LUISS 🏛

Department

Of Business and Management

Bachelor's Degree in Management and Computer Science

Course Blockchains and Cryptocurrencies

The impact of cryptocurrencies nowadays, and popular crash of Terra Luna.

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Academic Year 2021/2022

INTRODUCTION

I would like to say that I am grateful and honored to have an opportunity to write about this topic from an academic point of view, which is not so common today. Mentioning cryptocurrencies and blockchain moved the world to another dimensions, metaphorically said "Monetary economy of 21st century" (to be announced publicly).

In this thesis I'm going to mention the fresh problem of broken, ex very popular cryptocurrency, and through a deep analysis make a close estimation of its crush.

Even though we just stepped into this world, I have privileges to explain the best I can the mentioned topic.

Also, before a deep analysis you will be close to the fundamental flows of cryptocurrencies and their exponential grow and potential that keeps them expanding.

ACKNOWLEDGE

I would like to kindly acknowledge all the people that held my hand during these three academic years, without who I wouldn't be graduating.

Firstly, I would like to thank to the Prof. Massimo Bernaschi, who helped me understand the very popular and futuristic theme of Blockchains and Cryptocurrencies on academic point of view and helped me to express my interest to finish my bachelor's degree with this topic.

Big thank goes to my one and only, and elder sister, that showed me right path of success, and helped me to push my limits to infinity (lim->inf).

Last thank goes to my biggest support, family, without who I wouldn't be this person that I am today.

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1. General Introduction

In 21st century we have gone through an exponential path that led us to live in the digital world.

Firstly, we moved to digital platforms that saved us our time and our energy. Most progress can be seen on financial side. But what was capturing the most of attention were banking systems.

Money in some form or another has been part of human history for at least the past five hundred years. Historiographers generally agree that bartering was common before this time. With the passage of time, a form of currency developed involving easily traded goods such as animal skins, salt, and weapons: these traded goods served as the medium of exchange.

Lately, many types of money were created, from non-metal money like shells or salt bars to metal money like bronze or cooper, or minted money made of bronze, silver, and gold.

Around 700 CE, the Chinese moved from coins to paper money that we still use today as cash, known as **fiat currency**. There is no intrinsic value in the paper we exchange, although the paper has special features that it must respect.

Money is a medium of exchange: exchanging money, one obtains what they need to live. However, fiat currency is the most commonly used form of currency because it is backed by the government rather than a physical commodity. It's based on the System of Ledgers, integrated with the fractional banking system.

But there was the main question whitin' transferring money between two persons – erasing third party or intermediary. That's the moment when Blockchains start taking the role in the play of Digital World. Even though some say it will bring nothing short of a revolution which can deeply disrupt the way we exchange data and create value.

2. <u>What is Blockchain</u>

Blockchain is type of database. This database and other types of distributed ledger technologies (also known as DLTs), are types of technologies that helps parties to exchange any type of digital data, regarding to peer-to-peer basis in a distributed network of multiple nodes with few or no third parties and intermediaries included. This exchange of data (money, contracts, medical records, and other relevant papers) is done totally without trust between parties.

Blockchain, which is the subset of the distributed ledger technologies is type of database that keeps the data, by virtue of cryptographic techniques.

What makes the main difference is how the data is **distributed, verified, and registered.**

The features are following:

1. Transaction
2. Transaction broadcasted to the network
3. Nodes/Peers validate the transaction
4. Validate transaction added to a new block
5. New block added to the blockchain
6. New block distributed to all nodes
7. Transaction is completed

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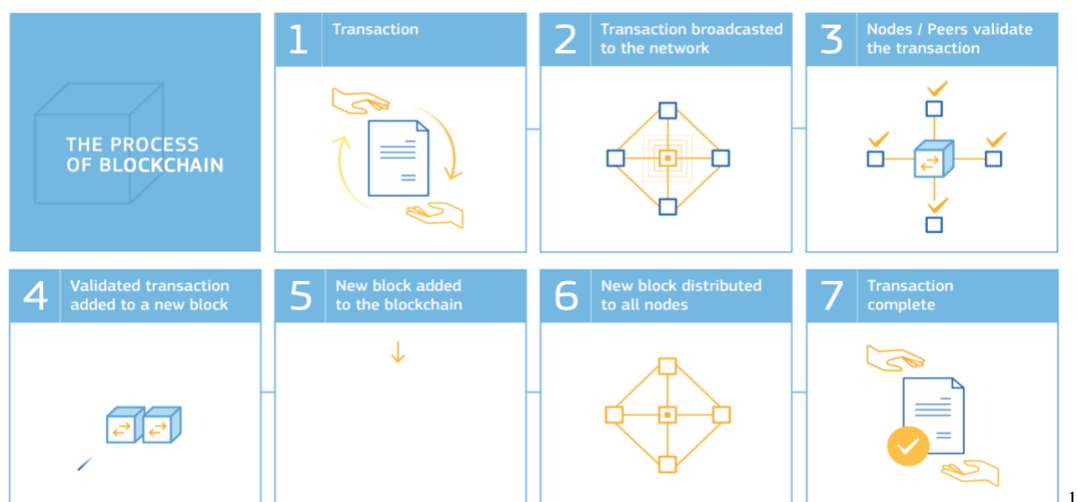
[1] The picture is taken from the Book, mentioned in Bibliography

Of course, there are different types of blockchains with other functionalities and architectures. For example, there is public and private blockchain.

