SAVE YOUR QUERIES, toss em here maybe?

https://www.notion.so/Flipside-Bounties-for-Terra-Analytics-77f67a879b124a72a984a236b0428620

Sign up
https://app.flipsidecrypto.com/velocity

Use @massnomis as the referral, if you want.
if you need/want help --- https://discord.gg/VtaZAwM7

https://docs.snowflake.com/en/index.html

https://www.flipsidecrypto.com/all-submissions

https://www.notion.so/teamflipside/Flipside-Bounties-for-Yearn-f1dc1cb3b8f04529b4e1c6c11d5f46fb

YEARN

0. Free Square Question

Provide any interesting insights on Yearn. The top 5 dashboards will earn 1,000 USDC. These will be judged by a council that includes other community members and the Flipside team! Criteria to consider: Accuracy & Completeness - Methodology is logical and well-explained - Submission provides multiple views to explain the concepts involved Insights - Narrative provided is clear and well written - Submission gives readers new information & key takeaways: “what did we learn?” Visualizations - Visualizations are accurate, fully explained, and provide additional insight into the data Definitions - Data sources are clearly defined, as are metrics and terms, e.g. “whales”, “variance” - Submission explains the metrics used: “what is it and why do I care?”

1. Comparing Yearn Vault Strategies

Considering the Yearn Vault Strategies - Descriptions: https://medium.com/yearn-state-of-the-vaults/the-vaults-at-yearn-9237905ffed3 Strategy Addresses: https://yearn.watch/ Select two of the available strategies; define and visualize the returns each has generated over the past 30 and 90 days; and compare their performance. Provide at least one paragraph to explain why one performed better than the other? Tip: Go into events_emitted

2. Returns on the ‘Generic Leverage Compound Farm’ strategy

The USDC yVault has a ‘Generic Leverage Compound Farm’ strategy that earns a return by supplying liquidity to Compound, using flash loans for additional leverage. What return in Comp has it earned over the past 30 days and how much in flash loans has it used to earn this? Description of the vault is here: https://medium.com/yearn-state-of-the-vaults/the-vaults-at-yearn-9237905ffed3 Strategy contract: https://etherscan.io/address/0xE6c78b85f93c25B8EE7d963fD15d1d53a00F5908

https://velocity-app.flipsidecrypto.com/dashboard/y-usdc-_WiNbL

TERRA

31. [Easy] LUNA Price Volatility

What has the daily volatility (standard deviation of price day over day) of LUNA price been over the past 2 weeks? How does that compare to the volatility of ETH over the past 2 weeks? What are events and/or factors potentially impacting these?

```
with luna as (
SELECT
date_trunc('day', block_timestamp) AS block_hour,
   avg(price_usd) as priceyluna,
   max(price_usd) maxluna,
   min(price_usd) minluna,
STDDEV(price_usd) as stluna ,
  (stluna/priceyluna) * 100 as pctluna
FROM terra.oracle_prices
where SYMBOL = 'LUNA'
and block_timestamp > '2021-07-15T06:00:00Z'
  group by block_hour
  order by block_hour DESC
LIMIT 10000
```

```
),


eth as (
SELECT
date_trunc('day', hour) AS block_,
  avg(price) as priceyeth,
   max(price) as maxetyh,
   min(price) as mineth,
STDDEV(price) as stdebeth,
 (stdebeth/ priceyeth) * 100 as pcteth
FROM ethereum.token_prices_hourly
where SYMBOL = 'ETH'
and HOUR > '2021-07-15T06:00:00Z'
  group by block_
  order by block_ DESC
LIMIT 10000
)
select * from eth
left join luna
on eth.block_ = luna.block_hour

  order by block_ DESC
```

32. [Easy] Anchor Deposits

How have deposits on Anchor changed in the past 2 weeks? Why do you think this is?

```
SELECT
  DISTINCT(msg_value:sender::string) as sender,
  block_id,
  block_timestamp,
  tx_id,

  msg_value:execute_msg:send:amount / POW(10,6) as event_amount,
  msg_value:contract::string as token_address,
  t.address_name as token_address_name,
```

```
  msg_value:execute_msg:send:contract::string as contract_address,
  c.address_name as contract_address_name
FROM terra.msgs

LEFT OUTER JOIN terra.labels t
  ON msg_value:contract = t.address

LEFT OUTER JOIN terra.labels c
  ON msg_value:execute_msg:send:contract = c.address

WHERE msg_type = 'wasm/MsgExecuteContract'
  AND msg_value:contract = 'terra1kc87mu460fwkqte29rquh4hc20m54fxwtsx7gp' --bLUNA
Token Address
  AND msg_value:execute_msg:send:contract =
'terra1ptjp2vfjrwh0j0faj9r6katm640kgjxnwwq9kn' --Anchor bLUNA Custody Contract
  -- AND tx_id =
'FFFFE5EA4ABD5E2AC8A697B9EA392CED52BF936891CA1E6DDFC559CBFBC28D5B'
  AND block_timestamp >= CURRENT_DATE - 15

ORDER BY block_timestamp DESC
LIMIT 1000000
```

33. [Easy] Anchor Collateral Ratio

What has happened to Anchor's collateralization ratio over the past two weeks?

What impact has this had on user behavior on Anchor?

```
SELECT

                --EVENT_ATTRIBUTES,

    date_trunc('day', block_timestamp) AS dayzz,

                sum(EVENT_ATTRIBUTES:amount[0]:amount / POW(10,6)) as dsum,

                avg(EVENT_ATTRIBUTES:amount[0]:amount / POW(10,6)) as dave,

    count(EVENT_ATTRIBUTES:amount[0]:amount / POW(10,6)) as dcount
```

from terra.msg_events

where

EVENT_ATTRIBUTES:recipient::string = 'terra1sepfj7s0aeg5967uxnfk4thzlerrsktkpelm5s'

AND block_timestamp >= CURRENT_DATE - 30

group by dayzz

order by dayzz desc

Average borrow, average deposit, unique users

https://velocity-app.flipsidecrypto.com/dashboard/anchor-situation-7xZqjo

Pick at least 2 metrics to quantify the impact. (ie. TVL, 24hr volume)

Tue, Jul 20, 2021, 11:15:42 PM 00:00:00

Increase bLuna `Max_ltv` from 50% to 60% to enable users to borrow 20% more while maintaining the same liquidation risk. This change would increase the overall capital efficiency on Anchor and would ensure Anchor’s sustainability long-term.

