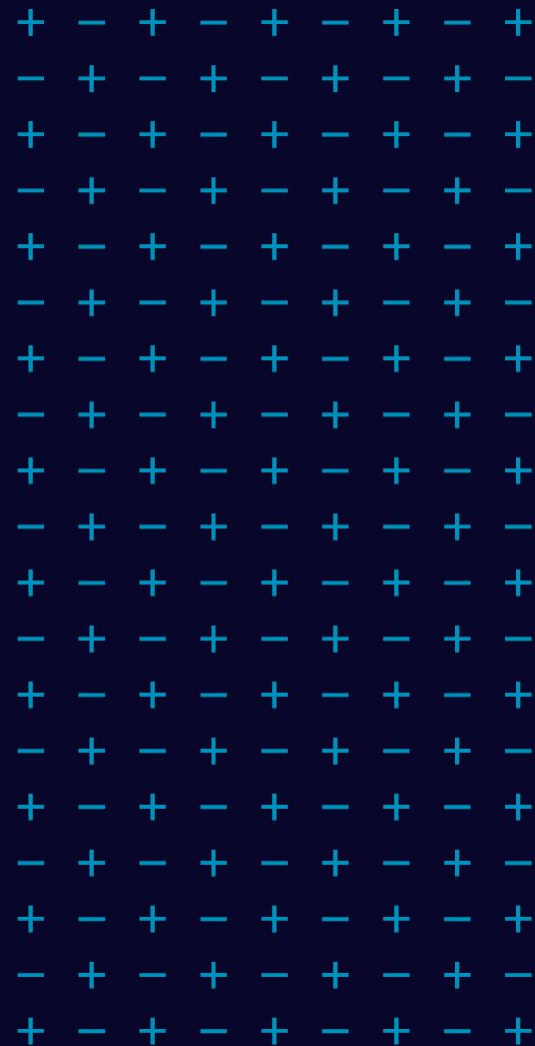




**ADVISOR
ACADEMY**
DIGITAL ASSETS

CRYPTOECONOMICS,
FUNDAMENTAL, AND
TECHNICAL ANALYSIS



Topics in This Lesson

- Cryptoeconomics and Economy Evaluation

1. Definition and Overview
2. Cryptosystems as Complex Systems
3. Sector Taxonomy
4. System Components
5. Circulation and Inflation Models
6. Token Distribution
7. Token Functions
8. Supply Model Examples
9. Trustless Mechanisms
10. Governance Systems

- Fundamental Analysis

1. Traditional vs. Digital Asset Valuation & DCF
2. The Equation of Exchange (Quantity Theory of Money)
3. Stock-to-Flow Model
4. NVT Ratio
5. Modified Metcalfe Analysis
6. Cost of Production Models

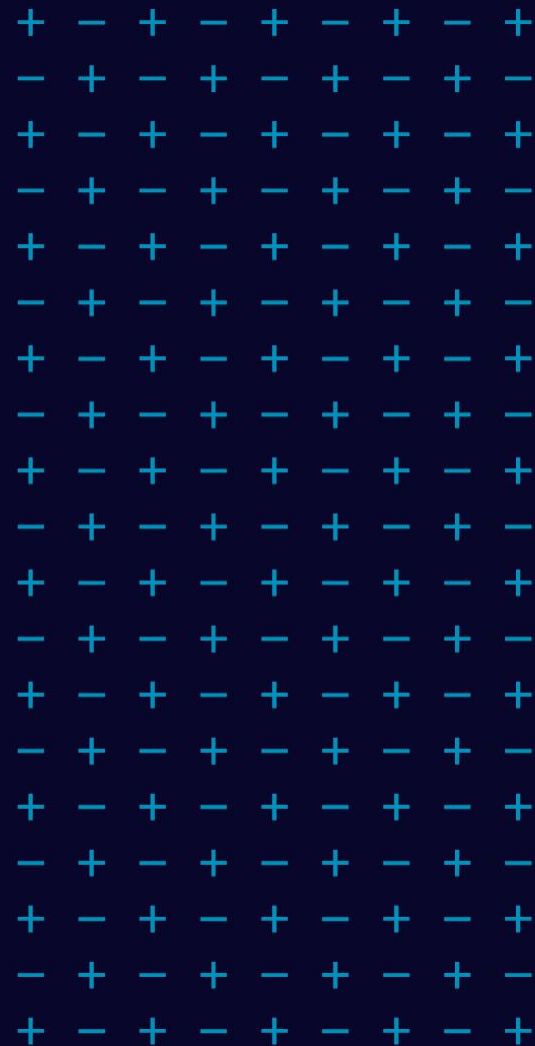
- Technical Analysis

1. Applying technical analysis to cryptocurrencies
2. The current technical picture for major cryptocurrencies
3. Using relative strength for risk management



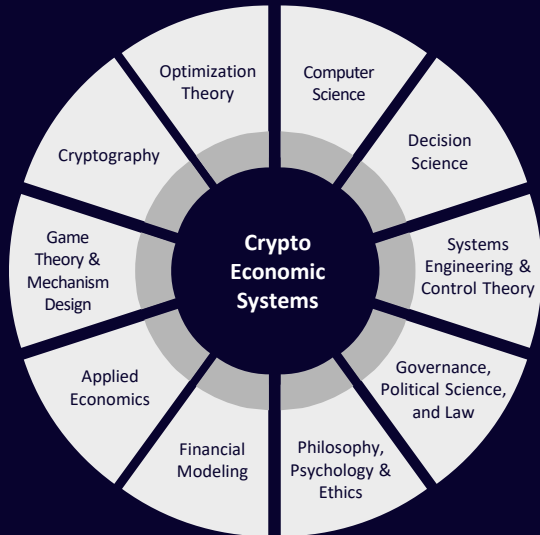
**ADVISOR
ACADEMY**
DIGITAL ASSETS

CRYPTOECONOMICS & ECONOMY EVALUATION



CRYPTOECONOMICS

Cryptoeconomics is a multidisciplinary field that cointegrates fields such as economics, game theory, cryptography, and mechanism design.



CRYPTO-ECONOMIC-DESIGN

Crypto

Complex mathematical algorithms enabled by cryptography that are extremely tamper-resistant. The computation provides a basis for network security.

Economic

The use of digital assets that are provably scarce is one of the foundational aspects of blockchain.

Design

Cryptoeconomic systems can be tailored to accomplish any number of goals, from coordination, to value optimization, to workflows specific to various protocol or application needs.

CRYPTOECONOMIC SYSTEMS ARE **COMPLEX SYSTEMS** THAT CAN'T BE MODELED USING TRADITIONAL APPROACHES



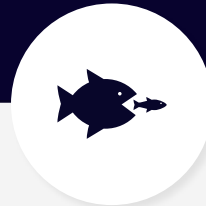
Path Dependent

Crypto systems are highly path dependent. Outcomes vary based on the order of operations and then-current external contexts.



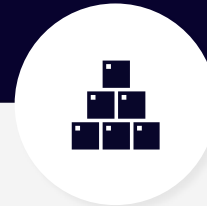
Dynamic

Cryptoeconomic systems are rarely in pure equilibrium. Value and information is constantly flowing through the network, which impacts the system at large.



Adaptive

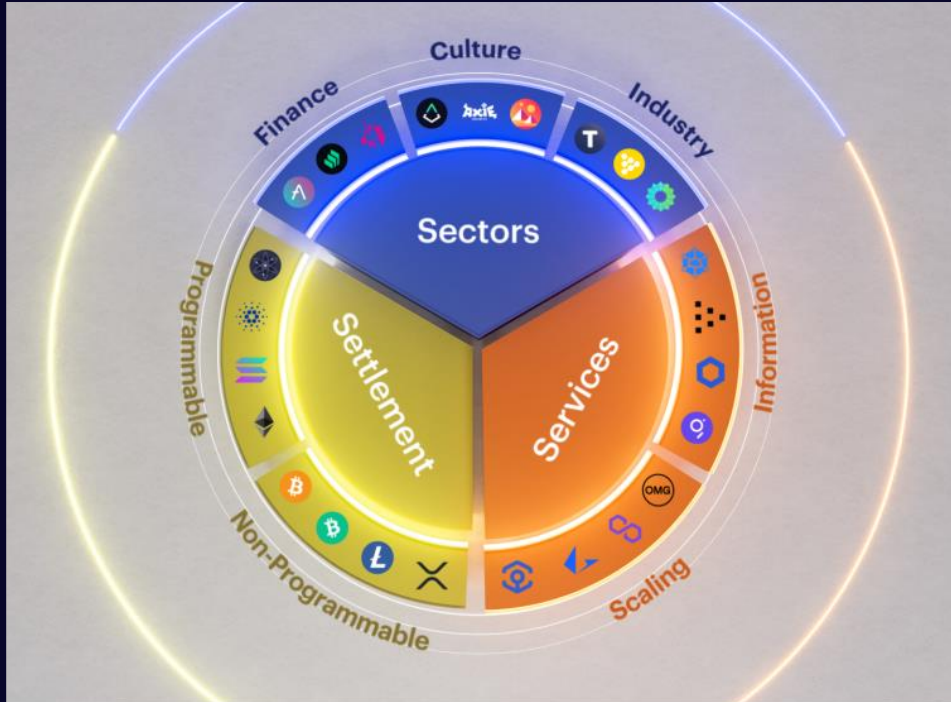
Crypto systems respond to stimuli and changing conditions, both at a micro level, and system wide.



Multiscale

Cryptoeconomic networks typically operate at many different levels: individual users and their local systems, user groups and their coordinated actions, and collectively at system scale.