By public we mean "open", anyone can access a whole blockchain and can read everything on it. On the other side we have blockchains that can be accesses only by authorized entities, and we call them private or closed.

Further distinguish is categorized as permissionless and permissioned, where the names explain the meaning by themselves. If case when anyone can send and validate the transaction, the blockchain is called permissionless. If entities need previously to be authorized to execute or validate transactions, the blockchain is called permissioned.

When we are talking about trust, that plays really important roles since there must be the reason why third parties all these years exist.

In order to verify, validate, and add transactions to the blockchain, everyone must follow a set of rules. That's why we are going to talk deeper about that.

3. Decentralization

Since the parties don't trust between each other necessarily, blockchains take the place of other intermediaries of trusted parties. It's consisted of the set of rules that everyone needs to follow in order to validate, verify or add transactions to the blockchains.

The best-known consensus algorithm is called 'Pow' – proof of work which solves a complex mathematical puzzle with computational or processing power of the nodes or miners. There isn't any central point of failure and, the system is very difficult to attack, or hack. But on the other side as the cons of the blockchains there are limitations in scalability and performance, which means that only a limited number of transactions can be done. In comparison with Government cannot control or shut down. But in order to solve the scalability issue of the PoW algorithm, that even if it solves in a very elegant way the double spending problem, it is very expensive and does not scale that well. In fact, the blockchain should support the massive numbers of transactions and users without disruption, or slowdown. PoW cannot process many transactions per

second and are far behind legacy transaction when it comes to transaction speeds. We can mention the most popular cryptocurrency that has an ability to process 3 to 7 transactions per second, and the maximum that one cryptocurrency can process is 20. This is far more less than today's credit card transaction. Many people that are in this world, were thinking about possible alternatives to PoW and one of them is to avoid all the participants to be involved in mining and just get a subset, a selection of nodes involved in validation. Then obviously one must maximize the chance of picking the random subset of good participants. A way to pick the best subset is Proof of Stake. It selects the validators according to the amount of currency they own (stake) to that purpose. Similar to Pow for cryptographic integrity and signatures, but there is no "challenge", and no need to solve the puzzle.

PoS (Proof of Stake) consensus mechanism works because those who stake gave interest in keeping the network secure by doing things correctly. It also has more advantages than PoW, for example: the more you stake the more you earn and at the same time lose if you act against the system; Furthermore, PoS does not require mining pools and electricity cost are substantially lower.

4. Smart Contracts

In order to be ensure that the exchange of digital data is safe, and if we want to "trade" with the person that we maybe don't know but the exchange of data is necessary, smart contracts takes the role.

"Smart contracts are defined as computer programs that enables two parties that are capable of carrying out the terms of agreement to perform a transaction between parties without need of human intervention." (Buterin, 2015)

The most popular one is Ethereum, which is based on its own Ethereum Virtual Machine open source, and they started firstly with trading Ethereum currencies. Even though they are not even smart nor contracts, by now they are the only way of reliable oracle that provides truthful information. (Orcutt 2018)

The execution is done by the 'if-then' instructions, that are very popular commands in programming languages. For example, "if" something happens, if some condition is met, "then" the transaction can be made.

Regarding this innovative and safe tool, the general story of blockchains and cryptocurrencies became of step closer 'to be considered on legal point of view'.

5. EU and global Trends

As of 31st December of 2018, the largest number of blockchain firms was established in the USA, then China. The EU lags in this classification with only 15% share in the global blockchain start-up ecosystem.
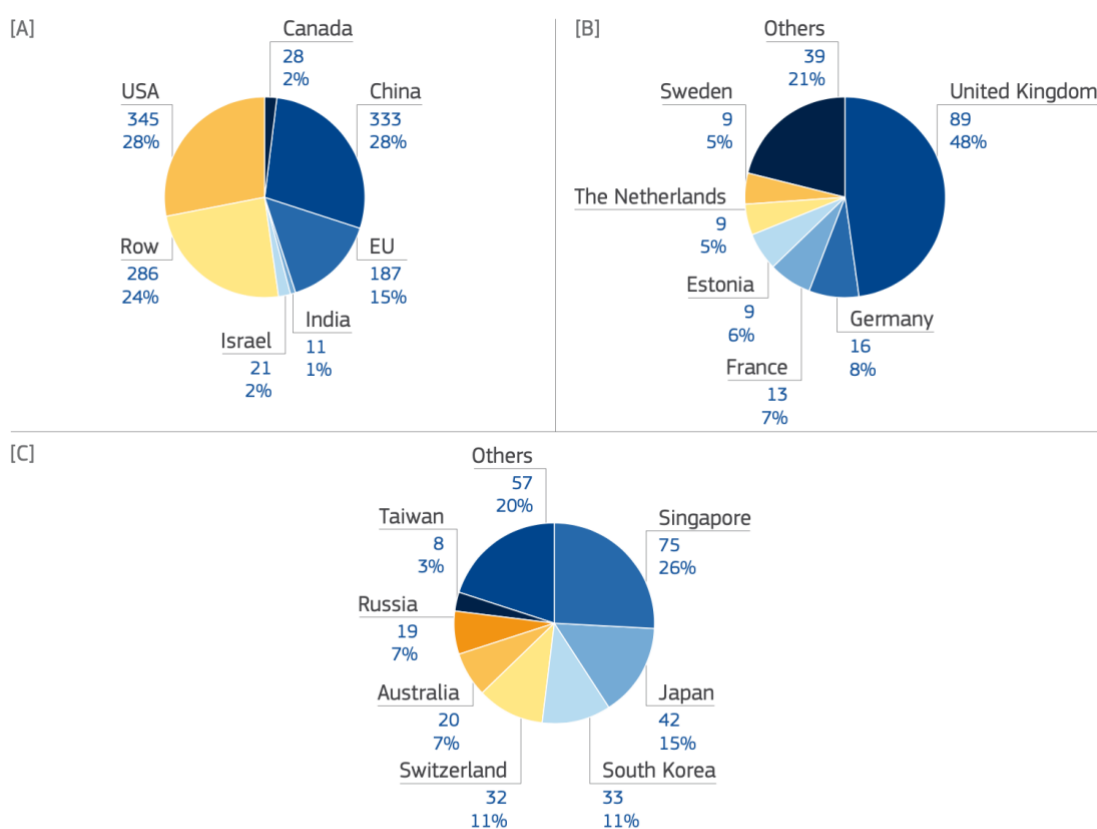

