Inherent Value

Q1 2021 Quarterly Report

POWERED BY TheTie

A Message from eToro USA

Guy Hirsch
Managing Director

With all the recent news about NFTs and the condition of the global economy, we felt these were two crucial topics to cover. In this quarter's report, our goal was to move beyond the hype and separate fact from fiction so anyone who reads this will be better informed and have a greater understanding of two topics that will remain top of mind now and in the future.

About eToro USA

eToro is a global, multi-asset trading platform with over 20 million registered users. At eToro, you can share your real track record, portfolio, and trades with the community, allowing users to engage with each other on trading ideas that are executed using real dollars. For those new to crypto trading, the community and educational resources introduce users to this new asset class and the risk profiles involved in it.

A Message from The TIE

Joshua Frank
CEO

In Q4 2020, Bitcoin dominated the crypto market, and while BTC continued its record performance into Q1 2021, this past quarter was defined by the return of altseason and the rise of NFTs. Bitcoin dominance fell significantly as retail and crypto-native institutional investors turned to alts attracted by the prospect of massively outsized returns. Similarly, NFTs surged, achieving mainstream adoption faster than anyone in the space thought possible. While I remain skeptical that the NFT wave will continue at this pace, I think market conditions remain extremely bullish for altcoins relative to Bitcoin as money continues to pour into crypto in record amounts.

About The TIE

The TIE is the premier provider of information services for digital assets. The TIE offers trusted and transparent data solutions that power the leading cryptocurrency institutional investors, publications, research firms, law firms, regulators, and other market participants. The TIE's Crypto SigDev™ Terminal is the fastest and most comprehensive feed of real-time market moving news and information in crypto.

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Introduction

Over the last year, the stresses of a COVID-era society brought the stability of the US dollar to the forefront of the public's consciousness. In The Pathology of Hyperinflation: A Dollar Disease in the Making, we explore if hyperinflation is indeed occurring, and if that result is desirable for bitcoin's future growth. We argue that bitcoin's best outcome is taking on the mantle of "digital gold" and that hyperinflation would lead to mayhem across all asset classes, including bitcoin.

NFTs are everywhere from *Saturday Night Live* to *The New York Times* covering the historic $69M sale of Beeple's JPG file. In NFTs: Beyond The Hype, we break down what an NFT is and what the ecosystem looks like.

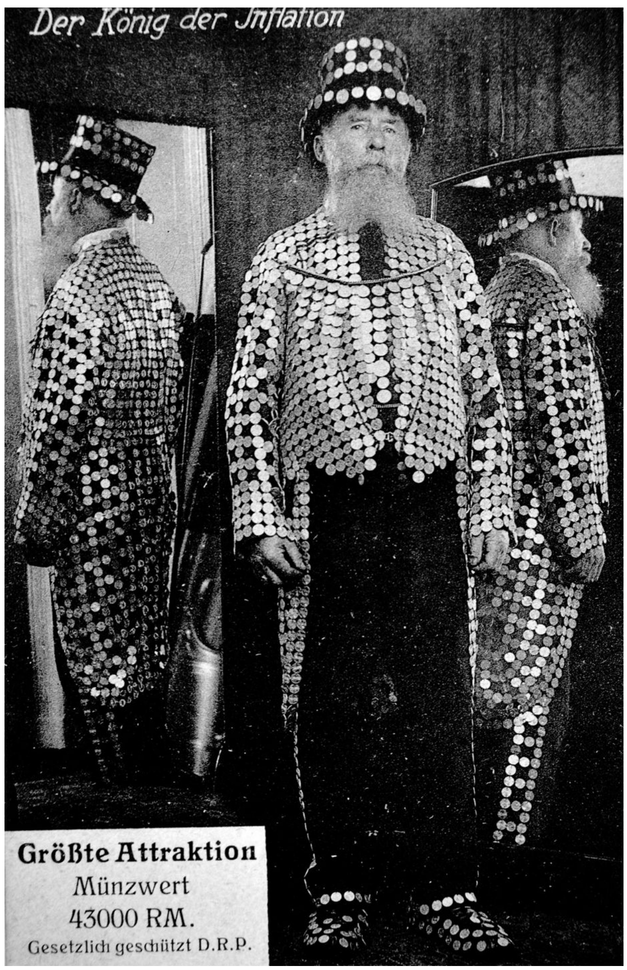
Lastly, it is a common observation that sectors of coins move together. In Sector Analysis: Which Category of Coins is Best, we look at some of the potential drivers that move an entire sector and whether this information can be made actionable in a trade setting.

PART 1

The Pathology of Hyperinflation: A Dollar Disease in the Making?

Currencies, like people, get sick. Even die. A person can contract a common cold and come out stronger for it, while others can suffer a chronic ailment. So too can a currency experience healthy forms of inflation, but also experience debilitating and economy-ending hyperinflation.

A common theme covered by today's talking heads is the possibility of hyperinflation of the US dollar and the inevitable collapse of our society as we know it. Dramatic? Yes, very. But in order to diagnose if hyperinflation is, in fact, what is occurring, we must first know the symptoms to look out for. Let us play doctor on the US dollar, and pour one out for all the currencies that have passed before us. We'll create a symptoms chart, and see if the dollar checks off the usual suspects of hyperinflation when it is stacked against its fallen brethren. We'll also look at Bitcoin and how it might stack up against the dollar in a hyperinflation crisis, and whether or not Bitcoin can establish itself as a new kind of inflation-resistant asset — "digital gold."



1923, *"The King of Inflation," a man clad in worthless coins.*
IMAGE: UNIVERSAL HISTORY ARCHIVE/UIG VIA GETTY IMAGES

Symptom #1: Runaway Food Prices

Food. Everybody needs it. When there isn't enough, or when what is available becomes too expensive, the sickness begins. For one, we expect that staples will be cheap and affordable. When you walk into your local grocery store, the price of milk or eggs might fluctuate a few cents from week to week, but you probably don't pay it any mind. But if you buy a half-dozen eggs for $1 today, and a month later the cashier says, "that'll be $335," you would be very concerned about the value of your dollars, or just mad and ready to steal eggs for a living. That price increase sounds crazy, but that's exactly what happened in Germany's Weimar Republic. In 1914, the price of a loaf of bread was $0.14. By the start of 1923 it had increased to $700. Just before the German mark collapsed entirely, that same loaf cost over $200 billion marks.

1914-1923, *the dramatic price appreciation of German bread*

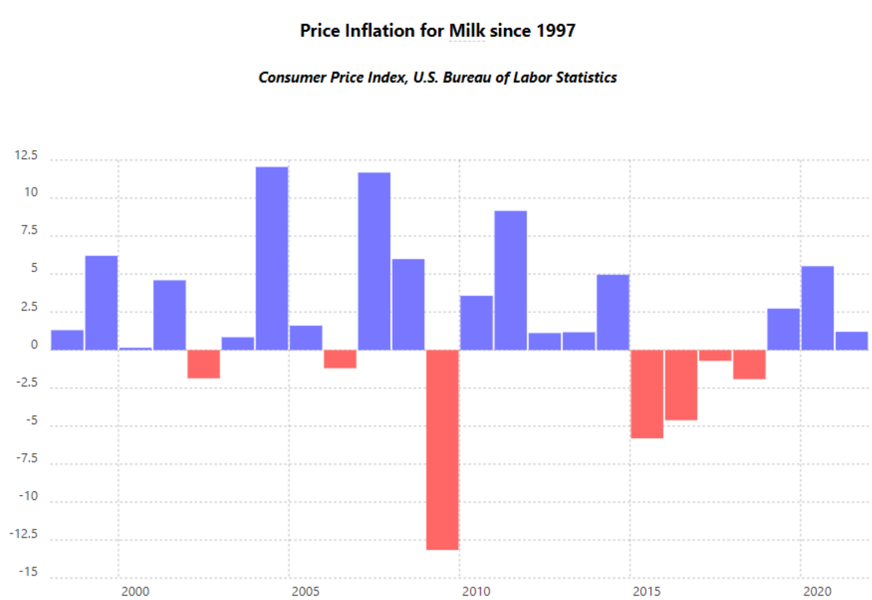
The astronomical costs of food are a defining feature of hyperinflation, and a common feature in the inflated currencies that follow:

- Due to runaway inflation, the Venezuelan government directly controls both the monthly minimum wage and price of food. In response to food shortages, they set price controls on 26 food necessities such as eggs and sausages. Because of inflation, the price of those items cost more than the monthly minimum wage ($1 USD per month!).
- On October 7th, 2019, the state-run Grain Millers Association of Zimbabwe raised wheat prices from ZW$1,600 to ZW$2,200 per ton, causing the price of bread to increase 39% overnight, from ZW$6.80 to ZW$9.45.
- Since the beginning of 2020, Lebanon's inflation ballooned from 50% to a peak of 550%, becoming the first country in the Middle East to experience hyperinflation. Since December of 2019: food and non-alcoholic beverages rose 402.3%; alcoholic beverages and tobacco rose 392.5%; clothing and footwear increased 559.8%; restaurants and hotels rose 609%; and furnishings, household equipment, and routine maintenance rose 655.1%.

United States Food Prices

Does the United States tick off this symptom of hyperinflation sickness? Are food prices outpacing our earnings? Common sense says yes — and you might reinforce that perception every time you find yourself regaled with tales of the "good old days" by someone who grew up in the 1950s enjoying 25-cent gas and $2 dinners.

But let's take a look at the following charts:

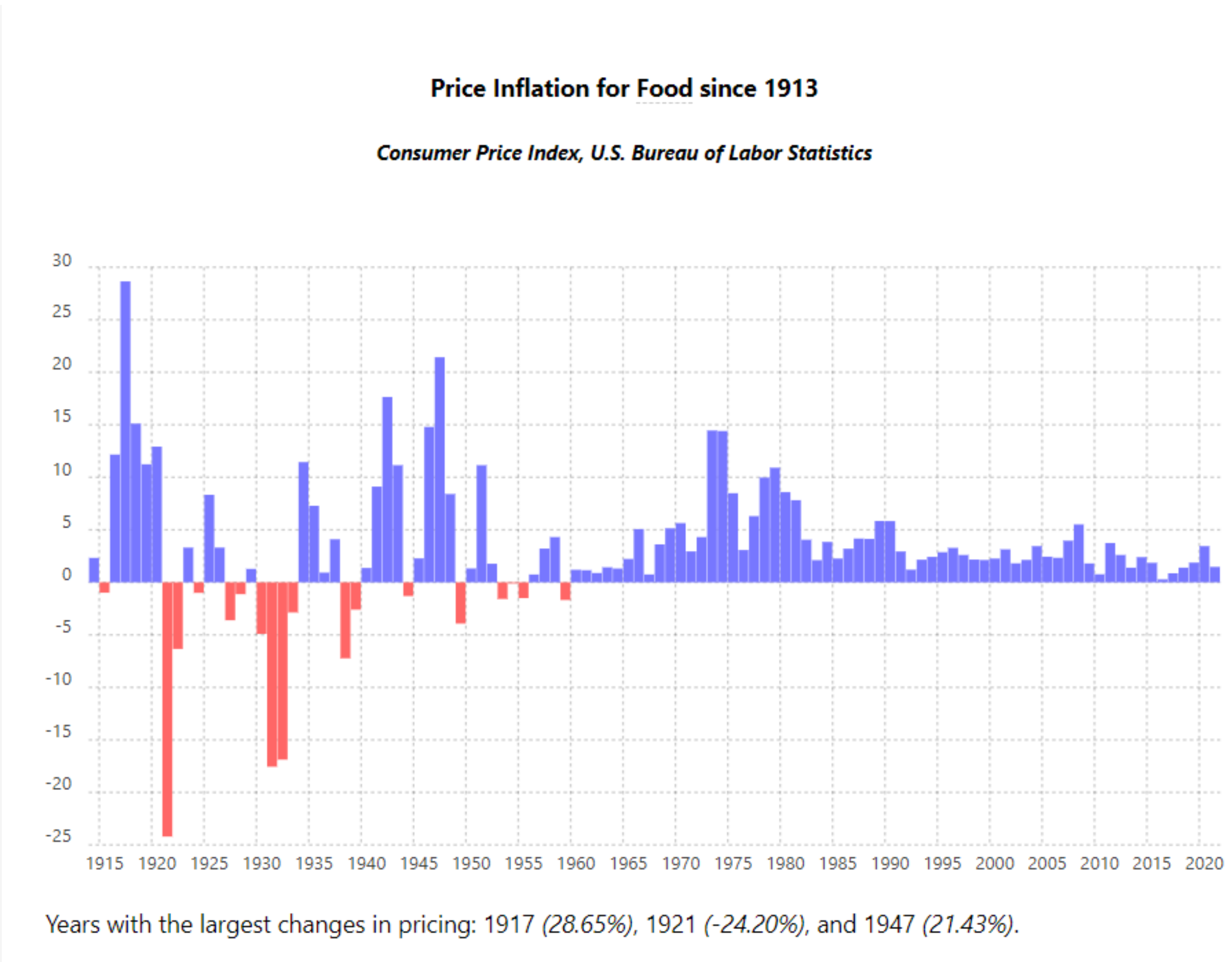


Years with the largest changes in pricing: 2009 *(-13.15%)*, 2004 *(12.05%)*, and 2007 *(11.68%)*.

