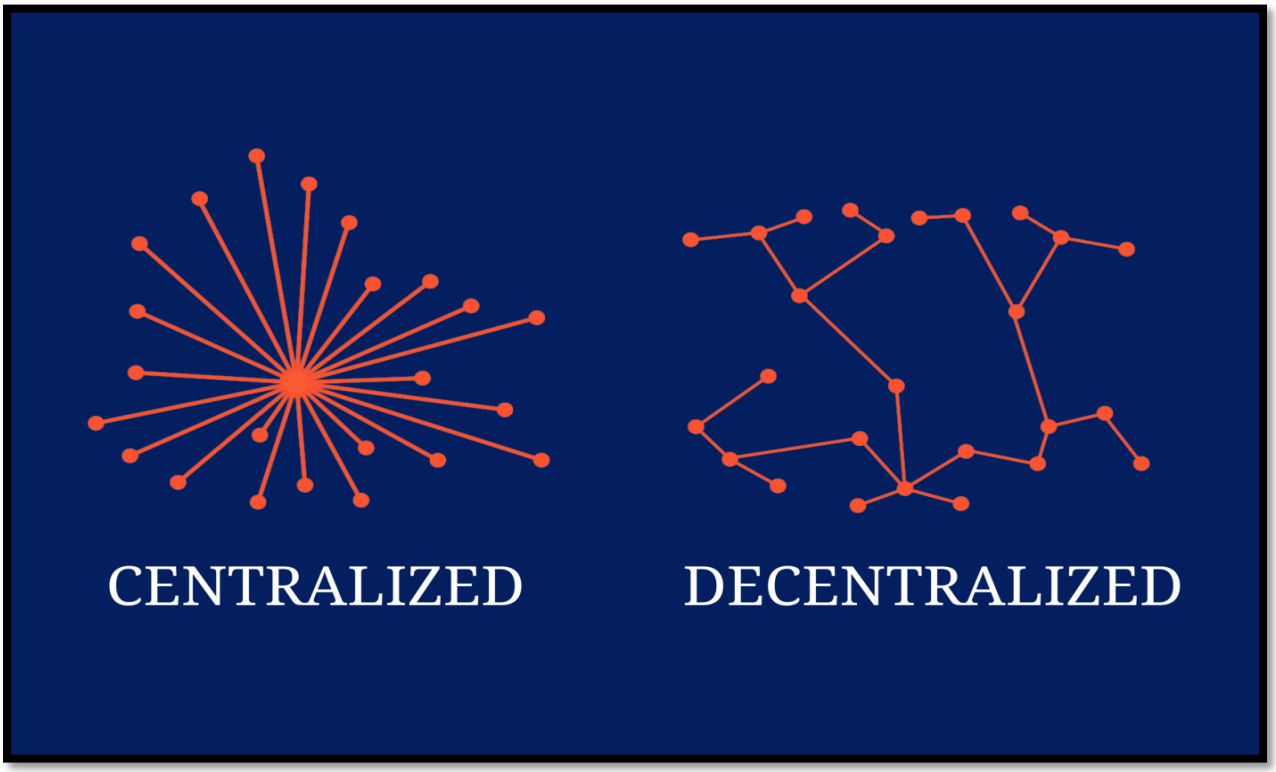
Cryptocurrency Podcast

Characteristics of Cryptocurrency:



Current Payments System:

-Hub and spoke design with financial intermediaries at the center exerting control (e.g., VISA, Mastercard, banks, etc.)

-High fee structure borne by merchants to process transactions.

-Subject to fraud and data integrity issues. Payment processor represents single point of failure.

-Ease of use.

Blockchain Payment System:

-No centralized authority or single point of failure.

-Transaction verification is competitive and widely distributed resulting in lower fees.

-More secure and less susceptibility to fraud.

-Greater access and inclusion for those of lesser means who lack basic banking services.

Historical mediums of exchange:

"History does not repeat itself, but it often rhymes." – Mark Twain.

Pacific Island of Yap – Money Stones made of calcium carbonate moved from house to house.

