NFTs DeFi and The Metaverse

By Bob Primak
For The Chicago Computer Society
West Side Computer Club
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NFTs DeFi and The Metaverse

Let’s start with some of the headline-grabbing aspects of cryptocurrency and NFTs we’ve been hearing about lately.

Turmoil and panic in crypto market as ‘stablecoin’ slump prompts wider collapse

https://www.theguardian.com/technology/2022/may/12/stablecoin-tether-breaks-dollar-peg-cryptocurrencies

A collapse of Tether could be crypto's 'Lehman Brothers moment' as the world's top stablecoin begins to wobble and major tokens plummet, analyst says

https://markets.businessinsider.com/news/currencies/tether-stablecoin-collapse-cryptos-lehman-brothers-moment-luna-terra-usdt-2022-5

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SEC Chair Gensler doubles down on regulating crypto as securities

https://finance.yahoo.com/news/sec-gensler-regulating-crypto-as-securities-135242704.html

Can the IRS Track Cryptocurrency? - The Risks of Tax Evasion

https://coinledger.io/blog/can-the-irs-track-cryptocurrency

Granted, this and other articles are by companies trying to sell their services. But the facts are the facts. Offshoring is no protection, as the above article explains.

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How anonymous is a Cryptocurrency Record?

Are bitcoin transactions anonymous?

No. Bitcoin transactions can be traced, as demonstrated by the recent bust in Manhattan as well as last year's Colonial Pipeline hack, in which authorities were able to recoup some of the ransom payment from the attackers.

"While there are certain ways that cryptocurrency does provide a level of anonymity, be aware that nobody today can claim a 100% anonymity at this point.”

https://www.cnet.com/personal-finance/crypto/are-cryptocurrency-transactions-actually-anonymous/

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But what about "crypto mixers"?

What is a cryptocurrency mixer and how does it work?

https://cointelegraph.com/explained/what-is-a-cryptocurrency-mixer-and-how-does-it-work

I'm not sure crypto mixing is actually illegal. But the IRS certainly does not like it, and it could be pursued as money laundering if anyone ratted you out. And some exchanges would do just that.

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How does it work?

While the definition is fluid, there are several features that typically make up a crypto asset:

- Cryptography: This is where the term “crypto” comes from. A cryptocurrency (or crypto for short) utilizes cryptography, which are techniques for securing information or communications. Cryptocurrencies use what’s called public key cryptography. In systems using public key cryptography, there is a public key, which can be shared with others; in cryptocurrency, this is the key you share with people so they can send you crypto. There is also a private key, which you do not share with others. Think of the private key as a password. It secures your crypto holdings and is used to sign transactions that you’re initiating to others.
- Transparency: The ethos of crypto is one of transparency. Much of the code these protocols are built on is open source, made freely available for redistribution and modification. Plus, every crypto transaction is timestamped to the blockchain, which creates a public provenance or chronology of ownership or custody of the assets.
- Incentives: Cryptocurrency protocols are designed with game theory components in an effort to make sure all users of the system act in a way that keeps the system running. For example, Bitcoin miners must use computer power to verify blocks of transactions. To compensate for the work miners do, newly minted coins are automatically distributed to miners when they verify a block of transactions. In this way, miners are incentivized to continue putting power toward verifying transactions.

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Coins, tokens and crypto assets

In the crypto space, many terms are used interchangeably, which of course, makes the conversation confusing for newcomers. But broadly, there are three categories of crypto:

- Crypto assets/digital assets: This is the catchall term for all of the unique assets that have sprung out of the blockchain revolution and use cryptography. Both cryptocurrencies and crypto tokens fall under this category.
- Cryptocurrency: These crypto assets are also called crypto coins and are those native to blockchains. So for instance, bitcoin (BTC) is the native cryptocurrency of the Bitcoin blockchain and ether (ETH) is the native cryptocurrency of the Ethereum blockchain. These coins are used to pay the transaction fees and also compensate miners, or the users who verify transactions.
- Crypto tokens: These are crypto assets that don’t have their own blockchain. Crypto tokens run on top of an existing blockchain. Ethereum is the most popular blockchain on which to build tokens, but there are other blockchains that can support this. For instance, the art NFT from Beeple, which sold for a whopping $69 million, was built on top of the Ethereum blockchain. Decentralized Finance (DeFi) tokens are also part of this category.

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What Is Decentralized Finance (DeFi)?

Decentralized finance (DeFi) is an emerging financial technology based on secure distributed ledgers similar to those used by cryptocurrencies. The system removes the control banks and institutions have on money, financial products, and financial services.