Source: in2013dollars.com

Well, that doesn't look promising. For the most part, year-to-year price inflation of milk since 1997 is only increasing, and while the year-to-year changes individually may not look that scary, remember that just like stock returns, gains in inflation compound. Milk was 50.29% higher in 2021 than 1997 ($2.51 difference), experiencing an average of 1.71% inflation per year. The inflation rate for the US dollar during this period was 2.07%. This means the inflation of milk couldn't outpace the inflation of the dollar, making it more expensive to buy milk now than it was in 1997, albeit only slightly.

Granted, milk costing $2.51 more after 20 years isn't going to cause hyperinflation. But what about **all the food**? And what about the "good old days?" Unfortunately, it looks even worse.



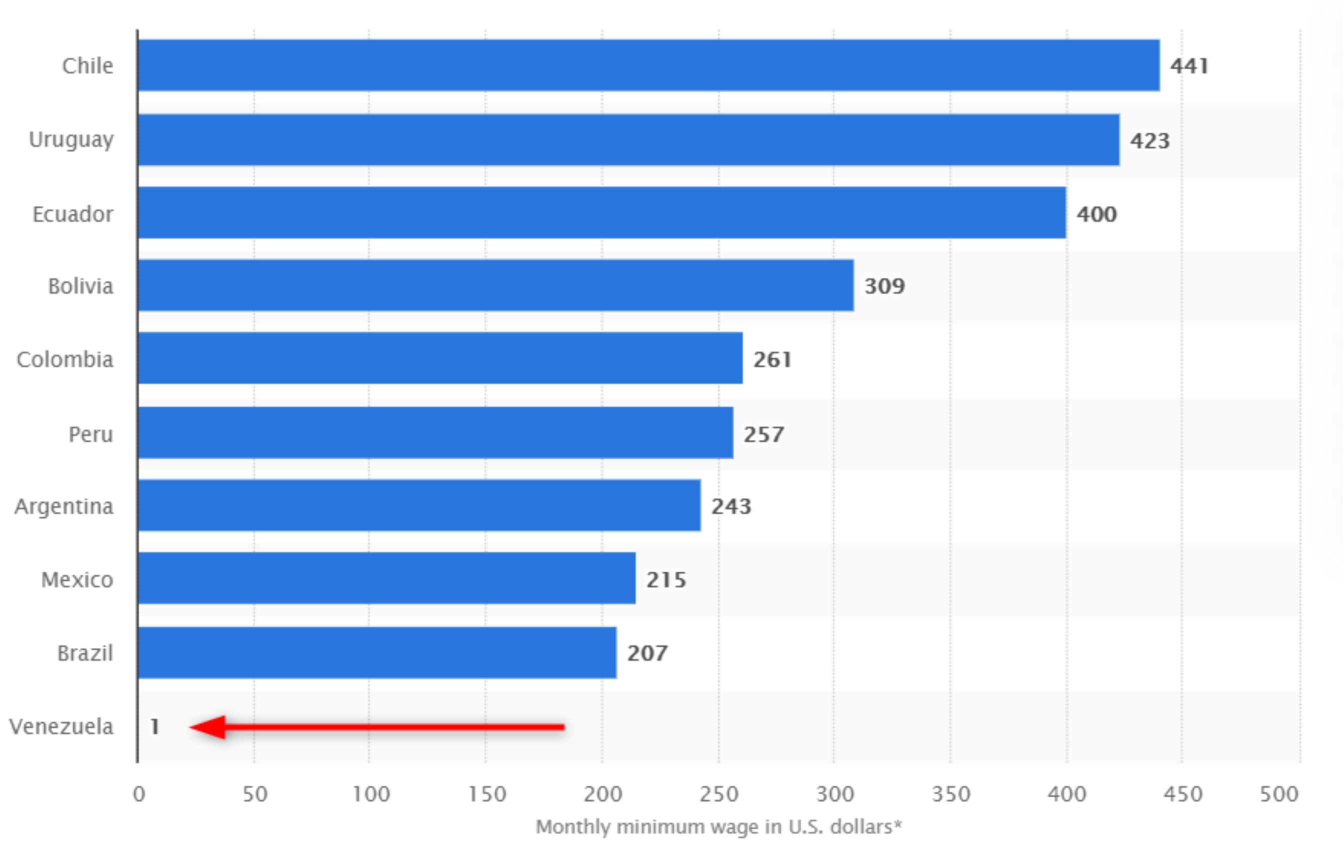
Source: in2013dollars.com

Overall food inflation is 2,632.52% higher today than it was in 1913. To put that in perspective, if milk was worth $5 a jug in 1913 and you bought one jug, it would cost you $136.60 in today's dollars. That's pretty bad, but keep in mind that hyperinflation is officially defined as 50% increases in goods and services **each month**.

While we're not at the point where year-to-year food inflation is causing the same level of economic destruction as the countries we covered earlier, economists are worried that inflation is disproportionately affecting lower-income members of society. For the sake of our symptom tracker, the US is not experiencing hyperinflation in food prices... yet.

United States symptom tracker: Runaway food prices ❌

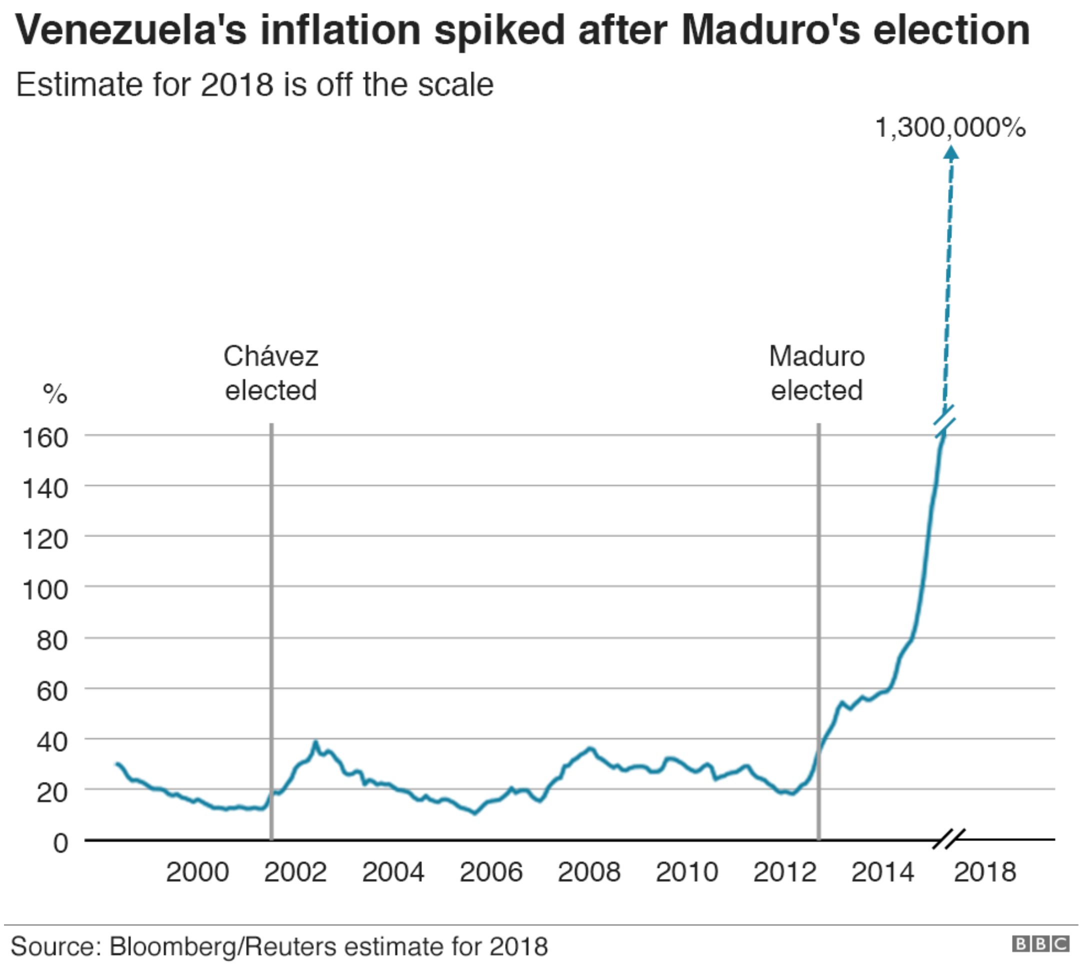
Symptom #2: Wages Do Not Keep Up With Inflation



Minimum monthly wage in selected Latin American countries in 2021, chart by Statista.com

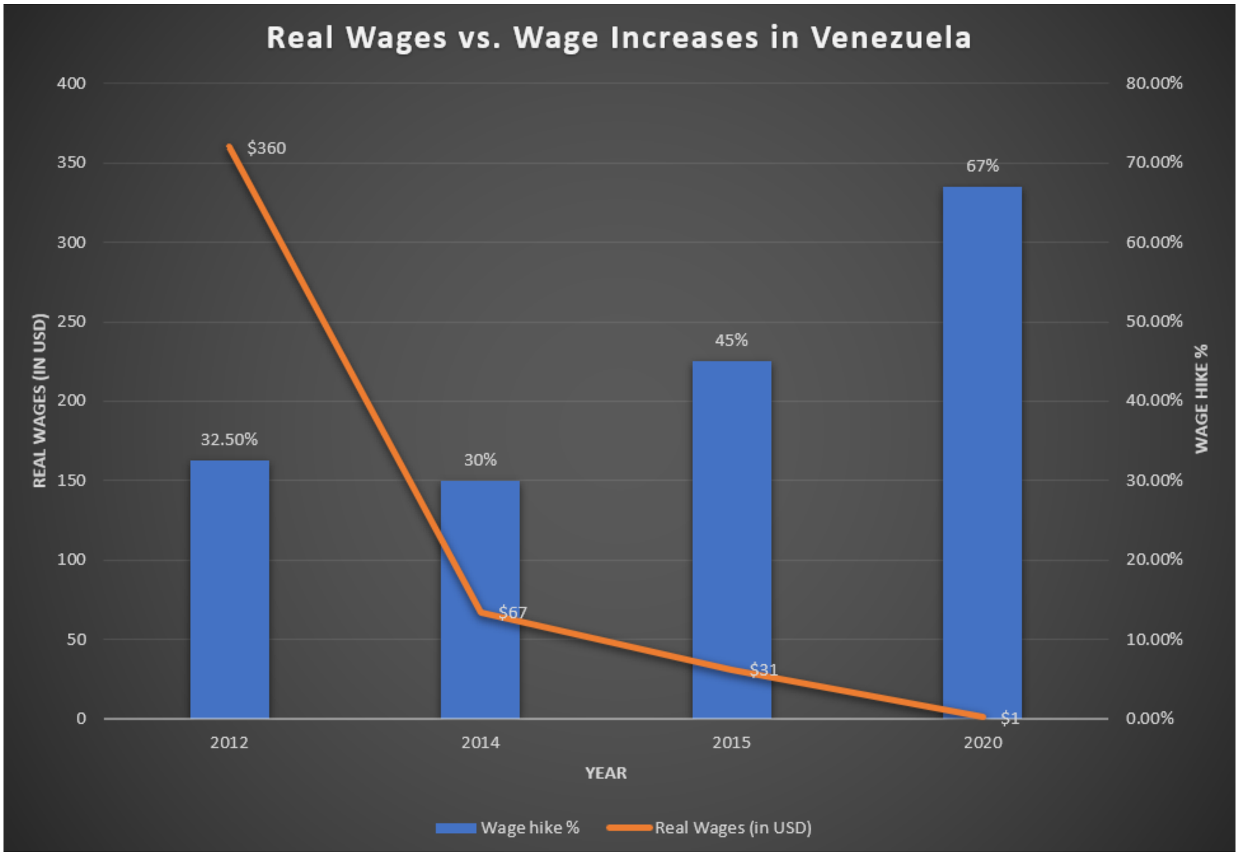
If a jug of milk cost $5 today and $10 next month, but your wages doubled to compensate, you wouldn't notice the difference. Well, you might have sticker shock, but you would understand that your spending power is constant. But what happens when wages can't keep up?

Take a look at the graph above. Out of the selected Latin American countries, Venezuela has the lowest minimum monthly wage at $1 per month. As we mentioned previously, the cost of eggs and sausages exceeds a monthly wage, even as the government tries to price fix both food and wages. How did they get to this unmanageable state? Insert hyperinflation.



