

THE CONNOTATIONS OF THE CRISIS ON THE CRYPTOASSETS MARKET

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Abstract: *The so-called Crypto Crash marks not just a recent decline, but the most severe yet in the cryptocurrency world. Even brand-name enthusiasts of these virtual currencies have expressed concern, with some temporarily abandoning investments. Although the steep decline has eased, a tense atmosphere in the market remains. In this paper we aim to make an analysis of the market capitalization, prices, and estimated number of users and an estimation of crypto-assets adoption in the countries of the world. We also will focus on the key elements of the crypto ecosystem, including unbacked crypto, stablecoins, smart contracts and decentralised finance, structural flaws and risks, all in the context of the crisis on the cryptoassets market.*

Key words: *cryptoassets, crisis, volatility, risks.*

JEL Classification Codes: G12, G15, G18, G23

1. INTRODUCTION

Despite their notable volatility, crypto-assets are increasingly recognized as both a potential opportunity and a risk, evolving into an emerging asset class acknowledged by financial market participants and policymakers. By November 2021, their market capitalization had exceeded US\$2.8 trillion, propelled by growing adoption from both retail and institutional players (Figure 1). Although lacking a universally agreed-upon terminology, crypto-assets can broadly be defined as private digital representations of value utilized for payments, investments, or accessing goods and services. They rely on distributed ledger or similar technology, as outlined by entities like the Financial Stability Board (2018a), Financial Action Task Force (2021), and Basel Committee on Banking Supervision (2021).

The extraordinary surge, roller-coaster ride of volatility, and financial creativity unfolding in the crypto-asset realm, coupled with the escalating participation of institutional investors, underscore the urgency of comprehending the potential hazards crypto-assets might unleash on financial stability should the current trends persist. The risk of a systemic impact grows in tandem with the interplay between crypto-assets and the conventional financial sector, along with the expansion of leverage and lending activities. Addressing regulatory and data voids in the crypto-asset ecosystem is crucial to tempering these systemic risks.

More specifically, crypto-assets often operate on open, decentralized computer networks striving to maintain an immutable distributed ledger. This ledger facilitates users in storing, transferring, and receiving funds globally 24/7 with relatively fast settlement, operating in a purely peer-to-peer manner without intermediaries (termed as "permissionless") and with the added feature of resistance to third-party interference (referred to as "censorship resistance").



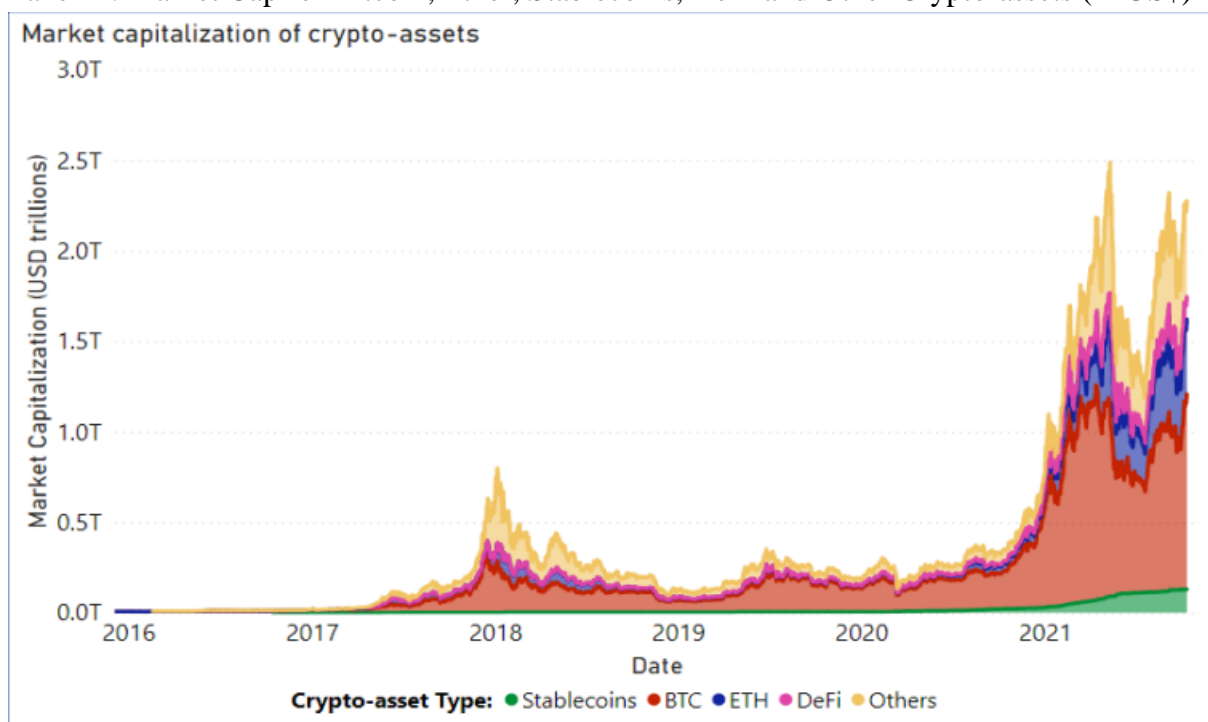
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Decentralized networks, powered by open-source software protocols, establish consensus in low-trust environments without relying on a third party. They enhance crypto-assets with qualities like scarcity, verifiability, and programmability. Stablecoins, a newer cryptoasset type, aim to maintain a steady value relative to specified assets, witnessing remarkable growth with a market capitalization surge from \$28 billion in January 2021 to \$136 billion in November 2021. The top three stablecoins, Tether, USD Coin, and Binance USD, constitute 85% of this total. Additionally, Decentralized Finance (DeFi), a smart contract-based financial ecosystem, has rapidly expanded, offering diverse services such as collateralized lending, borrowing, and investment management. These interoperable services act as building blocks, fostering the emergence of intricate ecosystems. In November 2021, approximately \$190 billion was locked in DeFi projects, experiencing a significant increase from \$20 billion in January 2021. Ethereum, the primary DeFi platform, has seen its dominance decline as rival platforms gain momentum, fueled in part by the surge in ether prices.