Some of the key attractions of DeFi for many consumers are:

- It eliminates the fees that banks and other financial companies charge for using their services.
- You hold your money in a secure digital wallet instead of keeping it in a bank.
- Anyone with an internet connection can use it without needing approval.
- You can transfer funds in seconds and minutes.

https://www.investopedia.com/decentralized-finance-defi-5113835

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What determines the value of an NFT?

Nine Factors for NFT Valuation

Valuation of NFTs is one big unknown; establishing a reliable methodology will be critically important as the market continues to grow.

https://www.wealthmanagement.com/alternative-investments/nine-factors-nft-valuation

Nine Factors

The newsletter Bankless has the following as factors to consider in valuation of NFTs:

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- Chain Security.
- On-chain or Off-chain Metadata.
- Age.
- Creator and Community.
- Scarcity and Authenticity.
- Release Pace.
- Richness. Richness relates to additional features of an NFT.
- Destruction of Work.
- Contractual Restrictions.

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As the NFT market roars along, expect that valuation will become more, not less confusing. Valuation is critical, however, because so much of the tax impact of buying, selling, trading and gifting NFTs will depend on what the correct valuation is, either for determining cost basis, for determining the relative value of NFTs that are exchanged, the value of a charitable contribution, and the value of a gift or estate. It will also be important how the NFT is handled in the underlying DAMS and what methodology the IRS, and ultimately the courts, adopts. Getting out ahead on both issues will be critically important as the NFT market continues to grow.

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DAMS = shorter version of "damns", relating to FOMO (Fear of Missing Out). How many DAMS relates to how many would-be owners missed out. And continue to miss out but express continued interest.

Key NFT terms:

NFT terms you need to know [Test your NFT vocabulary]

https://supplain.io/news/nft-terms-nft-vocabulary

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A word about anonymity and the various Blockchains

Bitcoin Mixers and Anonymity
https://www.coindesk.com/learn/bitcoin-mixers-how-do-they-work-and-why-are-they-used/

Bitcoin offers pseudonymity to users by design. But in order to be completely anonymous, you'll need to use tools like bitcoin mixers.

And they may be illegal, as they resemble money laundering.

Anonymity vs. pseudonymity:

"The Bitcoin protocol, like most blockchain networks, does not preserve anonymity. Instead, it preserves pseudonymity: Unless someone has claimed ownership over an address – which looks like a string of letters and numbers – you can't tell who owns it."

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Case in point: Monero “Privacy Coin”

Law enforcement agencies are keen to crack Monero transactions to uncover any criminals that use the network. In September 2020, the IRS offered $625,000 to anyone who could crack the network. A company called CipherTrace has filed a patent claiming it has cracked the network, but those within Monero’s community dispute its claims.

(Monero is one of several "privacy coins" which use advanced techniques to enhance anonymity.)

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Monero: The Privacy Coin Explained

https://www.coindesk.com/layer2/privacyweek/2022/01/25/monero-the-privacy-coin-explained/

Privacy Coin Monero May Be Facing Security Concerns of its Own

https://www.pymnts.com/cryptocurrency/2022/privacy-coin-monero-may-be-facing-security-concerns-of-its-own/

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While blockchain transactions are said to be immutable, there is one big asterisk next to that statement: A 51% attack, which allows anyone who gains control of more than half of the computing power used to mine rewards by adding a new block of transactions to a blockchain to seize control. This would let them double-spend funds used in transactions, making payments via Monero untrustworthy.

The problem is that one of the Monero mining pools — individual miners who pool computing power and rewards — has grown to control 44% of that computing power, known as hash power, putting it far too close to a majority stake for comfort.

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It’s argued that it would make no sense for a mining pool successful enough to gain 51% of the hash rate to kill the golden goose by double-spending it. That said, the point of decentralizing mining is so that no government can interfere with or censor a blockchain.

But a mining pool, almost by definition, is centralized. There’s someone running it, and that someone lives somewhere. This means there’s someone who a bad actor could conceivably coerce. But again, that remains theoretical.

This is one of the problems with converting from Proof of Work to Proof of Stake for validating blockchain transactions.

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Proof or Stake – What Is It? How Does It Work?

Definitions

“Proof of work” and “proof of stake” are the two major consensus mechanisms cryptocurrencies use to verify new transactions, add them to the blockchain, and create new tokens. Proof of work, first pioneered by Bitcoin, uses mining to achieve those goals. Proof of stake — which is employed by Cardano, the ETH2 blockchain, and others — uses staking to achieve the same things.