A brief history of Venezuela. After his election, President Chávez used the oil boom of the 2000s to borrow heavily and vastly increased government spending. By the time Maduro was elected, the global price of oil had fallen and the demand for Venezualen oil, a pillar of the economy, plummeted. Maduro's solution? Print more money. While the intention was to provide a short-term boost to the economy, inflation skyrocketed under Maduro, and the Venezualen bolívar lost 95% of its value in 2018 and 99% of its value by 2020.

During this period, Maduro tried to artificially set the monthly minimum wage higher and higher to compensate for the rampant inflation.



2012-2020, *the impact of wage increases measured in USD*

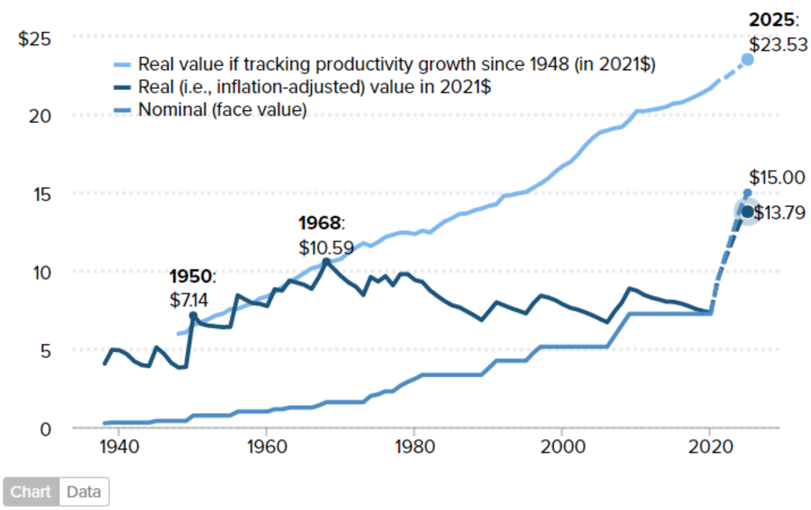
Looking at the graph above, we can see how Maduro's efforts have failed. Despite increasing wages in bolívares every year, real wages cratered and Venezuela continues to rank the lowest in wages amongst Latin American countries. Below are some countries with the same maladies:

- The Turkish lira continues to spiral to new lows against the US dollar. In an effort to combat inflation, the government announced it will raise the minimum wage by 16% to 2,828 lira ($376.71), which they calculated to outpace the 2021 inflation forecast of 9.4% by seven points. Despite this, experts say hyperinflation is expected to outpace this latest wage increase.
- In WW2, Hungary had managed to escape most of the ravages of war up until 1944, when it became a battleground between Russia and Germany. The resulting chaos destroyed 90% of Hungary's industry. Without a tax base to conjure government funds, the government decided to print money. Before the war, 1 US dollar was worth 5 pengö. By April of 1946, 1 US dollar was worth 460 trillion trillion pengö. Yes, that's two trillions. During this period, wages fell 80%.

United States Wages

How does the United States stack up against this symptom of hyperinflation?

Real and nominal federal minimum wages (historical and under the Raise the Wage of 2021) compared with productivity-tracking minimum wage



Notes: Inflation is measured using the CPI-U-RS and CBO CPI-U projections.. Productivity is measured as total economy productivity net depreciation.

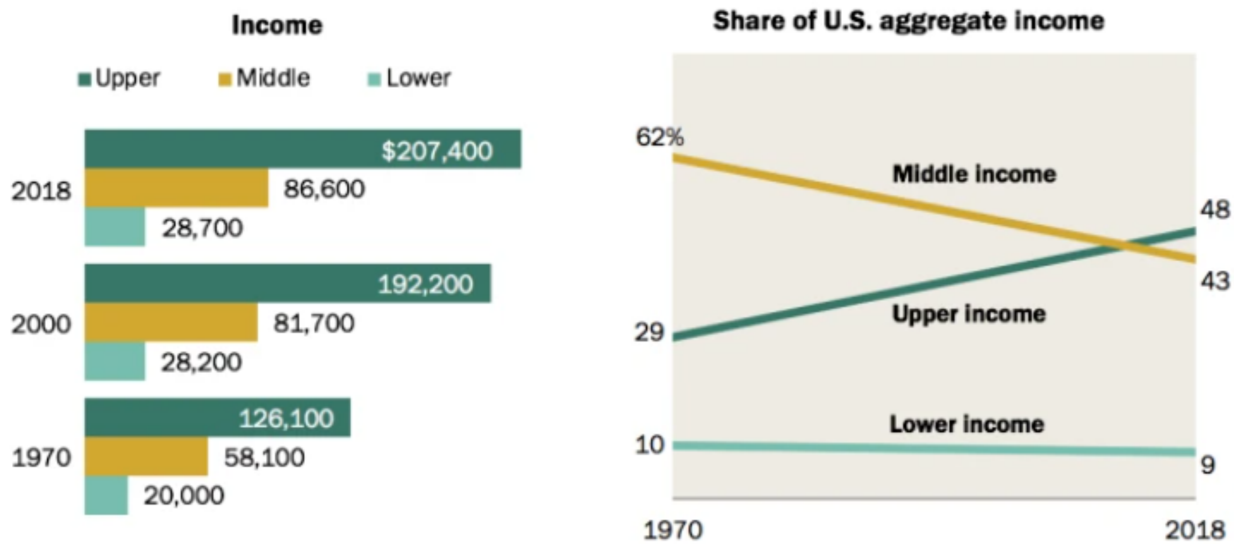
Sources: EPI analysis of the Fair Labor Standards Act and amendments and the Raise the Wage Act of 2021. Total economy productivity data from the Bureau of Labor Statistics Labor Productivity and Costs program.

According to recent data, while net productivity in the US has increased to over $20/hr, real minimum wages adjusted for inflation have decreased over time, peaking at "real-value" $10.59/hr in 1968. Since then, real wages have slowly drifted downward over the years to meet the nominal minimum wage of $7.25/hr. Pictured above is a projection of a potential $15/hr federal minimum wage, which would actually only be worth $13.79 in 2021 dollars.

While this data only examines the absolute minimum wage, perhaps a stronger indicator of social disruption and currency troubles is the growing discrepancy in earnings by class.

The gaps in income between upper-income and middle- and lower-income households are rising, and the share held by middle-income households is falling

Median household income, in 2018 dollars, and share of U.S. aggregate household income, by income tier



Note: Households are assigned to income tiers based on their size-adjusted income. Incomes are scaled to reflect a three-person household. Revisions to the Current Population Survey affect the comparison of income data from 2014 onwards. See Methodology for details.
Source: Pew Research Center analysis of the Current Population Survey, Annual Social and Economic Supplements (IPUMS).
"Most Americans Say There Is Too Much Economic Inequality in the U.S., but Fewer Than Half Call It a Top Priority"

PEW RESEARCH CENTER

Whatever one's opinions are on the minimum wage and class earnings, the facts are that the lower and middle classes are losing the most value in their earnings through inflation. So in this instance, while one could argue that not all participants have had their wages devalued by inflation, since the majority of society is impacted and the situation is progressively worsening, it makes sense to mark the US as showing this early symptom of hyperinflation.

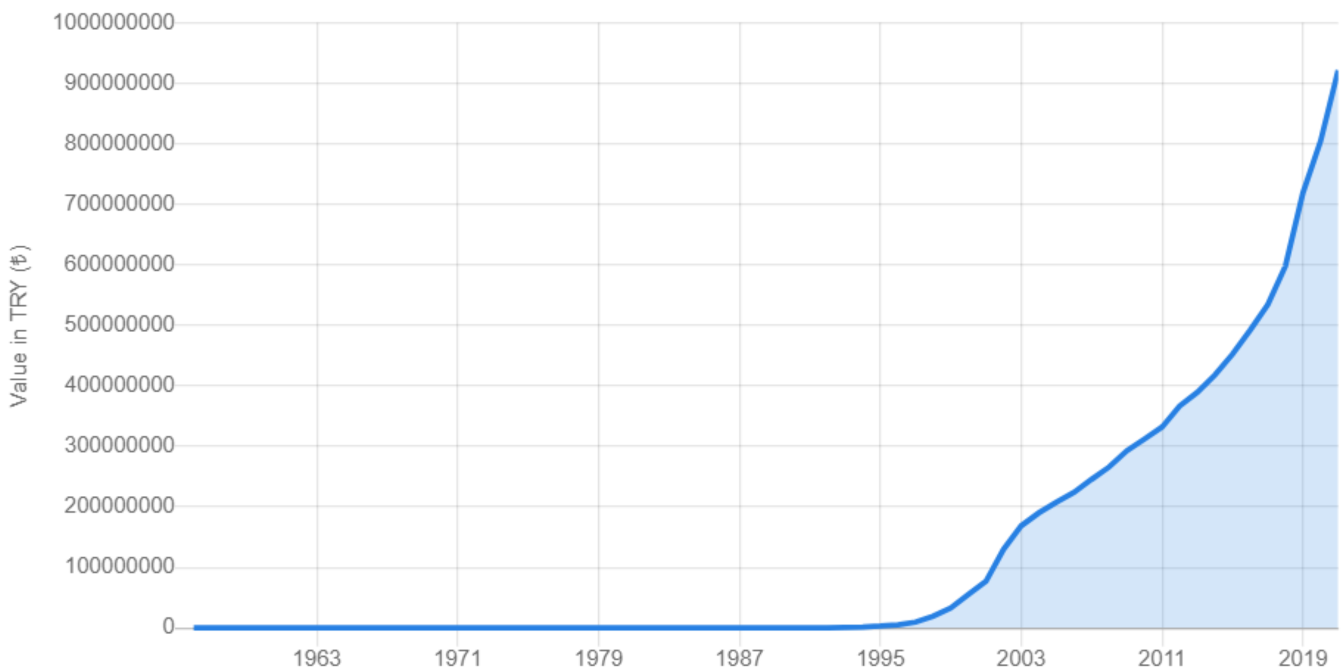
United States symptom tracker: Runaway food prices ❌
Wages do not keep up with inflation ✅

Symptom #3: Currency Substitution Into Alternative Stores of Value

Ok, so what, you say? All you care about is Bitcoin? Have no fear, we're here. The good news is Bitcoin loves collapsing currencies.

A currency is on its deathbed when a society loses faith in its ability to be a store of value, and when that happens, people seek alternatives to hold their wealth such as gold, and you guessed it — **Bitcoin.** Sometimes governments try to confiscate or acquire their citizens' alternative assets to combat inflation, as has recently occurred in Turkey.

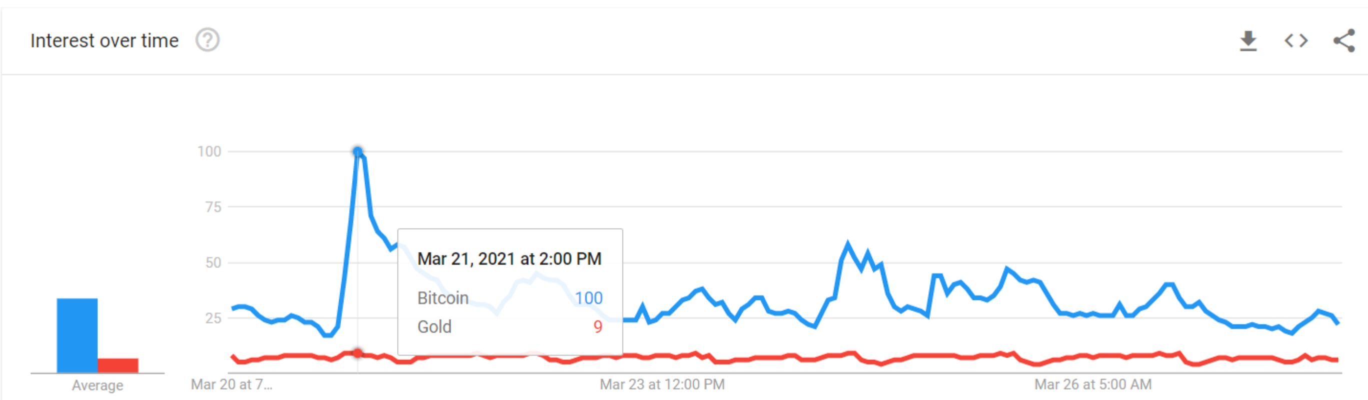
"I ask my citizens to invest their foreign currencies and gold in various financial institutions and bring [those assets] into the economy and production," Erdoğan said on March 21st, 2021. He said the same thing in December of 2016 and again in 2018.



Source: inflationtool.com

While Erdoğan disguises his demand to turn in foreign currency and gold in a veil of patriotic fervor, his plea masks his desperation. The Turkish lira depreciated even further against the dollar after Erdoğan fired his governor of the central bank on March 19th, 2021. Since 1956, the Turkish lira has inflated 921,861,308% and is expected to inflate another 12% this year. The goal behind acquiring his citizens' alternative assets such as gold and foreign currencies is to force them to use the lira in an attempt to restore its implied value.

