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"THE MONTAGE OF ATTRACTIONS" IN CRYPTO ECOSYSTEM: FROM ZERO INTRINSIC VALUE TO A BUBBLE PRICE

Abstract:

The research is dedicated to the examination of cryptocurrencies' market price and money supply modelling in the crypto ecosystem. The study provides a model for a money supply construction under a proof-of-stake blockchain within consequential empirical tests. The call for financial regulation and measures in action was unveiled. Price bubbles and cryptocurrency volatility are also depicted on the edge of rising global inflation. Amid the discussion, the recent crypto scams revealed are applied – to trace blockchain purity against the shadow schemes and criminal use of the technology.

Keywords:

Cryptocurrency; Blockchain; Proof-of-Stake; Ethereum; Bitcoin; MINA Blockchain

JEL Classification: G28, G29, G32

I. INTRODUCTION

Cryptocurrencies evolved as a rationale against financial intermediaries, voting for peer-to-peer transactions and payments. To remind, the Bitcoin White Paper[1], the first cryptocurrency blockchain protocol states it: “proposes a solution to the double-spending problem using a peer-to-peer network.”

Apparently, as the crypto ecosystem develops, the rise of various facilitators we overview in the field known as decentralized finance (DeFi) proved exactly the opposite. Amidst many, there are various lending and staking protocols, decentralized or centralized exchanges, and automated market makers (AMM). In fact, from an economic point of view, the crypto sphere follows the familiar steps of tools development like conventional finance. From private peer-to-peer transactions to the understanding of edge of the information asymmetry problems. And the role of intermediaries, so as foreseen common rules, and regulation, in fixing these issues.

Crucial to note the negative connotation of cryptocurrencies and, consequently, the entire blockchain technology. There are two main reasons. The first is quite straightforward – the criminal use of crypto assets for money laundering, ransomware attacks, and subsequent shadow schemes within illegal attempts to overcome sanctions or penalties.

IMF Financial stability report suggests the tremendous growth in mining activity in Russia – in the nearest future (IMF, 2022). Chainalysis criminal report uncovered a significant increase in money laundering services in 2021 (Chainalysis, 2022). The strong precedent occurred in October 2021 and in April 2022 when US Treasury blocked and sanctioned a few crypto ventures[2] and wallets tied with criminals (US Treasury 2021a, 2022a).

The second cause for crypto skepticism roots in the bubbling market price of bulk of cryptocurrencies exist beyond any coverage or state guarantees. The underlying coverage of stable coins, despite the original idea, could hardly provide critics in practice. The case is three-fold. One is that only few of stable coins exist nowadays. Next is the lack of certain proof for an adequate collateral (sufficient coverage) applied to issue the particular number of tokens. Several incidents of coverage to be overused are already disclosed to the public (FRB of Boston, 2021). And last, the market price of stable coins is constructed to be equal or around the price of one unit of underlying fiat-currency.

We argue, the sharp spikes in prices for digital coins is strongly supported by assets with shadow origin and criminal use. The price bubble of cryptocurrency with inflation ties would be discussed further.

II. THE PRICE BUBBLES OF CRYPTOCURRENCIES AND GLOBAL INFLATION

In April 2022 International Monetary Fund (IMF) published the regular Financial Stability Report (IMF, 2022). Among the major challenges central banks face around the world are considerably rising inflation and disruption of supply chains. Meaning the world should prepare for decisive tightening of monetary policy (the modern era for jumps in interest rates and profound quantitative tightening tools).

According to IMF experts, the case was amplified for one dramatic reason. Thus, the crypto ecosystem issue arose quite prominently. IMF points out the necessity of more precise

[1] The Bitcoin White Paper is available on the official website at https://bitcoin.org/bitcoin.pdf/

[2] On September 21, 2021, the US Treasury has sanctioned the virtual exchange “SUEX” and on April 20, 2022, - the bitcoin miner “Bitriver” and its subsidiaries in Russia

supervision for capital flows in cryptocurrencies tied to Russia, Russian companies, and new-born fintech start-ups.

On the one hand, blockchain and digital currency produced could be treated as a technological revolution for payments. But on the other, the lack of common rules settled, better known as financial regulation, provides the opportunity for shadow schemes and criminal use. The problem was also mentioned by European Central Bank: that various cryptocurrencies and DeFi-services could serve for Russia to overcome western sanctions when a country is cut off from the global financial system. The matter of decentralized exchanges (DEX) and privacy mixers serving to increase anonymity has been raised.

The IMF Financial Stability Report argues that Russia could turn on Bitcoin mining since the US has banned its energy exports and Europe could create its oil embargo as well. Simply put, being financially and economically sanctioned, Russia would try to monetize the unclaimed and excess energy resources.

Remember, earning the cryptocurrency through mining is built on so-called proof-of-work (PoW) protocols, on which Bitcoin was created on. Therefore, Bitcoin is basically arising in a such discussion. Numerous disputes pointed out the environmental cost of cryptocurrencies regarding proof-of-work (PoW) protocols.