SECTOR TAXONOMY

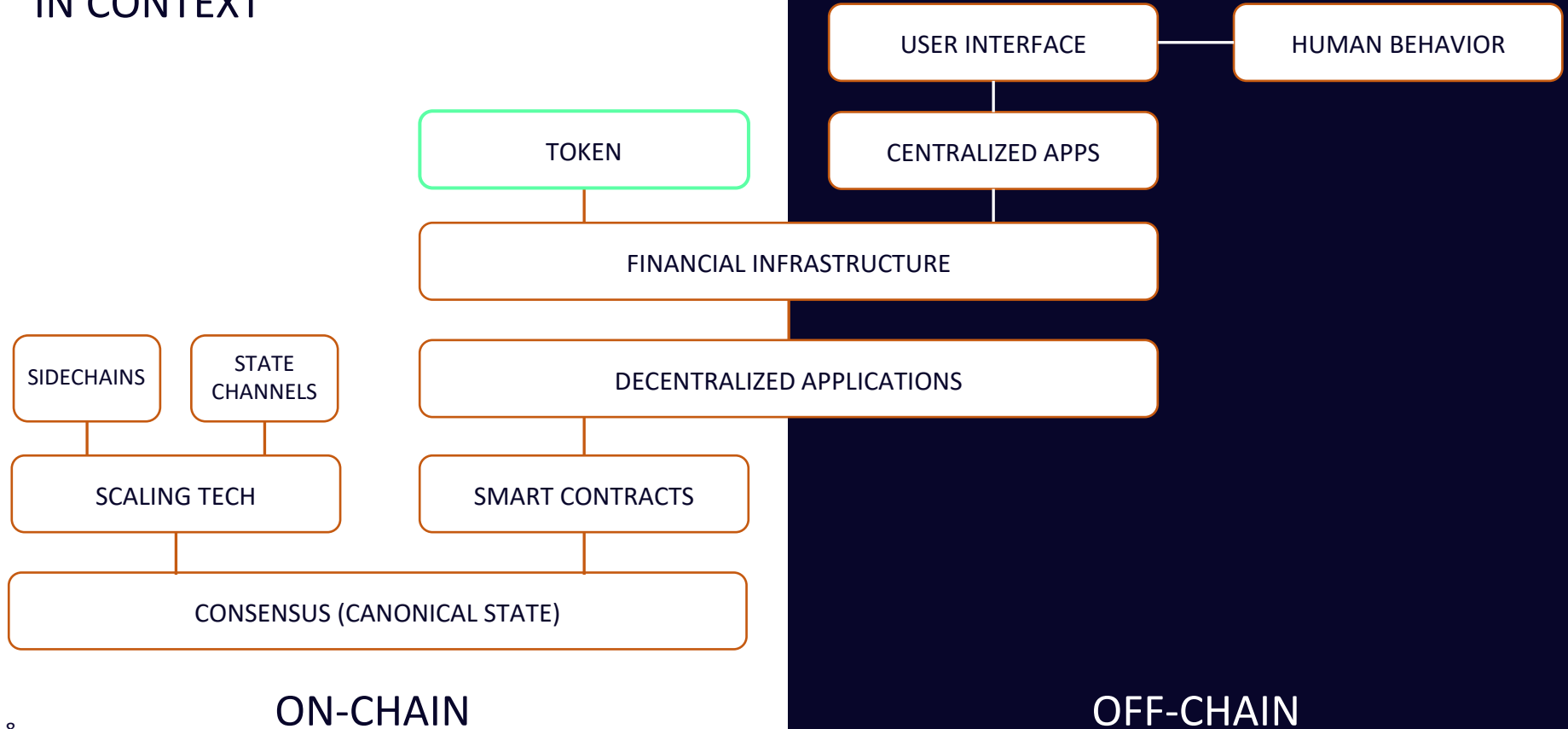


CF Benchmark's Digital Asset
Classification System

SECTOR TAXONOMY IN PRACTICE

Category	Sub-Category	Examples
Sector Applications	DeFi	<ul style="list-style-type: none"> • AAVE • COMP • PERP • UNI
	Culture	<ul style="list-style-type: none"> • AXS • ENJ • SAND • RARE
	Industry	<ul style="list-style-type: none"> • BAT • CVC • ENS • POWR
Services	Information	<ul style="list-style-type: none"> • GRT • LINK • LPT • STORJ
	Scaling	<ul style="list-style-type: none"> • ANT • KEEP • MATIC • REN
Settlement	Programmable	<ul style="list-style-type: none"> • ADA • ATOM • DOT • ETH
	Non-Programmable	<ul style="list-style-type: none"> • BCH • BTC • FIL • LTC

COMPONENTS OF A CRYPTOECONOMIC SYSTEM IN CONTEXT



CIRCULATION AND INFLATION MODELS

The ways in which tokens circulate throughout a crypto economy have a significant impact on system functionality and perceived value. They can also shed light on the project's objectives and ethos.

KEY CONSIDERATIONS

Token Distribution Model

- There are many different ways to seed a network with tokens
- Typically, there's an initial, "trustless" allocation across stakeholder groups
- Tokens are also often distributed on an ongoing basis

Economy Structure

- All token economies are unique
- Tokens flow from system actors to smart contracts, and vice versa – it is important to understand the flow and how flows are expected to change under different conditions

Maximum Supply

- Many token economies specify a maximum supply above which no additional native assets can be minted
- Others don't specify any specific maximum – depending on the nature of the inflation model, these can be more difficult to analyze

Inflation

- Inflation rates can be simple linear functions, stepwise functions, or any other specification that can be reasonably described
- In connection with any stated maximum supply, inflation rates have a substantial impact on supply and demand dynamics, and thus token value

TOKEN DISTRIBUTION

Although empirical analysis can be useful, token distribution is an art, not a science

KEY ALLOCATIONS

Team

- Absolute percentages and vesting requirements should be scrutinized
- Although practices evolve over time, a rule of thumb is that allocations exceeding ~25% warrant a closer look (as they can result in a more centralized economy and limit capacity for ecosystem incentives)

Investors

- Tokens that were distributed in a private sale, public sale, or airdrop
- Public sale structures continue to develop over time
- Allocations depend on the nature of the token economy itself, and exhibit a wide range, from 0% to 60% or higher

Treasury

- Funds the ongoing operations of any associated foundation or software development company

Ecosystem Incentives

- Many cryptoeconomic systems reward actors for completing certain tasks
- This could be securing the network (e.g., PoW mining) or related to the provision of some type of service

COMMON TOKEN FUNCTIONS

Value Transfer

- A high proportion of cryptographically-enabled systems use tokens to facilitate value transfer
- Common both in Layer 1 networks, as well as in decentralized applications

Contribution

- Offers holders the ability to work or perform services on the network
- Tokens may be required to provide any service whatsoever, or they may enable a special tier of services

Membership

- Offers holders the ability to receive certain benefits from the network
- This often includes premium features and/or the ability to obtain services at a discount

Governance

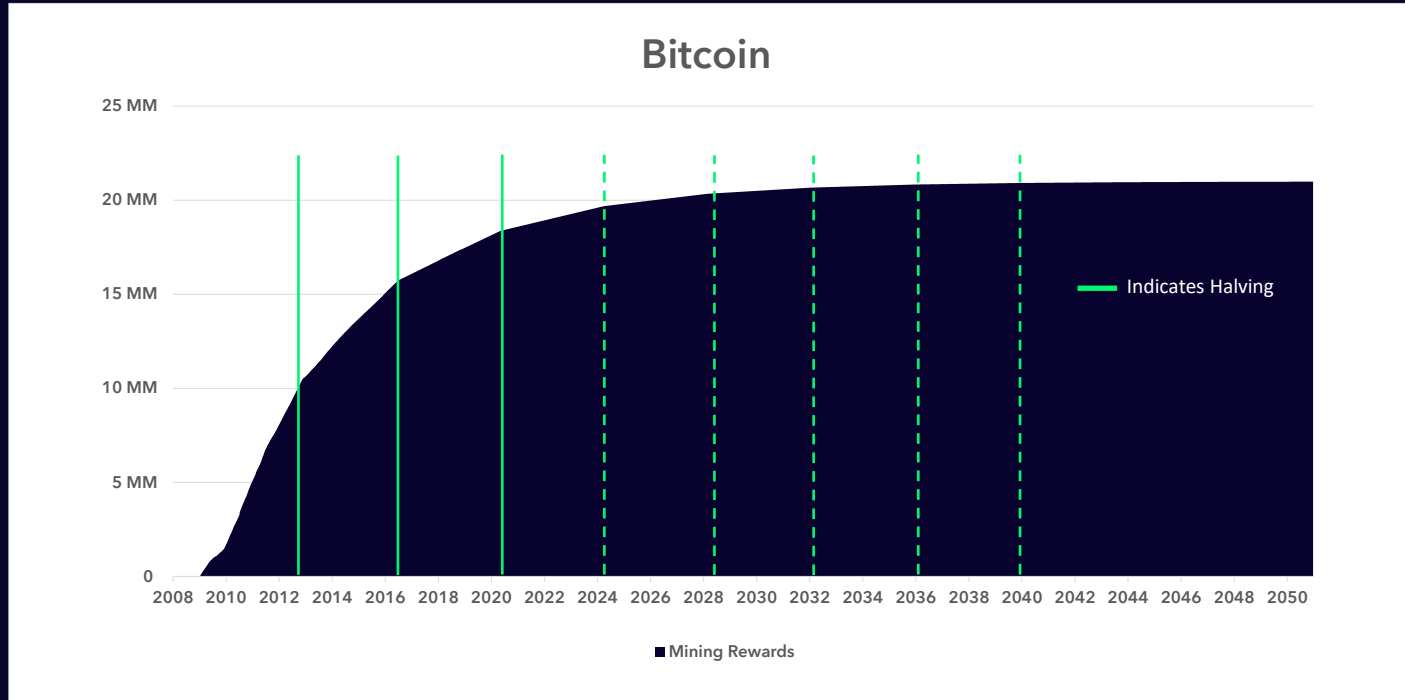
- Many protocols distribute governance rights amongst token holders
- Holders can then vote to influence strategic direction (long-term), as well as technical and tactical decisions