However, it is difficult to restore trust in a currency when it fails its basic function as a store of value. And so, Turkish citizens have turned to **Bitcoin.**



Source: Google Trends

Google searches for Bitcoin peaked in Turkey after news of the governor's dismissal, while gold, typically heralded as the defacto inflation-resistant asset, received no more interest than usual. Onur Gözüpek, cryptocurrency consultant at crypto exchange BtcTurk | Pro, mentioned that because online banks had recently stopped exchanging US dollars and euros, BtcTurk's USDT/TRY pair had the second highest trading volume after BTC/TRY. Turkish cryptocurrency exchanges currently do over $1 billion of volume per day. The demand for Bitcoin is so high that on some offline venues the price of Bitcoin was quoted at nearly $100,000 USD.

Listed below are other countries where Bitcoin and other alternatives have taken hold as a hedge against inflation:

- As the crisis in Venezuela deepened, more and more Venezuelans looked to switch their bolívares into US dollars to trade with on the black market. Others sought refuge in Bitcoin as a way of having complete sovereignty over their finances. "Many Venezuelans are using Bitcoin to convert their bolívares, which are being permanently devalued by hyperinflation, to keep something of value," says economist Asdrúbal Oliveros of Caracas-based consultancy Ecoanalítica. Gold, however, suffered in performance. Despite putting up 10,700% returns in bolívares, this wasn't enough to outpace inflation, resulting in a real-return rate of negative 60%.
- With inflation rates of 19.2% per year since 1979 and overall inflation of 80,349.39%, Nigeria was the perfect home for Bitcoin to take root. One of the most widespread adopters of crypto in the African continent, Nigerians flocked to Bitcoin for its cheap transaction fees for remittance, resistance to local inflation, and its wild investment returns. Nigeria is the second largest market for Bitcoin on the peer-2-peer Paxful exchange after the US, with Bitcoin at one point trading at $80,000, a 60% premium, in February of 2021. At a public hearing, Nigerian Senator Sani Musa declared, "Cryptocurrency has become a worldwide transaction of which you cannot even identify who owns what. The technology is so strong that I don't see the kind of regulation that we can do. Bitcoin has made our currency almost useless or valueless."
- It's worth noting another modern instance of hyperinflation in Brazil, during the two decades of 1980-2000, when inflation rose to 13,000,000%. During this time, gold was expected to do well as a hedge but lost 70% of its value instead.

United States Currency Substitution

What about the United States? Is the everyday citizen looking for ways to protect their assets against inflation? And what about gold? While gold bugs love to tout their physical investment as the endgame of inflation resistance, times may be changing.

@CharlieBilello		Asset Class Total Returns over Last 10 Years (as of 3/13/21)											Data Source: YCharts	
ETF	Asset Class	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021 YTD	2011-21 Cumulative	2011-21 Annualized
N/A	Bitcoin ($BTC)	1473%	186%	5507%	-58%	35%	125%	1331%	-73%	95%	301%	109%	20037142%	230.6%
QQQ	US Nasdaq 100	3.4%	18.1%	36.6%	19.2%	9.5%	7.1%	32.7%	-0.1%	39.0%	48.6%	0.5%	541.3%	20.0%
SPY	US Large Caps	1.9%	16.0%	32.2%	13.5%	1.2%	12.0%	21.7%	-4.5%	31.2%	18%	5.4%	282.4%	14.0%
IWM	US Small Caps	-4.4%	16.7%	38.7%	5.0%	-4.5%	21.6%	14.6%	-11.1%	25.4%	20.0%	19.1%	244.7%	12.9%
VNQ	US REITs	8.6%	17.6%	2.3%	30.4%	2.4%	8.6%	4.9%	-6.0%	28.9%	-4.7%	7.9%	147.7%	9.3%
TLT	Long Duration Treasuries	34.0%	2.6%	-13.4%	27.3%	-1.8%	1.2%	9.2%	-1.6%	14.1%	18.2%	-13.5%	88.7%	6.4%
PFF	Preferred Stocks	-2.0%	17.8%	-1.0%	14.1%	4.3%	1.3%	8.1%	-4.7%	15.9%	7.9%	-0.6%	76.3%	5.7%
EFA	EAFE Stocks	-12.2%	18.8%	21.4%	-6.2%	-1.0%	1.4%	25.1%	-13.8%	22.0%	7.6%	4.6%	76.3%	5.7%
HYG	High Yield Bonds	6.8%	11.7%	5.8%	1.9%	-5.0%	13.4%	6.1%	-2.0%	14.1%	4.5%	-0.2%	71.0%	5.4%
LQD	Investment Grade Bonds	9.7%	10.6%	-2.0%	8.2%	-1.3%	6.2%	7.1%	-3.8%	17.4%	11.0%	-6.4%	69.4%	5.3%
EMB	EM Bonds (USD)	7.7%	16.9%	-7.8%	6.1%	1.0%	9.3%	10.3%	-5.5%	15.5%	5.4%	-5.8%	62.4%	4.9%
TIP	TIPS	13.3%	6.4%	-8.5%	3.6%	-1.8%	4.7%	2.9%	-1.4%	8.3%	10.8%	-2.1%	40.3%	3.4%
EEM	EM Stocks	-18.8%	19.1%	-3.7%	-3.9%	-16.2%	10.9%	37.3%	-15.3%	18.2%	17.0%	4.5%	39.8%	3.3%
BND	US Total Bond Market	7.7%	3.9%	-2.1%	5.8%	0.6%	2.5%	3.6%	-0.1%	8.8%	7.7%	-3.7%	39.5%	3.3%
GLD	Gold	9.6%	6.6%	-28.3%	-2.2%	-10.7%	8.0%	12.8%	-1.9%	17.9%	24.8%	-9.5%	16.4%	1.5%
BIL	US Cash	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.1%	0.7%	1.7%	2.2%	0.4%	0.0%	4.8%	0.5%
DBC	Commodities	-2.6%	3.5%	-7.6%	-28.1%	-27.6%	18.6%	4.9%	-11.6%	11.8%	-7.8%	18.5%	-34.9%	-4.1%
Highest Return		BTC	BTC	BTC	VNQ	BTC	BTC	BTC	BIL	BTC	BTC	BTC	BTC	BTC
Lowest Return		EEM	BIL	GLD	BTC	DBC	BIL	BIL	BTC	BIL	DBC	TLT	DBC	DBC
% of Asset Classes Positive		65%	94%	41%	65%	41%	100%	100%	6%	100%	88%	47%	94%	94%

Source: Twitter @CharlieBilello from YCharts

It's no secret that Bitcoin is the best performing asset of the decade, posting 230.6% annualized returns and a whopping 20,037,142% cumulative return since 2011. We'll talk about stock performance during hyperinflation in the next section, but for now let's look at gold. Gold has barely ranked above cash since 2011, meaning you would do well to hold anything but gold if you were looking for aggressive returns, even if you were afraid of hyperinflation.

But let's throw gold a bone. It has performed well in the past... a long, long time ago. For example, during Germany's five-year hyperinflation period we covered previously, the price of gold increased 1.8 times faster than inflation, meaning that holders of gold in the Weimar Republic not only saved their purchasing power, but doubled it by the time the German mark collapsed. Today, however, it seems as if investors have their appetite on everything but gold.

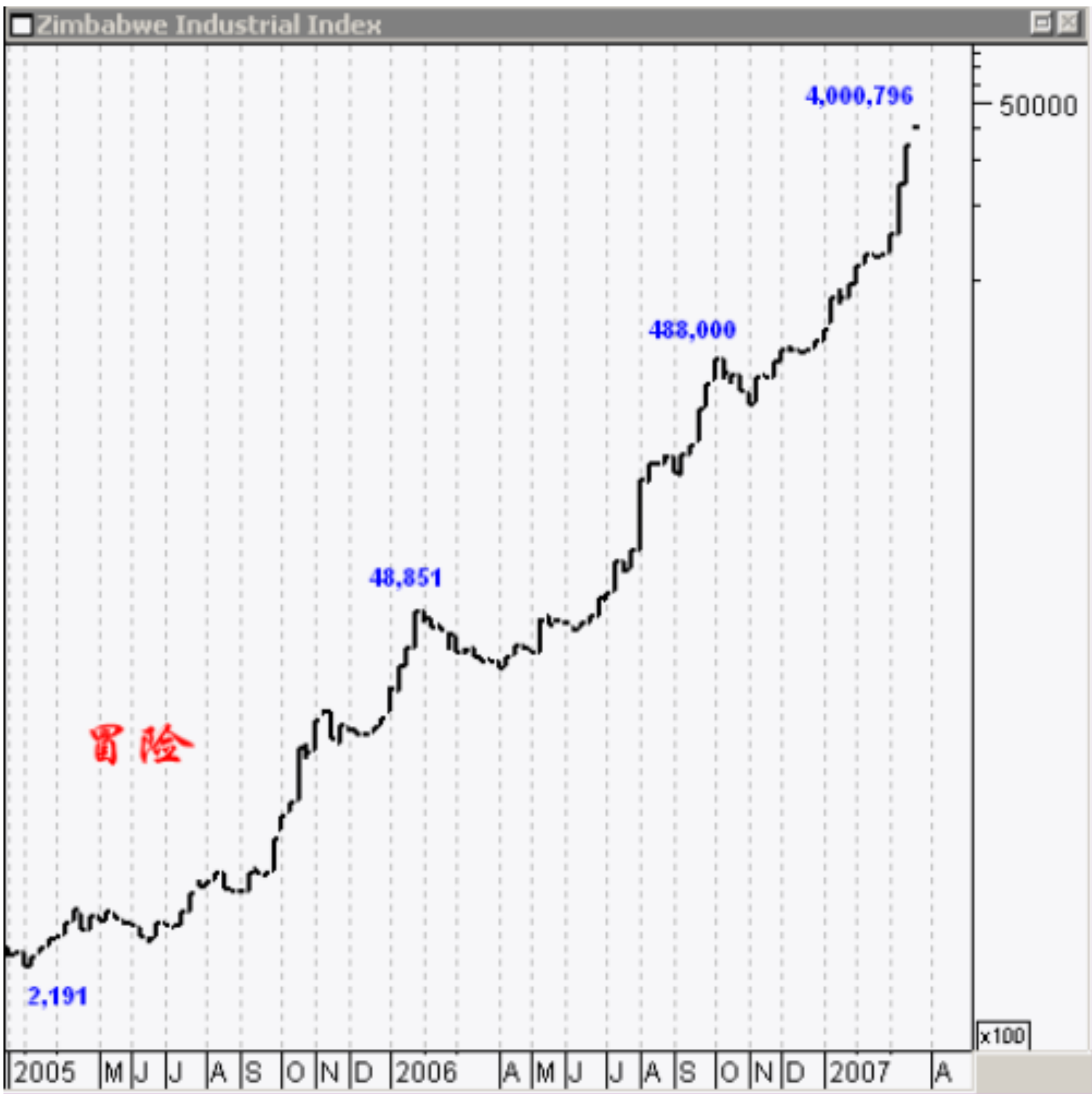
As for the damning sickness that is currency substitution, it's fairly obvious that even hardcore Bitcoin maximalists still enjoy seeing their dollars go up in value, and in the US no one is trading foreign currencies on the black market or bartering to acquire food and services. Perhaps even more damning for gold, fan favorite Federal Chairman Jerome Powell recently called Bitcoin a "more speculative asset that's essentially a substitute for gold rather than for the dollar," reassuring citizens, or maybe just himself, that the dollar will remain a store of value.

2020-2021: Jerome Powell stimulating the economy with stores of value

United States symptom tracker: Runaway food prices ❌
Wages do not keep up with inflation ✅
Currency substitution into alternative stores of value ❌

Symptom #4: Bubble Markets?

Bubble, bubble toil and *trouble*. Market bubbles are not typically a symptom that one associates with hyperinflation, perhaps because we're all making too much money to care. But there are numerous examples where markets like to bubble over as they outpace rampant inflation and the reason is simple — human psychology.



Source: goldonomic.com, 2005-2008 Zimbabwe industrial index

In a desperate attempt to outpace a horrifying 89.7 sextillion (10^21) percent inflation, Zimbabweans poured their dollars into the stock market as it posted record 241% gains in one day, with some companies posting 3,500% returns.