Meanwhile, the industry evolves rapidly. Each blockchain is built on its protocol and issues the native coin to reward the participants. The number of altcoins (that is any cryptocurrency beyond Bitcoin) has grown up to more than eighteen thousand cryptocurrencies.

But what should be also mentioned is the solution of proof-of-stake (PoS) protocols, meaning the cryptocurrencies minting through the staking. These altcoins protocols are more energy-sustainable and more prominent in the crypto ecosystem nowadays.

Although the proof-of-stake (PoS) attracts deep attention for being used widely in DeFi services, the area is pointed to extreme growth for shadow transactions (Chainalysis, 2022). Nowadays, PoS protocols are gaining momentum for the solution presented in the Ethereum blockchain. The network within its own currency Ether has the second market capitalization in the crypto domain. Many DeFi “layer-two” projects are built on Ethereum protocol for the network structure initially presumed to provide users create their own protocols through the technology of smart contracts.

Moreover, Ethereum is waiting for the event called the Merge. To merge the Beacon chain, worked on the proof-of-stake protocol, to the initial Mainnet operating on proof-of-work agreement. The event was expected to happen in Q1/Q2 of 2022 but was postponed and is planned for Q3/Q4 2022 (on the state of May 12, 2022). As the official Ethereum website states: “This will mark the end of proof-of-work for Ethereum and the full transition to proof-of-stake” [3]. The impact of the Merge on the crypto ecosystem demands further estimation though.

Given the high volatility and the growing volume of crypto-assets in circulation[4], digital money provides significant inflation-driven value for fiat-currencies. The urgent call for regulation of the crypto universe is emerging decisively, prior to the countries within most liquid national currencies.

Applying to cryptocurrencies, it zero intrinsic value turns into a bubble market price. It comes from each fiat-to-cryptocurrency back-and-forth trade. Meaning that value flows inside out - from the fiat currency to the crypto ecosystem, thus, diluting the value of the real economy.

The more cryptocurrencies are minting in the system, the more potential inflation it brings to the real economy globally. The supply of crypto coins is managed by particularly protocol

[3] The Ethereum Merge information is available on the official website at https://ethereum.org/en/upgrades/merge/

[4] The crypto market estimates 1,8 billion US dollars on May 1, 2022.

programmed, turning into a vast number of different coins increasing in volume every day. Since the crypto ecosystem has no regulation of money supply, it spurs inflation tremendously.

Prominent crypto experts support the need for regulation. Cryptocurrencies mostly suffer critics not because of the underlying concept but for the use of blockchain technology by various shadow projects rising a dubious origin of the assets. Indeed, the question of legal origin should appeal directly to projects and services based on the use of cryptocurrencies and blockchain solutions.

Meanwhile, to distinguish the two similar projects – the healthy and the underground one, an interested party could easily check the market capitalization (market cap) of the project and the number of investors (either delegators or validators) involved. The more the market cap and the less the number of investors – the riskier the project and the higher possibility for the grey origin of its cash flows.

For most of the existence of such grey areas in the blockchain and cryptocurrencies domain, the most innovative and healthy projects are suffered. Not the cryptocurrencies and blockchain ideas are going to be punished but the parties are deeply involved in shadow and criminal use.

Should be particularly emphasised, we argue that rapid price growths in Bitcoin and other liquid cryptocurrencies are spurred by the enormous flows of criminal fiat money into the crypto ecosystem since the blockchain technology was commenced.

We appeal the regulation is needed from the part of incoming capital flows, which would prove the pure origin of money. We suppose it could be constructed through a special universal type of token, like the common ERC-20 standard in Ethereum, acceptable by anyone and known as healthy and pure coins. Measures in action could distinguish the grey and the pure area of the crypto ecosystem.

To conclude, we point a widespread claim the crypto ecosystem operates beyond intermediaries and solid transactional costs.

Indeed, there is an intermediary's commission analogue. Nonetheless, it is titled another term and declares of no intermediaries but any transaction in blockchain has to be paid a fee (e.g. so-called gas in gwei for the Ethereum network). That is the transaction cost. Fees transfer to special nodes functioning to approve the transactions. Nexus to various DeFi protocols and staking pool services, these projects depict the intermediaries at once. Besides, plenty of examples revealed of fees experiencing terrific hikes while demanding on blockchain increases. Finally, the anonymity of parties involved lefts but this preference is quite questionable for legal capital and monetary authorities.

Financial regulation of cryptocurrencies does need to be done. The quicker it comes, the less harm it costs to the global economy. And this is the issue for the world facing inflation of decades historical highs. Besides, US Treasury published Sanctions compliance guidance for the virtual currency industry in October 2021 (US Treasury, 2021b). The more regulatory actions to be in the future.

Later we discuss the essence of economic models applied in a crypto ecosystem to be theoretically determined and empirically checked, within the case of proper regulation – to protect the global economy from recession risks.