with borrws as

```
  (
    select
    date_trunc('day', block_timestamp) AS dayzz,
   sum (MSG_VALUE:execute_msg:borrow_stable:borrow_amount) / POW(10,6) as amountz--,
    from terra.msgs
  where IS_NULL_VALUE(MSG_VALUE:execute_msg:borrow_stable) IS NOT NULL
  group by
   dayzz
  LIMIT 100000
      )
  ,
 repays as
    (
select
  date_trunc('day', block_timestamp) AS dayz,
 sum (MSG_VALUE:coins[0].amount) / POW(10,6) as amounts
  from terra.msgs
  where IS_NULL_VALUE(MSG_VALUE:execute_msg:repay_stable) IS NOT NULL
  group by dayz
  LIMIT 100000
  )
  select
  borrws.dayzz,
 ( 0 - borrws.amountz) as "borrwo amount",
  repays.amounts as "repayments amontsz",
  ("borrwo amount" + "repayments amontsz") as nert
    from repays
left join borrws
on borrws.dayzz = repays.dayz
    where dayzz >= '2021-07-15T00:00:00Z'
order by dayzz desc

with withdraws as

_(

select

  date_trunc('day', block_timestamp) AS dayz,

  --(event_attributes:"0_contract_address"::string) as contractaddy,

--(event_attributes:"0_action"::string) as action,

 sum((event_attributes:"0_amount") / POW(10,6)) as amt

   from terra.msg_events
```

```
    where EVENT_TYPE = 'from_contract'

          and  (event_attributes:"0_contract_address"::string) =
'terra1ptjp2vfjrwh0j0faj9r6katm640kgjxnwwq9kn'

          and MSG_TYPE          = 'wasm/MsgExecuteContract'

          and (event_attributes:"0_action"::string) = 'withdraw_collateral'

    group by dayz

    ORDER BY dayz DESC

),

deposits as (
```

```
SELECT
  date_trunc('day', block_timestamp) AS dayzz,
  sum(msg_value:execute_msg:send:amount / POW(10,6)) as event_amount--,
--(msg_value:execute_msg:send:contract::string) as contract_address
FROM terra.msgs
WHERE msg_type = 'wasm/MsgExecuteContract'
 AND msg_value:contract = 'terra1kc87mu460fwkqte29rquh4hc20m54fxwtsx7gp' --bLUNA Token Address
 AND msg_value:execute_msg:send:contract = 'terra1ptjp2vfjrwh0j0faj9r6katm640kgjxnwwq9kn' --Anchor bLUNA Custody Contract
 and dayzz > '2021-07-14T00:00:00Z'
 group by dayzz
ORDER BY dayzz DESC
)

 select * from deposits
ORDER BY dayzz DESC

SELECT
                --EVENT_ATTRIBUTES,
    date_trunc('day', block_timestamp) AS dayzz,
                sum(EVENT_ATTRIBUTES:amount[0]:amount / POW(10,6)) as dsum,
                avg(EVENT_ATTRIBUTES:amount[0]:amount / POW(10,6)) as dave,
    count(EVENT_ATTRIBUTES:amount[0]:amount / POW(10,6)) as dcount
```

```
 from terra.msg_events

                where

    EVENT_ATTRIBUTES:recipient::string = 'terra1sepfj7s0aeg5967uxnfk4thzlerrsktkpelm5s'

    AND block_timestamp >= CURRENT_DATE - 30

group by dayzz

order by dayzz desc
```

34. [Hard] UST Collateralization

To what degree has UST been fully collateralized over the past two weeks? Has it been under collateralized at any points? How long did it stay like that on average?

35. [Hard] Mirror & Anchor TVLs

https://velocity-app.flipsidecrypto.com/dashboard/mirror-tvl-IPxBgM

How have the TVLs on Mirror and Anchor changed over the past two weeks? Are there any correlations that you can see? What might be some reasons for these relationships?

ANCHOR

```
(select date_trunc('day',block_timestamp) as date,SUM(msg_value:coins[0]:amount/POW(10,6)) as amount,'Deposit UST' as action_type

from terra.msgs

where msg_value:contract='terra1sepfj7s0aeg5967uxnfk4thzlerrsktkpelm5s' and date>CURRENT_DATE-30

group by 1)

UNION ALL

(select date_trunc('day',block_timestamp) as date,SUM(msg_value:execute_msg:borrow_stable:borrow_amount/POW(10,6)) as amount,'Borrow UST' as action_type

from terra.msgs

where msg_value:contract='terra1sepfj7s0aeg5967uxnfk4thzlerrsktkpelm5s' and date>CURRENT_DATE-30

group by 1)
```

ANouther

```
--WITH clean_data AS (

  SELECT

date_trunc('hour', date) AS date,

  address,

     CASE WHEN address_label_type IS NULL THEN 'small wallet' ELSE address_label_type END AS address_label_type,
```