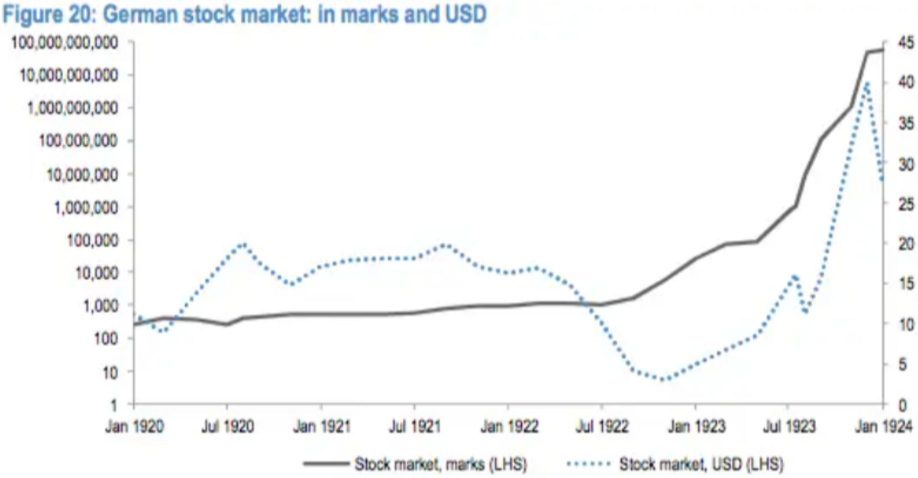
An October 2008 Business Weekly article stated that investors in Zimbabwe believed the stock market was the only place to get a return on money.

Similarly in the Weimar Republic, Germans began to speculate in stocks as inflation worsened. In ***When Money Dies***, by Adam Fergusson, he noted that:

> "Speculation on the stock exchange has spread to all ranks of the population and shares rise like air balloons to limitless heights...... As regards to dealing in shares, all classes of the population have for months been speculating with a fine disregard for common-sense. Shares have been freely bought in totally unknown concerns, in some cases with the object of exchanging valueless paper money for what was considered a good security, but generally in the hope of profiting by a rise in the stocks. The population was now engaged in evading taxation and devoting their money to speculative purchases...."

The following chart shows the German stock market in marks and USD, showing that while the USD value did dip substantially towards the end of 1922, it experienced incredible returns in both USD and marks for the next year and a half.

Figure 20: German stock market: in marks and USD



Source: J.P. Morgan estimates, "The Economics of Inflation", by Constantino Bresciani-Turroni

JPMorgan

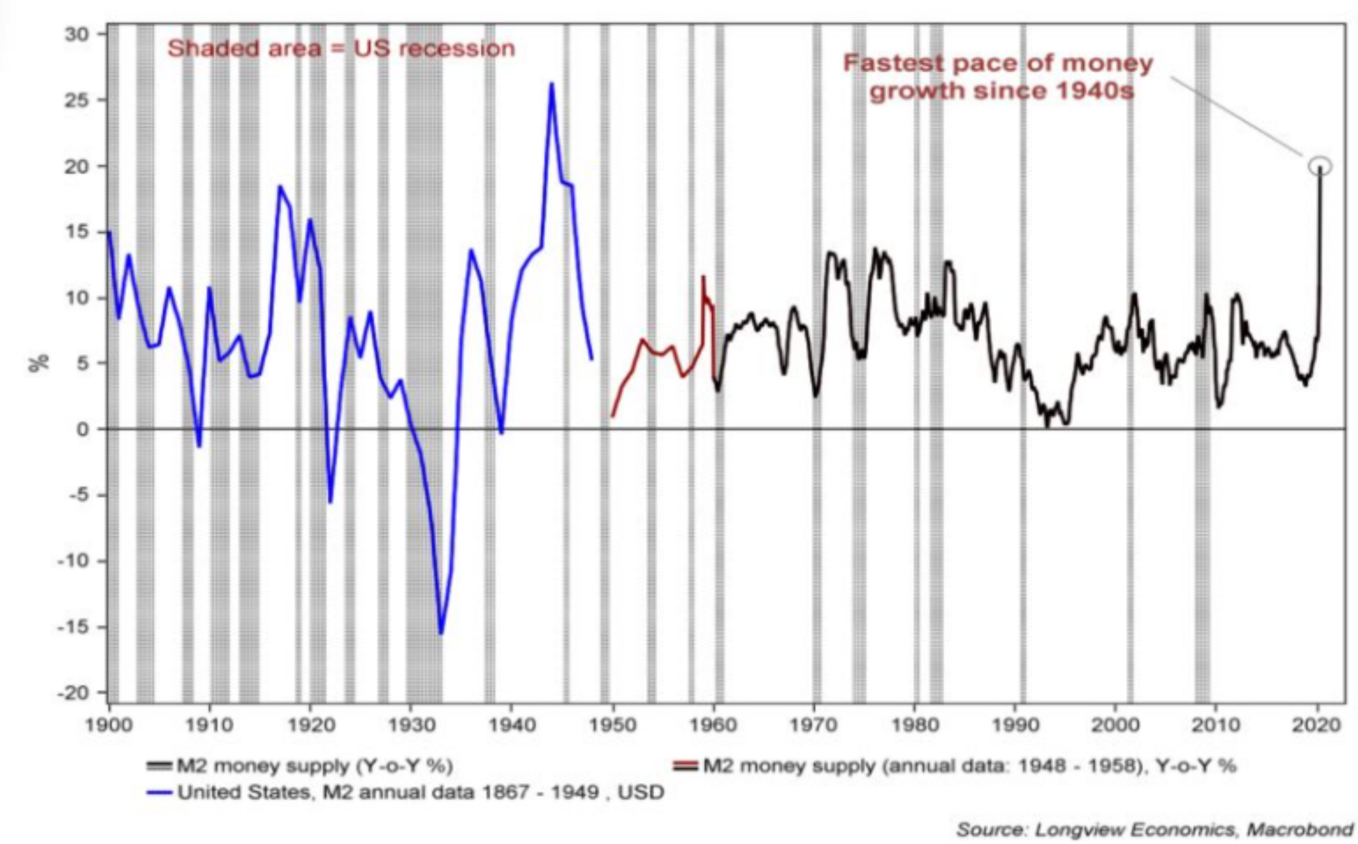
Here are some other stock markets that bubbled in a response to hyperinflation:

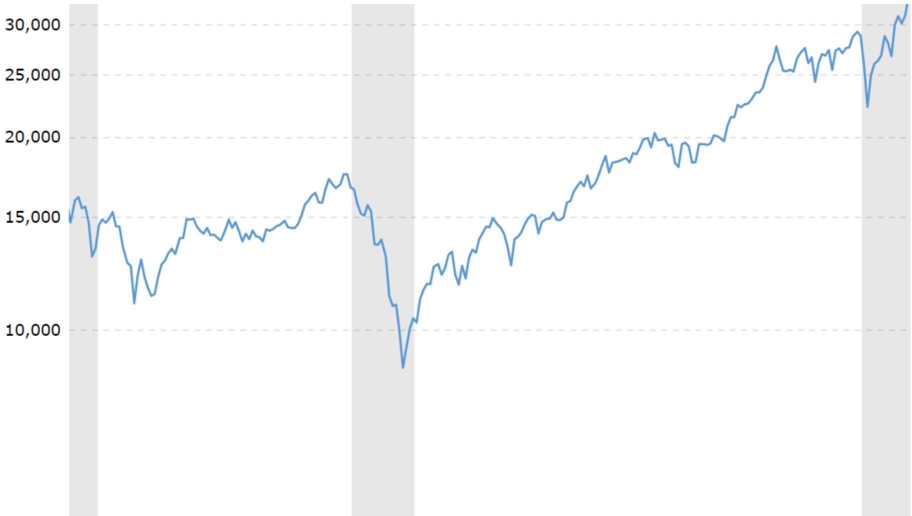
- Amidst runaway inflation, Venezuela's stock market experienced 114% returns versus the DOW's 13% in 2016. Citizens turned in their bolívares for seemingly "safer" investments like stocks.
- Despite capital inflows into the Nigerian market slowing over 79% in Q2 2021, the Nigerian stock exchange index almost doubled its returns from April 2020 to 2021. Investors' doubts in the bond and credit market have forced them to turn to Nigerian "blue-chip" companies in an effort to find returns.

United States Bubble Markets

Frothy is a word many have used to describe US capital markets. Concerns about the M2 money supply skyrocketing, especially during this COVID stimulus era, have investors eyeing inflation-resistant returns wherever they can get them.

Fig 3: US M2 money supply since 1900 (Y-o-Y %)





Source: Macrotrends.com, S&P 500 returns of the last decade

There is still much debate about whether the money supply shock could lead to hyperinflation, or if it's merely a nudge the economy needs to get back on track. Regardless, the Nasdaq (48.6%), Large Caps (18%), and Small Caps (20%) have all posted outsized returns in 2020 as investors continue to have an appetite for risk.

@CharlieBilello		Asset Class Total Returns over Last 10 Years (as of 3/13/21)											Data Source: YCharts	
ETF	Asset Class	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021 YTD	2011-21 Cumulative	2011-21 Annualized
N/A	Bitcoin ($BTC)	1473%	186%	5507%	-58%	35%	125%	1331%	-73%	95%	301%	109%	20037142%	230.6%
QQQ	US Nasdaq 100	3.4%	18.1%	36.6%	19.2%	9.5%	7.1%	32.7%	-0.1%	39.0%	48.6%	0.5%	541.3%	20.0%
SPY	US Large Caps	1.9%	16.0%	32.2%	13.5%	1.2%	12.0%	21.7%	-4.5%	31.2%	18%	5.4%	282.4%	14.0%
IWM	US Small Caps	-4.4%	16.7%	38.7%	5.0%	-4.5%	21.6%	14.6%	-11.1%	25.4%	20.0%	19.1%	244.7%	12.9%
VNQ	US REITs	8.6%	17.6%	2.3%	30.4%	2.4%	8.6%	4.9%	-6.0%	28.9%	-4.7%	7.9%	147.7%	9.3%
TLT	Long Duration Treasuries	34.0%	2.6%	-13.4%	27.3%	-1.8%	1.2%	9.2%	-1.6%	14.1%	18.2%	-13.5%	88.7%	6.4%
PFF	Preferred Stocks	-2.0%	17.8%	-1.0%	14.1%	4.3%	1.3%	8.1%	-4.7%	15.9%	7.9%	-0.6%	76.3%	5.7%
EFA	EAFE Stocks	-12.2%	18.8%	21.4%	-6.2%	-1.0%	1.4%	25.1%	-13.8%	22.0%	7.6%	4.6%	76.3%	5.7%
HYG	High Yield Bonds	6.8%	11.7%	5.8%	1.9%	-5.0%	13.4%	6.1%	-2.0%	14.1%	4.5%	-0.2%	71.0%	5.4%
LQD	Investment Grade Bonds	9.7%	10.6%	-2.0%	8.2%	-1.3%	6.2%	7.1%	-3.8%	17.4%	11.0%	-6.4%	69.4%	5.3%
EMB	EM Bonds (USD)	7.7%	16.9%	-7.8%	6.1%	1.0%	9.3%	10.3%	-5.5%	15.5%	5.4%	-5.8%	62.4%	4.9%
TIP	TIPS	13.3%	6.4%	-8.5%	3.6%	-1.8%	4.7%	2.9%	-1.4%	8.3%	10.8%	-2.1%	40.3%	3.4%
EEM	EM Stocks	-18.8%	19.1%	-3.7%	-3.9%	-16.2%	10.9%	37.3%	-15.3%	18.2%	17.0%	4.5%	39.8%	3.3%
BND	US Total Bond Market	7.7%	3.9%	-2.1%	5.8%	0.6%	2.5%	3.6%	-0.1%	8.8%	7.7%	-3.7%	39.5%	3.3%
GLD	Gold	9.6%	6.6%	-28.3%	-2.2%	-10.7%	8.0%	12.8%	-1.9%	17.9%	24.8%	-9.5%	16.4%	1.5%
BIL	US Cash	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.1%	0.7%	1.7%	2.2%	0.4%	0.0%	4.8%	0.5%
DBC	Commodities	-2.6%	3.5%	-7.6%	-28.1%	-27.6%	18.6%	4.9%	-11.6%	11.8%	-7.8%	18.5%	-34.9%	-4.1%
Highest Return		BTC	BTC	BTC	VNQ	BTC	BTC	BTC	BIL	BTC	BTC	BTC	BTC	BTC
Lowest Return		EEM	BIL	GLD	BTC	DBC	BIL	BIL	BTC	BIL	DBC	TLT	DBC	DBC
% of Asset Classes Positive		65%	94%	41%	65%	41%	100%	100%	6%	100%	88%	47%	94%	94%

Source: Twitter @CharlieBilello from YCharts

Perhaps you don't agree with the definition of Bitcoin as the new "digital gold." The argument could

United States symptom tracker: Runaway food prices ❌
Wages do not keep up with inflation ✅
Currency substitution into alternative stores of value ❌
Bubble markets? ✅