III. THE MODEL OF CRYPTOCURRENCY PRICING AND MONEY SUPPLY IN PROOF-OF-STAKE BLOCKCHAINS

The major concern of cryptocurrencies refers to high market price volatility and scepticism towards their internal value. Should be noticed such disputes occur in the sense that digital

coins are treated not only for being a counterpart of fiat-currencies but also seemed kind an investment or speculative asset.

In our study, we attempt to reconstruct the money supply and asset pricing model for a cryptocurrency built on the proof-of-stake (PoS) protocol. The idea covers the development of blockchain from its genesis to the recent market state on the example of one of the existing modern protocols.

First, is the initial number of tokens applied for the chain genesis. These tokens are basically locked for some period of time, meaning they can't be extracted from and transmitted to other crypto chains. Let denote this value as $S^{Initial}$.

Then, a starting point for a blockchain-based on PoS-protocol consensus is the competition between participants (validators) for winning a slot to approve (validate) and receive rewards in return. Rewards awarded are designed in the chain native tokens and it represents the actual amount of a new cryptocurrency minting each time. This is the value of the inflationary effect on the chain currency. Besides, these tokens minted (S^{Minted}) are unlocked ones and could be freely exchanged for other cryptocurrencies.

Notably, to participate in the network and receive awards, an interested party needs to stake at least a minimum number of native tokens, that is $Value_t^{Staked}$.

Although, there is also transactional costs paid for every transaction to be provided in native chain tokens as well. However, these amounts are paid by the means of coins already minted and do not contribute to the growth of the money supply throughout the chain.

The additional number of cryptocurrencies could inflow ($S_t^{Exchanged+}$) or withdrawn ($S_t^{Exchanged-}$) on the various exchanges (both centralized and decentralized). These values whether an increase or shrink money supply at time t.

In every data point, the time t, the money supply **(**S_t^{Total}) measured as:

$$S_t^{Total} = S^{Initial} + \sum_1^N S_t^{Minted} + \sum_0^N \left(S_t^{Exchanged+} - S_t^{Exchanged-}\right) \quad (1)$$

$$S_t^{Total} = S^{Initial} + \sum_1^N S_t^{Minted} + \sum_0^N \Delta S_t^{Exchanged} \quad (2)$$

So that by definition $S_0^{Total} \stackrel{\text{def}}{=} S^{Initial}$, while reminding

$$\Delta S_t^{Exchanged} = S_t^{Exchanged+} - S_t^{Exchanged-} \quad (3)$$

Initial money supply ($S^{Initial}$) is basically equal to the only locked tokens (C_o^{Locked}). As far time goes by, the locking rate (l_t) is changing the proportion of locked and unlocked tokens. Shouldn't one accept the need for locked tokens in the blockchain. The number of tokens required for the network development providing the temporarily stability – through the period of locking. Meanwhile, the demand of such locked token could puzzle a bit. Though the clue is a significant discount in token price for the initial coins offering (ICO) within voting rights to holders. Voting rights throughout blockchain evolution are the additional incentive for investors to participate in ICO, accepting rather higher risks of such projects. In addition to the extra returns (gained by discount), voting become crucial for blockchain projects also placing its organizational structure on the idea of decentralization.

Indeed, the items called decentralized autonomous organization (DAO) are seen as completely autonomous of any hierarchical structures in blockchain. In practice, even if DAOs operate under decision-making based on voting round for all the applicable token holders, there

are items so-called foundations stand alone for the project. And these foundations are typically represented by the creators and initial supporters of each blockchain project. Given that DAOs are guiding decision-making throughout their blockchain, so as provide marketing and business performance. The latter represents DAO as the analogue of a corporation and its shareholders decision-making in traditional financial markets (TradFi), diminishing the myth of blockchain projects discrepancy at the managerial points.

For the security of fair-spread-voting, the urge occurs on the side of the concentration risks. Despite the possibility of formal decentralization through the medium of various wallets to hold tokens of blockchain. The anonymity and the ease the multiplicity of wallets, the duet is constructing an enormous risk of concentration the project in the hands of a small group of interested parties. Destroying any attempts on decentralization and equal-to-all decision-making.

According to the sequential process of unlocking the tokens, the locking rate at time t is as follows

$$l_t = \frac{C_0^{Locked} - \sum_1^N C_t^{Unlocked}}{S_t^{Total}} = \frac{C_t^{Locked}}{S_t^{Total}} \quad (4)$$

where: C_o^{Locked} – tokens locked at the time of chain Genesis (t=0);
C_t^{Locked} – tokens locked at time t;
$C_t^{Unlocked}$ – tokens unlocked at time t;
l_t – is a locking rate at time t;
$t = \overline{0,N}$; N – number of periods analyzed.