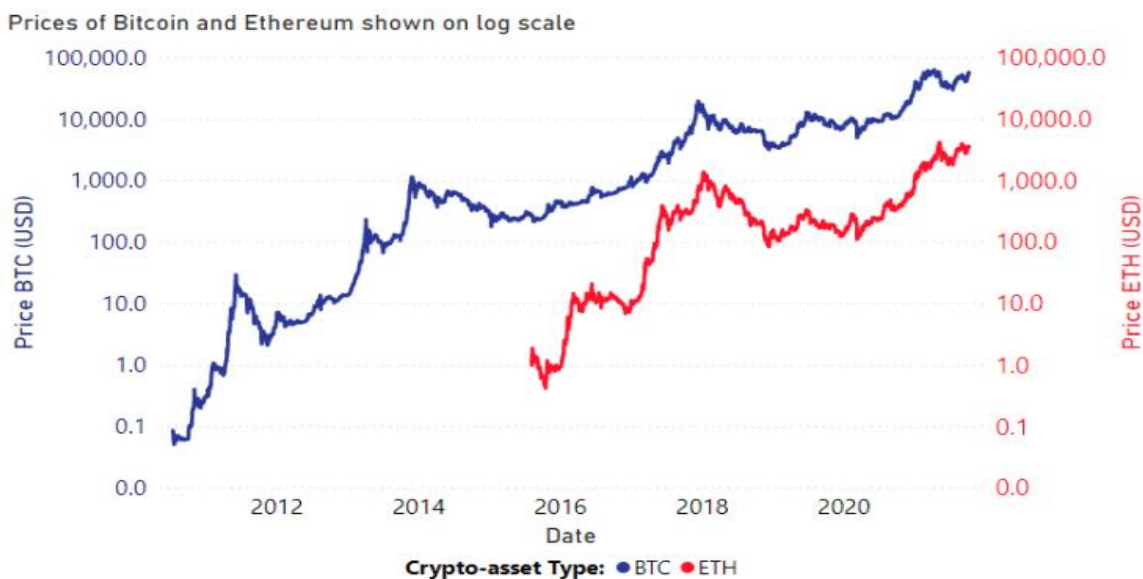
2. THE CRYPTO-ASSET MARKET CHARACTERISTICS

Despite substantial data gaps acknowledged by sources like the IMF (2021), the influence of crypto-assets seems to span the globe. Industry approximations propose that in 2021, more than 200 million individuals globally engage with or own crypto-assets (Figure no. 1).

Panel A: Market Cap for Bitcoin, Ether, Stablecoins, DeFi and Other Crypto-assets (in US\$)



Panel B: Bitcoin and Ether Prices (US\$ on log scale)



Panel C: Estimated Global Crypto Users (in millions)

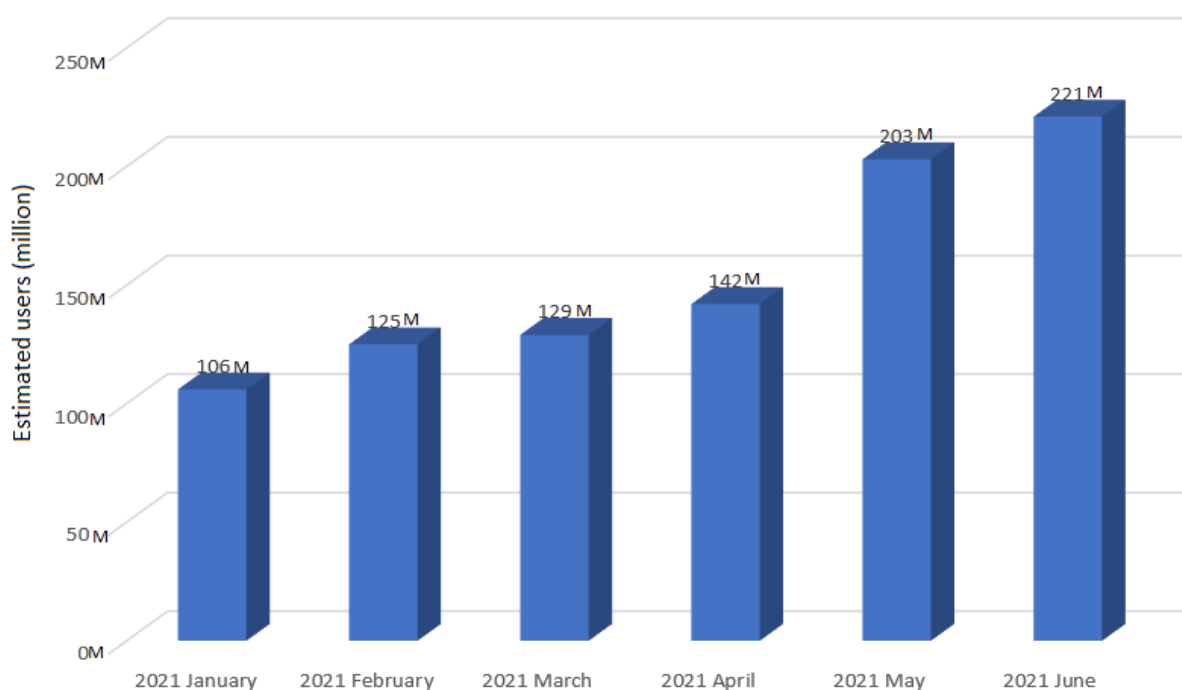


Figure no. 1 Crypto-assets: Market Capitalization, Prices, and Estimated Number of Users

Sources: Messari; TradingView; Coinmetrics; Federal Reserve; Crypto.com. The estimated users figures should be interpreted with caution as data gaps remain significant.