OTHER FUNCTIONS

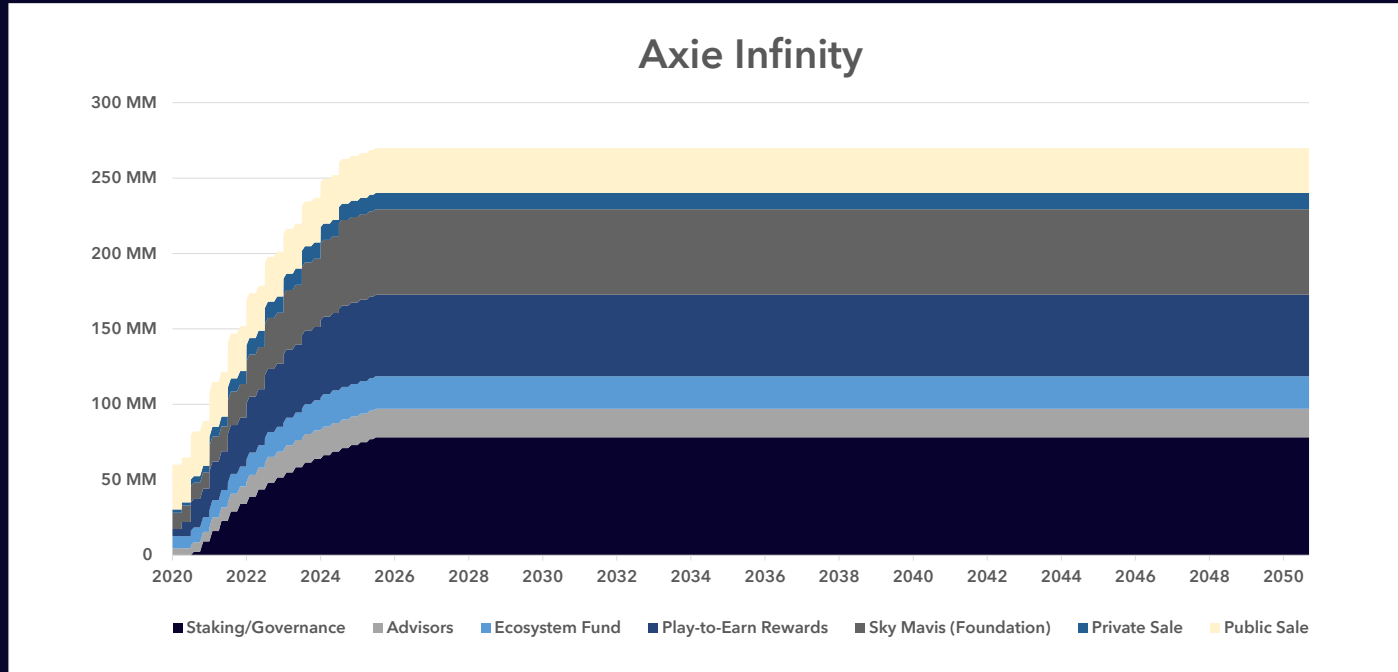
Some tokens have functionality that is similar to that of traditional financial instruments, such as tokens that are redeemable for a specific asset or set of assets. These assets could be other digital assets, traditional financial securities, or other types of non-traditional, real-world assets.

In addition, some tokens are designed to facilitate revenue or profit-sharing activities; this would generally be in the form of some kind of dividend.