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The exact details vary by project, but in general proof of stake blockchains employ a network of “validators” who contribute — or “stake” — their own crypto in exchange for a chance of getting to validate new transaction, update the blockchain, and earn a reward.

- The network selects a winner based on the amount of crypto each validator has in the pool and the length of time they’ve had it there — literally rewarding the most invested participants.
- Once the winner has validated the latest block of transactions, other validators can attest that the block is accurate. When a threshold number of attestations have been made, the network updates the blockchain.
- All participating validators receive a reward in the native cryptocurrency, which is generally distributed by the network in proportion to each validator’s stake.

https://www.coinbase.com/learn/crypto-basics/what-is-proof-of-work-or-proof-of-stake

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Trademarks and NFTs: What Are You Really Buying?

Legal Take from (Windows Secrets) AskWoody Newsletter (free content):

The one thing you need to know about the metaverse

Lead Story, May 9, 2022

https://www.askwoody.com/newsletter/free-edition-the-one-thing-you-need-to-know-about-the-metaverse/

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Nike is trying to convince a court that the metaverse is a real place, where the rules of the real world (as I think of it) do not apply.

If it succeeds, it will be a revolution in thinking on a par with the introduction of the theory of relativity. Because the one thing you need to know about the metaverse is this — it is not real. The tools that create the metaverse create projections into the real world, but the metaverse itself is no more real than Pandora.

Nike is upset with Stockx, a company that brokers resale of Nike shoes, and has sued Stockx in federal court in New York. The interesting part of Nike's complaint is the claim that Stockx is violating Nike's trademarks.

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In fairness to Nike, its complaint alleges that Stockx is selling NFTs without actually having the shoes. That would dramatically change the analysis, but Stockx’s answer denies the allegation.

Nike is testing NFT trademark law by suing a sneaker reseller

https://www.theverge.com/2022/2/10/22925252/nike-stockx-shoe-lawsuit-vault-nft-trademark-infringement

StockX strikes back at Nike in NFT lawsuit [Reuters]

https://www.reuters.com/legal/litigation/stockx-strikes-back-nike-nft-lawsuit-2022-03-31/?mc_cid=8ae82fe32c&mc_eid=fc278575d8

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This is what they're talking about. It's a token of a pair of shoes, which are allegedly held in a warehouse somewhere.

Nike claims the shoes themselves do not exist in real life.

The trademark is at the crux of the argument.

What's being sold is not the shoe, nor its image. The Token is the Transaction Record from the Ethereum Blockchain which contains the proof of sale.

If the image were being sold, a clear case could be made for trademark infringement. If the shoe is being sold, it's a common retail sales transaction.

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So the question is: Just exactly what is being sold when you purchase a NFT?

And, what exactly is the trademark’s use in creating this Token? Is the value in the Token, its non-fungibility, or in the trademark itself?

There is no legal precedent for these questions.

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Metrics: How Good An Investment Are NFTs and Cryptocurrencies?

Ripple and XRP:

https://www.coindesk.com/price/xrp/

XRP is the native cryptocurrency of XRP Ledger, which is an open-source, public blockchain designed to facilitate faster and cheaper payments.