While the extent of its representation is not entirely clear, a Statista household survey from 2020 indicates that in at least 20 countries, over 10 percent of respondents are involved with crypto-assets (refer to Table 1). Industry analyses reveal a remarkable surge of over 2,300 percent in global crypto-assets activity from Q3 2019 to Q3 2021, with a staggering 881

percent increase. Notably, Emerging Market and Developing Economies (EMDEs) appear to be the hotspots of high crypto-asset activity, as indicated by Chainalysis (2021) and Table 1.

Table 1: Estimates of Crypto-assets Adoption

Panel A: Statista Global Country Survey: Share of Respondents who Indicated That They Used or Owned Crypto-assets (2020) %

Country	Share (%)	Country	Share (%)
Nigeria	31.9	Lithuania	8.7
Vietnam	21.1	Egypt, Arab Rep.	8.3
Philippines	19.8	Norway	8.1
South Africa	17.8	Portugal	8.1
Thailand	17.6	Australia	7.8
Peru	16.1	Korea, Rep.	7.6
Turkey	16.1	Serbia	7.5
Colombia	15.3	Russian Federation	7.3
Argentina	14.4	Austria	7.2
Indonesia	13	Poland	7.2
Brazil	12.5	China	6.9
Malaysia	12.3	Hungary	6.4
Chile	11.7	Romania	6.4
Saudi Arabia	11.4	Belgium	6.3
Switzerland	11.1	United States	6.2
Greece	11.1	France	5.6
Kenya	10.5	Pakistan	5.6
Dominican Republic	10.3	Canada	5.2
Netherlands	10	Germany	5.2
United Arab Emirates	10	Finland	5.1
Mexico	9.7	New Zealand	5.1
Ireland	9.6	Israel	4.9
Singapore	9.6	United Kingdom	4.7
Spain	9.4	Italy	4.7
Morocco	9.3	Denmark	4.4
Czechia	9.2	Sweden	4.3
India	8.8	Japan	3.7

Source: Statista Global Consumer Survey.

Note: Statista reported that the survey contains between 1,000-4,000 respondents per country and that the samples are representative of the online population. These figures should be interpreted with caution as data gaps remain significant.

Panel B: Chainalysis Top 20 Global Crypto-assets Adoption Index (2021)

Country	Index score	Overall index ranking	Ranking for individual weighted metrics feeding into Global Crypto Adoption Index		
			On-chain value received	On-chain retail value received	P2P exchange trade volume
Vietnam	1.00	1	2	4	3
India	0.37	2	3	2	72
Pakistan	0.36	3	12	11	8
Ukraine	0.29	4	5	6	40
Kenya	0.28	5	28	41	1
Nigeria	0.26	6	10	15	18
Venezuela	0.25	7	22	29	6
United States	0.22	8	4	3	109
Togo	0.19	9	42	47	2
Argentina	0.19	10	17	14	33
Colombia	0.19	11	23	27	12
Thailand	0.17	12	11	7	76
China	0.16	13	1	1	155
Brazil	0.16	14	7	5	113
Philippines	0.16	15	9	10	80
South Africa	0.14	16	16	18	62
Ghana	0.14	17	37	32	10
Russian Federation	0.14	18	6	8	122
Tanzania	0.13	19	45	60	4
Afghanistan	0.13	20	38	53	7

Sources: Statista; Chainalysis. Note: The panel shows the 2021 crypto adoption index calculated and published by Chainalysis. These figures should be interpreted with caution as data gaps remain significant.

Understanding the key factors driving the adoption of crypto-assets holds significance for policymakers, investors, and the industry at large. Despite Bitcoin's original intent as a decentralized peer-to-peer electronic cash system free from reliance on central banks or financial intermediaries, crypto-assets currently aren't widely utilized as a medium of exchange. Recent research indicates that Bitcoin is gaining traction for domestic transactions and international payments (Graf von Luckner et al., 2021). Additionally, users of crypto-assets may not be primarily motivated by security concerns associated with traditional payment methods or commercial banking services, particularly in advanced economies like the United States (Auer and Tercero-Lucas, 2021). Despite DeFi's rapid growth, it remains in its early stages of development.

3. THE CRISIS ON THE CRYPTOASSETS MARKET

A) Unbacked crypto

Crypto's inception traces back to the 2009 introduction of Bitcoin—a decentralized, peer-to-peer value transfer on a shared public ledger using distributed ledger technology

(DLT). Originally asset-unbacked, crypto aimed to diminish intermediary influence through decentralization (Nakamoto, 2008). Decentralized validators verify ownership and transactions, recorded on a public ledger. When transferring cryptoassets, the buyer broadcasts details, and validators compete to verify, appending transactions to the blockchain and receiving fees. The updated blockchain is shared publicly, ensuring transaction history is visible while parties' true identities remain undisclosed—transactions on blockchains are pseudo-anonymous.