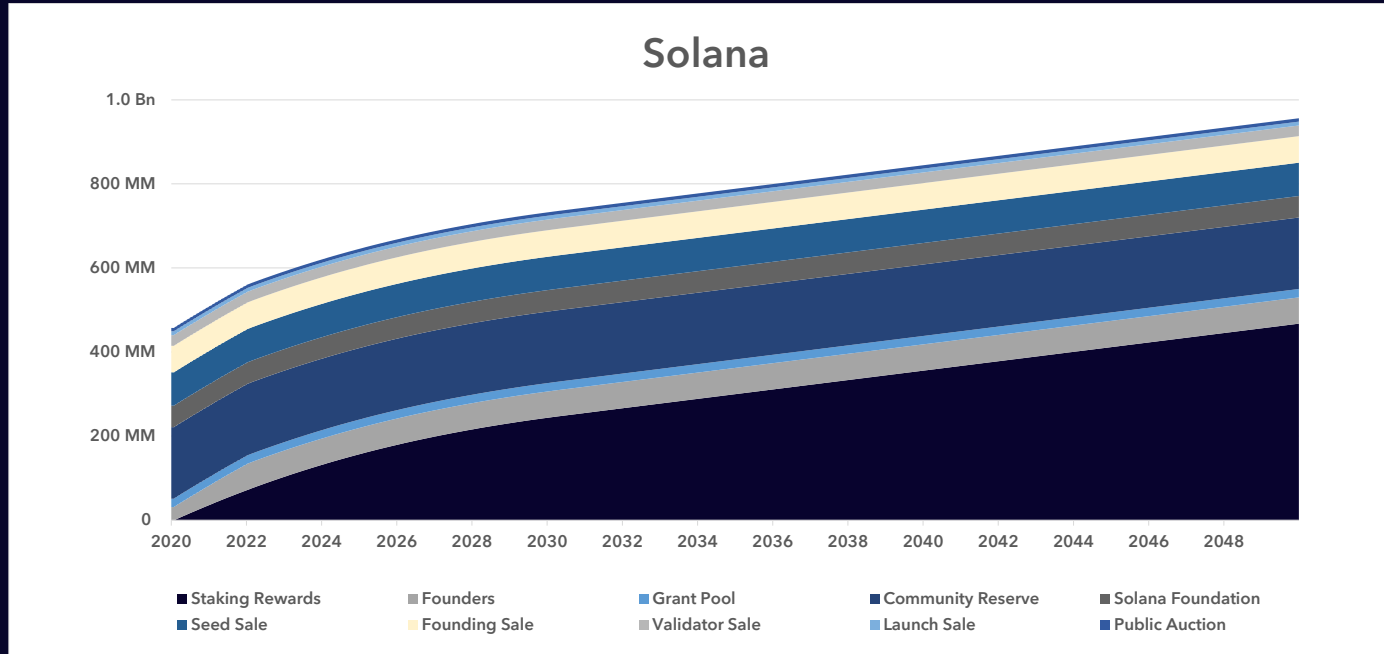
CUMULATIVE SUPPLY OVER TIME – SIMPLE DEFLATIONARY



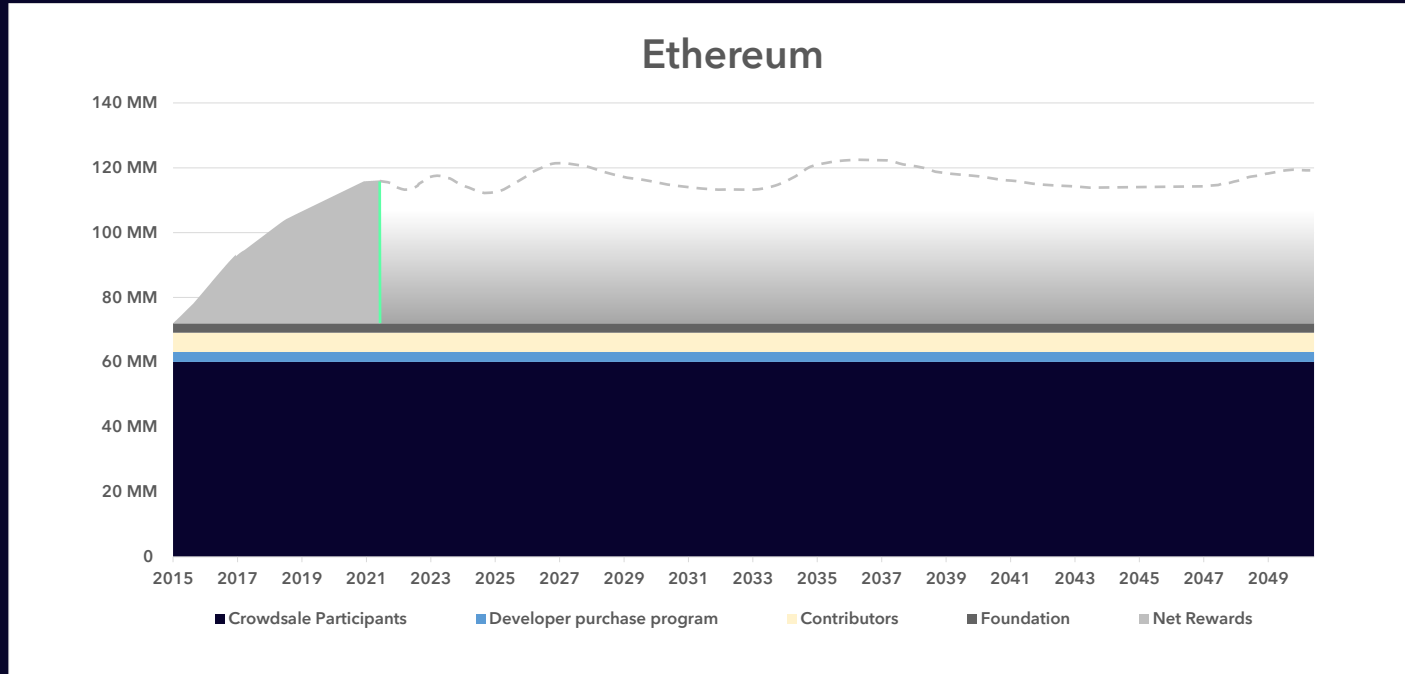
CUMULATIVE SUPPLY OVER TIME – COMPLEX DEFLATIONARY



CUMULATIVE SUPPLY OVER TIME – INFLATIONARY



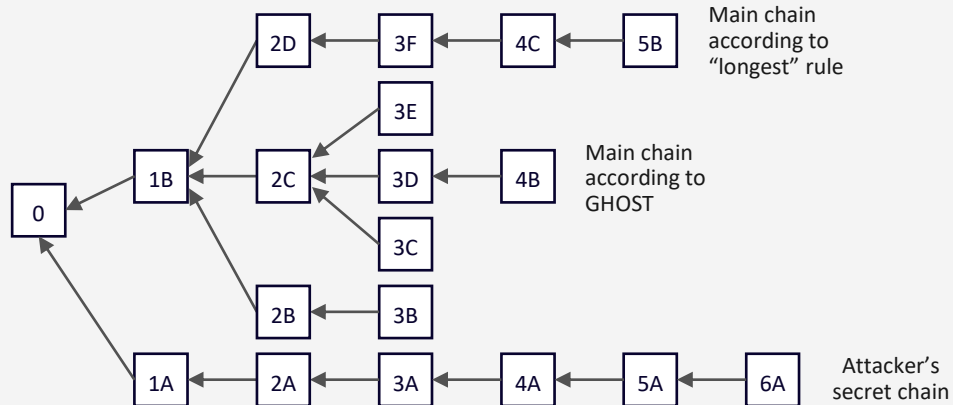
CUMULATIVE SUPPLY OVER TIME – UNCERTAIN



TRUSTLESS MECHANISMS (AN EXAMPLE):

NAKAMOTO CONSENSUS

- Distributed blockchain systems maintain consensus on system state using pre-established rules that dictate under what conditions proposed blocks are considered canonical
- When evaluating a new blockchain technology, it is important to understand these rules so as to estimate the likelihood of disagreement
- Nakamoto Consensus, also known as the “longest chain rule,” is how the Bitcoin Network determines which chain is most valid
- It is a good example of how a trustless technology can enable innovation and provide structure in a permissionless environment



INJECTING TRUST

Blockchain enables the use of various “trustless” technologies that facilitate interaction within a network without the need for a centralized intermediary.

Actors are assumed to be rationale and self-interested; they compete and/or cooperate in economic games to accomplish their own objectives while remaining within the confines of rules established by the system.

GOVERNANCE SYSTEMS

Governance is an emerging area within cryptoeconomic design. **Transparent, equitable, and responsive** procedures are important aspects of any governance system.

It is important that governance systems are designed to **reflect the characteristics and nuances of each token economy** – similar token economic structures may require different governance processes if stakeholder groups have different objectives or otherwise exhibit different behaviors.

On-Chain vs. Off-Chain Governance

- Crypto systems can utilize explicit governance that follows rules set forth on-chain, or they can make decisions about project direction in a private and/or off-chain environment
- Bitcoin and Ethereum are examples of successful protocols that don't have any on-chain governance mechanisms
- Other networks, such as Uniswap, make decisions about protocol direction using a process of socialization, followed by on-chain voting and enforcement
- There are benefits and drawbacks to each approach

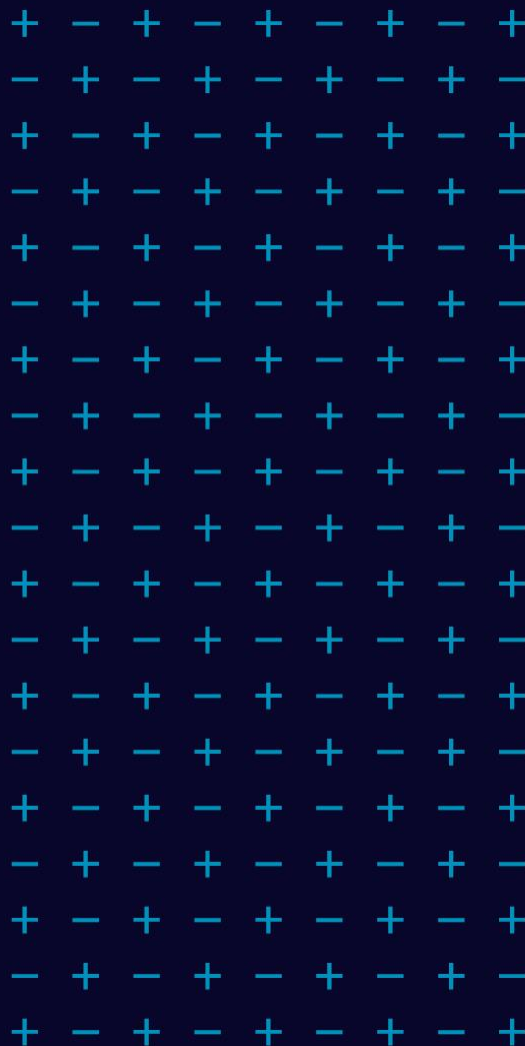
Best Practices

- Clear Articulation
- Resilient & Adaptable
- Consistent with Token Economic Structure
- Accounts for Evolution Strategy
- Representative
- Open (avoids entrenched interests)
- Legally Compliant



**ADVISOR
ACADEMY**
DIGITAL ASSETS

FUNDAMENTAL ANALYSIS IN CRYPTO



COMMON VALUATION METHODOLOGIES

- Discounted “Cash Flow”
- The Equation of Exchange (QTM)
- Stock-to-Flow (S2F)
- Network Value to Transactions (NVT)
- Metcalfe Analysis
- Cost of Production
- Total Addressable Market Basis

TRADITIONAL VS. DIGITAL ASSET VALUATION

Discounted Cash Flow

- Despite many fundamental differences between equity valuation and that of digital assets, it is possible to perform DCF-style valuations
- The specific nature of the token economy will inform which “value metric” drives the valuation
 - Tokens that are used to **pay for services** on the network can usually be evaluated by modeling **monetary demand** in the context of the system’s supply dynamics
 - Tokens that **provide yield** directly can typically be modeled using techniques similar to those employed by a **traditional DCF analysis**
 - Some economies require the use of both approaches, for example, if the token is used to purchase services on the network, but also provides those that stake the token direct yield (generally, in the form of additional native tokens)
- Given the early and emerging nature of many token economies, it is usually necessary to **explicitly forecast a time horizon of ~10 years**
- Uncertainty regarding network adoption, value capture theses, and the overall digital asset sector is typically high
 - This implies the need to **model a wide array of network evolution scenarios**

KEY DIFFERENCES

Crypto networks generally **don’t have cash flows**. Even those that do provide token holders with some form of direct yield, the variability of payout is usually high. This may require the use of **modified DCF approaches** that evaluate monetary demand.

High uncertainty requires the use of high discount rates. Unlike in traditional finance, there is no generally accepted methodology for selecting a discount rate.

THE EQUATION OF EXCHANGE

The Equation of Exchange a.k.a. the Quantity Theory of Money is one of the most well-known economic identities.

It's application to crypto, however, is oftentimes problematic. Meticulous and bespoke applications can help analysts understand the effectiveness of value capture mechanisms, although the devil lies in the details.

Original Formulation

- The Quantity Theory of Money (QTM) is an identity equation that essentially says: "Things cost what you pay for them"
 - The simplicity can be deceptive, however
- The QTM was originally specified in the context of traditional (fiat) economies using the following formulation:

$$MV = PQ$$

M is the quantity of money (in USD)

V is money velocity (a scalar, unitless variable)

P is the price level (in units of currency per unit of output)

Q is the quantity of output (in units of output)

- When applied to crypto, it is critical to ensure units are correctly specified

Key Benefits

- Identity equation that's "always true"
- Ease of application
- Historical significance
- Broad applicability
- Good tool to analyze supply dynamics

Key Challenges

- Requires many assumptions
- Frequently debated
- Requires velocity as an input
- Common confusion regarding units
- Outputs rarely align with reality

THE QUANTITY THEORY OF MONEY, THE CRYPTO WAY

The Quantity Theory of Money can oftentimes be applied to the valuation of a token economy. As with any financial analysis, outputs will only be as good as your inputs. Or garbage in, garbage out, as they say!

The Cryptoeconomic Formulation

- We can restate the original formulation into the equivalent crypto context, using 'T' to denote a token economy:

$$M^T V^T = P^T Q^T$$

M^T is the quantity of tokens that is supported by the project economy at a specific moment in time (in tokens)

V^T is token velocity, i.e., the number of times per year that a token is used to purchase project output (a scalar, unitless variable)

P^T is the price of a unit of project output, NOT the token price (in units of native project tokens per unit of output)

Q^T is the quantity of output (in units of output)

THE QUANTITY THEORY OF MONEY, IN PRACTICE

A specialist in monetary and banking theory and history, former Federal Reserve economist Warren Weber offers a specification of the QTM that helps users calculate USD-denominated token valuations more readily.

A More Intuitive Cryptoeconomic Formulation

- Many analysts assume P^T is the token price in USD terms. This can lead to incorrect calculations
- The introduction of a new variable, E , can help to reduce confusion:

**E = the # of tokens per dollar,
i.e., the inverse of USD-denominated token price**

- In addition:

M^T is the maximum number of tokens authorized; and
 π is the USD-denominated price of Q^T

- Therefore:

$$E = P^T / \pi$$

P^T is in units of (Tokens/Output)
 π is in units of (USD/Output)

$$P^T = \pi * E$$

Thus, E is in units of (Tokens/USD)

- Substituting P^T into the original formula and solving for E , we get:

$$E = M^T V^T / \pi Q^T$$

- Taking the reciprocal allows us to solve for USD token price:

$$\text{USD Token Price} = 1/E = \pi Q^T / M^T V^T$$

THE QUANTITY THEORY OF MONEY, WHAT'S THE CATCH?

