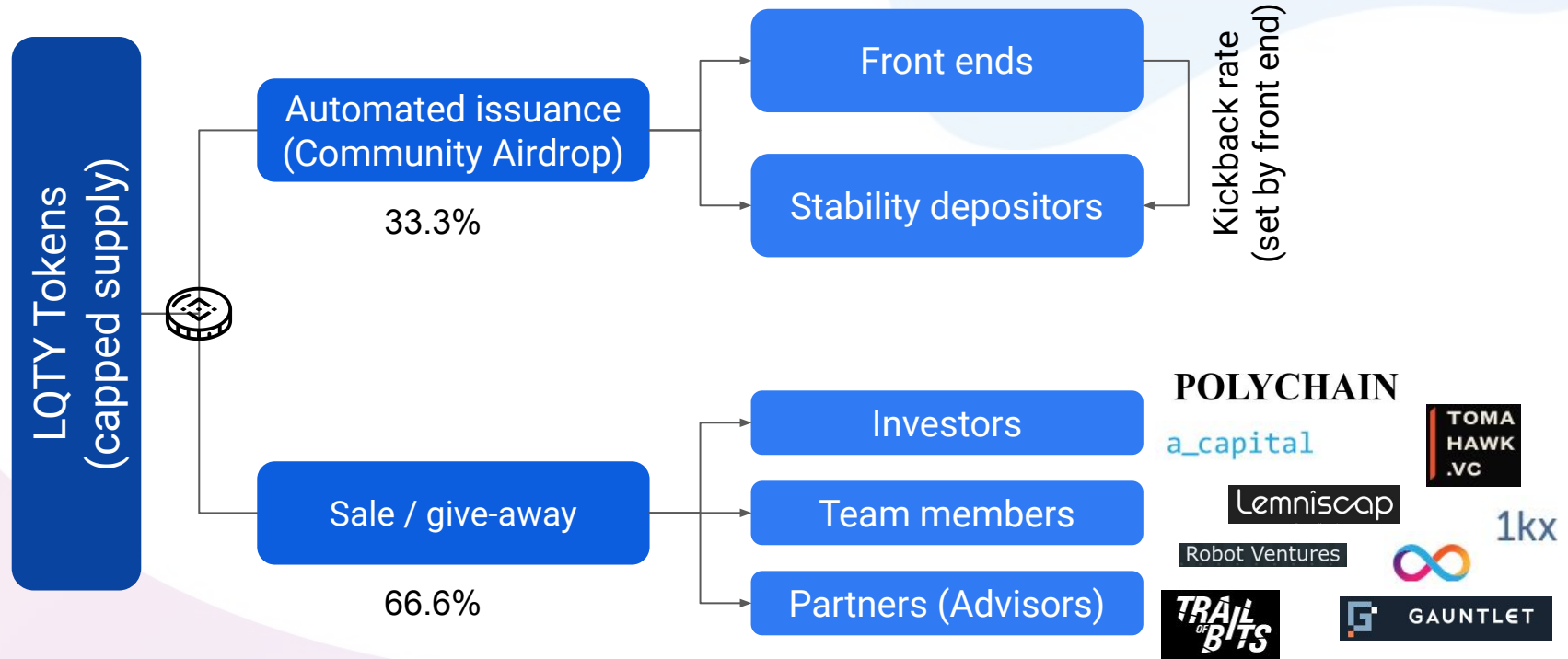