Stablecoins

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/Outline

- What is stablecoin?
- Categorizing stablecoins
- USDC
- Maintaining the peg
- Brief intro of MakerDAO & Black Thursday

/What is a stablecoin?

- Assets that are designed to peg to some other assets.
  - Real world asset: USD, Gold, ..
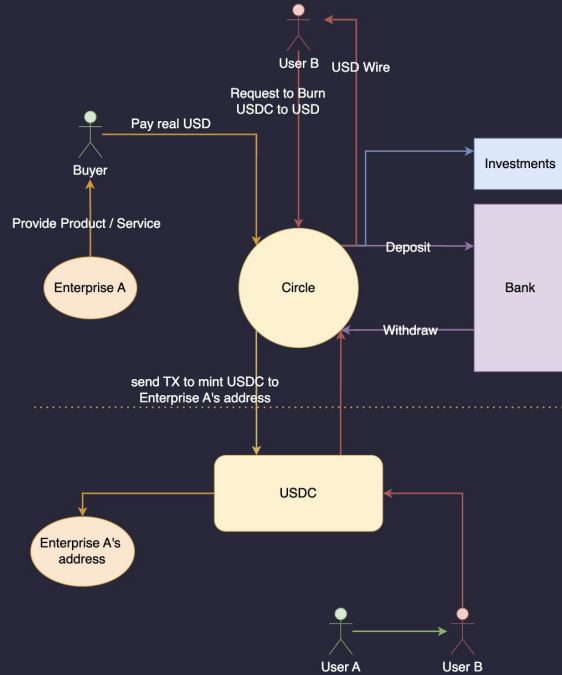 - Another Cryptocurrency: BTC, ETH, ..

/Categories of stablecoins

- How is it collateralized?
  - Fully collateralized
  - Fractionally collateralized
  - Algorithmic

/Prominent Stablecoins

1. USDT
2. **USDC**
3. Paxos (BUSD, Paxos Gold, …)
4. **DAI**
5. Frax
6. Liquity
7. Gyro
8. UST (gg)

/USDC

/Peg

- The asset should have the same price as in the original asset.
- "Same price" ⇒ in what market?
- What is a market?

/Markets listed on Coingecko

USD Coin Markets

Affiliate disclosures

☐ Display Unconverted Data

#	Exchange	Pair	Price	Spread	+2% Depth	-2% Depth	24h Volume	Volume %	Last Updated	Trust Score
*	eToro **Sponsored**									✕
1	Binance	USDC/USDT	$0.998696	0.01%	$22,220,336	$17,842,114	$415,401,771	8.85%	Recently	🟢
2	OKX	USDC/USDT	$1.00	0.01%	$25,139,049	$6,195,845	$22,591,390	0.48%	Recently	🟢
3	Biconomy	BTC/USDC	$0.999744	0.01%	$10,213,919	$12,649,491	$269,093,414	5.74%	Recently	🟢
4	MEXC Global	USDC/USDT	$1.00	0.01%	$12,116,131	$9,474,058	$4,113,672	0.09%	Recently	🟢
5	Bitforex	USDC/USDT	$1.00	0.01%	$46,046,828	$44,263,001	$35,246,081	0.75%	Recently	🟢