The vociferous debate that has occurred historically is not without good reason. Many suggest the extensive set of assumptions necessary to justify the QTM are problematic or otherwise questionable.

Key Challenges & Implementation Guidance

▪ Common Issues

- Misapplication of prices, exchange rates, and units
- Incomplete picture of circulating supply
- Limited support for velocity assumptions
- Violation of QTM assumptions that degrades the quality of the output

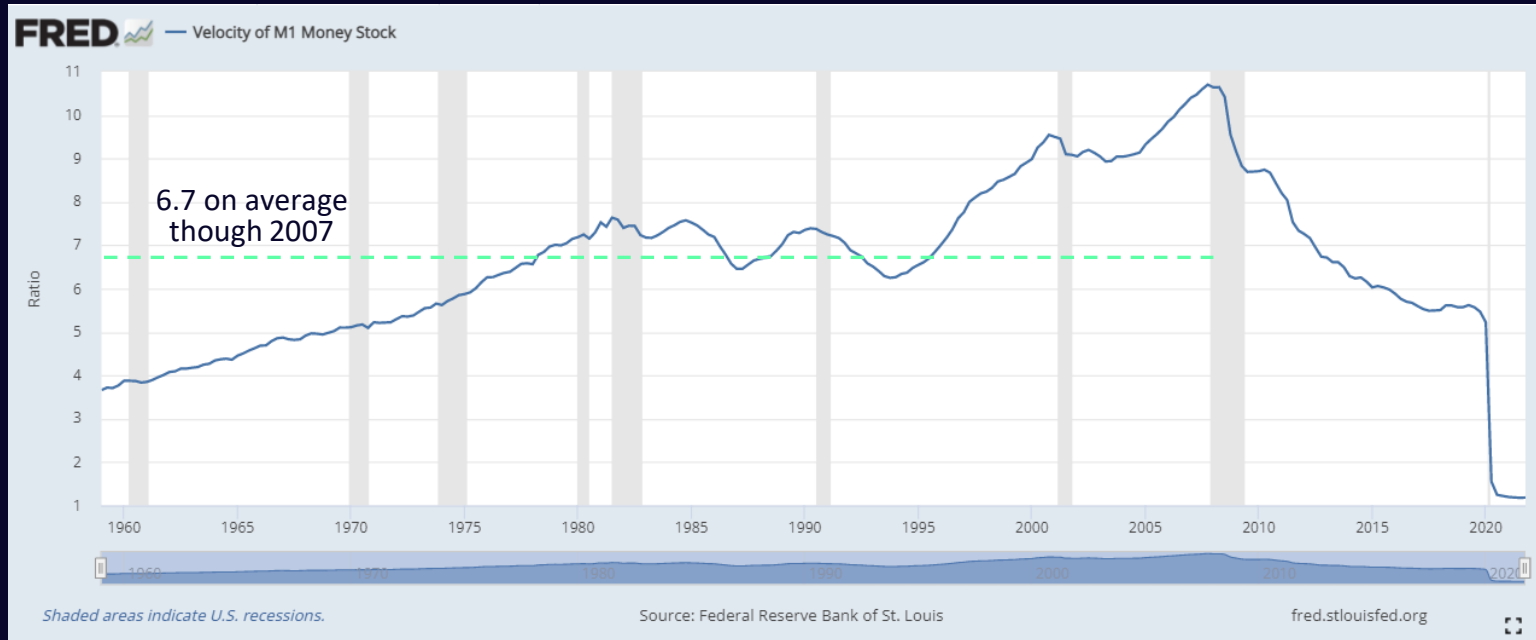
▪ QTM Model Assumptions

- The velocity of tokens (V^T) is constant and not influenced by equation factors. It is influenced by exogenous factors, over the long-term
- Similarly, the quantity of project output transacted (Q^T) is constant and not influenced by equation factors
- The price of project output (P^T) is a passive factor that's influenced by other equation factors, but that does not affect them, in turn. In other words, P^T is the effect, not the cause
- People never hoard tokens and never demand them directly. Accumulation represents demand for future project output, not demand for tokens themselves
- The free market will establish and maintain equilibrium and economy resources remain fully deployed

▪ Things to Remember

- Only activity that represents the genuine purchase of project output should be considered when calculating system GDP and velocity – this means trading activity must be excluded!
- Be careful to ensure consistency with units across all variables

VELOCITY OF M1 MONEY SUPPLY



ILLUSTRATIVE QTM-BASED, DCF-STYLE ANALYSIS

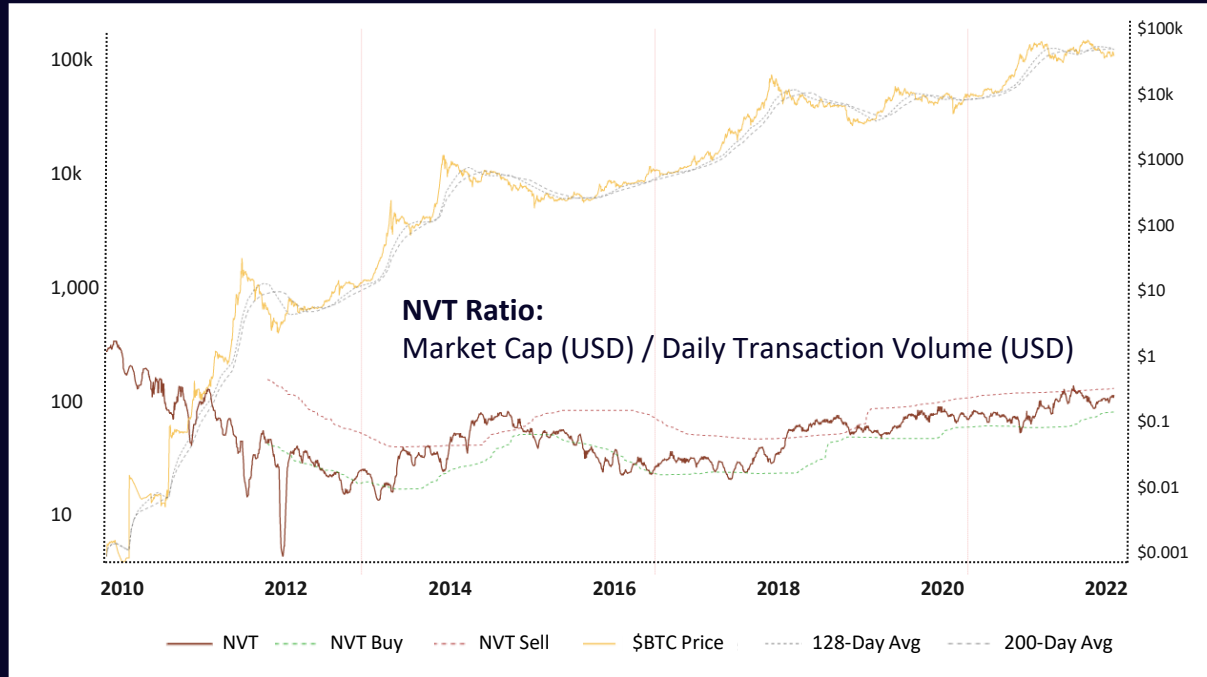
The Nasdaq Protocol												
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
Daily Active Users	41 k	231 k	1.3 MM	7.5 MM	18.8 MM	46.9 MM	118.1 MM	153.6 MM	170.8 MM	186.1 MM	201.0 MM	
Average # Transactions Per User Per Day	1.50	1.80	2.16	2.38	2.61	2.87	3.16	3.48	3.83	4.29	4.71	
Total Transaction Volume (# of transactions)	61 k	416 k	2.8 MM	17.8 MM	49.0 MM	134.8 MM	373.6 MM	534.2 MM	653.5 MM	797.7 MM	947.7 MM	
Average Transaction Fee (USD)	0.25	0.25	0.23	0.23	0.20	0.20	0.20	0.22	0.24	0.27	0.29	
Total System GDP (USD)	15 k	104 k	640 k	4.0 MM	9.8 MM	27.0 MM	74.7 MM	117.5 MM	158.1 MM	212.4 MM	277.5 MM	
YoY Growth		584%	516%	527%	144%	175%	177%	57%	35%	34%	31%	
% of GDP paid in Native Tokens	20%	25%	30%	30%	35%	40%	45%	48%	52%	57%	63%	
Total Protocol Fees (USD Value)	3 k	26 k	192 k	1.2 MM	3.4 MM	10.8 MM	33.6 MM	55.8 MM	82.6 MM	122.1 MM	175.4 MM	
Average Token Velocity	4.0	5.1	5.3	6.0	8.1	12.4	18.1	22.2	24.0	24.7	24.9	
Total Projected Utility	759	5,092	36,198	200,483	423,518	869,480	1,857,584	2,514,687	3,442,774	4,941,431	7,046,155	
Total Projected Utility per Token	0.0006	0.0011	0.0043	0.0183	0.0345	0.0687	0.1484	0.2069	0.2924	0.4304	0.6321	
Total Projected Utility per Token (Incl. TV)	0.0006	0.0011	0.0043	0.0183	0.0345	0.0687	0.1484	0.2069	0.2924	0.4304	3.2870	
NPV (Implied Token Price)	\$0.32	\$0.42	\$0.55	\$0.71	\$0.90	\$1.13	\$1.41	\$1.68	\$1.98	\$2.28	\$2.53	\$2.76
Circulating Supply (Average)	1.9 MM	7.5 MM	13.9 MM	18.5 MM	21.4 MM	22.9 MM	23.6 MM	23.9 MM	24.4 MM	25.1 MM	25.9 MM	
Total System Stake	672 k	2.7 MM	5.3 MM	7.5 MM	9.1 MM	10.2 MM	11.1 MM	11.8 MM	12.6 MM	13.6 MM	14.8 MM	
Global Stake Rate	35%	37%	39%	41%	43%	45%	47%	49%	52%	54%	57%	
Adjusted Circulating Supply	1.2 MM	4.7 MM	8.5 MM	11.0 MM	12.3 MM	12.7 MM	12.5 MM	12.2 MM	11.8 MM	11.5 MM	11.1 MM	