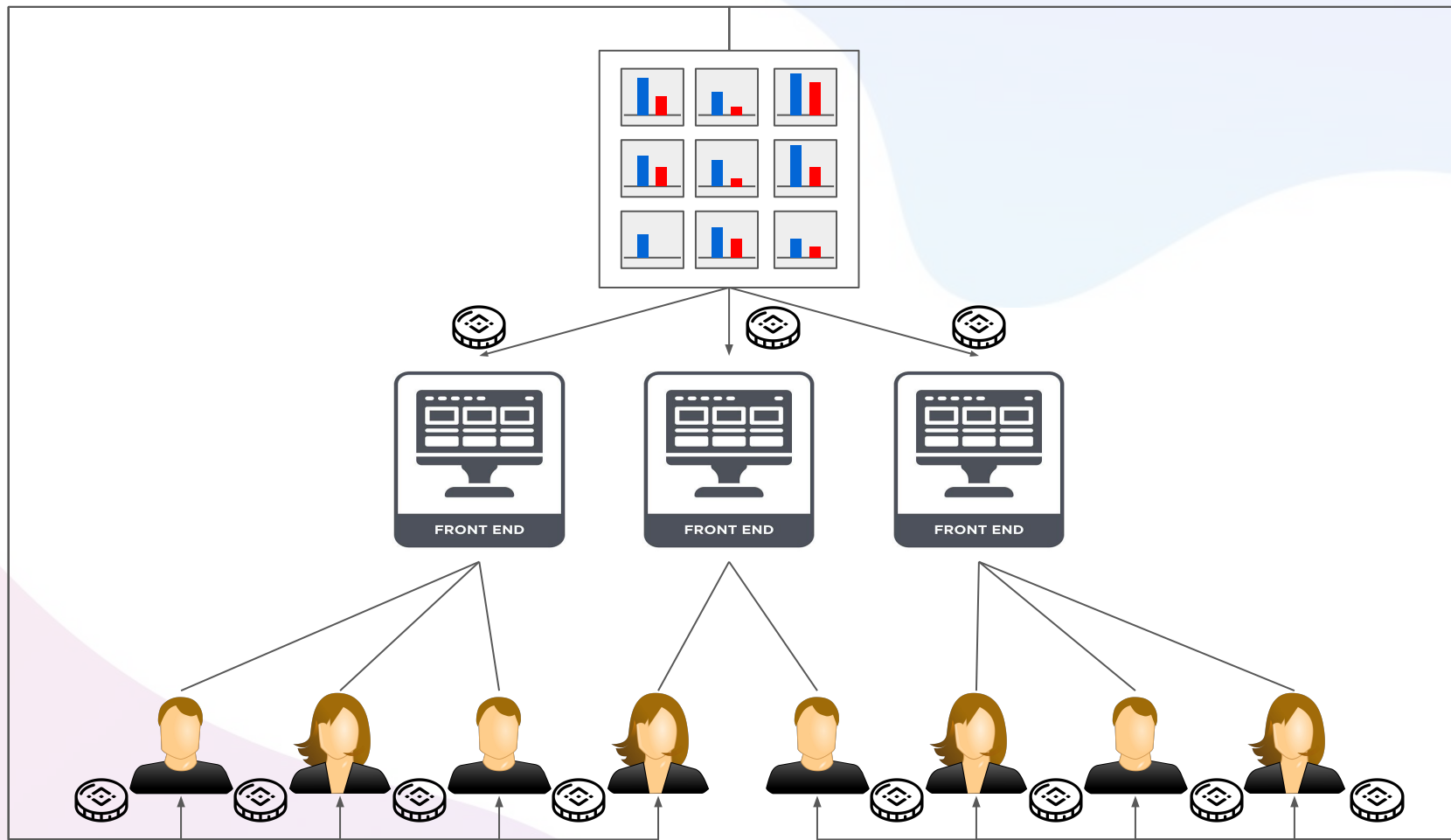
FRONT END