* Anomaly - Trading price is an outlier against the average

** Inactive - No trades in the last 3 hours

/Market?
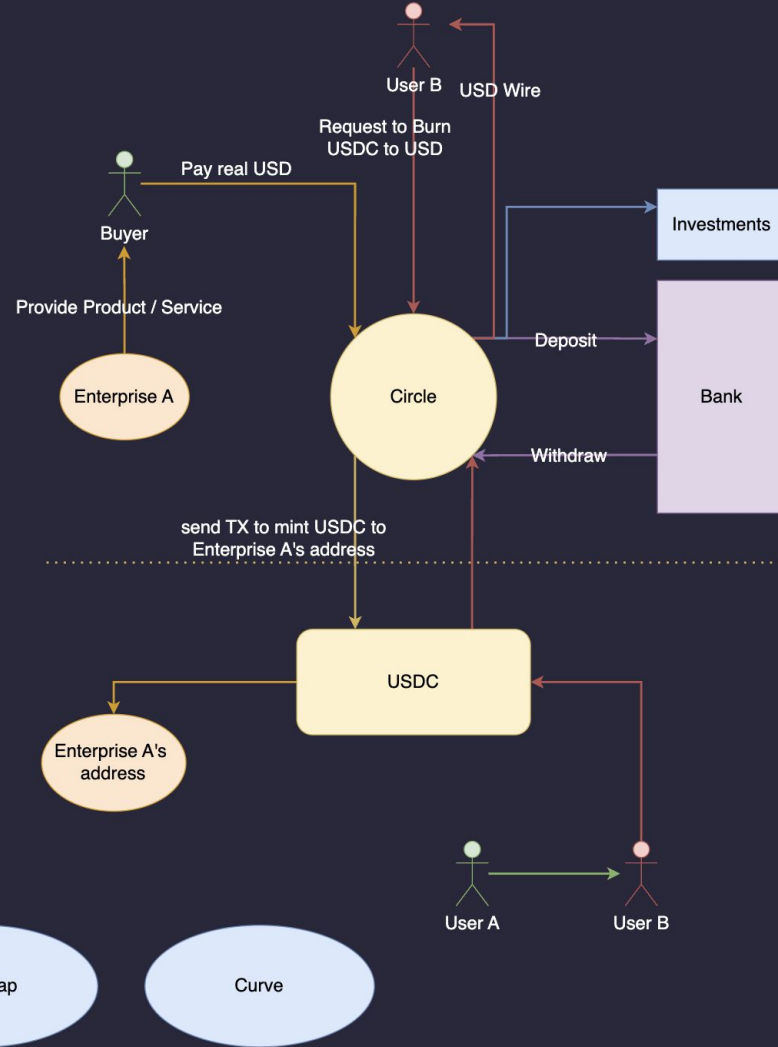
/Market?

UniV2: USDC - ETH

UniV3: USDC - USDT

Curve: USDC-USDT-DAI

User B

USD Wire

Request to Burn
USDC to USD

Pay real USD

Buyer

Investments

Provide Product / Service

Deposit

Enterprise A

Circle

Bank

Withdraw

send TX to mint USDC to
Enterprise A's address

USDC

Enterprise A's
address

User A

User B

Uniswap

Curve

CSIC30161
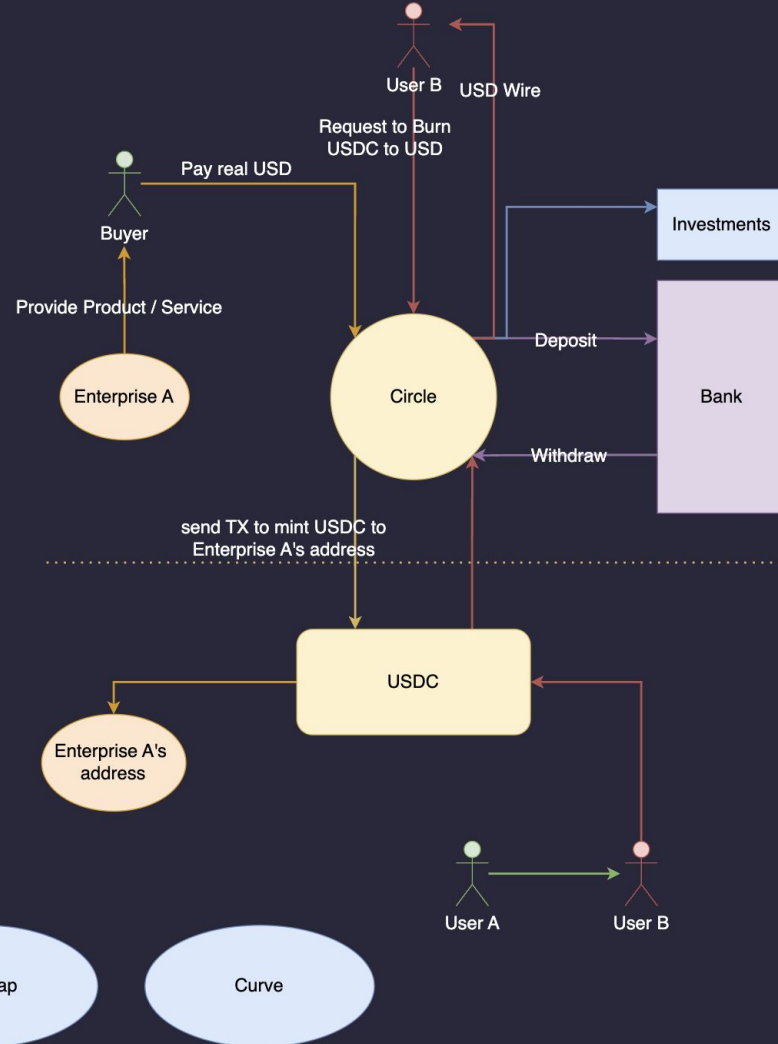
/Peg

- Peg is maintained by `creating a market`
- "`Arbitrageurs`" will do the rest

/Bankrun scenario in USDC

- Let's say people lost confidence in USDC
- What should people do in this case?