Figure 5: Numbers and shares of blockchain start-ups established between 2009–2018 across: [A] key world players; [B] EU Member States; [C] the rest of world
Source: Venture Sources - Dow Jones

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[2] Figure 5- Source: Venture Sources – Dow Jones

As we can see on the picture above that the demand of the Cryptocurrency in China for consumers and producers is driving big, especially on the crypto wallets, exchanges, and enterprise applications.

Watch for more fintech companies and incumbent financial institutions to start offering crypto trading, wallet, and custody services. Increasing demand from consumers (i.e., trade volumes), and institutions (i.e., announcement of future crypto plans) will encourage more companies to enter the market.

There will be an increase in enterprise blockchain solutions designed for businesses and developers. The technology encompasses blockchain protocols, smart contracts, and APIs for economic services, payments, and supply chains, among others.

Blockchain applications outside the crypto and financial services are expected to grow strongly in funding. These include gaming platforms and token-based economies, data management and storage for media and entertainment, and marketplaces for digital collectibles and non-fungible tokens (NFTs).

6. Thinking of Central Bank Issues

Since this world is becoming from day to day more popular, regardless the volatility, insecurities and other shortcomings that play the important role, the number of people that is actively using NFT's, and web3 is 567% bigger in 2021 than in 2020, reaching to 15,6 trillion dollars, recording to Chainalysis. This brings the banking system to new challenge. Of course, we know that it's not legalized yet, and is in process, the banking system used to have two options:

- To destroy or erase cryptocurrencies
- To meet crypto world on the halfway

To explain those situations a little bit cleaner, the destroy would lead to conflict of interest and also monopolization od monetary world. Another important thing is that the banks didn't want to pay much attention which is why we got to the second mention option. The cryptocurrencies and blockchain world had an exponential growth in just one decade, but not just they grew, they also went to the path of legalization, because the first time they showed on the stage was on so called dark web.

However, recent good news is that Banks develop digital currencies (CBDC-Central Bank Digital Currencies), which means that we are moving into another

dimension step by step. Time is right for the banks to build a coherent approach to Web 3 that helps them to stay ahead and build a competitive offering. Fun fact is that the number of transaction of cryptocurrencies peaked 1,5 million almost every day.

Another important thing that is US mostly paying attention, is how crypto are going to be taxed? We have Bank of England, Japan, and Bank of Singapore, that are in process of legislating into the virtual asset. Central Bank with European Central Bank, and all other important national bank such as the ones in Canada, Sweden, China, promises many advantages of crypto, such as faster digital transactions, also smaller (lower) volatility since they represented as digital versions of national currencies backed by government commitment.

The main issue that bank was doubting on getting into this world was so called Money Laundering, especially because it was so common in Web 3. This problem is still not solved yet but the percentage of this criminal activities on Web 3 went so down and reached the lowest rate in the history. Recognizing the benefit of stable coins such as USDT and Tether, helped this Web 3 to progress.

Banks have other advantages of NBFI's, and that is the tradition and experience of working with governmental regulations, while fostering innovation. Right now, banks should be looking to develop payment service that interact with crypto exchanges and so called 'wallets', including the development of 'on – ramps and off – ramps', that enables customers to access into the crypto funds. Also, we expect CBDC's to replace full fiat, for digital payments, so banks can respond as bridge between fiat bank account and other forms of stablecoins, and between fiat currencies and 'pure' cryptocurrency.

7. Stablecoins

We were all somehow listening about cryptocurrencies, but on the other 'populistic' side were scared to buy them because we cannot see them of hold them physically. What if there is a way of buying some type of popular cryptocurrencies that can be transferred into a cash, without losing the value. Because many people nowadays are somehow scared to trade with NFT because of their volatility, and insecurities, which is why I'm going to talk about stablecoins.

When we talk about cryptocurrencies, term "stable" isn't the one of the first words that came up to our minds. In a volatile world of digital assets, prices are

having an exponential ups and downs, too often. If we want to store money using crypto but we don't want to risk the investment with the price fluctuations of crypto in today's world, that's the moment where stablecoins takes the role.

Stablecoin is a utility token that is built on upon another coin's blockchain. Its entire goal is to create a cryptocurrency that isn't volatile, or that doesn't change the price. With them, you can enjoy all the convenience, privacy, and security of crypto with the stability and trust of fiat currency.

In essence the stablecoins are cryptocurrencies whose values are pegged to an existing asset, most often U.S. dollar, EUR and other. It can be compared with the playing chips that we use when we play with the cards.