FRONT END

LQTY Issuance Curve

Value capture loop

Value capture loop

Value capture loop

Team

Robert Lauko
CEO

Founder of Liquity. Ph.D. in Law. Previously Researcher at DFINITY.

Dániel Attila Simon
Software Engineer

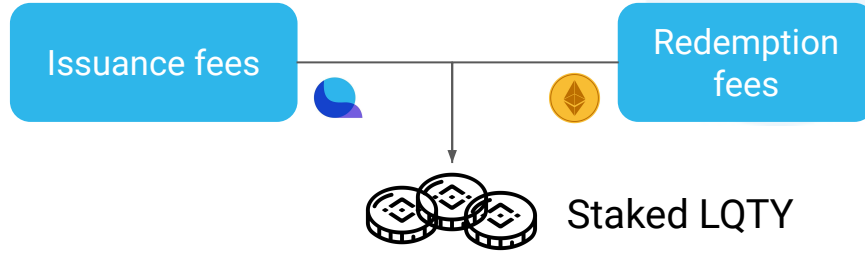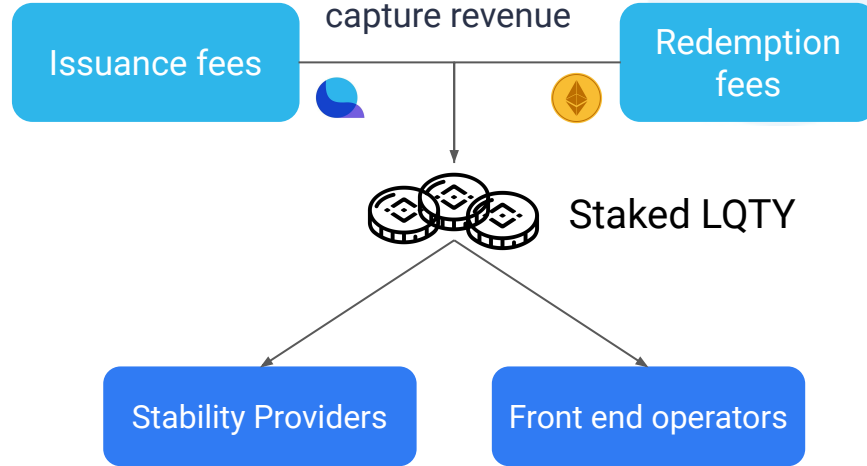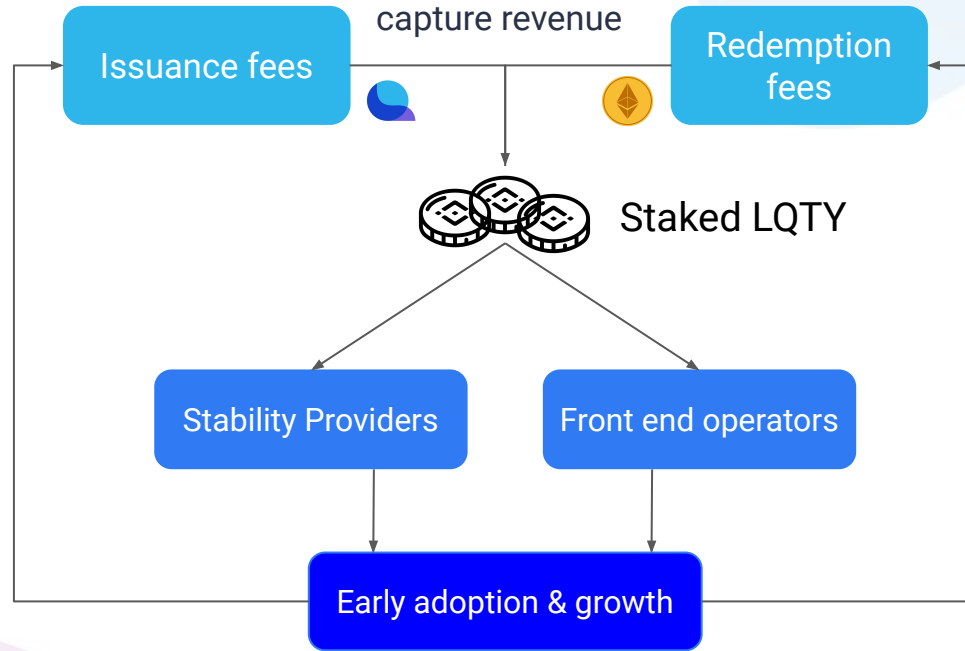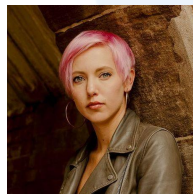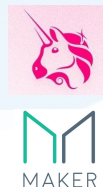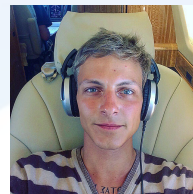Frontend Developer. Senior Software developer with 10 years+ experience. Previously at Cognex.

Ashleigh Schap
Business Development

Advisor to Liquity and Growth Lead at Uniswap. Formerly at MakerDAO.

Richard Tiutiun
Software Engineer

Cross-platform Developer. Israeli-born hacker and DeFi enthousiast. Previously at Certik and BancorDAO.

Kevin Richard Pardoe
Lead Engineer

Co-Founder of Liquity. Degrees in Physics and Economics. Solidity developer.

Bingen Eguzkitza
Software Engineer

Backend Developer. Degrees in Mathematics and Philosophy. One of the main contributors to Aragon.

Bojan Peček
Operations

VC / Startup background. Passionate about the unfolding financial revolution.

Yulin Liu
Lead Economist

Monetary theorist and crypto-economist. Economics Professor at HUST. Master in Quantum Computation, PhD in Economics.

A short glimpse into our Virtual Office Hour

https://youtu.be/l0xd3ZQLsaY?t=1209

Q&A

Launch is scheduled for Q1 2021
Dev UI is live on the Ethereum test networks
devui.liquity.org