Digital assets: 360 degree view

October 12, 2022

** The views expressed represent those of the author's.

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FDIC 2022 priorities

Evaluate Crypto-Asset Risks (FDIC PR-15-22):

"The rapid introduction of a variety of crypto-asset or digital asset products into the financial system could pose significant safety and soundness and financial system risks. It is imperative that the federal banking agencies carefully consider the risks posed by these products and determine the extent to which banking organizations can safely engage in crypto-asset-related activities. To the extent such activities can be conducted in a safe and sound manner, the agencies will need to provide robust guidance to the banking industry on the management of prudential and consumer protection risks raised by crypto-asset activities."

Notification of Engaging in Crypto-Related Activities

Notification and Supervisory Feedback Procedures for FDIC-Supervised Institutions Engaging in Crypto-Related Activities (FDIC FIL-16-2022).

"The FDIC is requesting all FDIC-supervised institutions that are considering engaging in crypto-related activities to notify the FDIC of their intent and to provide all necessary information that would allow the FDIC to engage with the institution regarding related risks. Any FDIC-supervised institution that is already engaged in crypto-related activities should promptly notify the FDIC. Institutions notifying the FDIC are also encouraged to notify their state regulator."

Some of the crypto-related risks about which the FDIC is concerned (non-inclusive list):

1. Safety and Soundness because crypto-related activities present new, heightened, or unique credit, liquidity, market, pricing, and operational risks that could present safety and soundness concerns. Further, there are significant anti-money laundering/countering the financing of terrorism implications and concerns related to crypto assets, including reported instances of crypto assets being used for illicit activities.

Some of the crypto-related risks about which the FDIC is concerned (non-inclusive list):

2. Financial Stability because the FDIC is concerned that certain crypto assets or crypto-related activities may pose systemic risks to the financial system. Systemic risks could be created as an unintended consequence resulting from the structure of a crypto asset or through the interconnected nature of certain crypto-related activities.

Some of the crypto-related risks about which the FDIC is concerned (non-inclusive list):

3. Consumer Protection because the FDIC is concerned about risks to consumers related to crypto-related activities, including the risk of consumer confusion regarding crypto assets offered by, through, or in connection with insured depository institutions, as consumers may not understand the role of the bank or the speculative nature of certain crypto assets as compared to traditional banking products, such as deposit accounts.

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QUICK QUIZ:

The correct definition of a digital asset is:

A. A digital representation in value which can be used for payment or investment purposes or to access a good or service. This does not include digital representations of fiat currencies.

B. The term "digital assets" refers to all CBDCs, regardless of the technology used, and to other representations of value, financial assets and instruments, or claims that are used to make payments or investments, or to transmit or exchange funds or the equivalent thereof, that are issued or represented in digital form through the use of distributed ledger technology

C. A digital asset is anything that exists only in digital form and comes with a distinct usage right. Data that do not possess that right are not considered assets.

Distributed Ledger Technology

"DLT allows users to modify records in a shared database, i.e. the ledger, without necessarily needing to use a central validation system that imposes its own standards and processes.. …blockchain refers to a database structure that can only be updated by appending a new set (or block) of valid transactions to the log of previous transactions." (ECB)

"In the strictest sense, a distributed ledger is a type of database that is shared across devices in a network. However, because the financial industry is considering a wide range of applications for the technology, … "distributed ledger technology" in a very broad sense is some combination of components, including peer-to-peer networking, distributed data storage, and cryptography that, among other things, can potentially change the way in which the storage, recordkeeping, and transfer of a digital asset is done." (FRB)