Referring $S^{Initial} = C_o^{Locked}$, equations (1) and (2) could be transformed in to

$$S_t^{Total} = \left[C_o^{Locked} \cdot r_t^{locking} + \sum_1^N C_t^{Unlocked}\right] + \sum_1^N S_t^{Minted} + \sum_0^N \Delta S_t^{Exchanged} \quad (5)$$

The less the locking rate becomes through time, the higher the number of tokens minted could be for the solution of the greater rewards for unlocked tokens. A number of tokens minted would be represented by two sides: one of ordinary rewards (R_t^{Basic}) for tokens locked and the other – supercharged rewards ($R_t^{Supercharged}$) for unlocked ones:

$$S_t^{Minted} = R_t^{Basic} \cdot C_t^{Locked} + R_t^{Supercharged} \cdot C_t^{Unlocked} \quad (6)$$

The growth rate of the money supple is

$$g_t^S = (S_t^{Total} - S_{t-1}^{Total})/S_{t-1}^{Total} = \Delta S_t^{Total}/S_{t-1}^{Total} \quad (7)$$

Here is the growth rate (g_t^S) expresses the measure of inflation for the cryptocurrency based on the PoS protocol. Not the entire money supply value could be at stake in the network. The total value staked does not exceed the money supply and depends on the participation staking rate required (PSR_t). Besides, the total unstaked coins $[S_t^{EX} = S_t^{Total} - Value_t^{Staked}]$ would vary from the initial coin offering value to the target of participation staking rate required:

Thus, the limitations of the concept generated are

$$\begin{cases} \lim\limits_{t\to 0} Value_t^{Staked} \overset{\text{def}}{=} S_0^{Total} \\ \lim\limits_{t\to\infty} Value_t^{Staked} \to S_t^{Total} \cdot PSR_t \\ \lim\limits_{t\to\infty} S_t^{EX} \to S_t^{Total} \cdot (1 - PSR_t) \end{cases} \quad (8)$$

Basically, the white paper of a blockchain – the main document issued for the investors to provide knowledge of a project – describes what it calls monetary economics and the rate of inflation the project intended to apply for. There is also time horizon for the inflation to achieve the level stated since when the blockchain could launch the burning mechanism, so the growth rate would be corrected by the burn rate (b_t^S). Since C_t^{Burned} is a volume of tokens burned at time t, then

$$b_t^S = \sum_1^N C_t^{Burned} / S_t^{Total} \quad (9)$$

Referring to the classic rates of return applied in the crypto ecosystem, they are annual percentage rate (APR), annual percentage yield (APY), and less common in a blockchain – the analogues of conventional return on investment (ROI). Very few staking protocols apply the latter to the indicator of return on staking (ROS).

In our premise, a rate on staking overall the chain (RRS_t) is as follows

$$RRS_t = \frac{S_t^{Minted} - C_t^{Burned}}{Value_t^{Staked}} = \frac{R_t^{Basic} \cdot C_t^{Locked} + R_t^{Supercharged} \cdot C_t^{Unlocked} - C_t^{Burned}}{Value_t^{Staked}} \quad (10)$$

Participants compete for the winning a block during one session, the time horizon of which varies on the particular blockchain. Though some projects could aggregate some accurate identical number of consequential blocks into groups – to distinguish operating slots. Its titles vary from chain to chain, for instance, these time slots are in a sense called epochs. And the comparative analysis of network efficiency and performance metrics for validators is made for these cumulative time slots – from epoch to epoch.

IV. EMPIRICAL ESTIMATION OF PRICING AND MONEY SUPPLY MODEL IN PROOF-OF-STAKE EXISTING BLOCKCHAINS

The clear logic of theoretical assumptions underlying existing proof-of-stake protocols requires empirical tests on its performance. Does the intention described in the blockchain white papers coincide with the actual project performance? To answer this question, we present the analysis of one of existing proof-of-stake protocols, entitled the MINA Blockchain[5].

The choice of the blockchain to study is three-fold. The first is the relative youth of the project - the genesis was launched in March 2020 – under crypto community acceptance. And the second one is a chain-related discovery of the permanent size of the blockchain - 22 Kb, executed through the so-called zk-SNARKs[6] solution. The protocol is the opposite of the majority of blockchains the size of which is persistently increasing over time, since the block produced, the greater the chain becomes. And the most valuable is the development of public tools to extract blockchain data – open and free of charge – sharing the research opportunity

[5] The MINA Blockchain official documentation is presented at https://docs.minaprotocol.com/en/

[6] According to official documentation, zk-SNARKs is a “type of succinct cryptographic zero-knowledge proof”

both for professionals with prominent coding experience and newcomer experts from interdisciplinary fields. The intention serves for providing equality in knowledge and blockchain transparency beyond borders.

Our work aims to assess the actual chain performance for the comparison of the monetary policy stated and the empirical evidence revealed. Any investment attractiveness of the protocol is beyond the scope of this research.

The initial data for testing our hypotheses is based on the MINA Blockchain information gathered through the one of its open-source API available for requests based on the GraphQL programming language queries – the API source presented on Minaexplorer[7] project.