As crypto gained attention, central entities played a larger role in channeling funds into crypto coins. Centralized exchanges, like Mt Gox and later Binance, Coinbase, Kraken, and FTX (until its 2022 collapse), facilitated conversions, attracting participants and contributing to price volatility. This centralization within the crypto space became known as Centralized Finance (CeFi), marked by its impact on cryptoasset prices.

B) Stablecoins

Stablecoins have solidified their position as the primary medium of exchange in the crypto realm, serving as a gateway into it. Named for their goal of maintaining a stable value tied to specific assets, stablecoins are commonly pegged to the US dollar but can also target other currencies or assets like gold or different cryptoassets. By doing so, they tackle volatility and liquidity challenges, functioning as a reliable medium of exchange within the crypto universe. In the DeFi ecosystem, stablecoins play a pivotal role.

Two main types of stablecoins exist based on their peg-maintenance approach. Most are "asset-backed" and managed by a centralized intermediary, relying on collateral like US government bonds or bank deposits. This intermediary handles investments, coordinating the redemption and creation of coins. Notable stablecoins include Tether, USD Coin (USDC), and Binance USD. On the other hand, "algorithmic stablecoins" use arbitrage with a paired volatile token to automatically rebalance supply and maintain the peg. Unlike their asset-backed counterparts, they aren't typically tied to real-world assets, with the failed TerraUSD stablecoin being a notable example.

C) Smart contracts and decentralised finance

Following Bitcoin's inception, numerous blockchains and crypto coins have emerged, notably Ethereum and its native coin Ether in 2015. Ethereum and newer blockchains introduce "programmability," empowering developers to build applications through smart contracts.

Smart contracts, as self-executing code, activate actions based on predefined conditions, automating market functions and reducing reliance on traditional intermediaries. Smart contracts, unable to directly access "off-chain" information, necessitate oracles as intermediaries to provide external data.

Smart contracts boast a crucial feature known as "composability," allowing users to blend various components within the system. This capability transforms transactions into intricate operations on a single blockchain, resembling a form of "money lego."

The advent of programmability paved the way for DeFi, an ecosystem providing crypto services. DeFi strives to deliver traditional financial services on the blockchain, emphasizing transparency and cost reduction by eliminating intermediaries. DeFi protocols amalgamate multiple smart contracts to offer lending, borrowing, and trading services within the crypto realm. Decentralized applications (dApps), acting as graphical interfaces, enable user interaction with protocols from computers or smartphones. While not strictly essential, dApps serve as the entry point to DeFi for all but the most sophisticated participants.

Stablecoins play a pivotal role in the DeFi ecosystem, acting as a medium of exchange in various activities. They enhance DeFi liquidity, allowing users to transition seamlessly within decentralized applications. Additionally, stablecoins serve as trading pairs for other

cryptoassets in decentralized exchanges, enabling users to trade crypto without converting back to fiat currency and reducing transaction costs. Widely used on DeFi lending and borrowing platforms, stablecoins facilitate borrowing and lending against collateral in the form of other cryptoassets, resulting in significantly higher turnover compared to other cryptoassets.

DeFi mirrors traditional finance with key activities like lending, trading, and insurance. Lending platforms enable users to lend stablecoins with interest, while borrowers use other cryptocurrencies as collateral. Decentralized exchanges (DEXs) act as direct marketplaces for cryptocurrency or stablecoin transactions, with prices determined through automated mathematical formulas. DeFi insurance platforms allow users to insure against risks like mishandling private keys or smart contract failures, receiving cryptoassets as compensation.

However, DeFi activities primarily involve exchanging stablecoins or crypto coins, lacking substantial engagement with the real economy. The system tends to be self-referential, predominantly used for speculative coin trading. Its growth relies heavily on the continual influx of new users seeking high returns. Recent evidence indicates a correlation between rising crypto prices and increased adoption of crypto trading apps, as new users are enticed by the potential for further gains.

D. Structural flaws and risks

- *Structural flaws*

- ✓ Fragmentation and congestion

Cryptocurrency, even in its original and fully decentralized form, grapples with inherent challenges arising from permissionless blockchains. These issues result in system fragmentation, causing congestion and elevated fees. The root cause of this fragmentation lies not in technological constraints but in the incentive structures governing the blockchain.

Within the blockchain realm, self-interested validators play a crucial role in recording ownership and transactions. In the pseudo-anonymous crypto environment, their lack of reputation at stake, coupled with anonymity, hinders accountability. To address this, validators must be incentivized with substantial monetary rewards, ensuring truthful reporting and sustaining decentralized consensus. The balance is delicate, as honest validation should yield greater returns than potential gains from fraudulent activities. In cases of inadequate rewards, validators might be tempted to cheat, risking the security of the entire system.

One common strategy to maintain incentives is to restrict the blockchain's capacity, resulting in high fees sustained by congestion. (Figure no. 2) Validators, with the ability to choose which transactions to validate and process, capitalize on periods of congestion by accepting higher fees for transaction processing. Consequently, decentralized blockchain-based payment systems tend to be comparatively slow and expensive.