For example:

We buy tokens for some about of money (U.S. Dollar, EUR..), and later we use those tokens to trade other cryptocurrencies. And if we want to "cash in" those tokens, we get the equivalent amount of money for however many stablecoins we want to redeem. We can explain this through the to change US Terra with Dollar (just because of the topic). We buy 100 US Terra that are at this very moment equal 100$. Then, by the time the value of Terra goes up and now instead of 100 USTerra =100$ they equal to 10000$.

There are two types of stablecoins. The ones that are most easily to explain and understand are the ones that are backed by dollars, those are called **Asset backed stablecoins.**

On the other side we have algorithmic stablecoins. Their strategy was to circumvent the need for tons of collateral and tons of bank deposits.

Using stablecoins we can trade from back and forth from a Terra or Ethereum to another stablecoin, then from stablecoin to bitcoin, and from bitcoin back to another stablecoin, by virtue of decentralized exchange, without paying any additional charges on fees, or worrying about government tracking.

On the other side it is also beneficial when we are investing in the platforms because we can earn interest in our crypto assets without worrying about price fluctuations.

8. How do stablecoins work?

There are two types of stablecoins:

- asset-backed and
- algorithmically pegged also known as smart contract manipulation.

Fiat asset-backed stable coins means that each coin is backed by something and in most cases that is one USD, or EUR. Even though the fiat currencies are quite stable, they also have some problems. One is that the money required to put up each USDT cannot be invested, which can somehow be millions of dollars without earning the interest. Another problem is buzzled or stealing, and Tether based (proof that you earn that much money).

One of the main issued of algorithmic stablecoins was the volatility. A stablecoin based on algorithms and smart contracts, on the other hand, works on trickier math; they are based on algorithms and smart contracts that incentivize traders to keep a steady rate of growth.

Algorithmically pegged which have benefits of no physical asset to steal, and it is very easy to audit it, but the volatility is much bigger, meaning that there are great chances of exponential growth or exponential decline that can lead to crash. A smart contract that controls stablecoins tends to be much more volatile, as they manipulate the supply of their coins to make their prices more stable.

9. How to buy a stablecoin?

They can be bought on exchanges both centralized and decentralized. It's easier to buy tether, dye, usdc on a centralized exchange like coinbase or gemini.

Another method is to buy something like Ethereum on coinbase, then transfer it to my private wallet and then use a decentralized exchange like uni-swap and trade that ETH into a stable coin

10. Issues/Problems of stablecoins?

Well, of course there are several issues that we deal with stablecoins.

Collateralization Issue, if coins are not backed by the cash, we mean the algorithmic-based stablecoins, the price fluctuates a lot, because those type of currencies are worth the price that people think it is worth, if the belief changes, the value changes.

There are two types of problems of stablecoins. One is the case when the value of reserved asset that is relative to reference asset is too volatile to begin with, and other case is also the risk of a death spiral.

The volatility of reserve assets relative to the reference asset determines the amount of reserve needed to support a stablecoin's peg over its lifetime. There is an extreme case in which the reserve and reference asset move in perfect synchrony, where the share of assets needed to burn a given share of supply is always the same, and where the reserve assumes no risk.
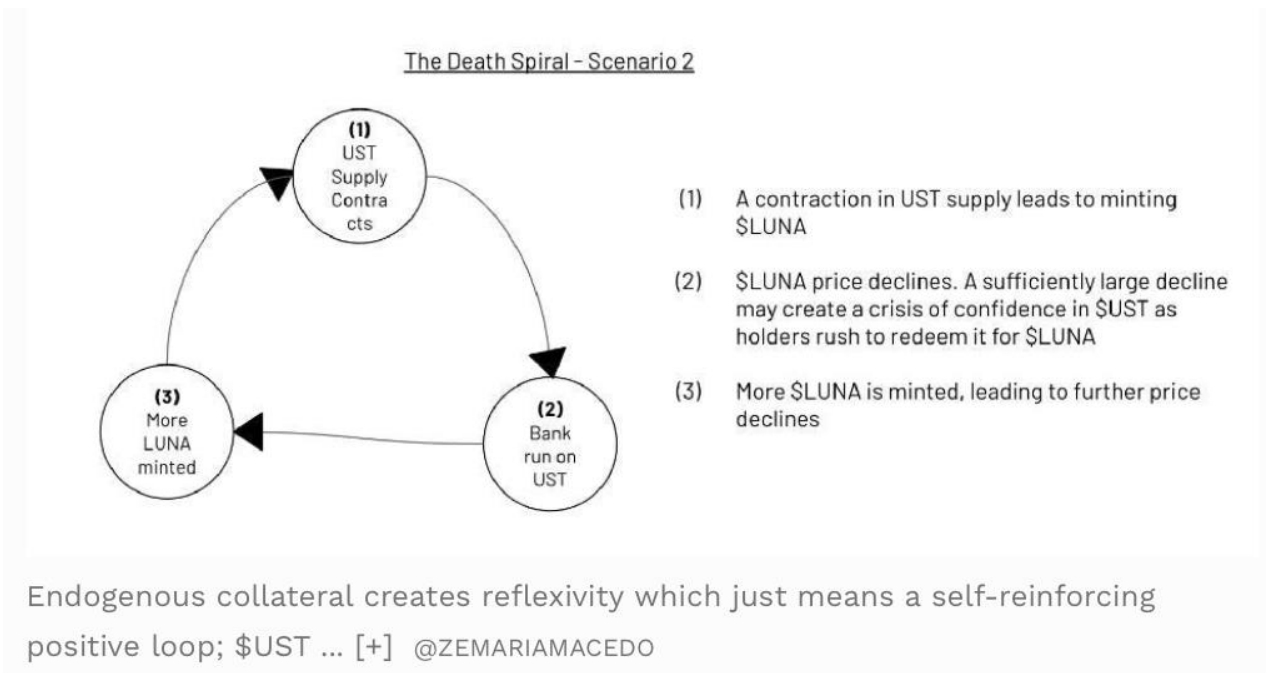
Stablecoins' reserves are likely to experience death spirals when the value of the reserve assets depends on the stablecoin's success in the future, such as when an investment token is included.