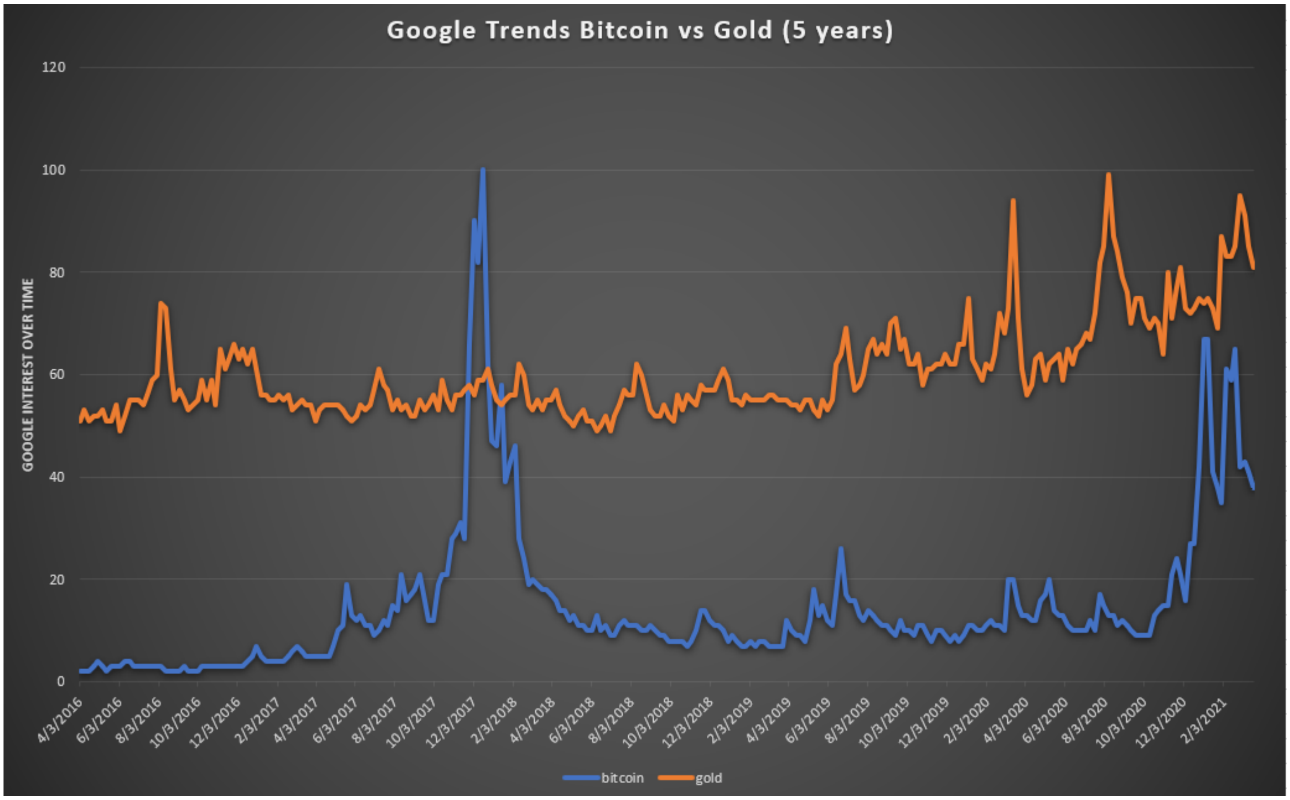
Prognosis: What is the Future of Bitcoin?

To recap: The United States ticks off some symptoms of hyperinflation and there are growing concerns it could worsen, but right now we are navigating a COVID economy and the future remains uncertain. Food prices haven't outpaced the wages of the majority of the population, even as earnings continue to diverge between the lower, middle, and upper class. There is no need for concern about the substitution of the dollar (sorry Bitcoin maxis); however, there is concern about the increase in the money supply and how that might cause runaway inflation. There is rhyme in history as it pertains to market bubbles, and it's hard to argue that the extreme gains in the S&P 500 are reflective of the overall health of society.

Therefore, the path for Bitcoin diverges as follows:

1. **Bitcoin replaces the US dollar.** For this to occur, the US would have to undergo massive hyperinflation to the point where citizens no longer trust the dollar to pay for goods and services, can no longer afford to keep pace with their wages, and choose Bitcoin over gold as a safe haven asset. This seems a very unlikely doomsday scenario and, arguably, we'd have a lot more to worry about if the dollar lost its value entirely.

2. **Bitcoin replaces gold.** For Bitcoin enthusiasts this is a more likely outcome. For this to occur, investors would have to shift their perspective from implicitly valuing physical goods to valuing digital ones. This is arguably already underway, both in the continuing and increasing interest in Bitcoin as an asset and developments in the DeFi and NFT space. While NFTs have yet to prove themselves as a replacement for physical collectibles, the trend is well underway, as you'll see in our NFT section of this report.

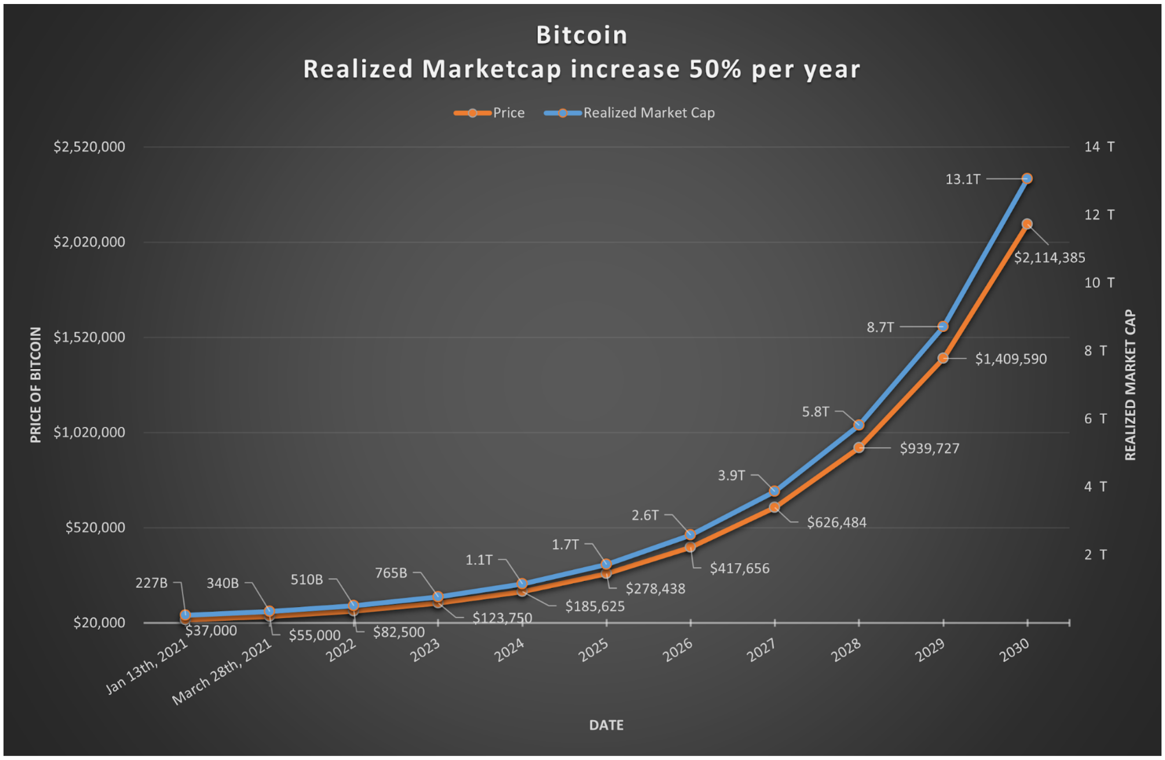


Source: Google trends, interest over time of Bitcoin versus gold in the last five years.

What would it look like if Bitcoin replaced gold? Let's start with something realistic and ask what happens if Bitcoin took over just a percentage of the market capitalization of gold.

In a tweet on January 13th, 2021, Ki Young Ju of CryptoQuant projected that the price of Bitcoin would be $154,000 if bitcoin replaced 10% of gold's market cap. At the time, certain news sources had claimed that Bitcoin had taken up 7% of gold's $10 trillion market cap. Ki Young Ju argued that this was false and Bitcoin was closer to 2% of gold's market cap because of Bitcoin's realized market cap, which excludes lost, unclaimed, and unreachable Bitcoin supply.

According to CryptoQuant's information, Bitcoin's realized market cap has grown to $340 billion with a nominal price of $55,000 as of March 28th, 2021. But what if we project the realized market cap of Bitcoin to actually take over gold's market cap of about $11 trillion?



Data source: Cryptoquant.com, projections calculated from the first two data points

Dramatic. If Bitcoin increased its realized market cap by 50% each year until 2030, it would surpass gold with over $13.1 trillion in capitalization and be worth $2,114,385. Just half of gold's current capitalization would put it around $700,000, and 10% would be somewhere around Ki Young Ju's prediction of $150,000 to $170,000.

While these predictions seem far-fetched, it is incredible that Bitcoin has even 2% of gold's market cap after just ten years as a financial asset, when just a year ago $50,000 seemed like a pipe dream.

Bitcoin, then, shouldn't rely on the complete destabilization of society to become valuable, as we have seen that food, wages, markets, and even gold all suffer in the chaos of hyperinflation. However, perhaps Bitcoin could destabilize gold in the next decade or so and be a modernized "hard asset," our digital gold for the new era.

PART 2

NFTs: Beyond the Hype

How Digital Collectibles are Becoming the New Store of Value

If someone asked you to buy a video clip of a LeBron James dunk for $200,000, you'd probably assume they were joking right? How about a 24×24 pixel art image of a punk character for $7M? Or maybe a digital collage for $69M? Okay, maybe they're not joking, they're just crazy. Welcome to the world of digital collectibles, otherwise known as NFTs (non-fungible tokens).

From Mark Cuban, to Tony Hawk, to Time Magazine... what do they all have in common? Sure, those are all recognizable names, but there's something else. They have all released non-fungible tokens to be purchased on the blockchain.

TIME Magazine auctions off three NFTs on SuperRare inspired by most iconic covers

The NFT ecosystem has seen tremendous growth and media attention throughout the past few months. NFTs have been mentioned on Saturday Night Live, written about in Rolling Stone, and praised by celebrities, artists, professional athletes, and others alike as the world has experienced a transformation in the way we store value. But what is all the hype about? Let's find out.

Store of Value

What's a store of value anyways? Some answers may quickly come to your mind like fiat currency, gold, collectibles, art... the list goes on. But generally speaking, a store of value is anything that retains purchasing power over time. Historically, these stores of value have required physical ownership as proof of existence and confirmation of scarcity. We likely have a good idea of how many of these collectibles were created and having the physical presence of that collectible is confirmation that it's real (although fakes do exist, we typically can assume they are real).

But in recent years, blockchain technology has completely disrupted traditional stores of value and has provided a new foundation to transfer value from the physical world to the digital world. The creation of Bitcoin introduced the concept of trustless, digital scarcity. Before it, the cost of replicating something in the digital world was next to nothing. Blockchain has evolved to support smart contracts that have allowed the ability to uniquely identify digital goods, as well as the transactions associated with them.

Because of the programmability of Smart contracts, the possibility of applications is virtually endless. Smart contracts can contain many different rules that help define their scarcity, what happens when they're sold, whether ownership is exchanged, or even things like royalties to original creators from secondary marketplace sales. If you can code it, a smart contract can execute it.

What was once a storage-consuming file on your computer has turned into a valuable digital asset. NFTs are one of the key building blocks of a new blockchain-powered digital economy. Because the data is stored, maintained, and decentralized via the blockchain, with no one party in charge of the transaction, digital assets have now legitimately become stores of value.

What is a Non-Fungible Token?

Non-fungible digital assets have existed since the dawn of the internet and are used every single day by people all over the world. Domain names, event tickets, in-game items (i.e., microtransactions in video games), and much more fit into the category of non-fungible digital assets, and vary in their tradeability, interoperability, and liquidity. And oftentimes, you only own these assets in specific contexts relative to the centralized creator, which typically makes them difficult to move around. This is where blockchain comes into play.

According to Wikipedia, a “non-fungible token (NFT) is a unit of data on a digital ledger called a blockchain where each NFT can represent a unique digital item, and thus they are not interchangeable.” But to put it simply, **a NFT is used to identify something or someone in a unique way.**

NFTs can be used to represent artwork, videos, in-game items, licenses, sports memorabilia, and pretty much any other forms of information that require uniqueness. With the help of blockchain technology, NFT owners benefit from these properties:

- **Standardization** - By representing NFTs on public blockchains, developers can build common, reusable, inheritable standards relevant to all non-fungible tokens
- **Interoperability** - NFT standards allow them to move easily across multiple ecosystems
- **Provable Scarcity** - Smart contracts allow developers to place hard caps on the supply of NFTs and enforce persistent properties that cannot be modified after the NFTs are issued
- **Programmability** - NFTs are fully programmable, which allows for creative and complex mechanics like forging, crafting, redeeming, random generation, royalties, and much more
- **True Ownership** - Digital goods can now live on even if the service that created them ceases to exist
- **Liquidity** - All tokenized assets can be valued and bought by anyone around the globe
- **Visible Chain of Custody** - Everything from creation to each individual owner is transparent and accessible

At a high level, non-fungible tokens are simply a means to transfer value on a blockchain. Blockchains provide a coordination layer for digital assets, giving users ownership and management permission. This has become increasingly attractive to artists, musicians, gamers, sports collectors, businesses, and many others who are active within the digital world as they can now control and benefit from their digital assets.