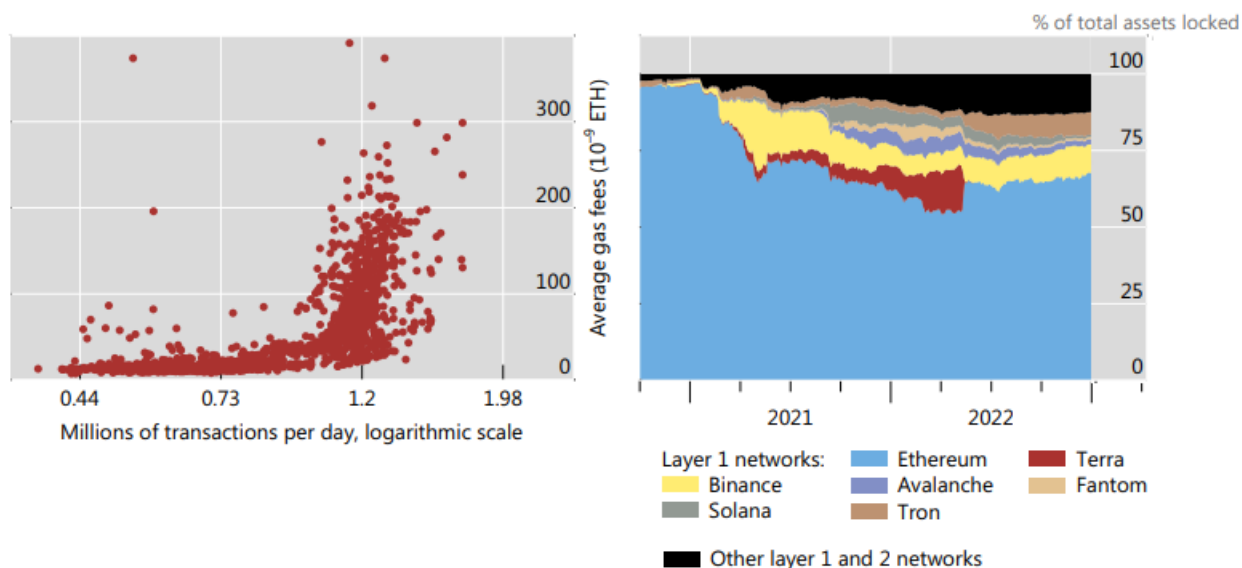


Figure no. 2. Network congestion leads to high gas fees on the Ethereum network

Figure no. 3 Fragmentation of layer 1 blockchains

Figure no. 2 Blockchain congestion leads to fragmentation

The blockchain capacity problem is a manifestation of the so-called scalability trilemma (Buterin, 2021).

Permissionless blockchains inherently face a trade-off among three crucial properties: security, decentralization, and scalability. Security, defined as ensuring truthful reporting and preventing manipulation in transaction history, thrives on incentives and decentralization. However, sustaining these incentives introduces congestion, limiting scalability. This inherent conflict hampers the efficiency of blockchains as a payment system and challenges the role of cryptocurrency as a viable form of money.

The struggle with scalability has led to the fragmentation of the crypto landscape. Emerging blockchains, with increased capacity but potentially compromising on security, enter the scene. These newer platforms prioritize higher transaction limits, even if it means embracing more centralization and weaker security measures. In essence, larger networks of validators in some blockchains make it challenging for a single validator to manipulate the ledger, yet this setup results in prolonged transaction validation times, increased user costs, and consequently, higher required rewards. Conversely, blockchains with fewer validators create a greater risk of manipulation by a smaller group, introducing a different set of challenges.

The rise of numerous newcomers, with the Terra blockchain serving as a prominent example, underscores a shift in the cryptocurrency landscape. (Figure no. 3) At the start of 2021, Ethereum dominated the DeFi protocol value, accounting for nearly the entire share. By May 2022, this dominance dwindled to 50%, with the failed Terra blockchain contributing significantly to the widening gap. The collapse of Terra sheds light on crypto's susceptibility to fragmentation caused by new entrants prioritizing market share and capacity over decentralization and security.

The emergence of competing blockchains that lack interoperability introduces fresh risks of hacks and theft. Interoperability, in this context, refers to the ability of protocols and validators to access, share information, and validate transactions across diverse blockchains. Achieving interoperability at the underlying settlement layers is impractical, given that each

blockchain serves as a separate record of settlements. While cross-chain bridges have emerged to enable coin transfers between blockchains, most rely on a limited number of validators. In the absence of regulation and legal accountability, users must trust these validators to avoid engaging in illicit behavior. The increasing number of bridges has become a focal point for high-profile hacks, underscoring vulnerabilities to security breaches arising from weaknesses in blockchain governance.

Such hacks could further lower trust in the broader fintech sector, standing in the way of greater adoption (Chen et al (2022), Doerr et al (2022)).

The crypto universe's fragmentation presents a notable departure from the network effects observed in traditional networks. Crypto's dependence on decentralized validators and the resulting fragmentation eliminates the possibility of money serving as a coordination device, rendering it unsuitable for a monetary system. In contrast, traditional networks thrive on the "winner takes all" dynamic, where an influx of users to a specific platform attracts even more users. These network effects form the core of a virtuous circle, leading to lower costs and heightened trust in traditional platforms.