As mentioned before the situation about decentralization, those stablecoins that are decentralized either go through the death spiral, or to the highly capital inefficient, as they must be highly over- collaterized to account for the lack of and intermediary.

* Christian Catalini is the Chief Economist of the Diem Association and Diem Networks US, and a Co-Creator of Diem (formerly Libra)

In the words of Federal Re- serve Governor Brainard: "A predominance of private moneys may introduce consumer protection and financial stability risks because of their potential volatility and the risk of run-like behavior. Indeed, the period in the nineteenth century when there was active competition among issuers of private paper banknotes in the United States is now notorious for inefficiency, fraud, and instability in the payments system (Brainard, 2021).

While decentralized stablecoins do not have an ability to provide strong guarantees of long-term stability against fiat currencies, EUR, the ones that are following the framework of banking systems. For now, fiat-backed stablecoins appear to be the only way to ensure long-run stability.

The Death Spiral – Scenario 2

(1) A contraction in UST supply leads to minting $LUNA

(2) $LUNA price declines. A sufficiently large decline may create a crisis of confidence in $UST as holders rush to redeem it for $LUNA

(3) More $LUNA is minted, leading to further price declines

Endogenous collateral creates reflexivity which just means a self-reinforcing positive loop; $UST … [+] @ZEMARIAMACEDO

11. <u>What is Terra Luna and how it works?</u>

Before explaining what Terra Luna is, we have to explain that they are mutually dependent, and then stepping into analysis of the problem.

Terra is a type of open – sourced blockchain, based on decentralized applications (dApps). It uses so called proof-of-stake consensus mixed with ground technologies like Mantlemint, Terrain, and Terra Station.

What makes it so special is the fact that it's one of the fastest chances ever existed where users can use permissionless deFi, generating financial product that can be accessible to anyone.

On the other hand, we have Luna, which represents the Terra protocol's native staking token, used for mining/trading. For example, the consumers stake Luna to validator who record and verify the transactions on the blockchain in exchange of reward from given transaction frees. Validators are responsible to securing blockchain and ensure their privacy.

There is a difference between proof of work and proof of stake mentioned above. The choice of the validator depends on a probability which is determined by

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how much stake a person can hold, and validators do not receive the reward from the block but the fees that they prescribe (in this case about 20%). This type of proof is much more expensive on fees and energy, but it can be less proven. Terra Luna's consensus is backed by Cosmos SDK and secured by Tender mint consensus.

Tendermint consists of two main chief technical components:

1. a blockchain consensus engine
2. generic application interface.

The consensus engine ensures that the same transactions are recorded in the same order on every machine. On the other hand, a generic application interface enables transactions to be executed in every programming language. They became popular because they are simple to understand, easy to use, and perform such that they are really fast.

When we want to stake or to trade Terra, Luna needs to validate the exchange of the rewards. The protocol of Terra allows one hundred and thirty top validators to participate in the consensus, and the rank is determined by the amount of stake as mentioned above. More stake leads to greater chances to be picked to propose a new block and earn more rewards.

In case we want to receive a reward, delegator bond their Luna validator, which exists in three phases:

1. unbounded
2. bounded
3. unbounding

Unbounding is the process when delegators want to unstake their Luna. Approximately it lasts for twenty-one days, and during these days those unbounding Lunas cannot be traded. Once started this process cannot be stopped, only possible solution is to wait twenty-one days for the process to pass, or to redelegate the other Luna to a different delegator. Like other types of communities, this one also has their own basic rules outlined in the governance protocol

Firstly, the user must submit the process and two weeks deposit period is started. Secondly, a customer deposit Luna as collateral, and the end of the period is yet when fifty Lunas are deposited. Now, we go to the voting period where we choose between four options:

Yes: In favor.

No: Not in favor.

NoWithVeto: Not in favor, the deposit should be burned.

Abstain: Voter abstains.

The proposal can pass only if it meets three conditions:

1. 10% of staked Luna are obligated to vote
2. If the percentage NoWithVeto is bellow 33,4 of 100
3. If the majority of Yes exceed 50 percent.

Next step is when the proposals that are accepted are put in effect, and at the end they lead to deposits that can be refunded or burned. The role of deposits is to protect unnecessary proposals or spam. But there are also cases when the deposits can be refunded.

If:

1. At least fifty Luna in deposit is reached within the two weeks of deposit period.
2. The total number of total votes is more than 10% of Luna stakes
3. the percentage NoWithVeto is bellow 33,4 of 100
4. If there is majority (more than 50%) of Yes or No votes

One interesting fee that is applied to Luna is the gas fee. It is the small fee that covers the transaction cost and processes. Its evaluated and added to every transaction of TerraStation. When the transaction does not include enough gas the transaction cannot be processed any further. As in any other similar situations, the cost of gas is not refundable.

How to use?