The openness of data underpins the entire blockchain existence, delivering the wide opportunities for researchers moving forwards and revealing the crucial drawbacks and social risks along with purposeful solutions in crypto ecosystem.

There are basic specifics of the MINA blockchain needed to highlight on the purpose of the testing of the model presented at the previous chapter:

1) Aggregate sessions are represented by epochs. At the time of our study, each epoch lasts for around 14 days and 21 hours, so one calendar year consists of the approximately 24 epochs.
2) An epoch is a unit of time that is divided into slots of about 3 minutes each given the time for creating a block and produce zkSNARKs (transaction proofs pursued to compress the blockchain size). An epoch contains 7140 slots at Mina's Mainnet[8];
3) The so-called verifiable random function (VRF) determines the chances of being selected to produce a block. The greater the staking amount, the higher the chances to be selected. Odds presume numerous validators could be nominated for the block producing. The final decision is made by solution specified as the Ouroboros Samasika[9].

The rage of notation goes to time t which is a number of an epoch in the blockchain. And for the state of our study, the latest epoch in the Mina blockchain is 29th – from May 22, 2022 (9:00 AM UTC) to June 6, 2022 (5:59 AM UTC). Thus, there are N=29 epochs to analyze, so $t \in [0; 29]$.

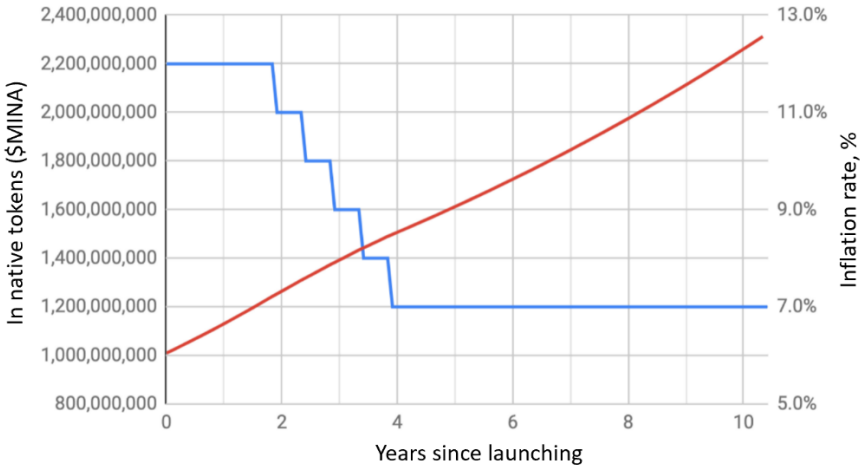
[7] The Minaexplorer project presents a public-open tool for non-programming experts, available at https://graphql.minaexplorer.com/. In addition, the detailed documentation guide for use of Minaexplorer GraphQL API is presented at: https://docs.minaexplorer.com/minaexplorer/

[8] Mainnet is the main network for a blockchain project while so-called Testnet and Devnet are those usually applied for preliminary testing of solutions to be launched

[9] The Ouroboros Samasika mechanism is defined at https://minaprotocol.com/blog/how-ouroboros-samasika-upholds-minas-goals-of-decentralization/

The money supply projected by the project economic paper is presented in Figure 1.

Figure 1. Mina Protocol Supply Schedule



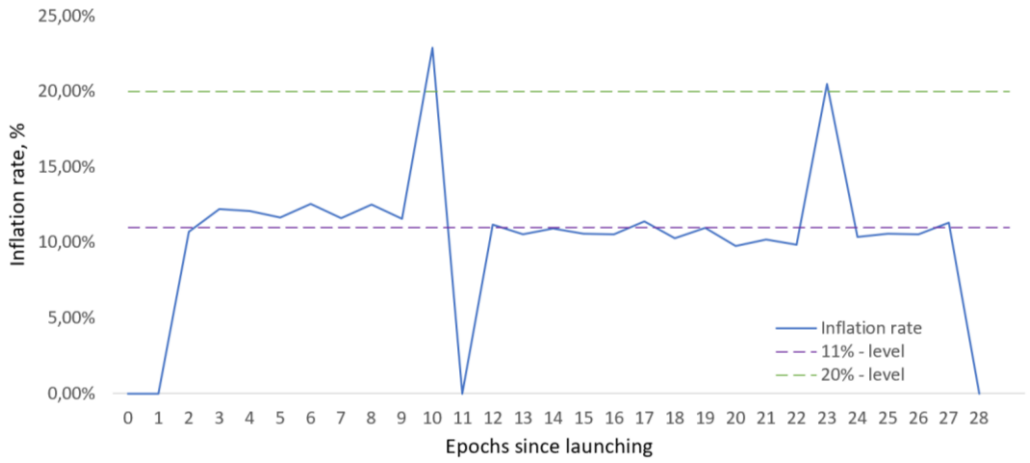
Source: (Cohn et al., 2020)

Considering that the blockchain is operating on the 28th epoch and preparing to switch to the 29th on May 22, 2022 (9 AM UTC), Mina's protocol entered its second year since been genesis launch. According to the monetary prospects of the project (Cohn et al., 2020), the inflation rate is targeted at a 12% level.