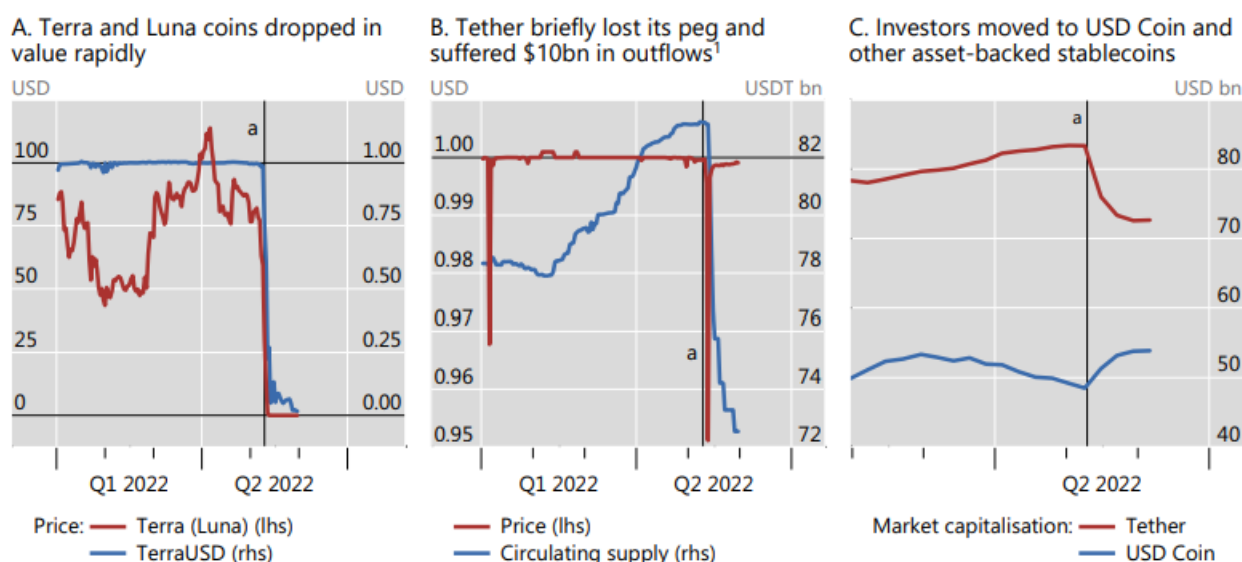
Fiat-backed stablecoins, the prevailing type in the stablecoin realm, leverage the credibility of a central bank's unit of account. This unit serves as a universal measure for the economic value of goods and services, streamlining financial transactions. In the crypto world, lacking a traditional central bank, there's still a need for a unit of account. Stablecoins step into this role by pegging their value to fiat currencies like the dollar, securing stability through the backing of a central bank. In essence, stablecoins represent the crypto sphere's quest for a reliable reference point.

However, stablecoins face several drawbacks that challenge their stability claim. Firstly, an inherent conflict arises as issuers are driven to invest in risky assets, placing the efficacy of stabilizing mechanisms in the hands of the quality and transparency of often insufficient reserve assets. Unlike bank deposits and e-money, stablecoins lack regulatory safeguards and the backing of a central bank defending the peg. Furthermore, being transferable liabilities without settlements on the central bank balance sheet, stablecoins are susceptible to fluctuations in their exchange rates away from parity.

The collapse of the TerraUSD stablecoin

TerraUSD (UST) witnessed a rapid surge in adoption from 2021 to 2022, becoming the third-largest stablecoin with a peak market capitalization of nearly \$19 billion before its collapse in mid-2022. Functioning as an algorithmic stablecoin, UST aimed to maintain a one-to-one peg with the US dollar by enabling conversion into one dollar's worth of another cryptocurrency, Luna, on the Terra blockchain, and vice versa. This mechanism allowed users to exploit fluctuations; for instance, if Terra dropped to 99 cents, they could buy UST for 99 cents and exchange it for \$1 worth of new Luna units. A crucial condition was that users would engage in this exchange only if Luna's market capitalization exceeded that of UST. Luna's valuation, lacking intrinsic value, relied heavily on speculative user interest in the Terra ecosystem. To attract users, the associated lending protocol Anchor offered a substantial deposit rate of approximately 20% on UST. The sustainability of the system hinged on users' confidence in the stable value of UST and the enduring market capitalization of Luna.

However, when investors lost faith in the system's viability, the entire arrangement unraveled. In May 2022, the value of UST plummeted nearly to zero (Figure no 4.A). As UST fell below its peg, a classic run dynamic ensued as investors rushed to redeem their funds. In a widespread move, users burned their UST to create new Luna worth one dollar, hoping to sell Luna while it retained some value. Yet, due to the magnitude and speed of the shock, confidence dissipated, resulting in an insufficient number of parties willing to purchase all the freshly minted Luna coins – leading to the collapse of Luna's price.



^a TerraUSD and Luna collapse starting on 9 May 2022.

¹ The price corresponds to the low price.

Figure no. 4 The TerraUSD implosion and fragilities in stablecoins

Source: Bank for International Settlements (BIS), — (2022): “The future monetary system”, Annual Economic Report, June, Chapter III.

The collapse of UST/Luna had a ripple effect on the largest stablecoin, Tether, causing it to dip to a value of \$0.95 before staging a recovery. Subsequently, Tether witnessed outflows exceeding \$10 billion in the following weeks (Figure no 4.B). The de-pegging was attributed to Tether's reluctance to disclose details about its reserve portfolio, triggering concerns among investors about the adequacy of high-quality assets available for liquidation to support the peg. This hypothesis gains support from the inflows experienced by the regulated stablecoin USDC, which boasts better-documented reserves, suggesting a likely shift of funds from Tether (Figure no.4.C).

Illustrating this is the recent collapse of TerraUSD in May 2022, where it virtually lost its entire value within a few days. Following this, various fiat-backed stablecoins experienced significant redemptions, momentarily deviating from their peg. Notably, stablecoins from issuers who did not transparently disclose the composition of reserve assets faced more pronounced redemptions, indicating investor concerns about the issuer's ability to ensure a guaranteed conversion at par. The reality is that stablecoins, despite their name, have demonstrated a notable lack of stability.