There are several tools and option on how to use:

- Terrain - good for beginners, all in one tool, provides smart contract for Dapps
- LocalTerra – the name says by itself
- Terra.js – JavaScript SDK
- Terra.py – Python SDK, used for one chained analysis
- Wallet.provider – used for fronted integrations
- Other tools: Terrad, Finder, Faucet

Since my degree lies on Python, I will write some code on how to use it for Terra. Starting from the library toolkit, we connect it with the Wallet

```python
from terra_sdk.key.mnemonic import MnemonicKey
from terra_sdk.client.lcd import LCDClient

# Create client to communicate with testnet.
terra = LCDClient(
    url="https://pisco-lcd.terra.dev/",
    chain_id="pisco-1"
)

# Initialize wallet with associated mnemonic key.
mk = MnemonicKey(mnemonic="<INSERT MNEMONIC KEY HERE>")
wallet = terra.wallet(mk) [4]
```

Explain code a little bit.

```python
from terra_sdk.key.mnemonic import MnemonicKey
from terra_sdk.client.lcd import LCDClient

# Create client to communicate with mainnet.
terra = LCDClient(
    url="https://phoenix-lcd.terra.dev",
    chain_id="phoenix-1"
)

# Initialize wallet with associated mnemonic key.
mk = MnemonicKey(mnemonic="<INSERT MNEMONIC KEY HERE>")
wallet = terra.wallet(mk)
```

 In case if we want to send the transaction on Jupyter

```python
from terra_sdk.client.lcd.api.tx import CreateTxOptions
from terra_sdk.core.bank import MsgSend
from terra_sdk.core import Coins, Coin

# Initialize sender and recipient wallet addresses.
```

[4] https://www.terra.money

```python
sender_address = wallet.key.acc_address
recipient_address = terra.wallets["test2"].key.acc_address

# Set relevant parameters for transaction.
tx_options = CreateTxOptions(
    msgs=[
        MsgSend(
            from_address=sender_address,
            to_address=recipient_address,
            amount=Coins([Coin("uluna", 1000000)])
        )
    ],
    gas="auto",
    gas_prices=Coins(gas_price_dict),
    fee_denoms="uluna",
    gas_adjustment=1.5
)

# Create and sign transaction.
tx = wallet.create_and_sign_tx(options=tx_options)

# Broadcast the request for execution to the Terra node.
result = terra.tx.broadcast(tx)
```

Voting Process

There used to be a type of community that was consisted with the people that trade Luna. One Luna= One quote. Validators vote unless specified by delegators.

12. What happened to Terra?

One of the most popular values that was announces third biggest stablecoin by the market capitalization about 18 millions of dollars. It used to be decentralized algorithmic stablecoin, meaning it's not backed by any third party, such as banks, or

other related companies that are subject to control those actors. Even though many of those currencies have entered the market, not many succeeded.

TerraUSD is mutually dependent on another coin named Luna. What does it mean and how does it function? So basically, every time UST is created or minted, Luna is burned, removed from the circulation. This process led to Supply and Demand economical model that helps the coin to be pegged to 1 dollar. Since the Terra is algorithmically based, the oscillation of the price can change. In the example when the price goes bellow 1 dollar, the trades can burn their UST for 1 dollar worth of Luna. But if the price goes higher that 1 dollar, trades can burn Luna for UST.

Another question that we ask ourselves is if there are any other interest rates. We should pay attention to the fact that this UST deposits are offered through the decentralized finance platform, which can annually gain a rate of 20%

By the end of April 2022, we have noticed the exponential decline of the UST's peg to dollar by declining firstly to 37 us cents, and by May of 12th to 0 dollars until now. Through its history, just 40 days before its total breakdown, TerraLuna has exceeded its highest peak by valuing 116 dollars. Many experts called this situation *bubble*. The first serious growth started exactly one year before the crash and made growth from 6 dollars to 42 dollars just in 4 months (Graph below).

To get back to the real problem, not so long after the scandal, one of the co-founders Do Kwon who has developed Terra, in Terraform Labs twitted that people should still have a hope, and there is a rescue plan. Picture bellow. Unfortunately, many of people lost its hope, and what was more significant is that the "Lab" didn't even want to comment back. The blockchain Association sector said that the people deserve to know more detailed explanation.

Sharp drop in LUNA's and UST's market cap GOLDMAN SACHS GLOBAL INVESTMENT RESEARCH

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13. <u>What can be a main issue here?</u>

We all know the first and most popular crypto currency is Bitcoin, and its power is not giving up from day to day. Should we in any case consider its oscillations and path even though we have already bought and trade the other currency, in this case TerraLuna?

By beginning of the 2022, the co-founder and Luna Foundation Guard made plans to be backed by purchasing 10 billion of dollars in bitcoin. Soon Luna Foundation Guard liquidated soon its bitcoin when Terra begins to slide. The treasury wallet was emptied of its 42k bitcoin on Monday.

Another aspect that was suspicious was the fact that they started changing the plan of stability. The first step was the moment when they decided to buy 3.2 billion worth bitcoins as a treasury to try and back their coin. Why changing plans, if just one month before Luna exceeded the peak? One of the famous quotes says: "If the plan

[5] https://www.forbes.com/sites/rahulrai/2022/05/17/the-death-spiral-how-terras-algorithmic-stablecoin-came-crashing-down/?sh=47599d7b71a2

doesn't work, change the plan not the goal", but if the plan was going well why changing plan then?