Solomon Islands – Dolphin Teeth

Modern Day – Government issued fiat

Breadth of Cryptocurrency Market as of Oct. 2021:

Total Market Capitalization: $1.68T

Number of Cryptocurrencies: 17,300

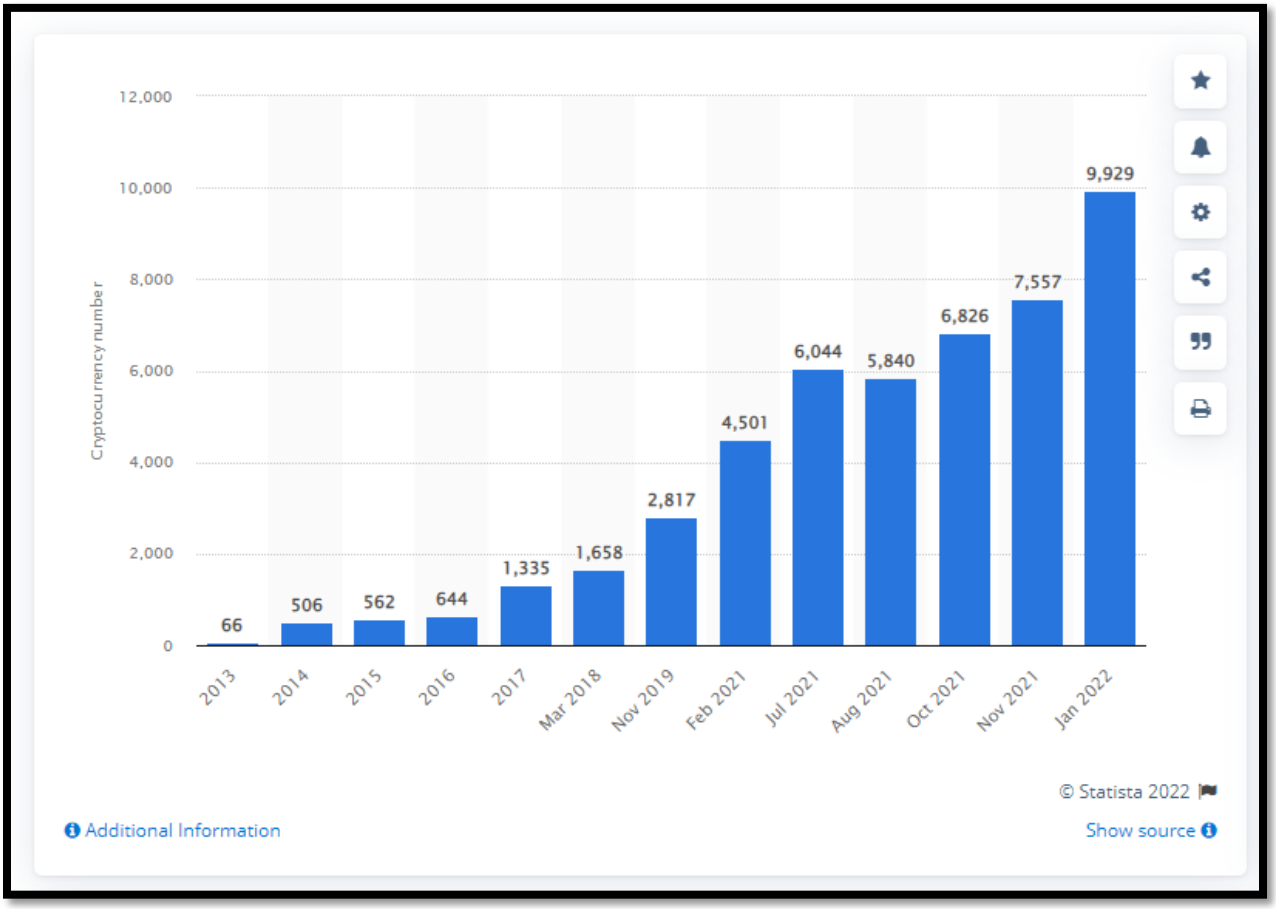
Number of Exchanges: 457

24h Volume: $74.7B

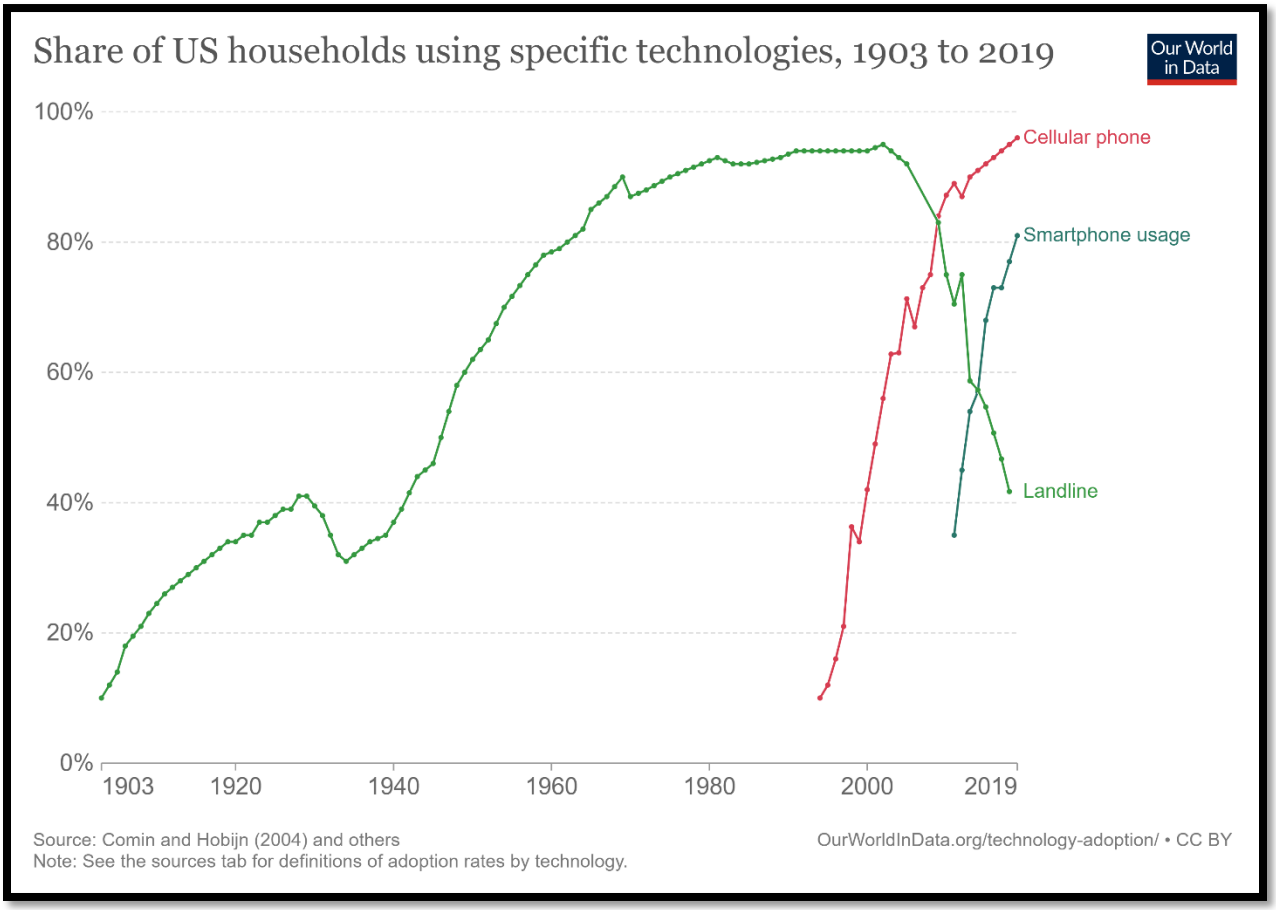
*All Cryptocurrencies | CoinMarketCap

Cryptocurrency Trends (few barriers to entry):

Cryptocurrency options have grown by an annualized rate of **52%** per year since 2013. Out of nearly 10,000 crypto currencies, Bitcoin & Ethereum control nearly **59%** of cryptocurrency market.