To testing this assumption, we apply the growth rate of the money supply (g_t^S) presented in the previous chapter as an indicator of inflation. The estimation made on the actual total money supply throughout the network is measured on the epoch-by-epoch timespan. The latter is converted for the inflation rate on a year-to-year basis given two weeks per epoch, two epochs in a month, and 24 epochs annually.

As shown in fig.2, the chain's inflation achieved throughout the first 28 epoch is mean-reverting around 11%, close to the target. The first-year weighted-average of inflation rate for the Mina blockchain equals 10,6%. Detected the two double-value spikes – for the transmission from the 9th to the 10th and from the 22nd to the 23rd epochs. There are two non-inflationary periods - from the 10th to the 11th and from the 27th to the 28th epochs.

Figure 2. Annual inflation rate of the MINA blockchain estimated (since the Mainnet Genesis)

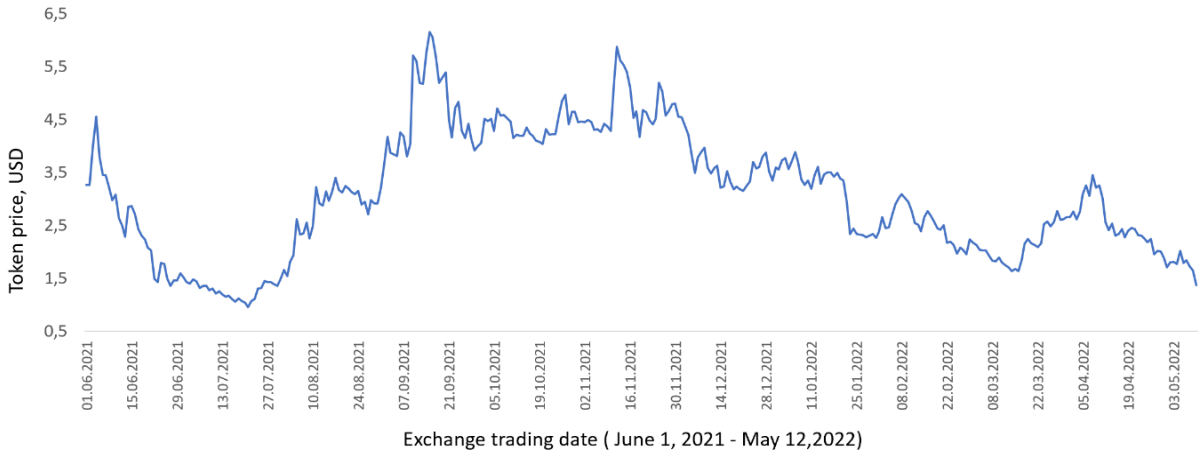


Source: Authors

Several essential issues stay behind the official documentation of any blockchain projects, though the Mina protocol is no exception. The linkage within global financial markets and the impact of the world state on blockchain and crypto ecosystem development. These externalities collude extremely with the exchange rate of digital coins nowadays.

Indeed, hardly, any financial solution liberates the modern disruption of supply chains, rising inflation and tightening monetary policy. Albeit we trace the market price of the Mina protocol's native token (entitled Mina) on various exchanges – from the first trading date of June 1, 2021, till May 12, 2022 (fig.3).

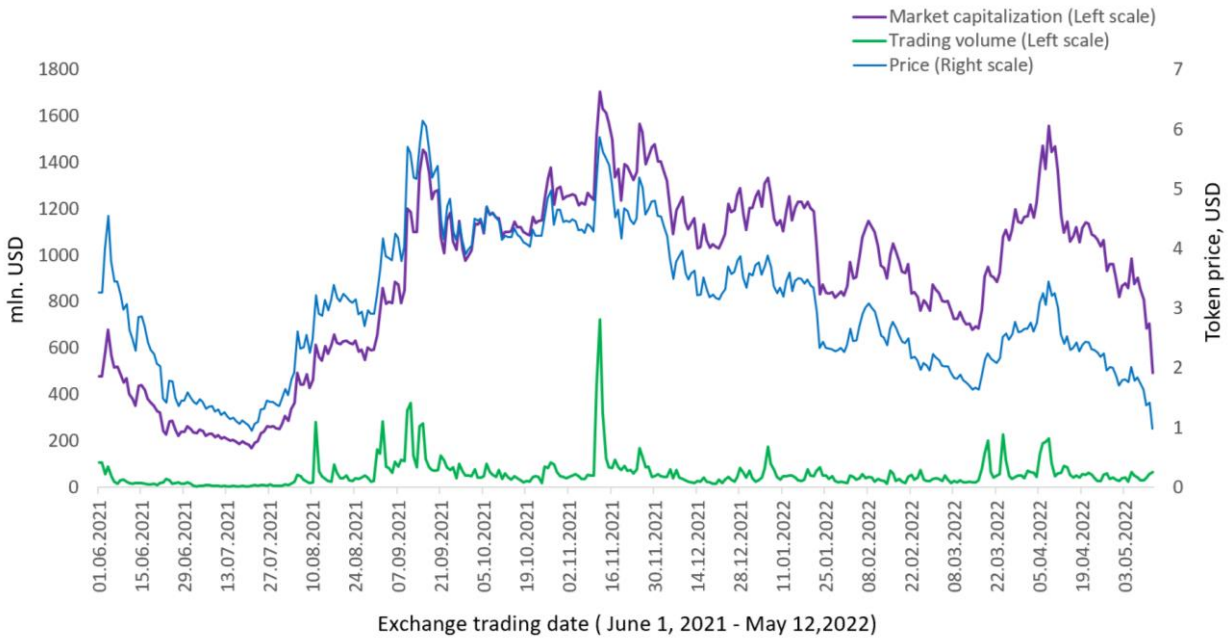
Figure 3. Daily MINA token price on exchange (since the trading occurred on June 1, 2021)