/Bankrun scenario in USDC

- Let's say people lost confidence in USDC
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USD Coin Price Chart (USDC)

Last updated 03:26AM UTC. Currency in USD.

| Price | Market Cap | Live Chart | | 24h | 7d | 14d | 30d | 90d |

$1.03

$1.00

$0.975000

$0.950000

$0.925000

$0.900000

Sat 11 Mar 2023, 16:02:06
Price: $0.878874
Vol: $15,649,720,012

$0.875000

$0.850000

28. Feb   2. Mar   4. Mar   6. Mar   8. Mar   10. Mar   12. Mar   14. Mar   16. Mar   18. Mar   20. Mar

/Decentralized?

- How is the asset custodied? (if any)
  - USDC, USDT ⇒ Centrally custodied
- Is it upgradeable?
- Does it contain blacklist?

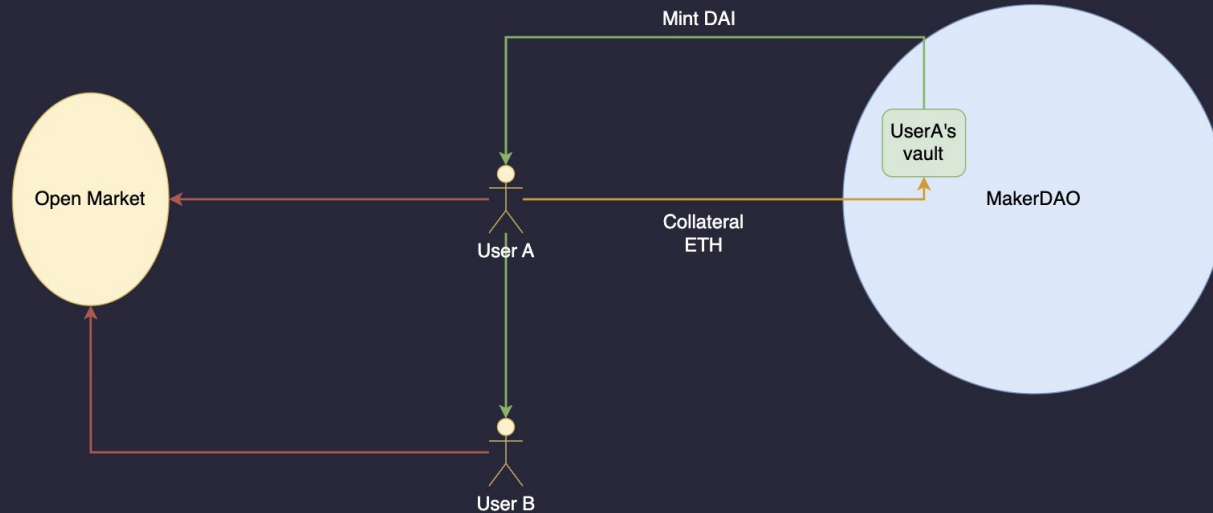# /Code tracing

- WBTC
- USDC
- USDT

/MakerDAO's DAI: Collateralized On-chain

- Stablecoin with over collateralized asset on chain.
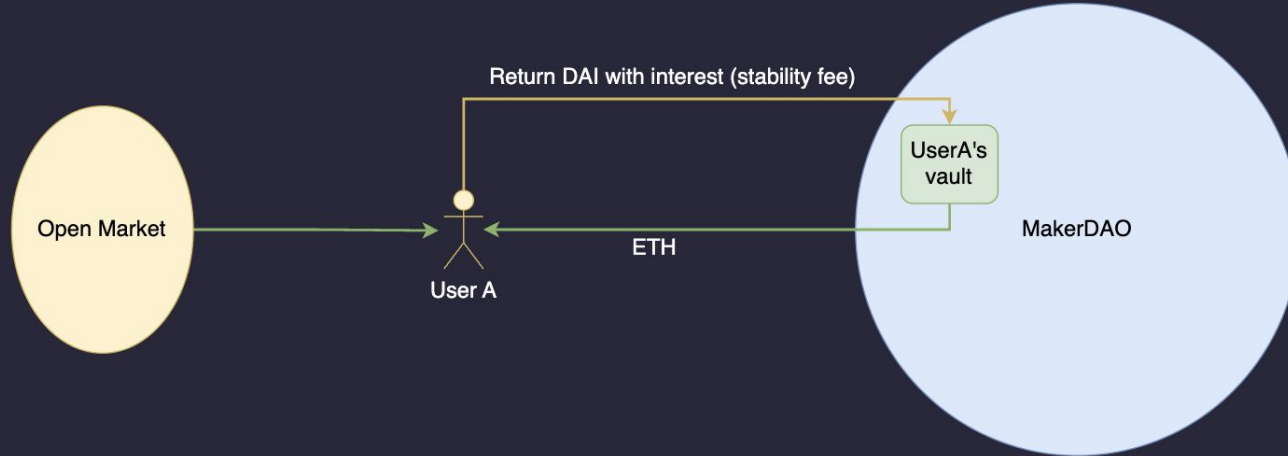- Lock asset to mint DAI.
- Burn DAI to release asset.