Digital Art Revolution

For many years, digital artwork has been undervalued outside of a professional setting, largely because it's so freely available. After all, it's just a jpeg image right? Anyone can screenshot and save the file to their phone or computer. But, just because you can print out a picture of the Mona Lisa and hang it up on your wall, doesn't mean that it’s the Mona Lisa. One is worthless and one is worth hundreds of millions of dollars. So, what’s the difference?

"The First 5000 Days," by the artist known as Beeple

Scarcity, authenticity, and verifiable ownership — three crucial NFT properties that help artists create financial value for their work. The best example of this digital art revolution is from legendary artist Beeple, who recently sold his piece "Everydays: The First 5000 Days" for a mindblowing $69M at Christie's. This sale positions him among the **top 3 most valuable living artists** in the world and completely smashes the previous NFT sales record. The crazy part is that before this NFT craze, the most that Beeple had ever sold a print for was only $100.

A few factors explain why Beeple's work has become so valuable. For one, he's developed a large fan base, with around three million followers across social channels, mostly from his project called "Everydays." He has created and published a new piece of digital artwork every day for the past 14 years. With NFTs blowing up in recent months, collectors are looking at NFTs as the way digital art will be acquired and traded going forward.

For collectors who believe that's true, the escalating prices are nothing compared to what NFTs could be worth down the road. With **secondary markets** at hand and **high royalties paid to the creator, both the artists and resellers can benefit** from the continued trading of each art piece. Pablo Rodriguez-Fraile, a collector who bought a Beeple NFT for $66k, resold it for $6.6M just four months later, a historic secondary marketplace sale. Beeple received a royalty.

Even billionaire Mark Cuban is getting in on the game. He launched a one-of-a-kind digital art gallery for users to display various NFTs. “I wanted an easy way to show my NFTs and a way to put them in my social bios, my email signature, and any place I can stick a URL,” Cuban told The Block. “People are curious about what other people collect. There wasn’t a super-easy way to do it before Lazy.com.”

One Step Closer to Independence

After the pandemic hit in 2020, all live performances were brought to a halt. This left musicians stuck at home without a huge portion of their income coming in. To make up for lost revenue, many musicians have looked at NFTs as a way to connect with their fans once again.

One of the first bands to release a new album as an NFT was Kings of Leon, which grossed over $2M in sales. DJ/Producer 3LAU raised a staggering $11.7M during a three-day sale of 33 NFTs. Other artists such as The Weeknd, Tory Lanez, Shawn Mendes, Grimes, Odesza, Disclosure, Steve Aoki, Tycho, and more have all released some form of NFT over the past few months. Music producer and crypto enthusiast RAC has even launched a creative agency specializing in NFTs that aims to help artists develop and manage their own releases.


Kings of Leon Will Be the First Band to Release an Album as an NFT

The band’s revolutionary tokens will unlock special perks like limited-edition vinyl and front row seats to future concerts

By SAMANTHA HISSONG

Not only do NFTs allow artists to connect with their fans like never before, but they also enable commission structures that allow artists to share the value of their work in perpetuity, even after they sell it. This is really a game changer for the music industry, as it brings musicians one step closer to independent releases and provides them with full ownership over their songs. They can now start to replace institutions with code and finally get to play on a field that is fundamentally fair and open.

Projects like Cryptovoxels, a virtual world on the Ethereum blockchain, have even opened digital record stores full of NFTs. Inside this virtual store, users can browse music with complimentary art pieces. You can even go directly to an artist's page or subscribe via music links.

Top NFT Projects

NFT applications vary greatly as there are seemingly endless possibilities to tokenize digital assets. Some of the popular categories within the ecosystem are trading cards, art, gaming, and other forms of entertainment. The biggest NFT project by all-time sales volume is NBA Top Shot, an officially licensed digital collectibles (i.e., trading cards) platform with over $451M in marketplace sales. Top Shot has over 272k active users, more than double the number of users than runner-up CryptoKitties with 100k. Both of these projects were created by Dapper Labs.

NFT Collections & Marketplaces

	Product	All-Time Volume	Users
1	NBA Top Shot	$451M	272K
2	OpenSea	$264M	85K
3	Cryptopunks	$182M	2K
4	Rarible	$81M	38K
5	SuperRare	$50M	N/A
6	Sorare	$47M	15K
7	Hashmasks	$47M	4K
8	CryptoKitties	$33M	100K
9	Axie Infinity	$23M	28K
10	Aavegotchi	$13M	2K
11	Foundation	$12M	4K
12	MoonCats	$11M	3K
13	Art Blocks	$11M	2K
14	AtomicMarket	$9M	37K
15	The Sandbox	$7M	4K

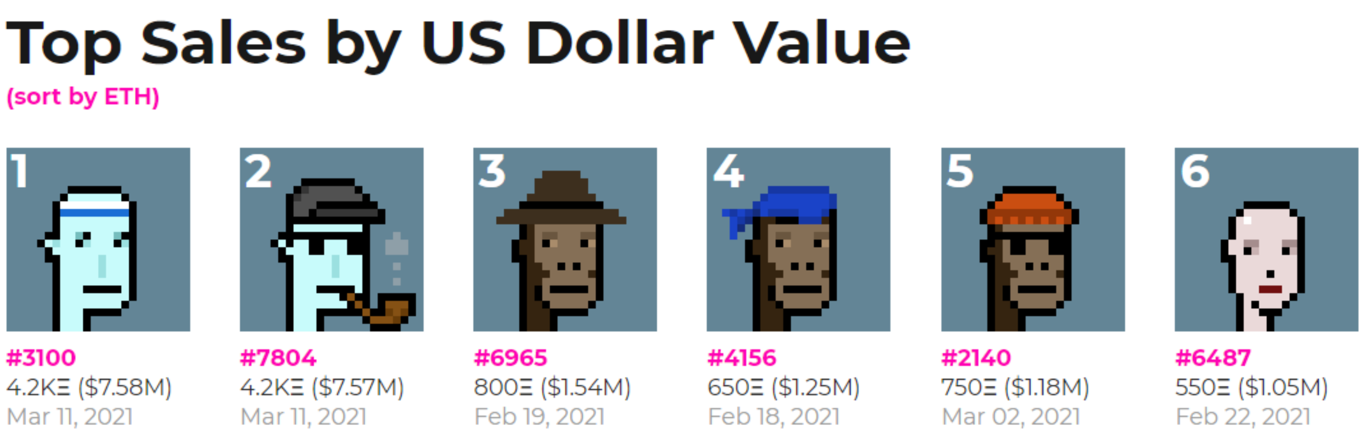
TheTie

OpenSea, the second biggest NFT project by all-time sales volume, sits at the top of the stack as an aggregator that enables consumers to purchase NFTs from any given platform. These generalized marketplaces present a big opportunity for growth due to the various types of content available to purchase. OpenSea has done over $100M of its $264M all-time sales volume in Q1 of 2021 alone. NFT marketplace sales across OpenSea, Nifty Gateway, SuperRare, and Rarible have increased by over 700% so far this year.

Million Dollar Pixel Art

The first NFT is one that you've likely seen on Twitter; specifically, you've probably seen these pixel art characters used as profile pictures. We're talking about the first rare digital art with proof of ownership stored on the Ethereum blockchain and the project that inspired the modern CryptoArt movement — CryptoPunks.

CryptoPunks consists of 10,000 unique collectible characters with proof of ownership stored on the Ethereum blockchain. There are no two punks that are exactly alike, and each one of them can be officially owned by a single person. Originally, they could be claimed for free by anybody with an ETH wallet, but all 10,000 were quickly claimed. Now the punks must be purchased from someone via a secondary marketplace. Below you can see an example of the top CryptoPunk sales. Six punks have been sold for over $1M, with two selling for 4,200ETH, or roughly $7.6M.

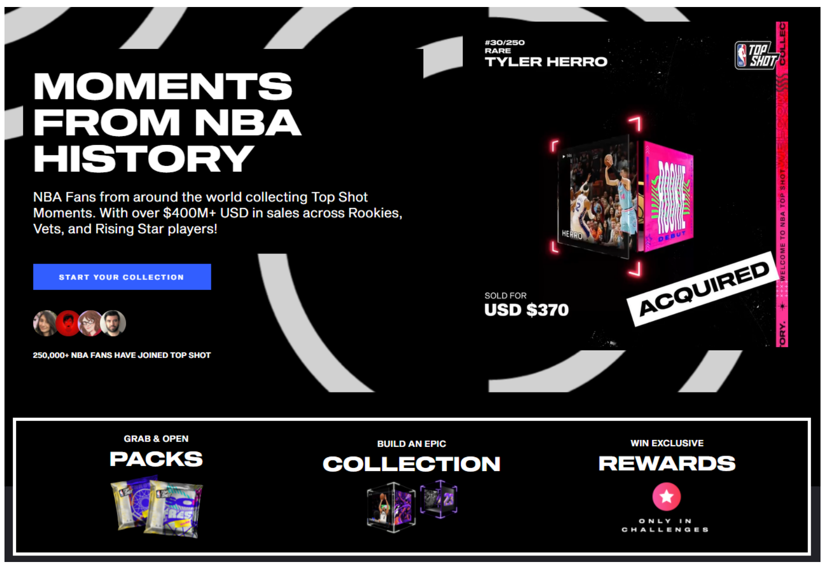


CryptoPunks have been on fire for the past several months, with five-figure sales going through nearly everyday. There have been over $100M in sales over the past 50 days. Considering CryptoPunks was the first NFT of its kind, the long-term value could theoretically hold up or even increase over time if NFTs continue to gain in popularity.

Digital Sports Collectibles

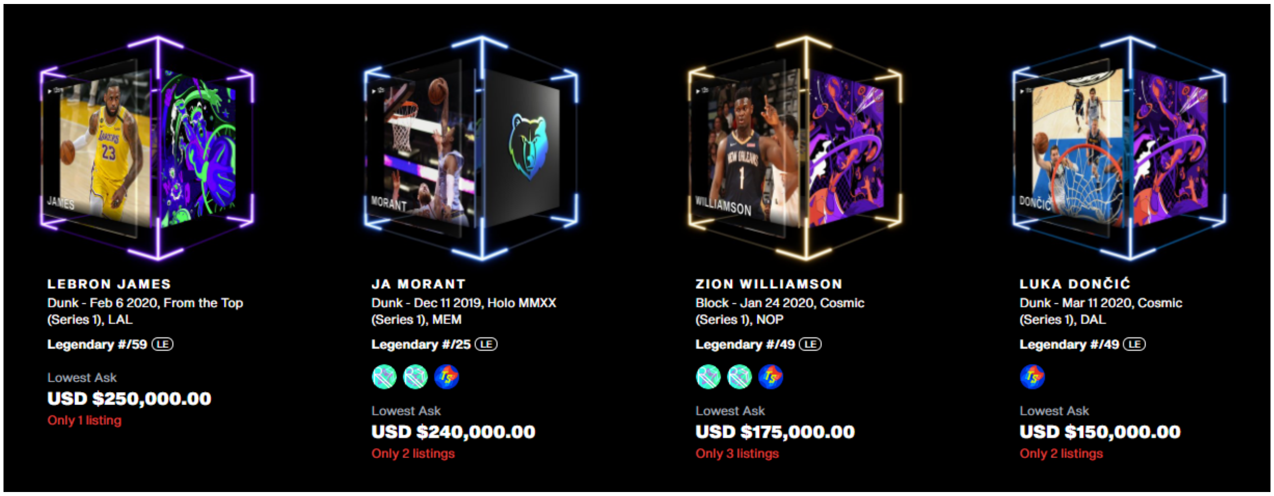
A new era in fandom has arrived — beyond repping your team or loving your favorite player. Now fans can own basketball's greatest “Moments' with NBA Top Shot. NFT technology allows for these moments to remain scarce and it transfers their value on a blockchain.

An officially licensed digital collectibles product, NBA Top Shot is an online platform that allows fans to purchase, trade, and collect exciting highlights from their favorite basketball players. Each Moment (i.e., digital basketball card) is marked at creation with a unique serial number, with guaranteed scarcity and protected ownership via the blockchain. When you own #23/49 of a legendary LeBron James dunk, you're the only person in the world who does.



With digital collectibles like Top Shot, you no longer have to deal with the hassle of physical cards, like losing it somewhere or it getting damaged. No more grading costs or shipping delays. And even better, if you do actually decide to sell your Top Shot Moments, there is a 24/7 marketplace with millions of dollars of liquidity where you can potentially offload it with the click of a button.

Now one might be thinking, why would anyone buy a basketball highlight that you can watch on YouTube for free? Well, why would anyone buy a cardboard photo that they can find on the internet and print out for free? It all comes back to true ownership and scarcity of collecting.