Notwithstanding their significant volatility, crypto-assets present both potential opportunities and risks and are increasingly regarded as an emerging asset class by both financial market participants and policy makers, reaching over US\$2.8 trillion in market capitalization in November 2021 as both retail and institutional adoption surged (Figure 1). While there is no commonly agreed lexicon, crypto-assets can be broadly defined as private digital representations of value that can be used for payment or investment purposes or to access a good or service and rely on distributed ledger or similar technology (e.g., Financial Stability Board (2018a), Financial Action Task Force (2021), Basel Committee on Banking Supervision (2021)). More specifically, crypto-assets typically operate on open, decentralized computer networks which aim to maintain an immutable distributed ledger that enables users to store, transfer, and receive funds 24/7 with global reach and relatively fast settlement in a purely peer-to-peer fashion without the need for intermediaries (i.e., “permissionless”) or the potential of thirdparty interference (i.e., “censorship resistance”).

- **Risks**

In 2022, the crypto-asset realm experienced a significant decline in value. Following the influx of retail investors pursuing lucrative returns in 2021, the market unveiled its inherent instability. The expansive and highly volatile nature of the crypto-asset domain has led to increased risks and losses for both players and investors in this space.

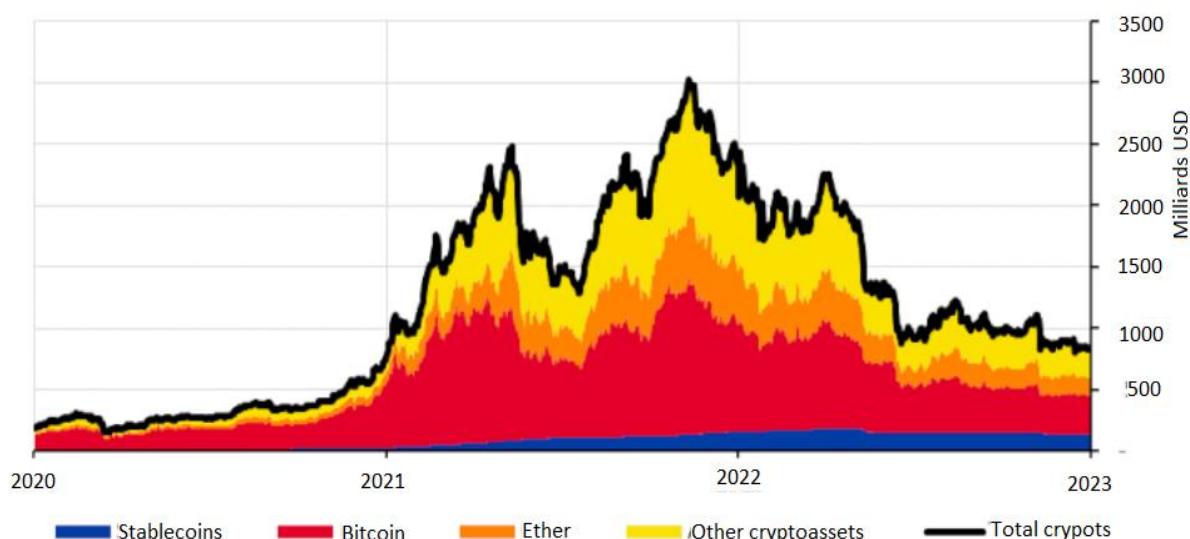


Figure no. 5 A sharp fall in the crypto-asset market in 2022

Source: Bloomberg. Data as of 30 November 2022

In 2021, the crypto-asset market reached a pinnacle with a valuation of USD 2,933 billion, only to face a substantial 60% downturn in 2022. Bitcoin, as the leading crypto-asset, experienced a 66% decline, leading to significant losses for half of its investors by the end of 2022 (Figure no. 6). Crypto-assets encompass a spectrum from unbacked assets like Bitcoin and Ether to "stablecoins" such as Tether and USDCoin, digital securities like NFTs, and derivatives rooted in the crypto realm. Notably, stablecoins maintained a relatively constant market capitalization throughout 2022, causing their slice of the crypto-asset market to surge from 7% to nearly 20% during the same period.



Figure no. 6 Unrealised losses for 50% of Bitcoin investors at the end of 2022

Source: IntoTheBlock.

Several factors contributed to the market downturn. The rise in interest rates diminished the appeal of crypto-assets, previously boosted by investors seeking higher yields. Initially perceived as uncorrelated with traditional financial markets, crypto-assets attracted investors aiming to diversify their portfolios. However, the correlation with major US equity indices (Nasdaq, S&P500) has notably increased since March 2022, peaking at 85% in May 2022 (Figure no. 7). This shift is primarily attributed to heightened involvement from institutional investors (BCE, 2022) and a robust correlation with the stock prices of influential technology companies like Tesla and MicroStrategy, impacting the crypto ecosystem.