/MakerDAO's DAI: Vault Creator's PoV

- Why?

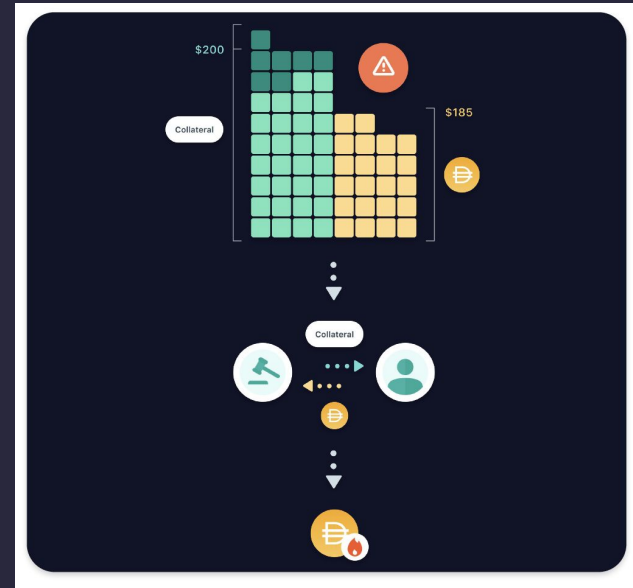# /MakerDAO's DAI: Vault Creator's PoV

/MakerDAO's DAI: Over Collateralized On-chain

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- Lock asset to mint DAI.