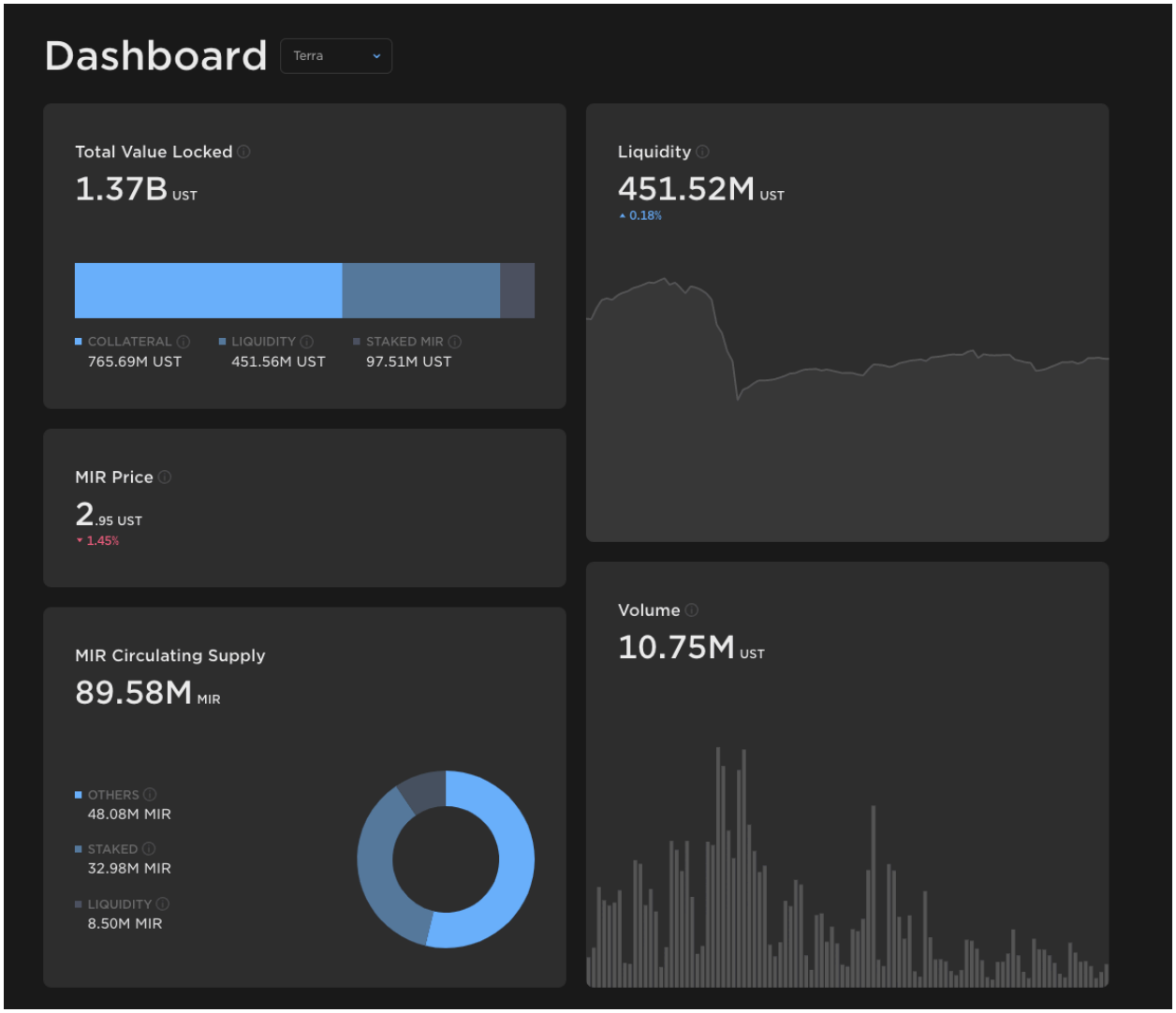
```
    CASE WHEN address_label_subtype IS NULL THEN 'small wallet' ELSE address_label_subtype
END AS address_label_subtype,

    address_label,

    address_name,

    balance,

    CASE WHEN balance_usd IS NULL THEN 0 ELSE balance_usd END AS balance_usd,

    balance_type,

    currency

  FROM terra.daily_balances

  WHERE date >= CURRENT_DATE - 180

    and ADDRESS_LABEL is not NULL

    and ADDRESS_NAME is not null

    and currency = 'UST'

    and ADDRESS_LABEL_TYPE        <> 'cex'

   -- GROUP BY 1,2

ORDER BY 1 DESC

limit 10000000
```

78BADDE12608884E3225FC77CD8371D61FE603328285ADA83E149D8355722CED

```
--WITH clean_data AS (

  SELECT

date_trunc('hour', date) AS date,

  address,

    CASE WHEN address_label_type IS NULL THEN 'small wallet' ELSE address_label_type END
AS address_label_type,

    CASE WHEN address_label_subtype IS NULL THEN 'small wallet' ELSE address_label_subtype
END AS address_label_subtype,
```

```
    address_label,
    address_name,
    balance,
    CASE WHEN balance_usd IS NULL THEN 0 ELSE balance_usd END AS balance_usd,
    balance_type,
    currency
  FROM terra.daily_balances
  WHERE date >= CURRENT_DATE - 180
    and ADDRESS_LABEL is not NULL
    and ADDRESS_NAME is not null
    --and currency = 'UST'
    and balance > 0
    and ADDRESS_LABEL_TYPE        <> 'cex'
    and ADDRESS_LABEL_TYPE  = 'defi'
    and address_name = 'Mirror Mint'
    and date > '2021-07-15T06:00:00Z'

   -- GROUP BY 1,2
ORDER BY 1 DESC
limit 10000000
--WITH clean_data AS (
  SELECT
    date_trunc('hour', date) AS date,
    balance,
    balance_usd,
```

```
    balance_type,
    currency
  FROM terra.daily_balances
  WHERE balance > 0
    and ADDRESS_LABEL_TYPE  = 'defi'
    and address_name = 'Mirror Mint'
    and date > '2021-07-15T06:00:00Z'

   -- GROUP BY 1,2
ORDER BY 1 DESC
limit 10000000
```