Source: Goingecko.com; Authors

Market capitalization and total trading volume are presented in figure 4.

Figure 4. Market capitalization and exchange trading volume on a daily MINA token price (since the trading occurred on June 1, 2021)



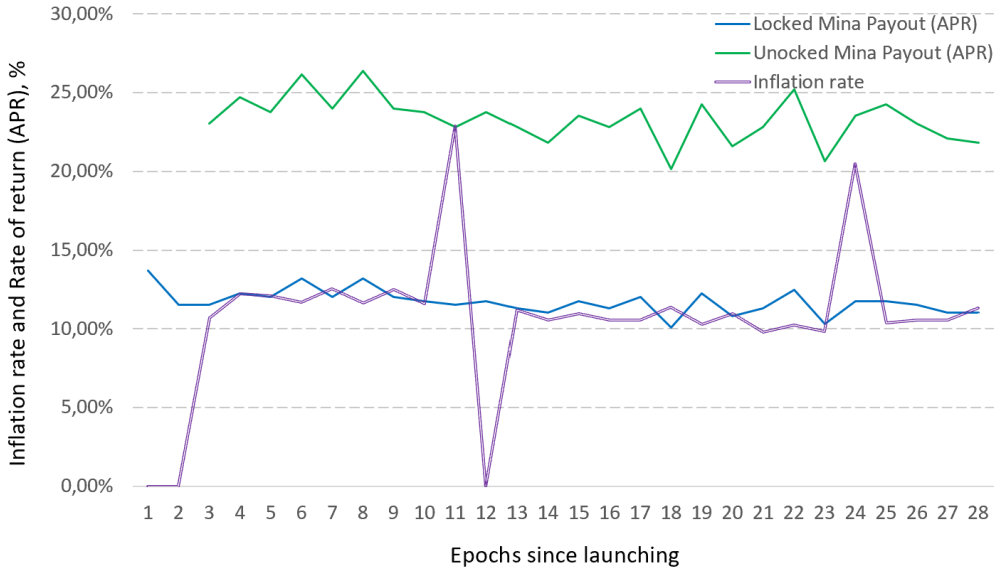
Source: Goingecko.com; Authors

To analyze the staking performance throughout the chain, we apply to the validator pool gathering the second-largest stake volume (4,07% of the total value staked on the state of May 12, 2022) within the second-highest number of delegators (4553 delegators on the state of May 12, 2022) in Mina blockchain. It's the particular project developed the tool of publicly open data extraction mentioned previously – namely, the Minaexplorer.

This project presents the data on returns earned both for locked and unlocked tokens based on APR ground – from epoch-by-epoch to annual values. The practice is common in the blockchain community and crypto sphere. These values serve to compare the investment attractiveness of the variety of projects in the crypto ecosystem.

Nonetheless, we suppose these rates need to consider the level of the chain inflation rate to evaluate investment performance and analyze the competitive advantages while decision making. Hence, we apply the Minaexplorer return (APR) on an epoch basis and convert it to the annual dimension identically made for our inflation rate calculations. The annual values we operate are slightly different from the project stated by the virtue of the rounding foundation (our 24 epochs in a year versus the project's more precise number – from 24,4913 on the 0th epoch to 24,3646 on the 27th epoch). The result is illustrated in figure 5.

Figure 5. Validator pool studied performance on the annual basis compared to inflation rate



Source: Authors

Figure 5 indicates the returns of pool performance distributed by locked and unlocked domains. The unlocked tokens benefit the owner a double-inflation rate in average. While the locked tokens gained the level approximately covering the inflation rate. Expressing the locking tokens serve for inflation protection beyond investment gains. Besides, it supports our belief that interest for locked tokens is provided by extra returns realized through the discount rate during ICO distribution. These values become undisclosed but should be also studied. The more to be done on the chain aggregate level within intra-level comparison of each 249 active total pool validators (on the state of May 12, 2022). The measure for cost of equity requires to be identified both on project blockchain level and the crypto ecosystem.