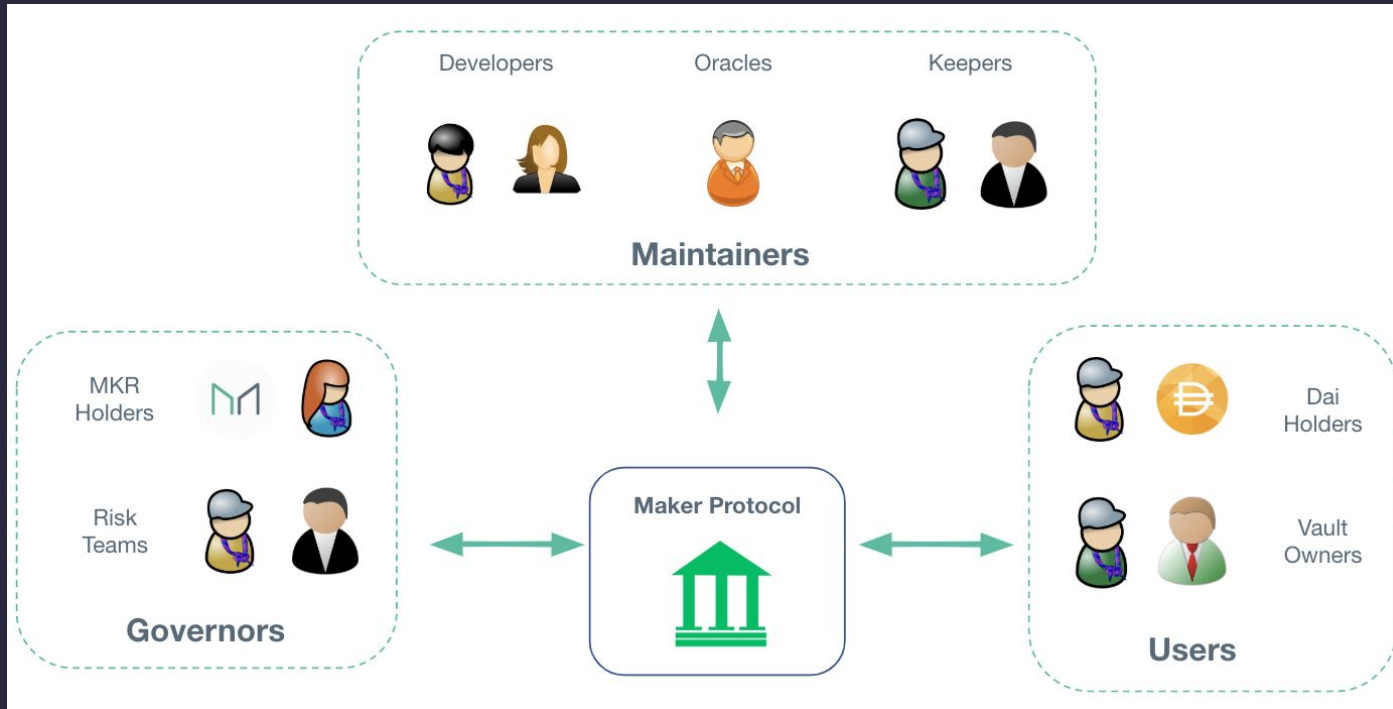- Burn DAI to release asset.
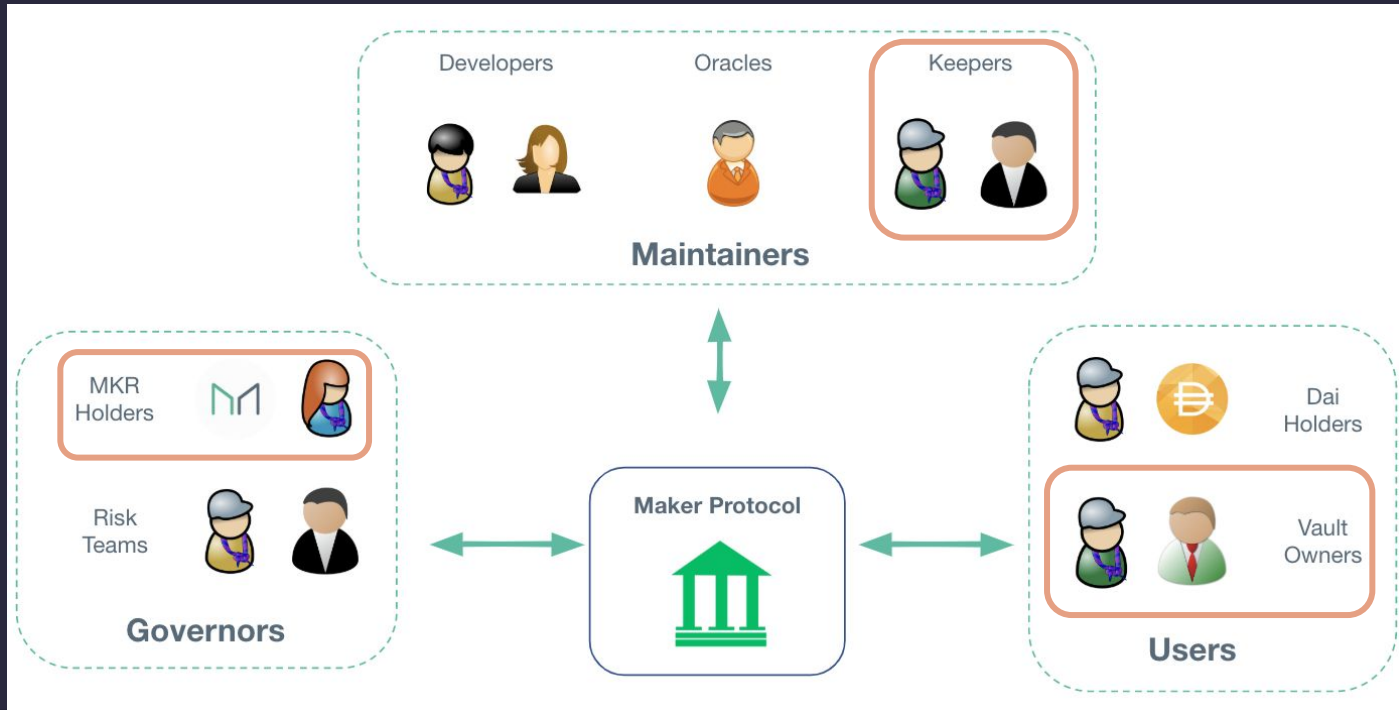
/When Collateral value drops

- Vault owner has to return DAI to reduce debt.
- Or add collateral.
- Otherwise some parts will be auctioned.