https://terra.mirror.finance/

```
with mirpairs as
 (
select
 date_trunc('hour', date) AS datez,
 -- ADDRESS_NAME,
 sum(BALANCE) as TerraSwapMirrorPairs
 from
```

```
terra.daily_balances
where ADDRESS_LABEL_TYPE = 'dex'
  and currency = 'UST'
 and balance_usd is not null
 and balance > 0
and ADDRESS_NAME <> 'Terraswap MINE-UST Pair'
and ADDRESS_NAME <>  'Terraswap LUNA-UST Pair'
and ADDRESS_NAME <>  'Terraswap MINE-UST Pair'
and ADDRESS_NAME <>  'Terraswap ANC-UST Pair'
and ADDRESS_NAME <>  'Terraswap LOTA-UST Pair'
and ADDRESS_NAME <>  'Terraswap MIR-UST Pair'
 group by 1
 order by datez desc
limit 1000000
 ),
ustmir as
 (select
 date_trunc('hour', date) AS datezz,
 (BALANCE) as USTMIRPAIR
 from
terra.daily_balances
```

```
where ADDRESS_LABEL_TYPE = 'dex'
 and currency = 'UST'
 and balance_usd is not null
 and balance > 0
and ADDRESS_NAME = 'Terraswap MIR-UST Pair'
 -- group by 1

 order by date desc  ),

 heresam as

 (
 select * from mirpairs
 left join ustmir
 on mirpairs.datez = ustmir.datezz
 ),

mirmint as
 (
 select
  date_trunc('hour', date) AS datezzz,
 BALANCE as MIRRORMINT
    from
terra.daily_balances
where
```

```
 ADDRESS_NAME =
'Mirror Mint'
and currency = 'UST'
 -- group by 1
  order by datezzz desc
limit 500
)

select * from mirmint

  left join heresam
  on mirmint.datezzz = heresam.datezz

  WHERE datez >= CURRENT_DATE - 28
order by datezz desc

with mirpairs as
  (
select
  date_trunc('hour', date) AS datez,
  --ADDRESS_NAME,
  sum(BALANCE) * 2 as TerraSwapMirrorPairs
  from
terra.daily_balances
where ADDRESS_LABEL_TYPE = 'dex'
```

```
  and currency = 'UST'
  and balance_usd is not null
  and balance > 0
and ADDRESS_NAME <> 'Terraswap MINE-UST Pair'
and ADDRESS_NAME <>  'Terraswap LUNA-UST Pair'
and ADDRESS_NAME <>  'Terraswap MINE-UST Pair'
and ADDRESS_NAME <>  'Terraswap ANC-UST Pair'
and ADDRESS_NAME <>  'Terraswap LOTA-UST Pair'
and ADDRESS_NAME <>  'Terraswap MIR-UST Pair'
  group by 1
  order by datez desc
limit 1000000
  ),
ustmir as
  (select
  date_trunc('hour', date) AS datezz,
  (BALANCE) * 2 as USTMIRPAIR
  from
terra.daily_balances




where ADDRESS_LABEL_TYPE = 'dex'
  and currency = 'UST'
```

```
 and balance_usd is not null
 and balance > 0
and ADDRESS_NAME = 'Terraswap MIR-UST Pair'
 -- group by 1

 order by date desc  ),

 heresam as

 (
 select * from mirpairs
 left join ustmir
 on mirpairs.datez = ustmir.datezz
 ),

mirmint as
 (
 select
  date_trunc('hour', date) AS datezzz,
 BALANCE  as MIRRORMINT
    from
terra.daily_balances
where
 ADDRESS_NAME =
'Mirror Mint'
```

```
and currency = 'UST'

 -- group by 1

  order by datezzz desc

limit 500

)

,

  raw_balances as

(select



distinct

--date_trunc('week', balance_date) AS week,

  user_address,

balance_date,

address_name,

symbol,

last_value(balance) over (partition by balance_date, address_name,symbol order by balance_date) balance,

last_value(price)  over (partition by balance_date, address_name,symbol order by balance_date) price,

last_value(amount_usd)  over (partition by balance_date, address_name,symbol order by balance_date) amount_usd

from ethereum.erc20_balances

where user_address = lower('0x87da823b6fc8eb8575a235a824690fda94674c88')

or user_address = lower('0x5233349957586a8207c52693a959483f9aeaa50c

or user_address = lower('0xb022e08adc8ba2de6ba4fecb59c6d502f66e953b')

or user_address = lower('0x676ce85f66adb8d7b8323aeefe17087a3b8cb363')
```

```
or user_address = lower('0x9e3b47b861b451879d43bba404c35bdfb99f0a6c')
or user_address = lower('0xc99a74145682c4b4a6e9fa55d559eb49a6884f75')
or user_address = lower('0x0ae8cb1f57e3b1b7f4f5048743710084aa69e796')
or user_address = lower('0xd7f97aa0317c08a1f5c2732e7894933f11724868')
or user_address = lower('0x6bd8ca9d141aa95842b41e1431a244c309c9008c')
or user_address = lower('0x4b70ccd1cf9905be1faed025eadbd3ab124efe9a')
or user_address = lower('0x34856be886a2dba5f7c38c4df7fd86869ab08040')
or user_address = lower('0x860425be6ad1345dc7a3e287facbf32b18bc4fae')
or user_address = lower('0x6094367ea57ff4f545e2672e024393d82a1d3f28')
or user_address = lower('0xeafad3065de347b910bb88f09a5abe580a09d655')
--or user_address = lower('0xc50ef7861153c51d383d9a7d48e6c9467fb90c38')
or user_address = lower('0x57ab5aeb8bac2586a0d437163c3eb844246336ce')
--or user_address = lower('0x868b7bbbfe148516e5397f23982923686182c2d2')
--or user_address = lower('0x60a39010e4892b862d1bb6bdde908215ac5af6f3')
--or user_address = lower('0x8b00ee8606cc70c2dce68dea0cefe632cca0fb7b')
or user_address = lower('0x67b3825348521b94828127f1ee31da80ee67d285')
or user_address = lower('0x53c33f5401d69c466de3764181d19c088f21aad6')
--or user_address = lower('0x92995d179a5528334356cb4dc5c6cbb1c068696c')
or user_address = lower('0x21ca348fef9f09fdb79b155a75efa7f02f82733a')
or user_address = lower('0x181655fee818e1e22c8aebb780c716e15b6f29aa')
or user_address = lower('0x09071bd5ea1b26ad3b24be2839e2f8b44331c66d')
--or user_address = lower('0x973a67726227ce2747d5710eb44a53fb9abfd02a')
or user_address = lower('0x42eb481a3338563e1247d461477f4cbc97c9a444')
--or user_address = lower('0x88172e5d79fe75c7aed1453e89ff5d741cfa4ca7')
or user_address = lower('0xc628da629c615909c961b1c69c3bcac0c3fad8a9')
```

```
or user_address = lower('0xb643511e797a3e581b80b34bdb7f7c91fbe5d521')
or user_address = lower('0xc80c29201762f7da84384bff02ad66789e435dd1')
or user_address = lower('0xc724354425e7ad67921c64c11bb3182a3fbbe53d')
or user_address = lower('0xe1e736fb23f49a7b5aef647c5ed07d58c758fd67')
or user_address = lower('0x71eb4179be6d86d44e4fa8b8f0c62ac15a9b838c')
or user_address = lower('0x6307968386dda2e3919363eea7df0be6171f73f1')
--or user_address = lower('0xab2a4115112a4dd7dbe8f1acfda9f591668d850d')
or user_address = lower('0x5fce93803d8732a95a91a885936539d0275d29a0')
or user_address = lower('0x5e40e5d3dbedecdd8516d1791be295b2c7912a18')
or user_address = lower('0x1ad3fb103d0fccc4754c7d54bb37e7328805f9e2')
or user_address = lower('0x7748d489fb6f5b016ef7b3ac1375518dc41132a2')

and amount_usd > 1



and symbol <> ''

order by balance_date)
,
  doubletrouble as (
select
balance_date,
--address_name,
 -- user_address,
sum(amount_usd) as ethmir
```

```
from raw_balances

where address_name is not NULL

and address_name <> 'uniswap'

   and balance_date >= CURRENT_DATE - 60


group by 1


order by balance_date desc

 ),

 lastlyselect as (

select * from mirmint


 left join heresam

 on mirmint.datezzz = heresam.datezz


 WHERE datez >= CURRENT_DATE - 60

order by datezz desc

)




select * from lastlyselect

left join doubletrouble

on lastlyselect.DATEZZZ = doubletrouble.BALANCE_DATE
```