Furthermore, recent price drops across the cryptocurrencies place the doubts of the future of blockchain projects in its previous state. Apparently, the time of bubble prices for crypto assets is hardly to foreseen ever. For many cases coming from the point of financial regulation. The prospects are encouraging, as we see, the healthy projects would remain, and the shadow

ones should be vanished. Although, the lower market price distracts criminal use of cryptocurrencies and blockchain domain. In duet with proper financial regulation, the trend could be quite promising for a new innovative projects and initiatives.

These are all questions arise for further research.

V. CRYPTO ECOSYSTEM: THE ORIGIN OF CAPITALS AND THE PATH OF CRIMINAL MONEY TRACING

Each cryptocurrency is a coin issued for maintaining one particular blockchain protocol. In a common way all cryptocurrencies, expect Bitcoin which is a first-of-its-class, called altcoins.

Blockchain is an open-data technology. Therefore, each protocol poses so-called explorers to track transactions and block producing. The more advanced the network or chain (in other words, the more its market capitalization), the more explorers and analytical tools could be found through the internet.

So, to track the origin of capital for particular project or pool, one needs its wallet-address, which is open and publicly disclosed, first. Then, need to apply to any of particular chain explorer and put the address to track. In response, the list of all transactions, both incoming and outcoming flows, would be revealed. In addition, the trace for every transaction could be repeated – to investigate the origin of second-level flows, and so on. Until the researcher would stop by facing an address of crypto exchange or any pools.

For the ease of use, there is an API documentation provided for each blockchain – to guide for data gathering, and mostly within public endpoints. If so, anyone could trace the data.

Let discuss the most essential financial sanctions already implemented against malicious blockchain projects – within the most recent cases.

On September 21, 2021, in a first-of-it-kind action, the U.S. Department of the Treasury Office of Foreign Assets Control (OFAC) imposed economic sanctions on a virtual currency exchange – the Russian-based SUEX, for facilitating ransom payments pursuant to ransomware cyber-attacks. It also added 25 affiliated cryptocurrency addresses (bitcoin addresses within 14 XBT addresses, four ETH addresses and seven USDT addresses to the blacklist) on its Specially Designated Nationals (SDN) list, effectively blacklisting the exchange from the dollar financial system worldwide.

As experts point, this move represents the first time the U.S. has sanctioned a digital currency exchange, signaling a major shift for cryptocurrency exchanges and their potential exposure to liability.

Around the same time OFAC announced the sanctions, cryptocurrency exchange “Binance” announced that its compliance program had identified issues with Suex, de-platformed the exchange, and shared information from its investigation with law enforcement. The Binance example demonstrated the success could be set a new standard for digital asset compliance programs (Reuters, 2021).

The other case is sanctions against the miner company “Bitriver” and its subsidiaries in Russia took place on April 2022. This time no crypto wallets were banned.

On May 6, 2022, OFAC “sanctioned virtual currency mixer Blender.io (Blender), which is used by the Democratic People’s Republic of Korea (DPRK) to support its malicious cyber activities and money-laundering of stolen virtual currency” (US Treasury, 2022b).

OFAC sanctions do matter due to each digital coins are evaluated in US dollar-backed stable coins and the impact towards the US economy and around the globe. And the significant act has been done though the latest Financial Stability Report published in May 2022 (Fed, 2022). The document triggers tremendous price drops in one of the stablecoins, namely

TerraUSD (UST), providing further chain reaction spread throughout the entire crypto ecosystem (US Treasure, 2022b).

V. CONCLUSIONS

The most intriguing research topic to be seen regarding cryptocurrencies is the ground roots for the so-called HODL investment strategy. The behaviour led to the holdings of crypto assets neglecting any significant price drops on the market. The strategy also contributes to the price bubble creation.

The very answer is based on the initial cost of trades for cryptocurrencies. To understand the investment behaviour of crypto holders, one needs to plunge into the way how crypto holders receive digital coins. The dominant cause is to gain rewards for chain participation beyond the necessity to purchase coins for market price. The contribution is compensated through blockchain native tokens minting throughout the network development.

Besides, a significant part of the transmission from fiat currencies to crypto-assets refers to shadow or criminal use concerning the anonymity of holdings. Reminding that cryptocurrency exists within the lack of asset coverage or reserves. Since transmission to fiat currencies, it has permanently increased the overall money supply and global inflation. Each exchange trade extracts value from fiat currencies towards the crypto ecosystem. The more the turnover of trade, the higher the price boost in the global economy.

In recent days, the cryptocurrencies and blockchain projects launched are facing decisive momentum for the future. We assume the field is to be reshaped significantly in a foreseen future for the best of the global society and the world's financial stability.

"The Montage of Attractions" of the crypto ecosystem of its current state is suffering a fiasco by the virtue of financial regulation emerging stronger every day.

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