/Actors in the MakerDAO protocol

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/Important Roles in the Protocol

- Vault owners
  - Who locks up their asset to mint Dai
  - Generally, wants to hold Ether but also wants some cash for leverage.
- Keeper
  - Help maintain the system to be over-collateralized by participating in auctions

- MKR Holder
  - Vote on changes for sensitive parameters.

/Protocol Financial Tools

- Risk Premium Rate
- Base Rate
- Stability Rate = Base Rate + Risk Premium Rate
- Dai Savings Rate
- Debt Ceiling
- Liquidation Ratio

/Where does the Rate go?

- Protocol earns them and..?
- Buys MKR token with surplus DAI ⇒ MKR price goes up ⇒ MKR holders benefits ?

/Defending the peg = Adjusting the Supply/Demand

- If DAI is lower than $1
  - Need to increase demand
    - Increase Dai Saving Rate
  - Need to reduce supply
    - Increase Stability Rate
- If DAI is higher than $1
  - Need to increase supply
    - Increase Debt Ceiling
  - Need to reduce demand
    - Decrease Dai Saving Rate

/Code Tracing - Welcome to Daiwanenese..

- SavingsDAI module
- Glossary
- Pot Documentation

/Engineering Question

- There are more than thousands of vaults
- With the stability rate, we want to update how many DAIs do users need to return for all vaults
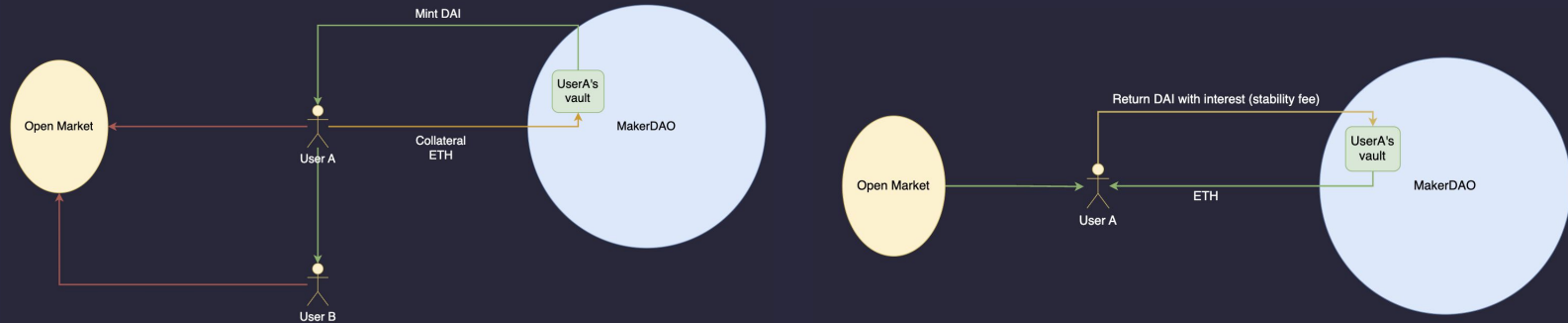- How should we do it?

/MakerDAO: When does it fail?

- When DAI depegs.
- What does depeg mean in this context?
  - "No one wants DAI" ⇒ Who has the absolute need for DAI in this design?
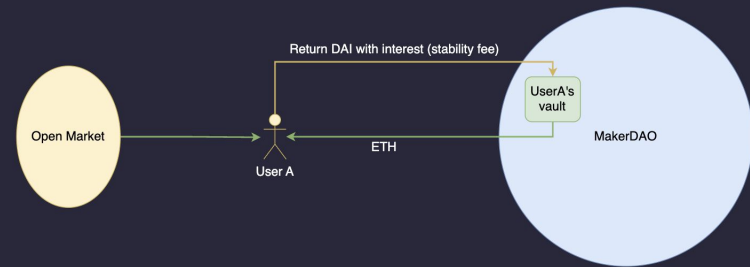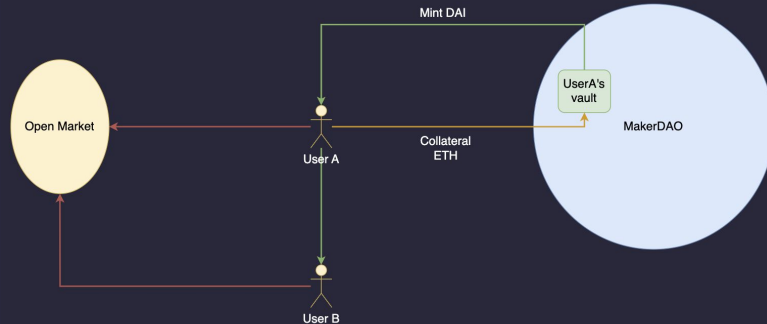
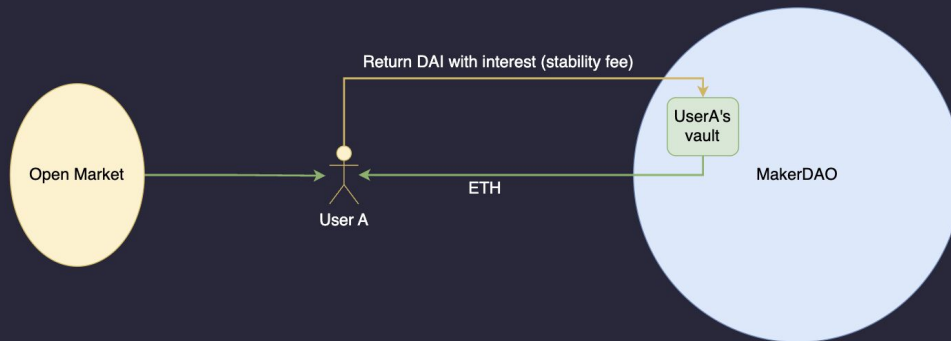# /MakerDAO: When does it fail?