Anchor TVL

```
WITH luna_collat AS(
  SELECT
    date_trunc(day, block_timestamp) as date,
    round(sum(msg_value:execute_msg:send:amount / POW(10,6)), 2) as col_amount
  FROM terra.msgs
  LEFT OUTER JOIN terra.labels t
    ON msg_value:contract = t.address
  LEFT OUTER JOIN terra.labels c
    ON msg_value:execute_msg:send:contract = c.address
  WHERE msg_type = 'wasm/MsgExecuteContract'
    AND msg_value:contract = 'terra1kc87mu460fwkqte29rquh4hc20m54fxwtsx7gp' -- bLUNA
address
    AND msg_value:execute_msg:send:contract = 'terra1ptjp2vfjrwh0j0faj9r6katm640kgjxnwwq9kn'
-- Anchor contract
  GROUP BY date
),
lprice as (
        select
                date_trunc('day', block_timestamp) as date,
                avg(price_usd) as luna_price_usd
        from terra.oracle_prices
        WHERE symbol ='LUNA'
        AND block_timestamp >= '2021-03-15'
        GROUP BY date
),
luna_collat_withdrawls as (
        select
                date_trunc('day', block_timestamp) as date,
                sum(msg_value:execute_msg:withdraw_collateral:amount/POW(10, 6)) as
col_with_amount
        from terra.msgs
        where msg_value:execute_msg:withdraw_collateral IS NOT NULL
        and msg_value:contract = 'terra1ptjp2vfjrwh0j0faj9r6katm640kgjxnwwq9kn'
        GROUP BY date
),
  anchor_ust_deposits as (
  select
    date_trunc('day', block_timestamp) as date,
    SUM(msg_value : coins[0] : amount / POW(10, 6)) as ust_deposited
  from
    terra.msgs
  where
    msg_value : contract = 'terra1sepfj7s0aeg5967uxnfk4thzlerrsktkpelm5s'
    and tx_status = 'SUCCEEDED'
  group by  1
),
anchor_ust_remdeems as (
        SELECT
                date_trunc('day', block_timestamp) as date,
                SUM(msg_value:execute_msg:send:amount /  POW(10, 6)) as ust_redeemed
        from terra.msgs
        where msg_value:execute_msg:send:contract =
```

```
'terra1sepfj7s0aeg5967uxnfk4thzlerrsktkpelm5s'
        and tx_status = 'SUCCEEDED'
                AND msg_value:execute_msg:send:msg:redeem_stable IS NOT NULL
        GROUP BY date
),
anchor_tvl_daily as (
        SELECT
                lprice.date,
                (ZEROIFNULL(col_amount) - ZEROIFNULL(col_with_amount)) * luna_price_usd
as collateral_usd,
                sum(collateral_usd) over(order by lprice.date) as collateral_usd_run,
                ZEROIFNULL(ustdep.ust_deposited) - ZEROIFNULL(ustred.ust_redeemed) as
ust_value,
                sum(ust_value) over( order by lprice.date ) as ust_value_run,
                ZEROIFNULL(collateral_usd) + ZEROIFNULL(ust_value) as tvl,
                sum(tvl) over(order by lprice.date) as tvl_run
        FROM lprice
        LEFT JOIN luna_collat as lcoll on lprice.date = lcoll.date
        LEFT JOIN luna_collat_withdrawls as lcoll_with on lprice.date = lcoll_with.date
        LEFT JOIN anchor_ust_deposits as ustdep ON  lprice.date = ustdep.date
        LEFT JOIN anchor_ust_remdeems as ustred ON  lprice.date = ustred.date
)
SELECT * FROM anchor_tvl_daily;
```

36. [Easy] Measuring Risk

For LUNA, Anchor, and Mirror, define 2 metrics by which to measure the risk of each of these protocols? Analyze these protocols and how they perform under these metrics over the past 2 weeks.

Cascading liquidations and anc-ust

WITH prices as(

  SELECT

    currency,

```
  symbol
  FROM terra.oracle_prices
  WHERE block_timestamp >= CURRENT_DATE - 7
  GROUP BY 1,2
)
SELECT
  m.block_id,
  m.block_timestamp,
  m.tx_id,
  msg_value:sender::string as sender,
  'provide_liquidity' as action,
  msg_value:execute_msg:provide_liquidity:assets[0]:amount / POW(10,6) as token_0_amount,
  msg_value:execute_msg:provide_liquidity:assets[0]:info:token:contract_addr::string as
token_0_address,
  t0.address_name as token_0_address_name,
  msg_value:execute_msg:provide_liquidity:assets[1]:amount / POW(10,6) as token_1_amount,
  msg_value:execute_msg:provide_liquidity:assets[1]:info:native_token:denom::string as
token_1_address,
  t1.symbol as token_1_address_name,
  msg_value:contract::string as contract_address,
  c.address_name as contract_label
FROM terra.msgs m


LEFT OUTER JOIN terra.labels t0
  ON msg_value:execute_msg:provide_liquidity:assets[0]:info:token:contract_addr = t0.address
```

```
LEFT OUTER JOIN prices t1

  ON msg_value:execute_msg:provide_liquidity:assets[1]:info:native_token:denom::string  =
t1.currency



LEFT OUTER JOIN terra.labels c

  ON msg_value:contract  = c.address




WHERE msg_value:contract = 'terra1gm5p3ner9x9xpwugn9sp6gvhd0lwrtkyrecdn3' --ANC UST
POOL

  AND msg_value:execute_msg:provide_liquidity IS NOT NULL --Ensures we only look for adding
liquidity events

  -- AND m.tx_id =
'A7C9FA7E03E1363E331B9F6100828BF8A602829CC9DBCC2BD2C5DDCB60BE0AA1'

  AND m.block_timestamp >= CURRENT_DATE - 7

ORDER BY m.block_timestamp DESC

LIMIT 100
```