Distributed Ledger Technology – continued

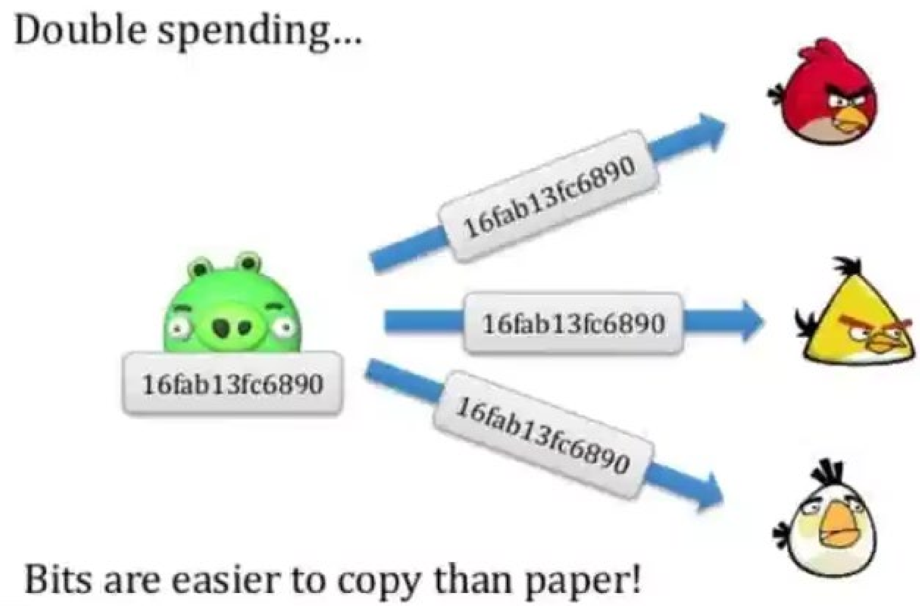
	Public DLT	Private DLT
Access to ledger and authentication of transactions	Anyone (no restriction)	Restrictions as desired
Consensus (validation methods)	Proof of work, proof of stake	Byzantine Fault Tolerance
Digital/crypto-asset	Necessary	Unnecessary
Settlement finality	Incomplete (possibility of forking)	Guaranteed
Extensibility	Limited	Unlimited
Example	Bitcoin, Ethereum	R3, Hyperledger

To emphasize – a digital/crypto-asset is necessary for a public DLT

DLT and Digital Assets

The problem DLT is trying to solve:

Double spending problem in public DLT systems where there is not a central validation party. The closest analog in the current system is a bounced check.



(CoinSutra)

Native/Intrinsic Digital Assets

A "native" digital asset is an intrinsic part of the blockchain software.

- Bitcoin (BTC) is housed on the Bitcoin blockchain. Newly created coins are assigned to the "block-market." Total number of Bitcoin increases with time up to 21 million.
- Bitcoin Cash (BCH) is housed on the Bitcoin Cash blockchain. Its new code shortens the process time and reduces fees from BTC.
- Ripple (XRP) is housed on the Ripple network. XRPs are shared among key participants.
- Ether (ETH) is housed on the Ethereum blockchain.
- Litecoin (LTC) is a Lighting Network layered on top of a blockchain.

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Stablecoins

- No uniform or universally adopted definition of "stablecoin."
- Characteristics, rights, and function often vary.
- Most commonly derives its extrinsic value based on the issuer's assurance that the stablecoin is backed by fiat currency or other real assets, such as commodities, held in reserves.
- The issuer often seeks to stabilize the asset's value with assurance of 1:1 redemption rights by promising to serve as a buyer of last resort.
- Alternatively, backed by digital assets and over-collateralized.
- Algorithmic stablecoins are stablecoins that are not backed by any assets at all but, rather, algorithms that supposedly stabilize their value. As the price fluctuates, supply of the stablecoin expands and contracts to maintain a certain value. Terra/Luna is an example of an algorithmic stablecoin.

Central Bank Digital Currency (CBDC)

In the absence of a legal and universally accepted definition:

- Digital form of central bank/fiat money
- Issued by a country's central bank and/or other governmental authority
- Liability of the central bank
- Backed by reserves/full faith and credit
- Legal tender status
- Denominated in an existing unit of account, such as a dollar, pound, euro
- Serves as a medium of exchange and a store of value

"it is easier to define a CBDC by highlighting what it is not: a CBDC is a digital form of central bank money that is different from balances in traditional reserve or settlement accounts." -- BIS