- When the vault owner don't want the DAI, that's when it fails. The DAI is used to release its ETH ⇒ The DAI's value is supported by the ETH it locked in the vault.

/MakerDAO: When does it fail?

- If a vault owner needs to pay 1000 USD worth of DAI to recover 900 USD worth of ETH, the rational move is to NOT pay that amount ⇒ Intrinsic need is gone
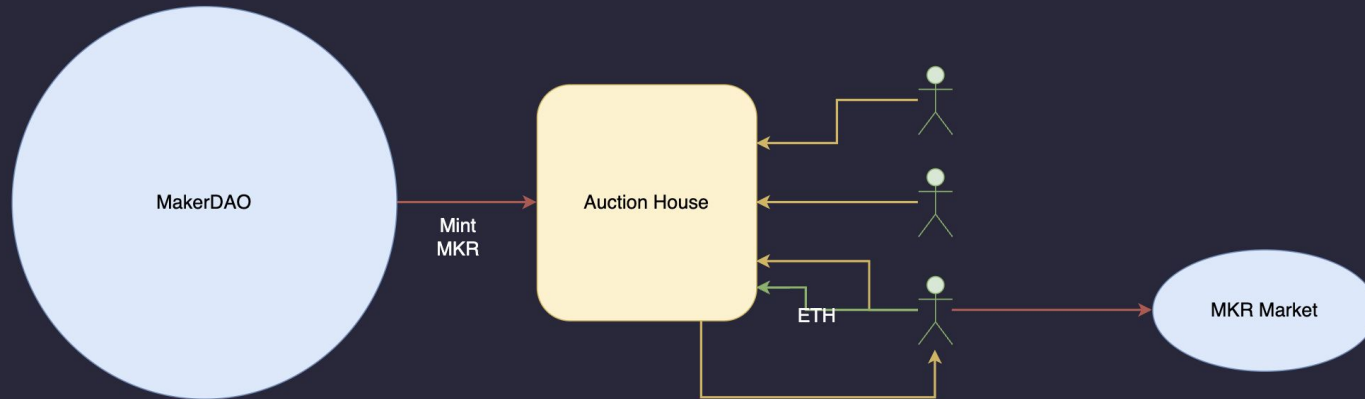
/OK FAILED. Wat do?

- Position is really under water (Collateral < Debt)
⇒ Bad debt for the protocol

- Protocol is responsible for recovery ⇒ How?

/OK FAILED. Wat do?

- Protocol is responsible for recovery ⟹ Mint MKRs and Auction them off
  - Penalizing MKR holders
  - Recovery of the protocol

/MakerDAO Black Thursday 2020

Price (USD): 133.48

Thursday, Mar 12, 04:00

/Gas Price

/Gas Price Effect

- Vault owner
    Cannot [Add collateral or Return Dai] in time (1
    hour as per system setting)
    → Triggering A LOT of individual debt auctions
    (4447 Flip auctions)