UNISWAP

43. [Easy] Uniswap Weekly Volume Breakdown

For the past 10 weeks, what has been the week over week change in total volume for Uniswap? What has been the week over week change in total volume for each of the top 5 pools by volume (ranking determined by most recent week)?

https://app.flipsidecrypto.com/dashboard/43-easy-uniswap-weekly-volume-breakdown-op0Jwx

40. [Super Hard] Impermanent Loss Dashboard

Java script to compute IL , refer to https://decentyields.com/impermanent-loss-calculator to see how it works.

```
async function calculateIL()
{
    let depositValue = parseFloat($("#form-initial-balance").val());
    let priceChange1 = (parseFloat($("#form-price1-change").val())/100)+1;
    let priceChange2 = (parseFloat($("#form-price2-change").val())/100)+1;
    let price1 = await getTokenPrice(ilcToken1);
    let price2 = await getTokenPrice(ilcToken2);
    let t1Value = depositValue * (weight1 / 100);
    let t2Value = depositValue * (weight2 / 100);
    let t1Amount = t1Value / price1;
    let t2Amount = t2Value / price2;

    $("#in-result-pool-value").html(stringFormat(depositValue, 2, 8) + " " + calculatorCurrency);
    $("#in-result-hold-value").html(stringFormat(depositValue, 2, 8) + " " + calculatorCurrency);
    $("#in-result-pool-pnl").html(stringFormat(0, 2, 8) + " " + calculatorCurrency);
    $("#in-result-pool-rpnl").html(stringFormat(0, 4, 4) + " %");
    $("#in-result-t1-amount").html(stringFormat(t1Amount, 2, 8));
    $("#in-result-t1-price").html(stringFormat(price1, 2, 8) + " " + calculatorCurrency);
    $("#in-result-t1-value").html(stringFormat(t1Value, 2, 8) + " " + calculatorCurrency);
    $("#in-result-t2-amount").html(stringFormat(t2Amount, 2, 8));
    $("#in-result-t2-price").html(stringFormat(price2, 2, 8) + " " + calculatorCurrency);
    $("#in-result-t2-value").html(stringFormat(t2Value, 2, 8) + " " + calculatorCurrency);
    $("#in-result-pool-il").html(stringFormat(0, 4, 4) + " %");


    let constantProduct = t1Amount * t2Amount;

    if(priceChange1 < 0)
        priceChange1 = 0;
    if(priceChange2 < 0)
        priceChange2 = 0;

    let r_holdValue = (t1Value * priceChange1) + (t2Value * priceChange2);
    let r_price1 = price1 * priceChange1;
    let r_price2 = price2 * priceChange2;
    let priceRatio = r_price2 > 0 ? r_price1/r_price2 : 9999999999999;
    let r_t1Amount = priceRatio > 0 ? Math.sqrt(constantProduct / priceRatio) : 0;
    let r_t2Amount = priceRatio > 0 ? Math.sqrt(constantProduct * priceRatio) : 0;
    let r_t1Value = r_price1 * r_t1Amount;
```

```
    let r_t2Value = r_price2 * r_t2Amount;
    let r_poolValue = r_t1Value + r_t2Value;
    let impermanentLoss = ((r_poolValue / r_holdValue) - 1)*100;
    let r_poolPnL = r_poolValue - depositValue;
    let r_poolRPnL = ((r_poolPnL / depositValue)) * 100;

    $("#ca-result-pool-value").html(stringFormat(r_poolValue, 2, 8) + " " + calculatorCurrency);
    $("#ca-result-hold-value").html(stringFormat(r_holdValue, 2, 8) + " " + calculatorCurrency);
    $("#ca-result-pool-pnl").html(stringFormat(r_poolPnL, 2, 8) + " " + calculatorCurrency);
    $("#ca-result-pool-rpnl").html(stringFormat(r_poolRPnL, 4, 4) + " %");
    $("#ca-result-t1-amount").html(stringFormat(r_t1Amount, 2, 8));
    $("#ca-result-t1-price").html(stringFormat(r_price1, 2, 8) + " " + calculatorCurrency);
    $("#ca-result-t1-value").html(stringFormat(r_t1Value, 2, 8) + " " + calculatorCurrency);
    $("#ca-result-t2-amount").html(stringFormat(r_t2Amount, 2, 8));
    $("#ca-result-t2-price").html(stringFormat(r_price2, 2, 8) + " " + calculatorCurrency);
    $("#ca-result-t2-value").html(stringFormat(r_t2Value, 2, 8) + " " + calculatorCurrency);
    $("#ca-result-pool-il").html(stringFormat(impermanentLoss, 4, 4) + " %");

  }
```

```
with withdraws as
  (
select
  date_trunc('day', block_timestamp) AS dayz,
  --(event_attributes:"0_contract_address"::string) as contractaddy,
--(event_attributes:"0_action"::string) as action,
 sum((event_attributes:"0_amount") / POW(10,6)) as amt
    from  terra.msg_events
    where EVENT_TYPE = 'from_contract'
          and  (event_attributes:"0_contract_address"::string) =
'terra1ptjp2vfjrwh0j0faj9r6katm640kgjxnwwq9kn'
          and MSG_TYPE        = 'wasm/MsgExecuteContract'
          and (event_attributes:"0_action"::string) = 'withdraw_collateral'
  group by dayz
    ORDER BY dayz DESC
),

deposits as (
SELECT
    date_trunc('day', block_timestamp) AS dayzz,
    sum(msg_value:execute_msg:send:amount / POW(10,6)) as event_amount--,
--(msg_value:execute_msg:send:contract::string) as contract_address
FROM terra.msgs
WHERE msg_type = 'wasm/MsgExecuteContract'
```

```
  AND msg_value:contract = 'terra1kc87mu460fwkqte29rquh4hc20m54fxwtsx7gp' --bLUNA
Token Address
  AND msg_value:execute_msg:send:contract =
'terra1ptjp2vfjrwh0j0faj9r6katm640kgjxnwwq9kn' --Anchor bLUNA Custody Contract
  and dayzz > '2021-07-14T00:00:00Z'
  group by dayzz
ORDER BY dayzz DESC
),
  luna as (
SELECT
date_trunc('day', block_timestamp) AS block_hour,
   avg(price_usd) as priceyluna,
   max(price_usd) maxluna,
   min(price_usd) minluna,
STDDEV(price_usd) as stluna ,
  (stluna/priceyluna) * 100 as pctluna
FROM terra.oracle_prices
where SYMBOL = 'LUNA'
and block_timestamp > '2021-07-14T00:00:00Z'
  group by block_hour
  order by block_hour DESC
LIMIT 10000
),

  lunaanchor as (
 select
  dayz,
  event_amount as inn,
  (0-amt) as outt,
  (outt + inn) as net
  from deposits
  left join withdraws
  on deposits.dayzz = withdraws.dayz
ORDER BY dayzz DESC
),

 lunaanchoruset as

  (
select dayz, (inn * luna.priceyluna ) as inusd, (outt * luna.priceyluna) as outusd, (net *
luna.priceyluna) as netusd
  FROM lunaanchor
  left join luna
  on lunaanchor.dayz = luna.block_hour
```

```
 ) ,

borrws as
  (
    select
    date_trunc('day', block_timestamp) AS dayzz,
   sum (MSG_VALUE:execute_msg:borrow_stable:borrow_amount) / POW(10,6) as amountz--,
    from terra.msgs
  where IS_NULL_VALUE(MSG_VALUE:execute_msg:borrow_stable) IS NOT NULL
  group by
   dayzz
      )
  ,
 repays as
    (
select
  date_trunc('day', block_timestamp) AS dayz,
 sum (MSG_VALUE:coins[0].amount) / POW(10,6) as amounts
  from terra.msgs
  where IS_NULL_VALUE(MSG_VALUE:execute_msg:repay_stable) IS NOT NULL
  group by dayz
  LIMIT 100000
  ),

  ustnet as
  (
  select
  borrws.dayzz,
 ( 0 - borrws.amountz) as borrwoamount,
  repays.amounts as repaymentsamontsz,
  (borrwoamount + repaymentsamontsz) as nert
    from repays
left join borrws
on borrws.dayzz = repays.dayz
    where dayzz >= '2021-07-14T00:00:00Z'
order by dayzz desc
),

  lasty as (
select
* from
ustnet
left join lunaanchor
```

```
on ustnet.dayzz = lunaanchor.dayz
order by dayzz desc
)

select * from lasty
left JOIN lunaanchoruset
  ON
lasty.dayzz = lunaanchoruset.dayz
order by dayzz desc

  date_trunc('day', block_timestamp) AS dayz,
 sum (MSG_VALUE:coins[0].amount) / POW(10,6) as amounts
  from terra.msgs
  where IS_NULL_VALUE(MSG_VALUE:execute_msg:repay_stable) IS NOT NULL
  group by dayz
  LIMIT 100000
  ),

  ustnet as
  (
  select
  borrws.dayzz,
 ( 0 - borrws.amountz) as borrwoamount,
  repays.amounts as repaymentsamontsz,
  (borrwoamount + repaymentsamontsz) as nert
    from repays
left join borrws
on borrws.dayzz = repays.dayz
    where dayzz >= '2021-07-14T00:00:00Z'
order by dayzz desc
),

  lasty as (
select
* from
ustnet
left join lunaanchor
on ustnet.dayzz = lunaanchor.dayz
order by dayzz desc
)

select * from lasty
left JOIN lunaanchoruset
  ON
```