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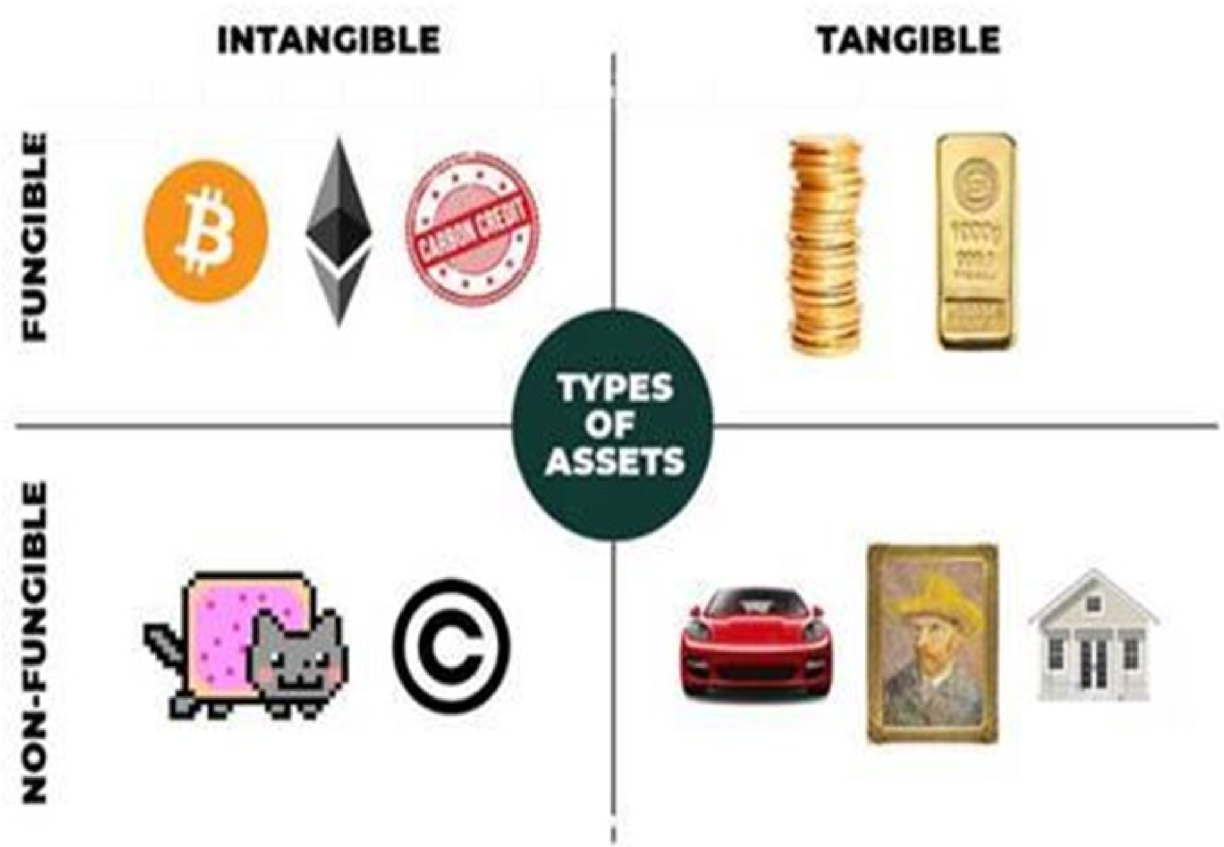
Other Digital Assets: NFTs



(JingDaily)

Wallets

What is a hosted wallet?

A hosted wallet is a digital account hosted by a third-party financial institution, which allows the account-holder (the user) to store, send, and receive cryptocurrency.

What is an unhosted wallet?

An unhosted wallet is not hosted by a third-party financial system. It can be very difficult or impossible to determine who is accessing or in control of the use of cryptocurrencies in an unhosted wallet. Unhosted wallets allow for anonymity and concealment of illicit financial activity.

- Source: FinCEN, REQUIREMENTS FOR CERTAIN TRANSACTIONS INVOLVING CERTAIN CONVERTIBILE VIRTUAL CURRENCY OR DIGITAL ASSETS Frequently Asked Questions (FAQs), December 11, 2020

QUICK QUIZ:

365 days a year, 24 hours, 7 days a week real-time settlement of digital assets is

A. A good thing because it reduces counterparty credit risk

B. A bad thing because it increases market risk

C. Does not matter if there is enough collateral

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FTX liquidation procedures

Step 1: An account begins to get liquidated if its margin fraction is less than its maintenance margin.

Step 2: If the account falls even closer to bankruptcy, the backstop liquidity provider system will kick in.

Step 3: If an account does go bankrupt, the backstop liquidity fund will pay out to bring the account's balance back to 0.

See FTX filing with the CFTC available at https://www.cftc.gov/PressRoom/PressReleases/8499-22

Internal cryptoasset interconnectedness

Chicago Fed research on crypto interconnectedness:

- The connectedness index value of digital assets is about 90%.
- This means that most of the variation in the prices in digital assets are the results of digital assets spillovers and only a small fraction can be ascribed to the idiosyncratic features of each digital asset.