Adoption Rate of New Technologies:



Duration to saturate 90% of U.S. Households:

-67 years for landline telephones

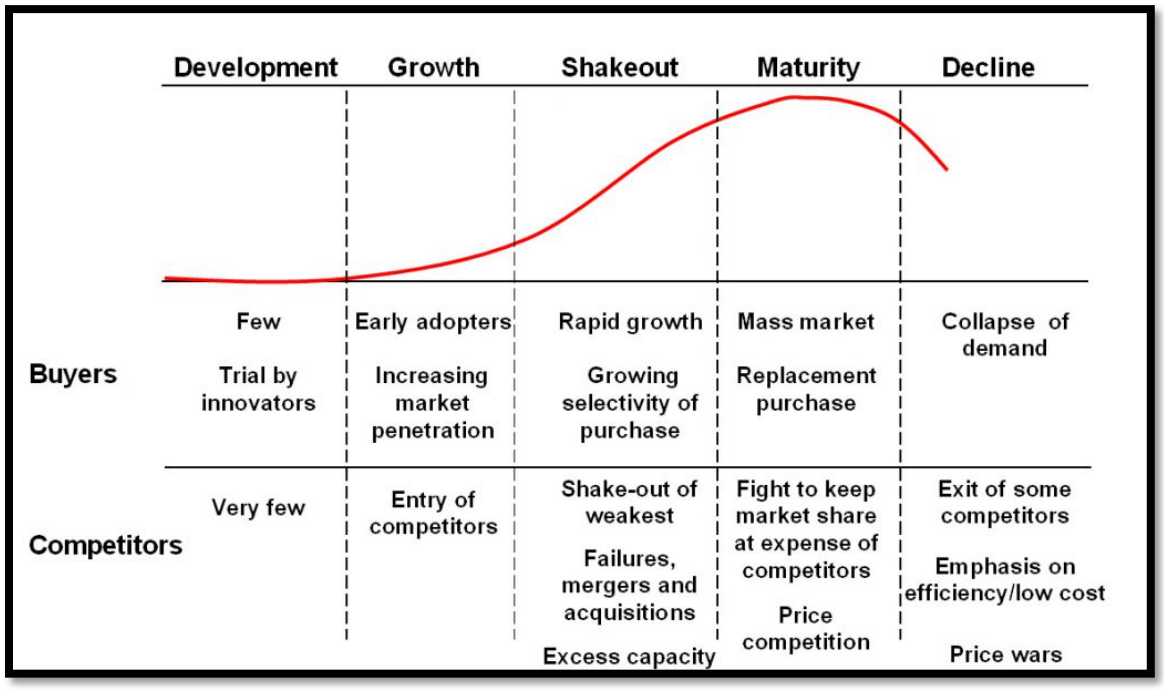
-18 years for cellular phone

-Smartphone usage is likely in 10 years.

Wealthy nations have well developed financial systems and intermediaries, however, there are billions of people globally without access to credit and basic banking services. Global adoption of smartphones provides internet access to decentralized financial networks such as cyrptocurrency.

Life Cycle of Industry Growth:

Will cryptocurrency follow a similar path as other emergent industries?



Historical Examples:

All mature industries begin with a concept or innovation that quickly gains momentum. High profits and/or low barriers to entry attract new entrants in the early phases of development. Railroads and automobiles were once new and burgeoning with many market participants.

1917	Today
1,500 U.S. Railroads operating (peak)	7 Class I Operators (5 domestic) covering 94% of all freight revenue

*AAR-Railroad-Short-History-Fact-Sheet.pdf

*Class I Railroads (USA): Definition, Revenue, Size (american-rails.com)

Railroad Equity Concentration:

Railroad stocks dominated publicly traded equities in 1899 with nearly 63% of market capitalization.