STOCK-TO-FLOW – BITCOIN NETWORK



Source: Charts by @BuyBTCWW; Models by @100trillionUSD
Location: <https://stats.buybitcoinworldwide.com/stock-to-flow/>

NVT RATIO – BITCOIN NETWORK



Source: charts.woobull.com

Location: <https://charts.woobull.com/bitcoin-nvt-ratio/>

MODIFIED METCALFE ANALYSIS – ETHEREUM NETWORK

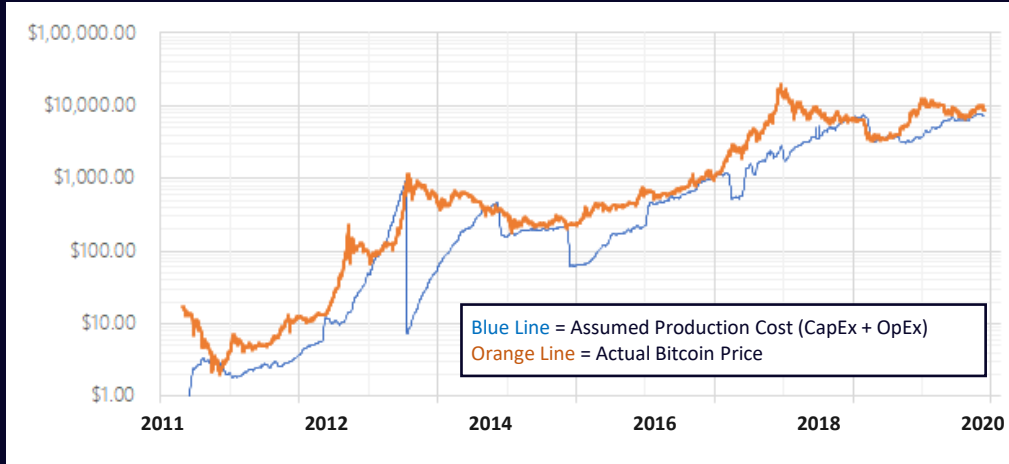


Active protocol use
can inform likely
valuation ranges

Note: Analysis performed by Nasdaq's Digital Asset Index Research group. Methodology inspired by the log-based approach proposed by Andrew Odlyzko et al. in their 2005 paper reviewing Metcalfe's law and other alternative approaches.

COST OF PRODUCTION MODEL – BITCOIN NETWORK

Production Cost & Bitcoin Price (USD)



Given the competitive nature of Bitcoin mining, miners are generally incentivized to increase production until marginal costs (electricity consumption and other expenses) equate to marginal product (the average value of Bitcoin produced).

The analysis presented here applies a comprehensive definition to marginal costs that also includes the cost of equipment.

DISCLOSURES

NASDAQ ADVISOR ACADEMY

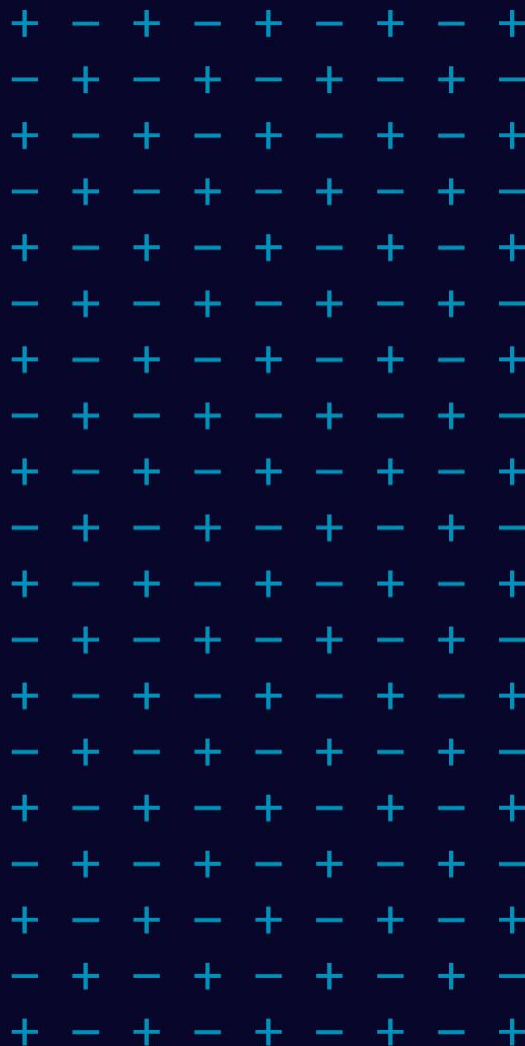
Disclaimer:

Nasdaq® is a registered trademark of Nasdaq, Inc. The information contained above is provided for informational and educational purposes only, and nothing contained herein should be construed as investment advice, either on behalf of a particular security, digital asset or an overall investment strategy. Neither Nasdaq, Inc. nor any of its affiliates makes any recommendation to buy or sell any security or digital asset or any representation about the financial condition of any company. Statements regarding Nasdaq-listed companies or Nasdaq proprietary indexes are not guarantees of future performance. Actual results may differ materially from those expressed or implied. Past performance is not indicative of future results. Investors should undertake their own due diligence and carefully evaluate companies before investing. **ADVICE FROM A SECURITIES PROFESSIONAL IS STRONGLY ADVISED.**



**ADVISOR
ACADEMY**
DIGITAL ASSETS

TECHNICAL ANALYSIS IN CRYPTO



Supply & Demand

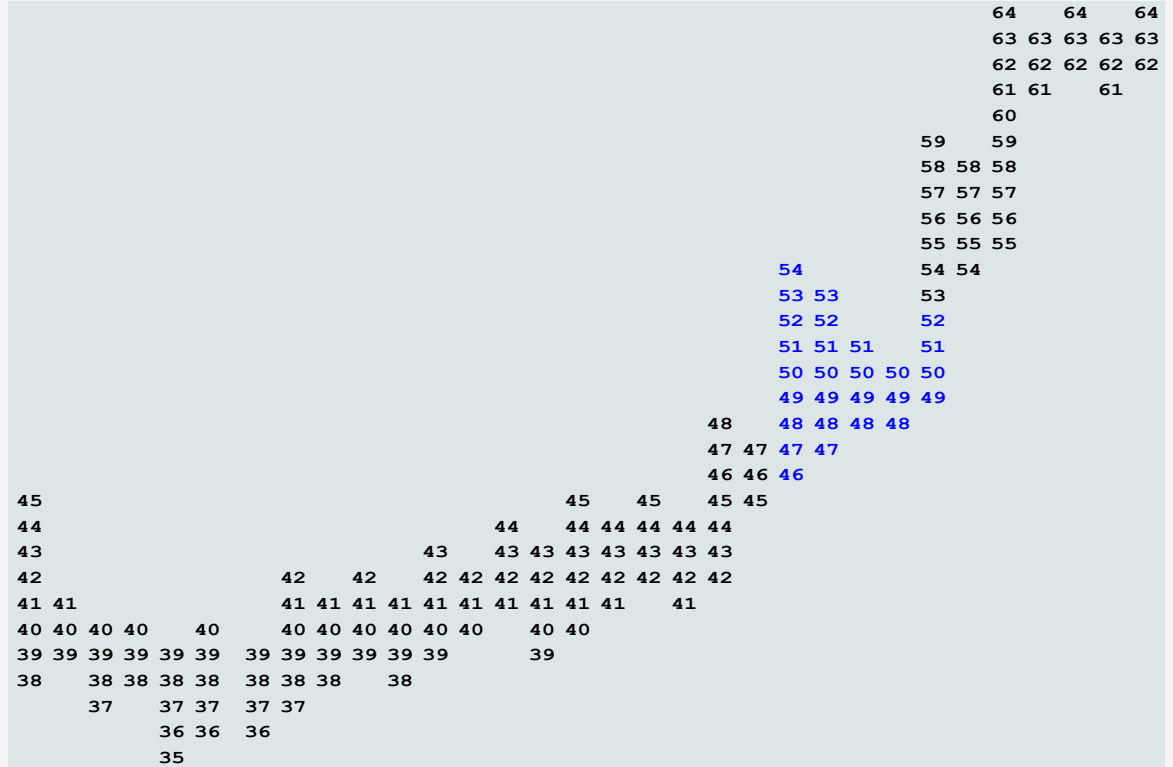
- We all understand the basic forces of supply and demand.
- The same forces that affect prices in the supermarket also affect prices of investable assets.
- If an asset has more buyers than sellers, price will rise. If there are more sellers than buyers, price will fall.
- Analyzing an asset's price movement helps identify excess demand or excess supply.