See Chicago FRB research available at https://www.chicagofed.org/publications/chicago-fed-letter/2022/466

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Settlement cycle mismatch and disintermediated crypto clearing

- Crypto assets trade around the clock 24/7, there is no real settlement cycle for Bitcoin, it is a continuum.
- This is not the case for Bitcoin derivatives that are traded on regulated exchanges such as CME, ICE, and other exchanges.
- We should focus on what happens when the crypto-asset settlement cycles diverge: at 1 am at night or in the afternoon on Saturday.

Permissionless systems’ vulnerabilities

The challenge with using a blockchain (the most commonly used DLT) is that one has to either

(a) accept its immutability and trust that its programmers did not introduce a bug, or

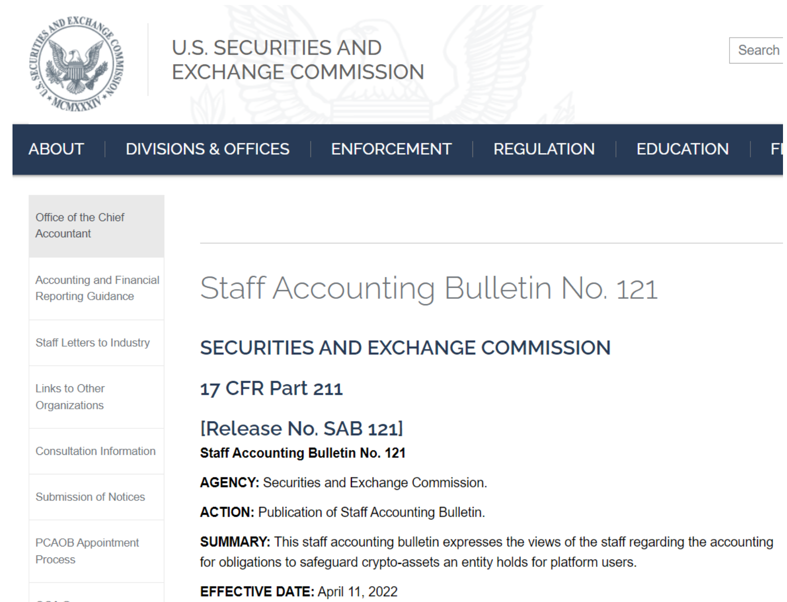
(b) permit upgradeable contracts or off-chain code that share the same trust issues as a centralized approach (central intermediary propagates the update).

https://www.darpa.mil/news-events/2022-06-21

Accounting considerations

On April 11, 2022, the Securities and Exchange Commission released Staff Accounting Bulletin No. 121, known as SAB 121, which expresses the views of the staff regarding the accounting for obligations to safeguard crypto-assets an entity holds for platform users.