Table 2-4: Sector weightings within UK and US equity markets using end-1899 classification

Sectors using industry classification from end-1899	United Kingdom			United States		
	1899	1950	2000	1899	1950	2000
Railroads	49.2	0.0	0.3	62.8	4.2	0.2
Banks and finance	15.4	9.7	16.8	6.7	0.7	12.9
Mining	6.7	5.3	2.0	0.0	1.1	0.0
Textiles	5.0	3.3	0.0	0.7	1.3	0.2
Iron, coal, steel	4.5	5.4	0.1	5.2	0.3	0.3
Breweries and distillers	3.9	8.8	2.1	0.3	0.7	0.4
Utilities	3.1	0.2	3.6	4.8	8.3	3.8
Telegraph and telephone	2.5	0.0	14.0	3.9	6.0	5.6
Insurance	1.9	11.5	4.4	0.0	0.4	4.9
Other transport	1.4	1.7	1.5	3.7	0.3	0.5
Chemicals	1.3	6.3	0.9	0.5	13.9	1.2
Food manufacturing	1.0	4.6	2.0	2.5	2.0	1.2
Retailers	0.7	7.3	4.4	0.1	6.7	5.6
Tobacco	0.0	13.1	1.0	4.0	1.5	0.8
Sectors that were small in 1900	3.4	22.8	46.9	4.8	52.6	62.4
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

**Source: Triumph of the Optimists page 24.*

Auto Manufacturing:

1899	1899 – 1909	1929
30 American Manufacturers	485 Companies entered the business	**80%** of output was accounted for by 3 manufacturers (Ford, Chrysler, & GM).

Can cryptocurrency become a valid medium of exchange?

Design challenges that need to be reslove for widespread adoption

Attribute	Bitcoin	Ethereum	VISA	**Fed / MIT Ditigal Dollar
Transactions Per Second	3 – 7	15 – 25	1,700 with capability up to 24,000	1.7 million
*Avg. Transaction Confirmation Time	10 minutes	6 minutes	Seconds, but settlement can take days	Less than 2 seconds.
*Transaction Fee	$1.78 to $62	$1.59 to $70	Flat fee, plus 1.15% to 2.70%	Little to no cost

**Transaction fee depends on network traffic & demand.*

***Project Hamilton (named in honor of the Alexander Hamilton, the first secretary of the treasury) is a research collobration between the Federal Reserve Bank of Boston and the Massachussets Instiutte of Technology (MIT). The purpose is to explore the technical challenges and opportunities around the issuance of a central bank digital currency or CBDC. Source: https://www.bostonfed.org/publications/one-time-pubs/project-hamilton-phase-1-executive-summary.aspx*

Environmental Issues:

Many digital currencies are decentralized and require voluntary participation from a networtk of computers. Transactions on the network require verification which requires particpants to compete with one another by solving complex mathematical problems. Since there can only be one "winner" per transaction, 99.99% of those competing will lose. Unfortunately, this verification process results in the consumption of vast quanities of energy.

Is Cryptocurrency an alternative asset suitable for investment?

Stability & Volatility Profile

A vaild medium of exchange must be stable!

Annualized Volatility	Cash	Large Cap Stocks	Small Cap Stocks	Emerging Markets Stocks	Bitcoin
Standard Deviation	0.00%	14.96%	19.21%	21.35%	> 50%