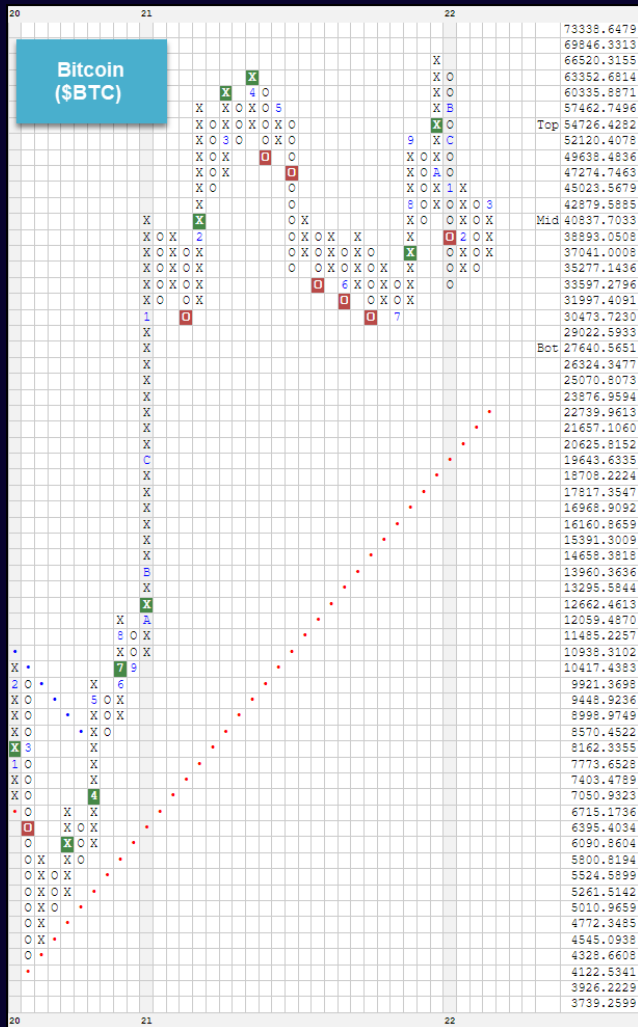


Original Point & Figure Chart

Dates back to the late 1800's

Depicts the battle between supply & demand





Modern Point & Figure Charts

X's = Price is rising

O's = Price is falling

Alternating columns of X's and O's

Minimum of 3 X's or O's in a column

Time = First action in month use number

Use daily high & low for charting price action

Image Source: Nasdaq Dorsey Wright

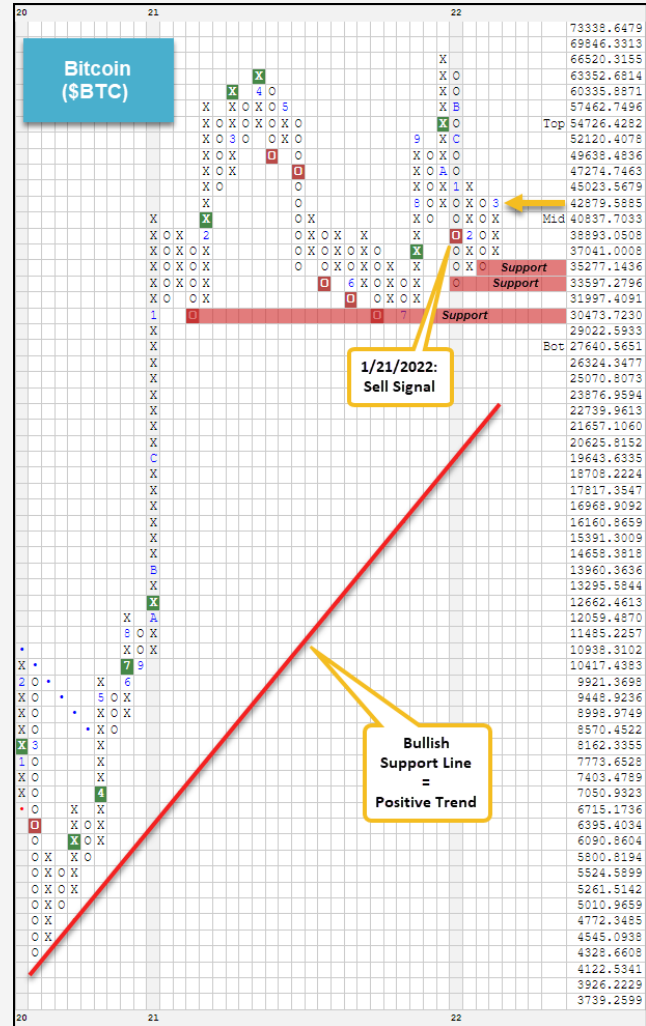
Data as of: 3/9/2022

Bitcoin Technical Picture

Long-term: **Positive Trend**

Intermediate-term: **Sell Signal**

Short-term: **X Column**

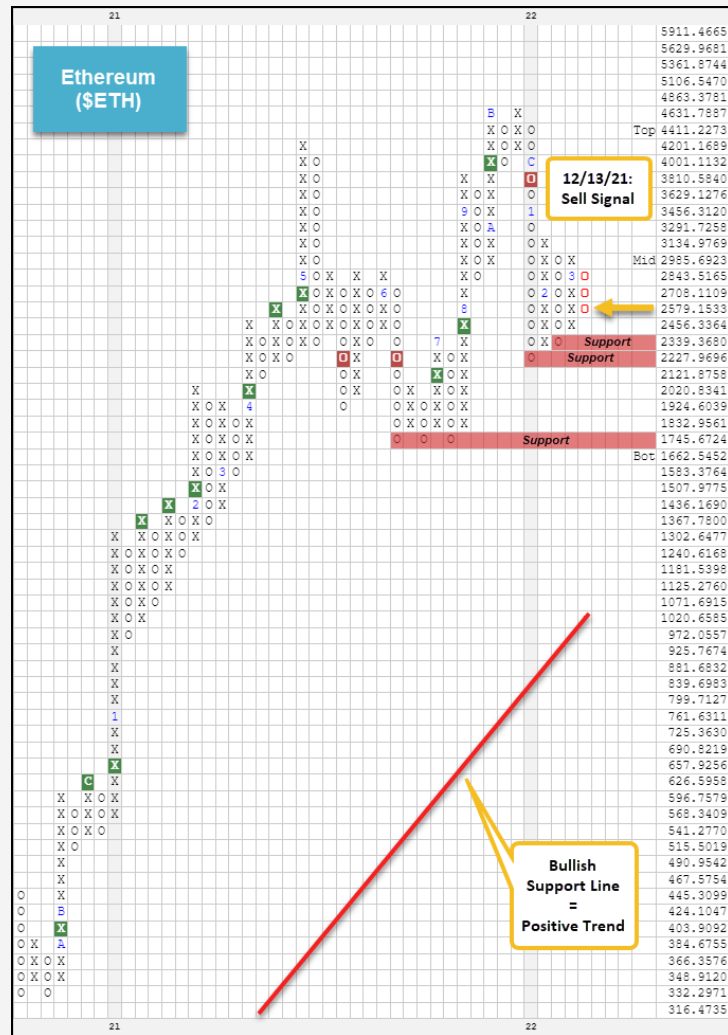


Ethereum Technical Picture

Long-term: **Positive Trend**

Intermediate-term: **Sell Signal**

Short-term: **X Column**



“It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change.”

- Charles Darwin, biologist

Bitcoin vs. Money Market

Relative Strength Comparison

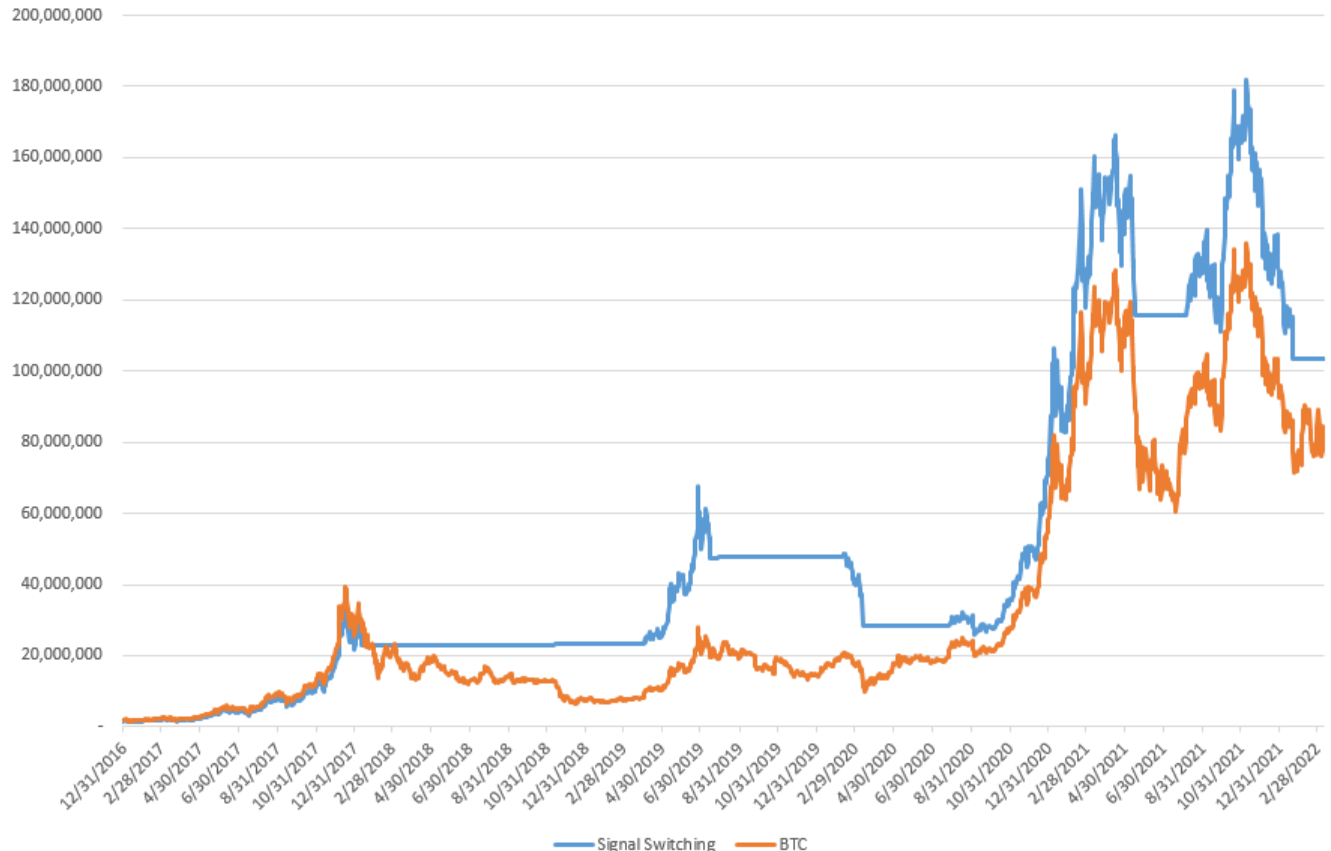
$$\frac{\text{Bitcoin}}{13 \text{ Week T-Bills}} \times 100 = \text{Relative Strength Reading}$$