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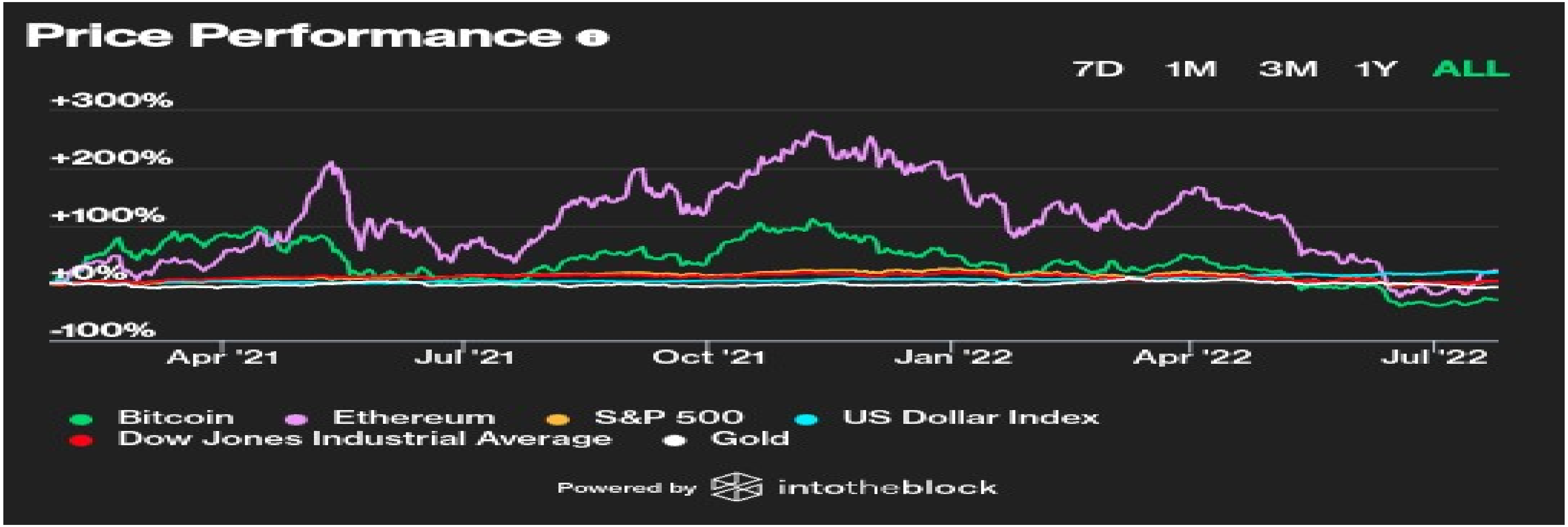
Graph: The Relative Performance of Several Classes of Investments – 2021-2022 to Date:



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For comparison, let's look at one representation of Bitcoin vs. traditional equities metrics.

In late 2021 and into mid-2022, cryptocurrency prices rose and fell similarly to equity prices. The chart above shows Ethereum’s and Bitcoin's prices, compared to Dow Jones, the S&P 500, gold and the US Dollar Index. It's important to note that the graphs overlay each other for comparison— Ethereum’s and Bitcoin's prices were much higher than they appear on the chart.

https://www.coindesk.com/price/bitcoin/

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The tracking isn't as exact as Bitcoin vs. "other crypto". But it certainly is present. Crypto did NOT avoid the inflation and pandemic fluctuations of the traditional equities markets. In fact, most crypto and all NFTs amplified the traditional market fluctuations, with (often) no way for crypto and NFT investors to quickly cash out as markets crashed. In fact, without regulations and insurance, some exchanges never allowed cashing out at all. They simply folded, with investors losing everything.

My point is, whether or not NFTs can be built on top of a blockchain, cryptocurrencies and Meta goods still tend to track exactly the same way. If one edge case (stablecoins) crashes, all crypto and meta assets tend to crash. And similarly with any rise in values due to rising sentiment or hype. This is classic bubble mentality -- Dutch Tulips frenzy, or “irrational exuberance” to quote former Federal Reserve Board Chairman Alan Greenspan.

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So what can we learn from all this interest in NFTs and Meta-objects?

There are several newer developments worthy of our attention:

Exchanges are coming under increasing regulation. But where does a decentralized crypto exchange actually have its Point of Presence? No one knows.

In addition to the US IRS and law enforcement trying to trace crypto transactions, the EU is getting on board with making crypto transactions more traceable.

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Will new EU crypto rules change how ransomware is played?

The European Union is cracking down on cryptocurrencies. That could have massive implications for enterprise IT.

https://www.computerworld.com/article/3667281/will-new-eu-crypto-rules-change-how-ransomware-is-played.html

Yeah, good luck enforcing this. And that also applies to US regulations.

Cryptocurrency Firm Celsius Files For Bankruptcy, Still Won't Allow Withdrawals

https://www.extremetech.com/internet/337944-cryptocurrency-firm-celsius-files-for-bankruptcy-still-wont-allow-withdrawals

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And remember, Crypto Exchanges do not participate in insurance programs like banks do. This means if they go bankrupt, so do YOU!

FBI Warns Fake Crypto Apps Are Stealing Millions

More than 200 victims have lost $42 million to apps only built to line scammers' pockets with bitcoin over the past year.

https://gizmodo.com/fbi-fake-crypto-apps-steal-millions-investors-bitcoin-1849191776

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Coinbase Cites 'Technical Issues' for Users' Difficulty Accessing Funds

This and other speculation surrounding the crypto exchange point to how nervous the community and industry have become.

https://gizmodo.com/coinbase-reddit-crypto-binance-1849192138

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Bitcoin Wasn't as Decentralized or Anonymous as Crypto Bros Told You, Study Finds

Just 64 bitcoin owners were responsible for the vast majority of mining in the cryptocurrency's early days.