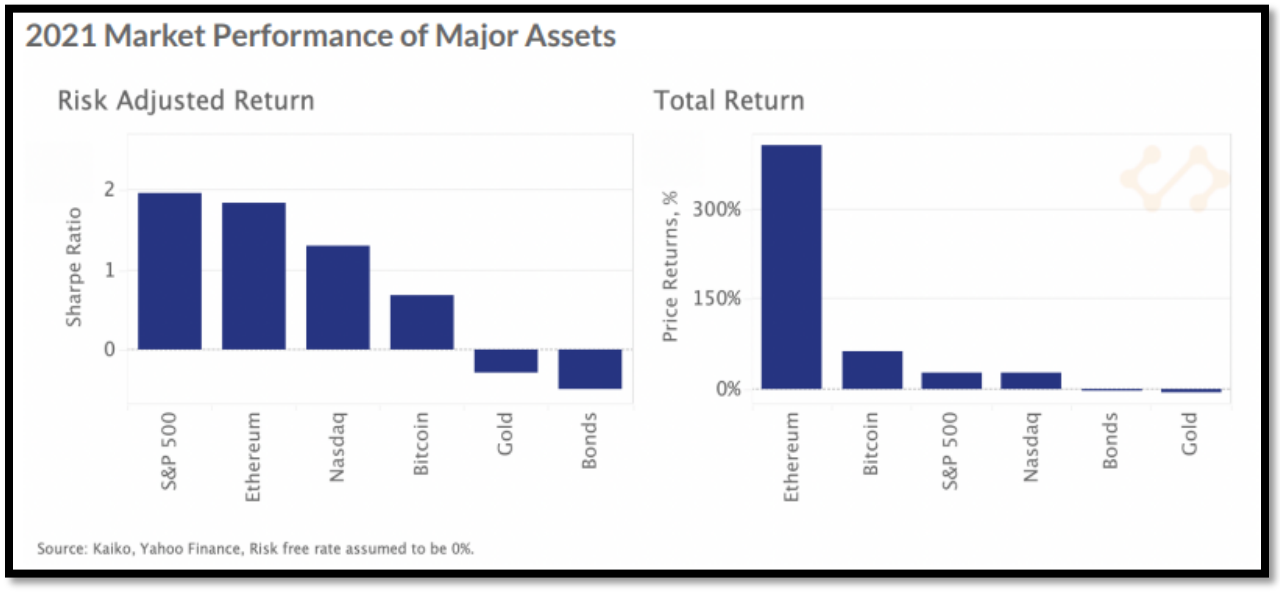
**Standard deviation represents the dispersion of results around the mean.*

Sources of investment return:

Value Driver	Bonds	Stocks	Real Estate	Commodities & Precious Metals	Cryptocurrency
Tangible Asset			X	X	
Income	X	X			
Appreciation		X	X		?
Rents			X		

-Digital currency has no connection to tangible assets, is non-income producing and is not connected with economic output of an owner's home country. Its value is subjective based on the adoption and speculative fervor of other market participants.

All Returns are not created equal (Sharpe Ratio or return per unit of risk)



0From an efficiency standpoint, the reward (i.e., return) per unit of risk has been more attractive for equities vs. cryptocurrency.

Taxation Issues of Crypto:

Since 2019, Form 1040 requires an answer to this question –

"at any time during 2021, did you receive, sell, exchange, or otherwise dispose of any financial interest in any virtual currency?"

Scenario 1: No tax due

- Exchange real currency (i.e., dollars) for virtual dollars = non-taxable event.
- Moving virtual currency from one digital wallet to another = non-taxable event
    - Example: Use dollars to acquire Bitcoin

Scenario 2: Property Transaction, Form 8949 – Sales & Dispositions of Capital Assets

- (IMPORTANT) Paying for services or goods with virtual currency = capital gain / loss
- Exchange virtual currency back to real currency = capital gain / loss
- Exchange property or virtual currency for another virtual currency = capital gain / loss
    - Example: use virtual currency to purchase a *delicious* latte. You just engaged in a transfer of property, thus triggered a capital gain or loss for tax purposes. Furthermore, you must determine whether your exchange of virtual currency was short term or long term. Yikes!

***Taxpayers are responsible to keep all records of all buying, selling, and usage. Holding periods are also required to determine whether transaction triggered a short- or long-term gain.*

Scenario 3: Taxable Income

- Receive payment for services = taxable income subject ordinary rates and FICA
- IRS says, "Generally, the medium in which remuneration for services is paid is immaterial to the determination of whether the remuneration constitutes wages for employment tax purposes." – IRS FAQ

Reference: IRS Notice 2014-21

https://www.irs.gov/irb/2014-16_IRB#NOT-2014-21

Competitors to Bitcoin and other cryptocurrencies

Project Hamilton

Boston Federal Reserve Bank launches digital currency initiative with MIT.

Central bank money = physical bills & coins from Bureau of Engraving & Printing (no credit or liquidity risk).

Commercial bank money = digital form of credit (little credit or liquidity risk due to FDIC and supervision)

Nonbank money – nonbank financial service providers like mobile apps (most credit & liquidity risk).

Digital Dollar:

-This would be central bank money in addition to physical currency.

-Help support role of dollar as international reserve currency status

Problems:

-Competition with commercial bank money. This could result in draining deposits from banks impairing their ability to make loans or creating bank runs.

-Provides competition with financial intermediaries who provide payment services to customers.