- The daily reading is not significant, but tracking how that reading changes allows for focused exposure on areas with positive relative strength
- Plotting the daily reading on a Point & Figure chart shows the significance of changes to the relative strength relationship
- Long-term relative strength is shown through Buy Signals or Sell Signals
- Near-term relative strength is shown by column changes

Long-term BTC Bogey Check Portfolio vs. Buy and Hold

5% RS Scale, \$100 portfolio start date of 7/17/2010

Data shown from 12/31/2016 - 3/10/2022



Long-term Scale

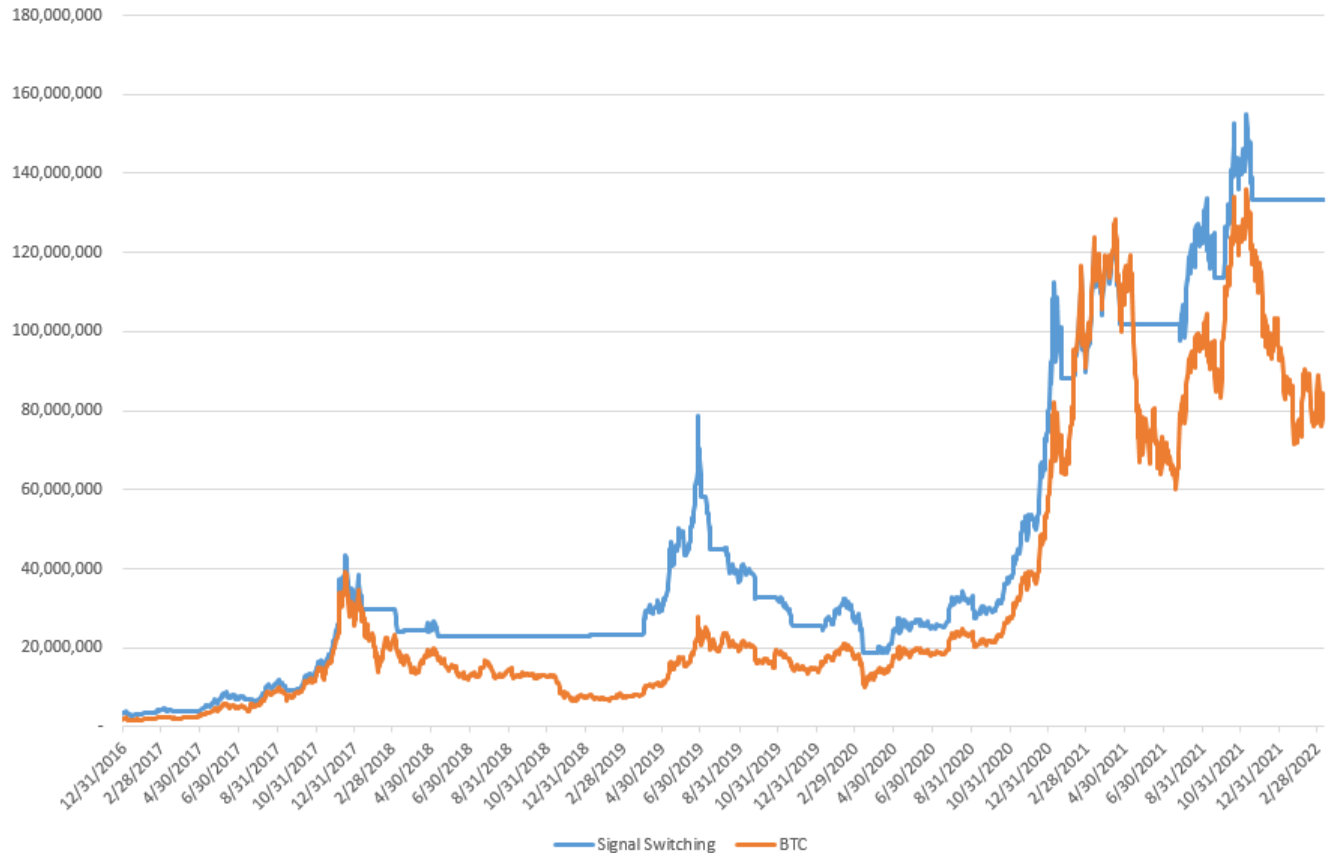
=

Less turnover,
more market
participation

Short-term BTC Bogey Check Portfolio vs. Buy and Hold

2% RS Scale, \$100 portfolio start date of 7/17/2010

Data shown from 12/31/2016 - 3/10/2022



Short-term
Scale

=

More turnover,
better risk
management

DISCLOSURES

Dorsey, Wright & Associates, LLC, a Nasdaq Company, is a registered investment advisory firm. Registration does not imply any level of skill or training.

Some performance information presented is the result of back-tested performance. Back-tested performance is hypothetical (it does not reflect trading in actual accounts) and is provided for informational purposes to illustrate the effects of the strategy during a specific period. Back-tested performance results have certain limitations. Back-testing performance differs from actual performance because it is achieved through retroactive application of a model investment methodology designed with the benefit of hindsight. Performance results (both backtested and model performance) do not represent the impact of material economic and market factors might have on an investment advisor's decision making process if the advisor were actually managing client money. Dorsey, Wright & Associates, LLC (collectively, with its parent company and affiliates "DWA") believes the data used in the testing to be from credible, reliable sources, however; DWA makes no representation or warranties of any kind as to the accuracy of such data.

The relative strength strategy is NOT a guarantee. There may be times where all investments and strategies are unfavorable and depreciate in value. Relative Strength is a measure of price momentum based on historical price activity. Relative Strength is not predictive and there is no assurance that forecasts based on relative strength can be relied upon to be successful or outperform any index, asset, or strategy.

Unless otherwise stated, returns of the strategies do not include all fees or other transaction costs. Management and other expenses can have a material impact on performance when compounded over time. Past performance, hypothetical or actual, does not guarantee future results. In all securities trading there is a potential for loss as well as profit. It should not be assumed that recommendations made in the future will be profitable or will equal the performance as shown. Investors should have long-term financial objectives.

The information contained herein has been prepared without regard to any particular investor's investment objectives, financial situation, and needs. Accordingly, investors should not act on any recommendation (express or implied) or information in this material without obtaining specific advice from their financial advisors and should not rely on information herein as the primary basis for their investment decisions. Information contained herein is based on data obtained from recognized statistical services, issuer reports or communications, or other sources believed to be reliable ("information providers"). However, such information has not been verified by DWA or the information provider and DWA and the information providers make no representations or warranties or take any responsibility as to the accuracy or completeness of any recommendation or information contained herein. DWA and the information provider accept no liability to the recipient whatsoever whether in contract, in tort, for negligence, or otherwise for any direct, indirect, consequential, or special loss of any kind arising out of the use of this document or its contents or of the recipient relying on any such recommendation or information (except insofar as any statutory liability cannot be excluded). Any statements nonfactual in nature constitute only current opinions, which are subject to change without notice. Neither the information nor any opinion expressed shall constitute an offer to sell or a solicitation or an offer to buy any securities, commodities or exchange traded products. This document does not purport to be complete description of the securities or commodities, markets or developments to which reference is made.

Each investor should carefully consider the investment objectives, risks and expenses of any Exchange-Traded Fund ("ETF") prior to investing. Before investing in an ETF investors should obtain and carefully read the relevant prospectus and documents the issuer has filed with the SEC. ETF's may result in the layering of fees as ETF's impose their own advisory and other fees. To obtain more complete information about the product the documents are publicly available for free via EDGAR on the SEC website (<http://www.sec.gov>).

THANK YOU

NASDAQ ADVISOR
ACADEMY

Disclaimer:

Nasdaq® is a registered trademark of Nasdaq, Inc. The information contained above is provided for informational and educational purposes only, and nothing contained herein should be construed as investment advice, either on behalf of a particular security, digital asset or an overall investment strategy. Neither Nasdaq, Inc. nor any of its affiliates makes any recommendation to buy or sell any security or digital asset or any representation about the financial condition of any company. Statements regarding Nasdaq-listed companies or Nasdaq proprietary indexes are not guarantees of future performance. Actual results may differ materially from those expressed or implied. Past performance is not indicative of future results. Investors should undertake their own due diligence and carefully evaluate companies before investing. **ADVICE FROM A SECURITIES PROFESSIONAL IS STRONGLY ADVISED.**