lasty.dayzz = lunaanchoruset.dayz
order by dayzz desc

Writeups

Anchor Deposits-submitted

How have deposits on Anchor changed in the past 2 weeks? Why do you think this is?

Anchor Finance is a money market built on the terra blockchain. As of writing, there is only one asset that is permitted as collateral, bLUNA. From March until Mid-July, users were allowed to borrow 40%-50% of their collateral value in UST.

However, on July 20th, this changed.

When it comes to net UST deposited into Anchor, there is a bimodal distribution, before and after the collateral change. I believe that people knew of the vote before it was executed, so they deposited UST to take advantage of the new borrowing demand, and after, as the resolution passed.

As the average deposit amount rose from before to after the vote, I would say that whales were less confident in the vote and waited until the vote passed.

The count of daily deposits appears to rise as well, but not by much, but two days before there was an upswing in the count of ust deposits, however its most likely noise.
For bLUNA deposits, it's a different story. Above we see the USD amount in deposits towards the protocol, which can be used for borrowing.

Looking at the average deposits, there are some days where whales are depositing, maybe to use for future borrowing, and maybe because they can.

Even smaller users are depositing more bLUNA to anchor, showing their knowledge for their vote.

anchor cratio
Submitted

What has happened to Anchor's collateralization ratio over the past two weeks? What impact has this had on user behavior on Anchor? Pick at least 2 metrics to quantify the impact. (ie. TVL, 24hr volume)

On july 20th, anchor changed their collateralization requirements, from 40% to 60% collateral factor for UST borrows below is the text of the vote.

First let's look at bLUNA deposits and withdrawals from collateral. We see some large deposits for the vote, followed by little change in NET collateral flows, with some “whales days” on deposits and withdrawals.

UST flow, while less total value, is better correlated with the vote, with large repayments before the vote, larger burrows after, and big action in borrows and repayment sopn July 27 and 29.

When comparing Collateral Deposits and borrows, the relationship becomes more clear for the change in collateralization ratio. Nearly a 10:1 ratio between NEW deposits and new borrows. Were it a relative collateralization ratio, it would represent around 1000% cratio.

However, when looking at the net of borrows and repayments, compared to the net of bLUN deposits and withdrawals, we see more clearly the relationship of user activity and new parameters. Before the vote, borrowing activity went down, deposits up, followed by large borrowing activity, and then after a week, somne consolidations.

To me, it looks like a typical business cycle, with a boom, bust and credit crunch. Very Cool!

Pricevol
Submitted

What has the daily volatility (standard deviation of price day over day) of LUNA price been over the past 2 weeks? How does that compare to the volatility of ETH over the past 2 weeks? What are events and/or factors potentially impacting these?

The past two weeks have been very fun for all of us, both LUNA and ETH holders, but how do the assets compare?

ETH has a pretty epic rise, up 30% in the last two weeks.

LUNA is up over 40%, so Terra must be more volatile in the good way (this time)

The standard deviation of ETH daily prices goes between 12-70 dollars, or 75 - 350 basis points, but we should look at LUNA.