https://www.sec.gov/oca/staff-accounting-bulletin-121



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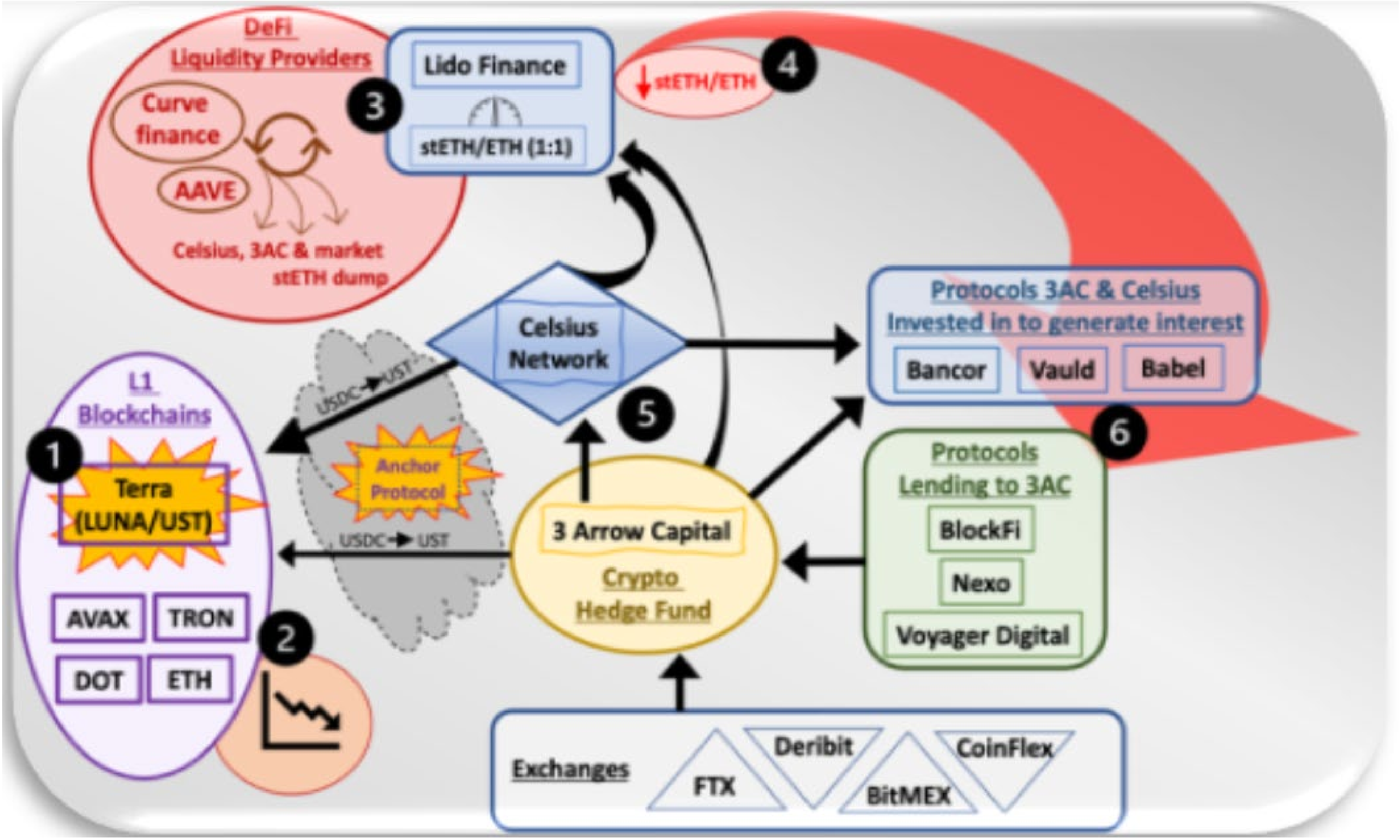
Deposit insurance advisory

Advisory to FDIC-Insured Institutions Regarding Deposit Insurance and Dealings with Crypto Companies (FIL 35-2022)

"Over the past several months, some crypto companies have suspended withdrawals or halted operations. In some cases, these companies have represented to their customers that their products are eligible for FDIC deposit insurance coverage, which may lead customers to believe, mistakenly, that their money or investments are safe.

The FDIC seeks to address misconceptions about the scope of deposit insurance coverage and related concerns."

Recent events – bankruptcies in FinTech



https://medium.com/@8vofficial/decentralised-finances-liquidity-crisis-echoes-the-darkest-days-of-wall-street-30a1cc22df1f by 8V Global

Terra (Luna/UST)

UST was an algorithmically pegged stablecoin that uses a mint-and-burn mechanism with Luna and UST as its levers. This enables the protocol to expand and contract the supply to maintain the peg of UST. The peg is entirely maintained by arbitrageurs.

Jump Crypto, Three Arrows Capital, Coinbase Ventures, Lightspeed Venture Partners, Galaxy Digital, and Pantera Capital backed Terraform Labs.

Anchor protocol

Anchor Protocol is a decentralized savings account where you earn up to 20% interest per year paid out every 7 seconds.

According to its white paper, The Anchor protocol worked like this:

Assume I wanted a higher rate of return than I could get in a regular savings account. So I deposited $10,000 worth of Terra, the dollar-pegged coin in the system. Anchor then turns around and loans out my deposit to another investor. But to make sure the borrower is good for the loan, the borrow has to put down some of his own assets as collateral. Some of the yield from Lars' collateral comes back to me, as does some of his interest. Crucially, the deposits *and* the interest are in Terra.

A lot of Terra was deposited in Anchor — as much as 72 percent of Terra, according to Decrypt. Anchor created demand for Terra.