https://gizmodo.com/bitcoin-cryptocurrency-centralized-not-anonymous-study-1849029656

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Ethereum Swears that This Time, It'll Actually Move to Proof of Stake

It’s been a long road, and we're getting close, but the minds behind Ethereum have pushed a POS system and then “The Merge” for nearly a decade at this point.

https://gizmodo.com/ethereum-proof-of-stake-september-19-merge-date-bitcoin-1849316290

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9 Companies That Hoarded Customers’ Money as Crypto Crashed

With cryptocurrency prices collapsing, a handful of companies found themselves pulling a move pulled from the playbook of a 1920s bank: freezing withdrawals.

https://gizmodo.com/cryptocurrency-bitcoin-crash-withdrawal-freezes-1849131726

Note that this practice would be impossible if US Securities or banking regulations were extended to Crypto Exchanges.

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IRS Asks Lawmaker to Introduce Stronger KYC Rules on Crypto

https://potomacofficersclub.com/news/irs-asks-lawmaker-to-introduce-stronger-kyc-rules-on-crypto/

KYC Rules do apply to cryptocurrency and NFT holding companies (Exchanges and others). Wallets are covered by such mandatory disclosures, the IRS says, but they want Federal laws to more strongly enforce these requirements.

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It's Officially Too Hot for Crypto Mining in Texas

Multiple mining operations reported they were voluntarily temporarily reducing operations during spikes in energy demand on a traditionally spotty grid.

https://gizmodo.com/crypto-texas-ercot-bitcoin-heatwave-1849170538

The problem in Texas is not just capacity and aging infrastructure. Texas has more layers of Government bureaucracy than any other State.

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Yeehaw, the EU Agreed on Laws to Reign in the Crypto 'Wild West'

https://gizmodo.com/bitcoin-eu-mica-laws-cryptocurrency-wild-west-1849133575

Markets in Crypto-Assets (MiCA) would provide recourse for scammed investors and coin holders and require disclosure of environmental impact.

This could be a model for US legislation or regulations.

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To repeat from another talk I gave on cryptocurrencies:

https://blogs.worldbank.org/psd/addressing-consumer-risks-fintech-maximize-its-benefits

[T]he benefits of fintech (financial technology) and digital financial services have never been so evident. But fintech doesn’t come without risks to consumers.

Increased instances of digital fraud, peer-to-peer lending platform collapses, and borrower distress as a result of irresponsible digital microcredit lending practices illustrate such risks.

In other words, there are none of the safeguards of the regulated world of traditional banking or lending companies. If you get a fintech account hacked, or if money disappears from the account, you may have no recourse to recover the loss. There is no insurance program for fintech apps or platforms.

This includes cryptocurrency exchanges, where your cryptocurrency holdings actually reside. Your Crypto Wallet is only worth what you can cash it out for. Usually, this means whatever someone will pay for it. Exchanges do not offer cash for Crypto. They do not act like banks.

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Here’s a fun little explainer:

NFTs, explained

I have questions about this emerging... um... art form? Platform?

https://www.theverge.com/22310188/nft-explainer-what-is-blockchain-crypto-art-faq

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So now I ask my Audience: What do YOU want to know about NFTs, Cryptocurrencies, Metaverse virtual worlds, etc.?

Do any of you have any experience or expertise in this area?

Was my talk interesting, or just a waste of your time?

-- Bob Primak – July 25, 2022 --

for The Chicago Computer Society

West Side Computer Club

August 4, 2022 via Zoom

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Related Content:

I also gave a talk in June to our Chicago Computer Society's South Suburban Computer Club, about cryptocurrency basics and how crypto and blockchain can be used in the real world, as well as a bit about the Metaverse.

I gave another related talk about The Flash Boys of Wall Street and how markets are manipulated by High Frequency Trading for the Lexington MA Computers and Technology Group (LCTG).

Both of these talks are available on video. The CCS talk is in our list of You Tube Videos on our Channel.

South Suburban Club 2022-5-17 Liz Miller and Bob Primak

- https://www.youtube.com/watch?v=Gcwz5mUrG0c (starts at 49:00 out of 1:40:00)

The LCTG video is linked at:

- https://www.youtube.com/playlist?list=PLIJpI9E__Za9oioR5q0n1SX8fxCQip4lm
- https://www.youtube.com/watch?v=qzm3QI-wyPg&list=PLIJpI9E__Za9oioR5q0n1SX8fxCQip4lm&index=4

-- Bob Primak – July 25, 2022 --