LUNA's stdev is between 9 cents to over 50 cents at its max, representing 1-5% of LUNA price.

On every day except for one, LUNA is more volatile, in a good way. Go Terra!

Uniswap W:O:W Change
doner
For the past 10 weeks, what has been the week over week change in total volume for Uniswap? What has been the week over week change in total volume for each of the top 5 pools by volume (ranking determined by most recent week)?

Ever since uniswap v3 launched in late March of this year, it has been all of the hype. However, as it is very complex to understand for someone who hasn't utilized Flipside crypto's community enabled data analytics, TVL hasn't been competing with uni v2 or even pankaswap.

For some reason, in the first half of July, there has been a very large amount of LP volume, leaving and coming. I think it has to do with the optimism beta for Uni v3.

However, early June has the biggest net deposits, I wonder why? It doesn't come from the big 5 pools, probably from some new Uni v3 farming started at visor finance and harvest finance.

As we look at pool deposits, the 0.3% pools start out more popular, then wehn total deposit and withdrawal volume goes up, the winner goes towards the 0.05% pools, taking advantage of small tick spacing.

The withdrawal side looks roughly the same as the deposits, most like a result of collection of fees and redoing positions.

Measuring Risk
done
https://velocity-app.flipsidecrypto.com/dashboard/anchor-risk-equity-gO81mx

Anchor operates as a money market, but with small twists. Anchor does not have the same rate for borrowers as they do lenders, in fact, lenders get paid more than borrowers pay. They do this by having reserves of UST and ANC that can be held to attract users. In addition, borrowers get paid a lot in ANC for yield farming, and the highest yielding pair for this combination is UST-ANC, on terraswap. While not an issue per se at the moment, the farming/equity reserves need to be monitored, and this is what I intend to show.

Above is a chart of the running debt that anchor has, pay attention to the 100M+ drop during May and the incredible rise we have at this moment.

Back during liquidation season, the price of bLUNA took a hit, which actually benefited borrowers, who could buy collateral at a discount, but adding collateral is only one way to ease the risk of liquidations

Above is the Liquidity in the bLUNA-LUNA pair. In May liquidity was low, so high volume could swing the price like it did. However, this has been talked about by myself before, so liquidity in terms of USD and LUNA has gone up by over double.

Now let's get into the ANC-UST pair, the “equity” on the “bank” balance sheet. While ANC price has been falling since March, and the UST in the liquidity pool did drop by over 75 Million over the liquidation frenzy, the UST in the pool remains solid at over 100 Million, even as emissions for borrowing deteriorate from over 100% APY to around 30%. Again, this is not the reserves, just a valuation and holding place for some equity.

Above we see the volume and related stats for this pool. As we can see, during May, the volume did not have a significant change, even as the price fell, so UST borrowers did not remove their LP tokens and swap to UST to pay their debts, rather the opportunity lies in the bLUNA discount. However, as bLUNA stabilizes, this pool is certainly an important metric to follow.

bo While we will get to the special twists

Mirror and Anchor TVL
https://app.flipsidecrypto.com/dashboard/mirror-and-anchor-tvl-rpa8Nl

Mirror Finance, a Terra Ecosystem project, has four main components that I calculated as part of their TVL. I decided to NOT count MIR staking, based on an academic article on token wrapping complexity. https://arxiv.org/pdf/2012.09306.pdf . Regardless of my stance on this very political issue, I included Mirror Mint (the UST collateral), Terraswap and Uniuswap Mirror pools, and UST-MIR pool.

As some may see above, the TVL for Mirror has been solidly above 1B, with a small lowering from 1.5B, mostly from ETH pools and Mirror Mint contract, losing a few hundred million UST in TVL. But where is that going?

Maybe it's going to repay Anchor Loans? The data suggests otherwise, ANC debt has done nothing but rise...

Taking a closer look at Anchor’s money flow, we see that repayments are actually up, at the same time as borrowings being up. In addition, bLUNA is flowing considerably in and out of Anchor. However, with the LTV adjustment on Anchor, new loans/additional lines of credit are allowed for existing collateral.

Taking a closer look at Mirror Assets, specifically on Ethereum, we can see a drop in TVL around July 18th. What is this from?

Around July 18th, ETH started a bull run from its sub - 1800 lows up to over 2500! Higher ETH price means higher gas prices though...

During the same time, LUNA has been significantly more volatile than ETH, and Terra's tax and fee mechanism miscalculated as a percentage of the transaction value, not done out of supply/demand from POW miners, so the relationship will translate differently.
‘
This volatility has translated into nice price upswings, something we are all happy about.

The rise of the pierce of LUNA was preceded by an uptick in the amount of UST sent from ETH to Terra on the shuttle. But, what are users doing with their UST, now fresh on Terra?

Lagging after the UST shuttles resulted in an increase in the amount of aUST, or yield bearing UST on Anchor, partially as a result of the new borrowing demand. However, it is difficult to consider aUST as "TVL" because it's not locked.

UST Collateralization
https://app.flipsidecrypto.com/dashboard/untitled-board-mmxnRk

Wow... Here we are, the age old question, "How is UST collateralized?"

Glad you asked, because I am here to provide you with AN answer, not the answer, but my answer.

First I am going to start with on chain metrics, on ethereum, then move to the UST core mechanism.

Starting off with Curve UST pool, the most liquid spot to trade to or from UST via 3pool. Within the 3pool is DAI, USDC, and USDT, the trifecta of the stablecoins (there is only one UST). We can see the nearly 100M of total liquidity or "collateralization" of the pool, in March, followed by the liquidation event UST short squeeze, and then a return to normal at around 30M. To me it is shocking that 3pool is not invested here more, especially since UST on ETH is going to trade at a premium when it is needed on Terra.

Next are the two biggest uni v3 pools with UST, both being 0.05% fee, USDC and USDT.

We can see the effects of the short squeeze, and the smart LP's sporadically taking advantage of the multi-day spree.

Total liquidity for these pools tops 5 Million (times 2, including UST) at its peak, not really comparing well to the Curve pool, but necessary for arbitrage and pepper pricing.

For the important ratio, blue is good, green is evil. In February of this year, evil was close to beating good, but do-kwon saved us all with the power of SDT.

The following are charts related to the UST price/Terra ecosystem, but the LUNA-UST peg thing was explained probably like 100 times by shreyash and others, and while I definitely have the skills to shake my head in agreement, I still have no idea.