Second/Third aspect was the ecosystem, that tried to hint us. Of course, if you want to trade better, you have to follow the situation on the market. The Securities and Exchange Commission received the documents from Coinbase, the U.S.'s most prominent Cryptocurrency exchange that went public in April 2021, warning that if the exchange goes bankrupt, user's holdings may be lost. However, Coinbase's CEO Brian Armstrong made it clear that bankruptcy was not imminent.

Stablecoin risk profiles based on reserves

Source: Catalini, Gortari [6]
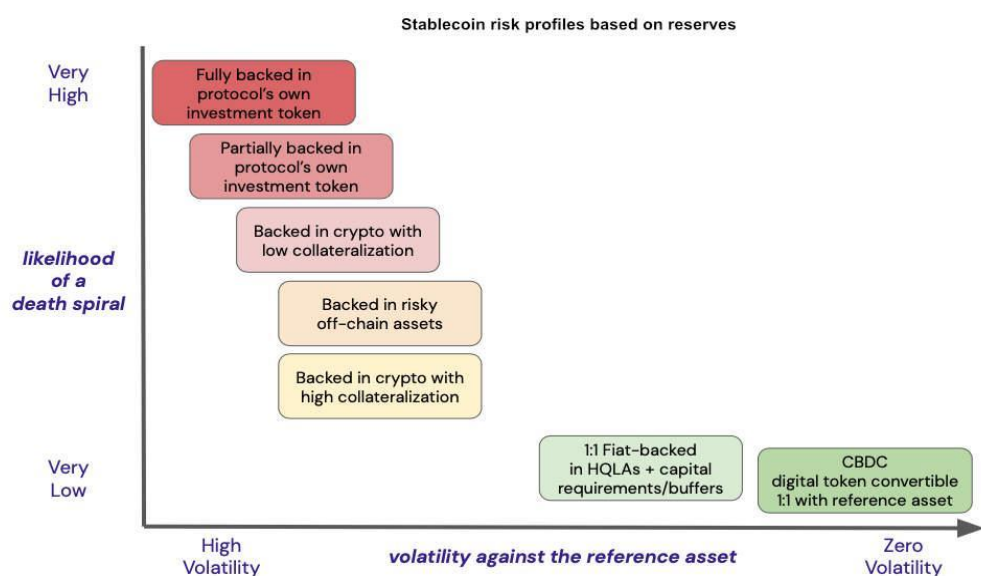
14. Getting Deeper

In many cases when we are talking about fiat currency, the growth of one of the strongest currencies (value) can have an impact on other that are less important.

I have previously mentioned that that algorithmics stablecoins are actually based on the confidence and trust in economic incentives of the stable coin issuer's underlying ecosystem, which lead us to explanation that rapidly growing product especially if digital asset represents rapidly growing risk.

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[6] On the Economic Design of Stablecoins
Christian Catalini Alonso de Gortari

Meanwhile another algorithmic stable coin has lost its peg like Neutrino and Tether, which was one of the very popular and expanding cryptocurrencies, with one of the largest market capitalization.

Besides Bitcoin, Luna also had a small, but big enough, amount of AVAX token. In "the week", when all the previously mentioned crypto currencies started to decline, AVAX's market capitalization declined for more than 61% compared to other for example Ethereum and Polkadot. It was one of the biggest crushed besides from Luna one. Was this a little bit of an indicator?

Of course, Terra/Luna has its own blockchain with protocols (Cosmos/Tendermint). To make the network work better, and more secure, people have decided to deposit more tokens. The best indicator of secure was the 21 days withdraw, in the case the value of token is decimated.

The crash impacted the rest of the crypto as well. The contagion started to spread among the other popular stablecoins, and even Bitcoin hit its lowest point, before the huge historical declined that was recorded in December of 2020. Also, the decline was recorded in Ether, XRP, and other.
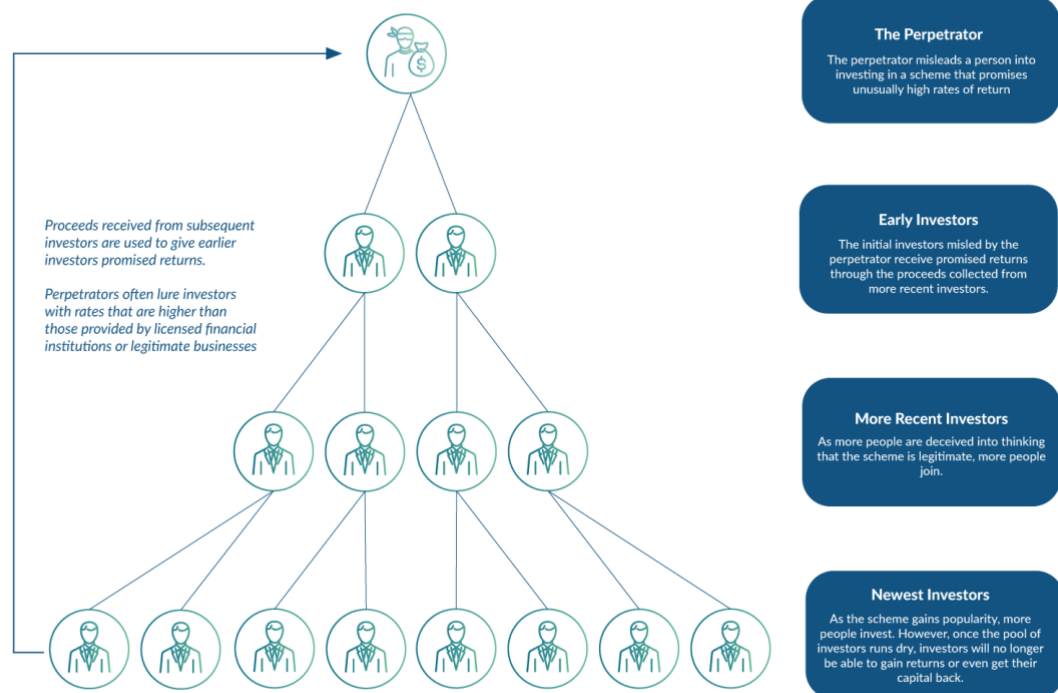
15. Flow of Terra and my point of view