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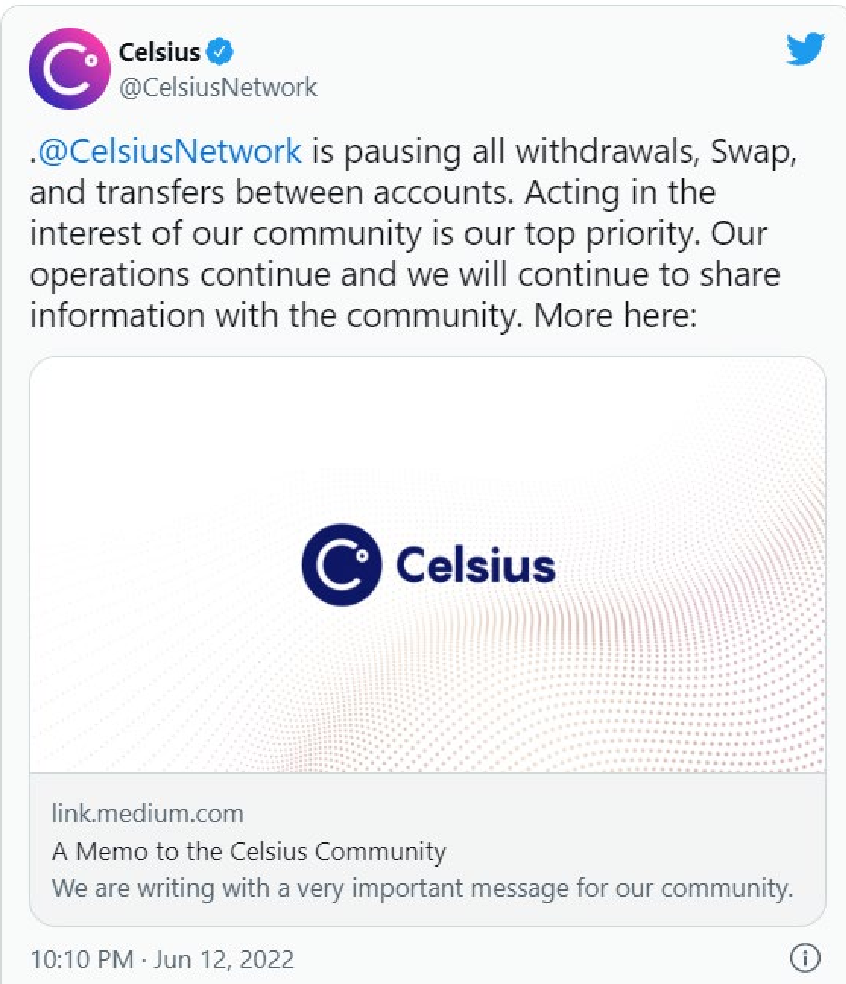
Celsius



- Launched in March 2018, CEL is one of the many ERC-20 tokens that runs on the Ethereum blockchain.
- Much like any bank, Celsius offered customers a yield on their interest-bearing deposits. The rate received would increase if they accepted it in the form of CEL tokens instead of rival tokens. Likewise customers would receive up to a 25% discount on all their interest payments if they opted for using CEL.
- The firm had more than $8 billion lent out to clients and almost $12 billion in assets under management as of May.

Celsius – KeyFi

- KeyFi managed roughly $2 billion in customer assets for Celsius from August 2020 to March 2021, according to the lawsuit and tweets from KeyFi CEO Jason Stone.
- The lawsuit filed in New York state court says that Celsius assured KeyFi that it was monitoring and hedging KeyFi's investments to guard against impairment, including impermanent loss, a type of loss that can happen when crypto is held in liquidity pools.
- However, KeyFi discovered in February 2021 that Celsius was not hedging at all, the lawsuit states, and KeyFi subsequently sought to end its work for Celsius.
- The lawsuit also alleges that Celsius used its customers' bitcoin to purchase Celsius' own CEL tokens to artificially inflate the price of the tokens, which insiders and founders owned. Celsius also used the CEL tokens as interest payments for customer deposits instead of other liquid tokens or currencies. The lawsuit also alleges accounting errors that left large holes in Celsius' balance

Three arrows capital (3AC)

- The hedge fund, based in Singapore, was founded last year and manages an estimated $10 billion, has positions in many of crypto's largest projects and companies: Bitcoin, Ethereum, Solana, Axie Infinity, and BlockFi.
- Three Arrows Capital (3AC) went into liquidation in mid-June in the British Virgin Islands. Its largest creditor was Genesis Trading at $2.4 billion, with an outstanding claim of $1.2 billion net of collateral. Genesis parent Digital Currency Group has bailed out the company. Voyager Digital, which went bankrupt due to its $650 million 3AC exposure, was the second largest creditor.
- On July 1, 2022, Three Arrows Capital (3AC) sought protection from creditors in the United States under Chapter 15 of the U.S. Bankruptcy Code, which allows foreign debtors to shield U.S. assets.
- The first meeting of Three Arrows Capital's (3AC's) creditors took place on July 18.