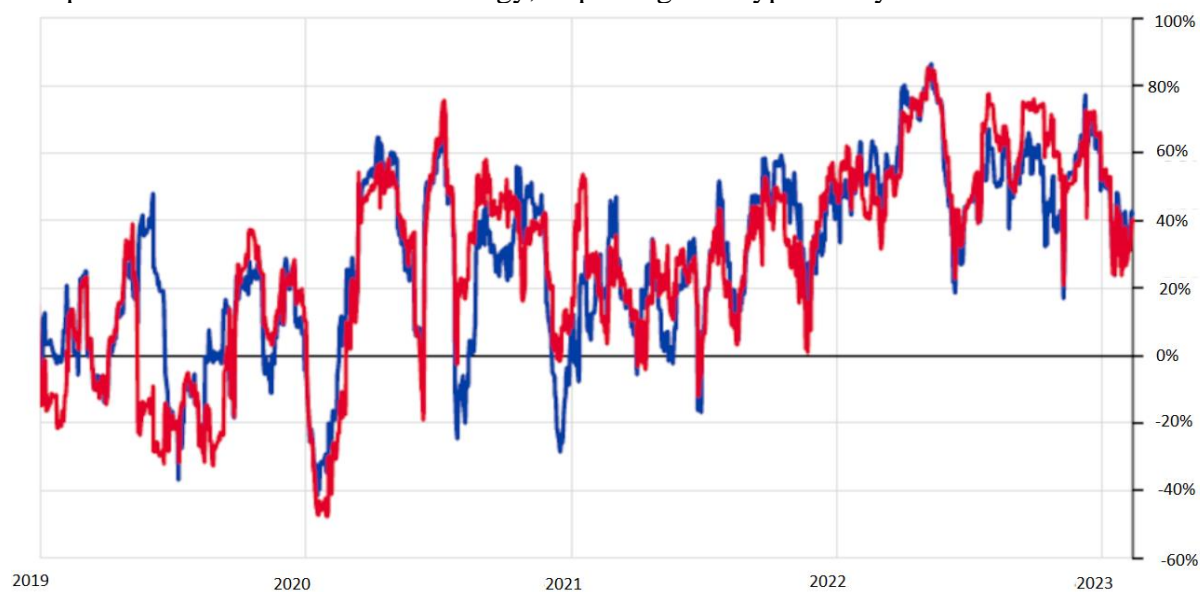


Figure no.7 A strong correlation with Nasdaq

Source: Bloomberg. Data as of 10 February 2022, 30-day correlation.

Finally, the surge in bankruptcies throughout the year and the quadruple rise in cyber incidents on crypto platforms since 2020 (as reported by Crystal Blockchain) have intensified the erosion of investor confidence. This has resulted in a gradual exodus of investments from online trading platforms.

CONCLUSIONS

The tumultuous events of 2022 laid bare the intricate connections within the crypto ecosystem, unveiling the shortcomings in transparency and control among crypto participants. Risks in the sector surged alongside the expanding player base and the rising complexity of services, encompassing not only crypto-asset investments but also lending services and leveraged products. Certain trading platforms even offered crypto-derivatives with leverage exceeding 100:1 (BCE, 2022).

The interdependence in the crypto-asset ecosystem became evident, as a downturn in the price of one asset triggered a cascading impact on multiple market participants. The downfall of Terra and stETH, an Ether-derived asset, directly affected the specialized hedge fund Three Arrows Capital, leading to default on debts owed to 27 companies, including platforms like Celsius and Voyager Digital, both of which filed for bankruptcy in July 2022.

In a twist of market manipulation, the algorithmic stablecoin Terra lost its peg to the US dollar in May 2022. This event caused the collapse of the entire Terra ecosystem, valued at over USD 70 billion, resulting in a 30% drop in the overall crypto-asset market valuation and a temporary de-peg between Tether and the US dollar.

The November 2022 collapse of the FTX platform exacerbated the crypto-asset market's downturn, resulting in a more than 20% loss in market valuation over two days. FTX Trading Ltd. played multiple roles in the crypto-asset market, functioning as both a trading platform and the issuer of its unbacked crypto-asset, FTT. It was part of a conglomerate that included Alameda Research, a crypto-asset hedge fund. Early in November 2022, reports from specialized media disclosed that Alameda Research held 73% of FTT reserves, leading the CEO of Binance to publicly announce the liquidation of all its FTT tokens due to their illiquidity. This announcement foreshadowed the collapse of FTT and the suspension of crypto withdrawals by the FTX platform.

Following the revelation of its financial position, FTX Trading Ltd., encompassing FTX US and Alameda Research, filed for bankruptcy. The ripple effect extended to other sector players, such as the BlockFi platform, which also declared bankruptcy on November 28, 2022, after borrowing USD 275 million in FTT from FTX. Fortunately, these developments did not spill over into the traditional financial system due to the relatively modest market size and weak connections between traditional financial players and the crypto-asset ecosystem.

Terra's case highlights the opacity of participants and the intricate connections within the market. Being an algorithmic stablecoin, Terra inherently possessed more fragility compared to stablecoins backed by fiat currency reserves. Despite this, the lack of transparency and the absence of audits on stablecoin reserves expose them to liquidity risks and a loss of confidence in their claimed peg to a fiat currency. While the shocks of 2022 didn't spill over to the broader economy, they underscored the necessity for a proper regulatory framework to shield investors from potential collapses of market players, such as trading platforms. As early as 2013, the Bank of France had been cautioning investors about the inherent risks associated with crypto-assets and trading platforms (Bank of France, 2013).

The existing framework falls short, despite some instances of sanctioned conduct. Numerous institutions across different jurisdictions advocate for the implementation of rules to regulate the sector. France, as of 2019, mandated digital asset service providers to register

with the AMF (the French financial markets authority) for conducting business activities. On a broader scale, the European Union's Markets in Crypto-Assets (MiCA) regulation, set to take effect in 2024, aims to safeguard investors by establishing a framework holding platforms accountable for asset losses. Industry participants will need an operating license to offer services in the EU.

In September 2022, the United States unveiled a roadmap for future crypto-asset market regulation, designed to protect investors and oversee the market and its key players. Recognizing the need for global cooperation, the Financial Stability Board concluded that supervising the crypto-asset market requires collaboration between jurisdictions. Towards the end of 2022, the Basel Committee issued a standard governing banks' exposures to crypto-assets (BIS, 2022).

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