Is there any risk management that can help you when the de-peg occur? OKX informed all the users about the price volatility of UST and LUNA. Looking from the Anchor Protocol, OKX made a conclusion that Terra was going to liquidate, in the moment when its value has bordered 65 cents.

The price of UST soared in the last six months due to platform previously mentioned Anchor, which offered a 20 % yield to anyone who bought UST and lent to a protocol. The critics have a name for that, *Ponzi Scheme.* What then happened? The prices were rising too much, and all the red flags were ignored. There were a lot of people that were pointing the problem and they were saying that you cannot hack a stable crypto with an unstable one, and that it cannot work if there is an outward pressure of the stable coin but may not work when its dropping.

As we can see on the picture above that is pointing the flow of Luna, we can see that Luna had an exponential growth from 15 cents when it began to 120 dollars that peaked in April.

Another problem that can be taken is that short sellers caused UST to de-peg from dollar, and that cause a disastrous result. Of course, many investors crawled to sell their USD, which led to the previously mentioned *death spiral* that caused Luna's crash.

How Ponzi Schemes Work

The Perpetrator
The perpetrator misleads a person into investing in a scheme that promises unusually high rates of return

Proceeds received from subsequent investors are used to give earlier investors promised returns.

Perpetrators often lure investors with rates that are higher than those provided by licensed financial institutions or legitimate businesses

Early Investors
The initial investors misled by the perpetrator receive promised returns through the proceeds collected from more recent investors.

More Recent Investors
As more people are deceived into thinking that the scheme is legitimate, more people join.

Newest Investors
As the scheme gains popularity, more people invest. However, once the pool of investors runs dry, investors will no longer be able to gain returns or even get their capital back.

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16. <u>Conclusion</u>

From this thesis we should conclude 2 problems.

Before entering the market, when we want to trade crypto we should pay attention on several things. Unfortunately, even though we can make deep analysis

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[7] https://silklegal.com/too-good-to-be-true-the-ponzi-scam/

following the flow and growth of those value, we can never be sure 100%. So, we should try to make trade with the lowest risk, meaning lower the risk, more secure win.

As I mentioned previously one of the biggest indicators is the flow of other popular cryptocurrencies. Algorithmic based stable coins look like are always going to be popular, despite the risk, more than asset-backed stable coins, why? Because of the exponential growth that can lead to "exponential" amount of money. Since the main reason is to remove the centralized institution that are increasing the distrust in fiat currency case. We want anonymity of cash but in mutual connection with high security. But why anonymity in your money is legal? This is the main reason why Blockchain and Cryptocurrencies are not admitted in everyday function of trading.

For their 12 years of existing, they make a huge improvement, meaning that the EU directive is one step closer to introduce it officially. Should it only be algorithmic based stable coins, or only for asset-backed stable coins, or for both? Are things going to be centralized or not? The power of Central Bank is shaken, but it's their moment to prove the power they have and to make a compromise. Things like this huge crash of TerraLuna wouldn't be allowed to happen.

Second thing that is necessary is the transformation of industry, trade, markets, government, and public sectors. But to get back to Luna situation we can conclude that contagion in the algorithmic based stablecoins represents as big risk as in the rest of the finance. Which means that the potential loss to the consumers is far more than decline in the stable coins value.

Besides all the problems and risk of decentralized stablecoins, the story is going to be continued.

As previously demonstrated the crash of algorithmic stablecoin TerraUSD and chains of events effect that saw the value of Bitcoin, Ethereum and Tether strongly falling, we got to the conclusion that not all stablecoins are stable as their name says they should. On the algorithmic point of view Terra was no tethered to a fiat currency but used other difficult merge of code and its sister token Luna, to stabilize the process.

This whole situation that happens about the crash revealed that the regulation process is really important, and that the markets need the bank based stablecoins backed tethered to fiat currencies, to deliver cryptocurrencies that are reliable stablecoins and offer lower risk. Cryptocurrency is built a lot on the hype, and it's

built on the notion that coins will continue to increase in the value. This situation is similar to the situation that happens on the Stock Market. The taxi driver indicator theory says that when everyone from taxi drivers to shoeshine boys are invested in a particular asset, that investment has become too crowded for its own good and is bound to collapse.

On the other side, cryptocurrencies are not the only thing that is mutually dependent on the blockchain technology. Now, people can actually trust each other, and they can transfer from money, to music, to their identities, on peer-to-peer basis. The business world of the future says that 10 years from now everything is going to run on smart contract and strong encryption.

17. Interesting Quotes:

"Travis Bott, the founder and CEO of Meta Labs Agency, a consulting firm, said that with USDC or USDT, you have the stablecoins that ultimately hold a reserve of dollars against the issued tokens to back them, as opposed to an algorithmic approach." ("The not-so-stable coins: How Terra's collapse is dragging down crypto ...")

"Banks should prepare to engage in the crypto revolution, or risk having to catch up. "

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