Other contagion impacts

The contagion effects from Terra, Celsius and Three Arrows Capital failures spilled over into investing and lending protocols.

- Vauld is the latest firm to halt client withdrawals.
- Voyager seeks bankruptcy protection and also faces delisting from Toronto Stock Exchange.
- Genesis confirmed its exposure to Three Arrows Capital and CoinLoan limits user withdrawals.
- The crypto startup Uprise managed to lose 99% of client funds while shorting LUNA during the crash in May.

BCBS prudential treatment of cryptoassets consultation

Basel Committee
on Banking Supervision

Consultative Document

Second consultation on
the prudential treatment
of cryptoasset exposures

Issued for comment by 30 September 2022

June 2022

BIS

Issued for comment by
30 September 2022

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Structure of the proposed framework

Group 1

Meets classification conditions

Tokenised traditional assets
(Group 1a)

Stablecoins
(Group 1b)

Capital treatment generally based on existing Basel Framework

- Add-on for infrastructure risks

- Add-on for stablecoins that only narrowly pass the basis risk test

Group 2

Does not meet classification conditions

Tokenised traditional assets

Stablecoins

Unbacked cryptoassets

Meets hedge recognition criteria *(Group 2a)*	Adapted market risk rules with netting and 100% capital charge
Does not meet hedge recognition criteria *(Group 2b)*	1250% RW

Group 2 exposure limit

Other applicable elements: operational risk, adapted liquidity requirements, leverage ratio, large exposures, supervisory review and disclosure requirements

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Group 1 crypto assets

Those that meet in full a set of classification conditions. Group 1 cryptoassets include tokenized traditional assets (Group 1a) and cryptoassets with effective stabilization mechanisms (Group 1b), which would be subject to at least equivalent risk-based capital requirements based on the risk weights of underlying exposures as set out in the existing Basel capital framework.

Group 2 crypto assets

Those that fail to meet any of the classification conditions. As a result, they pose additional and higher risks compared with Group 1 cryptoassets and consequently would be subject to a newly prescribed conservative capital treatment.

Group 2 exposure limit

The Committee proposes to introduce a new exposure limit for all Group 2 cryptoassets outside of the large exposure rules.

- Provisional limit set at 1% of Tier 1 capital, to be reviewed periodically.
- Limit applied jointly to all Group 2 cryptoassets on gross exposures with no netting or recognition of diversification benefits.
- Measurement of derivative exposures via a delta-equivalent methodology.

Proposed schedule for standard finalization

- The Committee aims to finalize standards around year-end.
- Final standards may be tightened if shortcomings in the consultation proposals are identified or new elements of risks emerge and based on the Committee’s overall assessment of the risks.

FSB crypto asset and stablecoin work

- On July 11, 2022, the Financial Stability Board (FSB) issued a statement on international regulation and supervision of crypto-asset activities.
- The statement notes that crypto-assets and markets must be subject to effective regulation and oversight commensurate to the risks they pose, both at the domestic and international level. It calls for adherence by so-called stablecoins and crypto-assets to relevant existing requirements where regulations apply to address the risks these assets pose. It also calls for crypto-asset service providers to ensure compliance with existing legal obligations in the jurisdictions in which they operate at all times.

FSB crypto asset and stablecoin work

On October 7, 2021, the FSB issued a progress report on the implementation of the FSB High-Level Recommendations regarding regulation, supervision and oversight of "Global Stablecoin" arrangements. This report:

- discusses key market and regulatory developments since the publication of the FSB high-level recommendations in October 2020;
- takes stock of the implementation of the FSB high-level recommendations across jurisdictions;
- describes the status of the review of the existing standard-setting body (SSB) frameworks, standards, guidelines and principles in light of the FSB high-level recommendations; and
- identifies areas for consideration for potential further international work.

Quick Quiz

Your predictions about future development of crypto assets

A. There will be a global stablecoin developed and implemented in the near future

B. Bitcoin and Ether will become dominant in domestic and cross-border payments

C. Most governments will roll out domestic CBDCs