- Keeper
    (1) Not enough liquidity to participate in all
    auctions
    (2) Tries to gain Dai liquidity from Exchanges --
    but gas fee issues, also, a large exchange halted
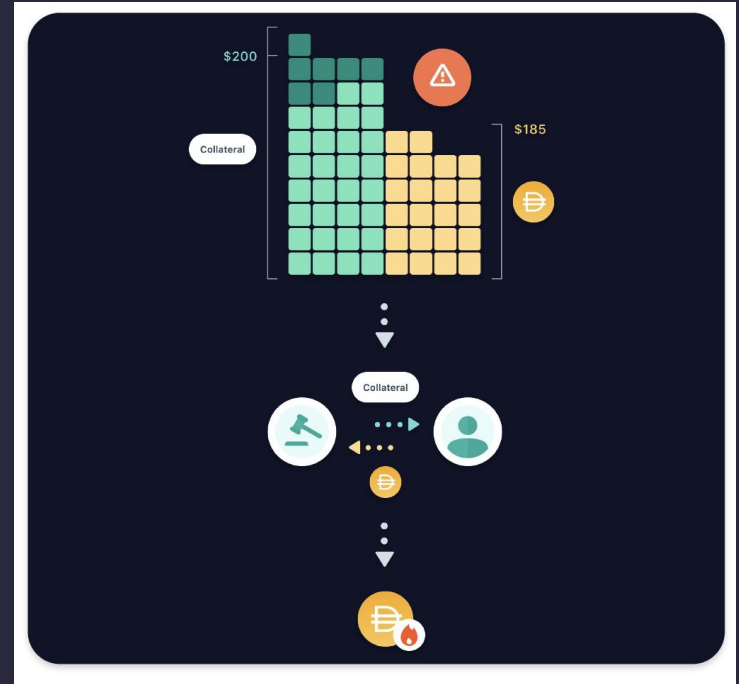   withdrawals due to gas prices

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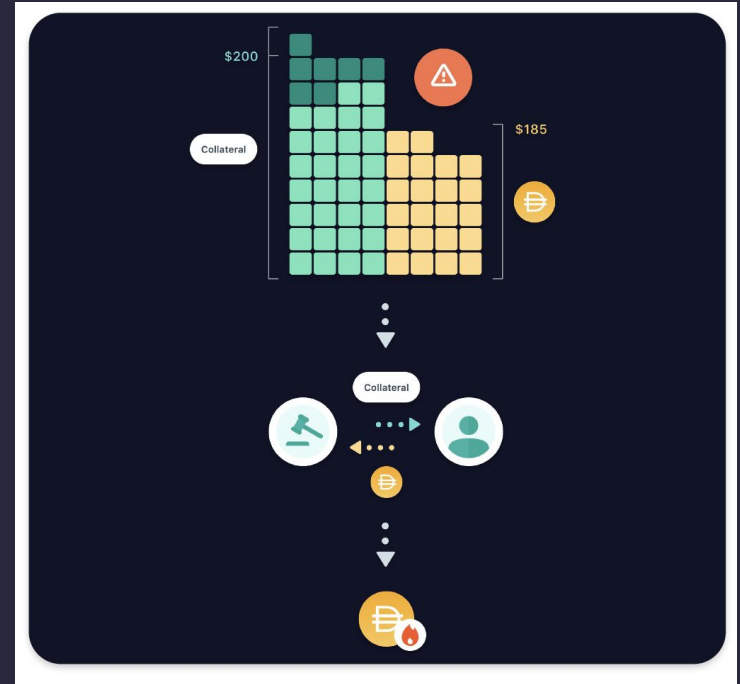
/Gas Price Effect

- Auction implementation detail matters.

/Gas Price Effect

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- Free Ethers for Keepers, reducing the asset that the system has without burning any Dai.
- System debt: 5M+ Dai

/Governance change

- Flip auction TTL: 10 minutes ⇒ 6 hours
- Flip auction lot size: 50 ETH ⇒ 500 ETH
  - Decreasing number of auctions
  - Significantly increase entry barrier
- Flip auction maximum duration: 3 days ⇒ 1 day
- Flop auction TTL: 10 minutes ⇒ 6 hours

/More stable(?)coins

- Fractionally collateralized
    - Frax
- Algorithmic coins
    - Ampleforth

/Final Project Discussion

- ETHTaipei
  - Hackathon reminder & Conference participation
- Midterm proposal format
  - 1-2 page pdf
  - Content
    - 3 Ideas
    - Reference readings for the ideas
      - Related background
      - Competition / Current solutions
- Ideas
  - ETHTaipei Hackathon bounties
  - Deploying an existing project?
- Scoring part

/THAT'S A WRAP! 🎤 (mic drop)