NFTs & Collectible Tokens

As more and more NFTs are minted and distributed throughout the crypto ecosystem, it becomes harder to know which ones are long-term winners with inherent value and where exactly to put your money. You may be bullish on the technology as a whole and want to put some capital behind your thesis, but can't quite figure out or commit to a specific NFT.

Below is a list of the top collectible tokens in the NFT space that you can invest in, sell, and trade on a variety of crypto exchanges.

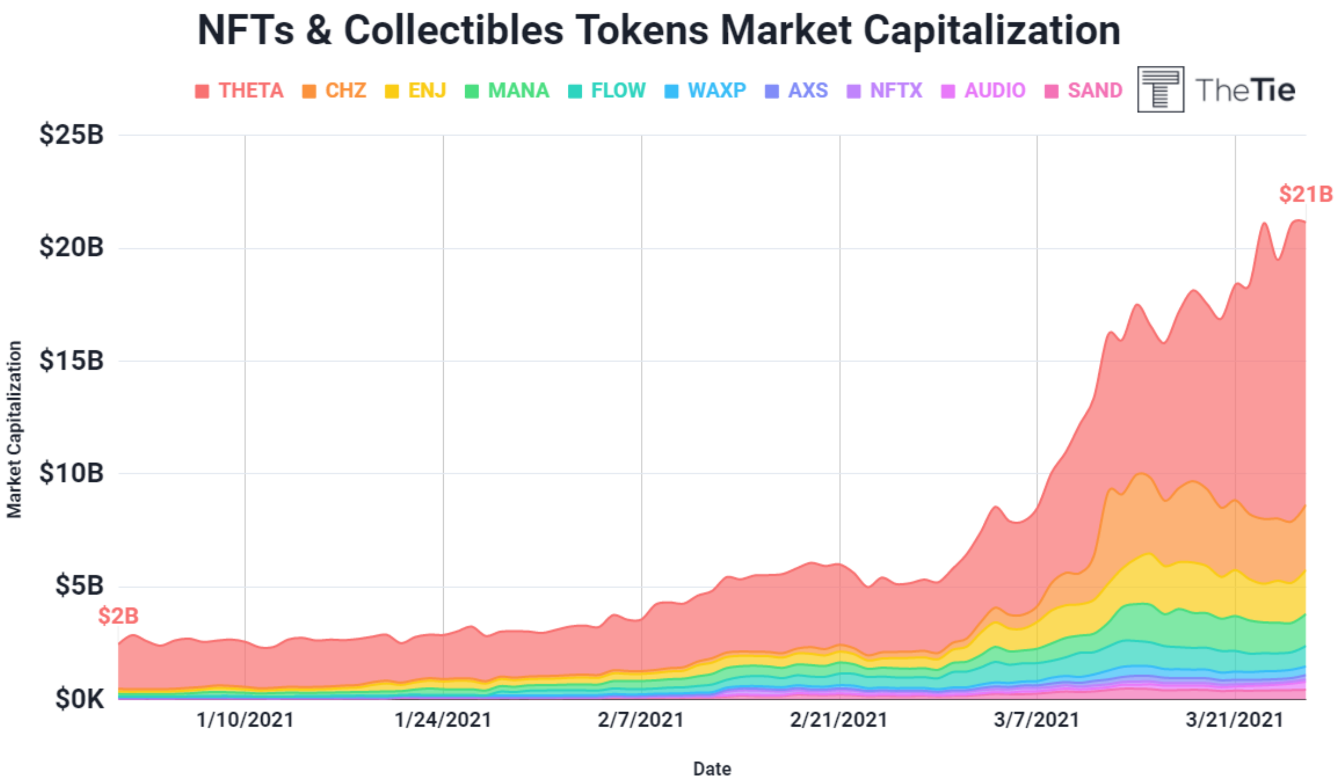
NFTs & Collectibles Tokens TheTie

1	Theta	(THETA)	Theta is a blockchain powered network purpose-built for video streaming. Launched in March 2019, the Theta mainnet operates as a decentralized network in which users share bandwidth and computing resources on a peer-to-peer (P2P) basis.
2	Chiliz	(CHZ)	Chiliz is one of the largest blockchains for esports and gaming crowdfunding. Officially launched in 2019, the idea for Chiliz and the platform Socios.com were initially conceived in 2016. Chiliz is a token designed to allow fans to support their favorite sports teams through blockchain-based interactions.
3	Enjin	(ENJ)	A social gaming platform through which users can create websites and clans, chat, and host virtual item stores. Enjin allows game developers to tokenize in-game items on the Ethereum blockchain. It uses Enjin Coin, an ERC-20 token, to back the digital assets issued using its platform, meaning that items can be bought, sold and traded with real-world value.
4	Decentraland	(MANA)	Decentraland defines itself as a virtual reality platform powered by the Ethereum blockchain that allows users to create, experience, and monetize content and applications. In this virtual world, users purchase plots of land that they can later navigate, build upon and monetize.
5	Flow	(FLOW)	Flow is a fast, decentralized, and developer-friendly blockchain, designed as the foundation for a new generation of games, apps, and the digital assets that power them. Flow is the only layer-one blockchain originally created by a team that has consistently delivered great consumer blockchain experiences: CryptoKitties, Dapper Wallet, NBA Top Shot.
6	Wax	(WAXP)	WAX is a purpose-built blockchain that is designed to make e-commerce transactions faster, simpler and safer for every party involved. To make this possible, WAX created a suite of blockchain-based tools which decentralized application (DApp) marketplaces and non-fungible tokens can be built upon.
7	Axie Infinity	(AXS)	Axie Infinity is a blockchain-based trading and battling game that is partially owned and operated by its players. Inspired by popular games like Pokémon and Tamagotchi, Axie Infinity allows players to collect, breed, raise, battle and trade token-based creatures known as Axies.
8	NFTX	(NFTX)	NFTX is a community-owned protocol and platform for creating non-fungible token (NFT)-backed ERC-20 tokens. Notably, NFTX powers the creation and trading of funds, tracking sought-after NFT collectibles such as CryptoKitties, CypherPunks and others.
9	Audius	(AUDIO)	Audius is a decentralized music-sharing and streaming protocol that facilitates direct transactions between listeners and creators, giving everyone the freedom to distribute, monetize, and stream any audio content.
10	The Sandbox	(SAND)	The Sandbox is a blockchain-based virtual world allowing users to create, build, buy and sell digital assets in the form of a game. By combining the powers of decentralized autonomous organizations (DAO) and non-fungible tokens (NFTs), the Sandbox creates a decentralized platform for a thriving gaming community.

Quarterly Performance

With NFTs becoming the hottest new trend in crypto, the sector saw astonishing growth in Q1 of this year. The aggregated market cap of the top 10 NFTs & Collectible Tokens has increased by 764% YTD, climbing from $2B to $21B. Theta, the largest asset by market cap within this group, makes up 60% of that total. Following quite far behind in second place at $3B is Chiliz. At the time of writing, nearly half of this top 10 list has a market cap of $1B or more.

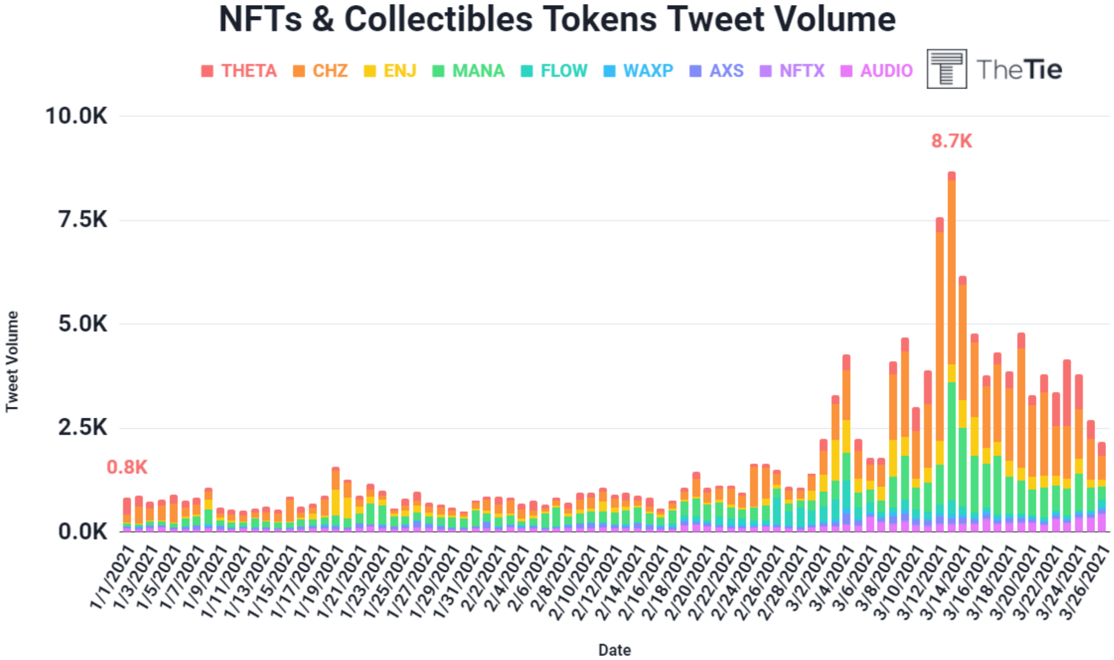
Every major NFT & Collectible token performed positively throughout Q1, with the median price return being an impressive +960%!



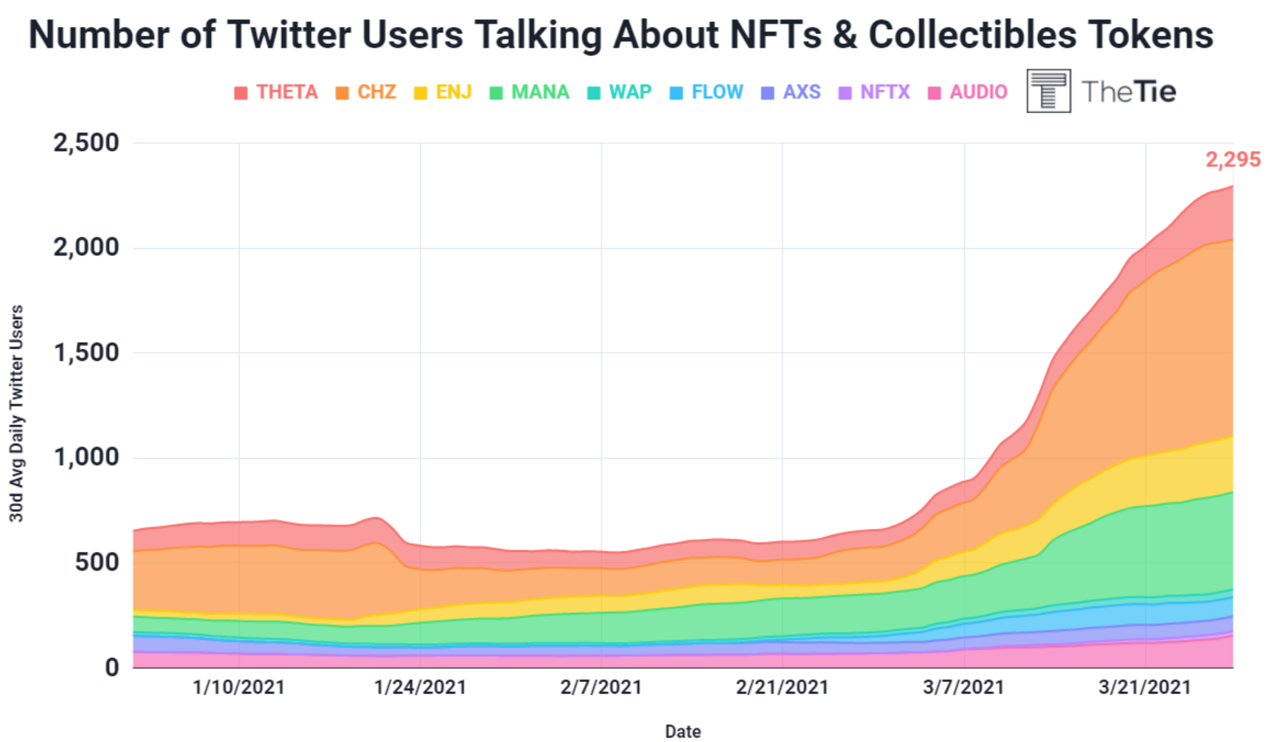
Chiliz (CHZ), a sports and entertainment fan engagement token that partnered with Binance, was the clear winner in Q1. CHZ saw returns upwards of +2,340%, even reaching a peak of 3,090% in mid-March. Audius, a decentralized music and streaming protocol, finished the quarter at its peak of 1,863%.

Social Conversations

Social conversations surrounding NFTs & Collectibles Tokens have really taken off since the beginning of March. These 10 tokens were averaging just around 1k combined tweets per day up until late February. Tweet volume continued to ramp up until reaching 8.7k tweets in a single day, a new record set on March 13th. Numbers have dropped slightly since, but are still well above where things were at in January.

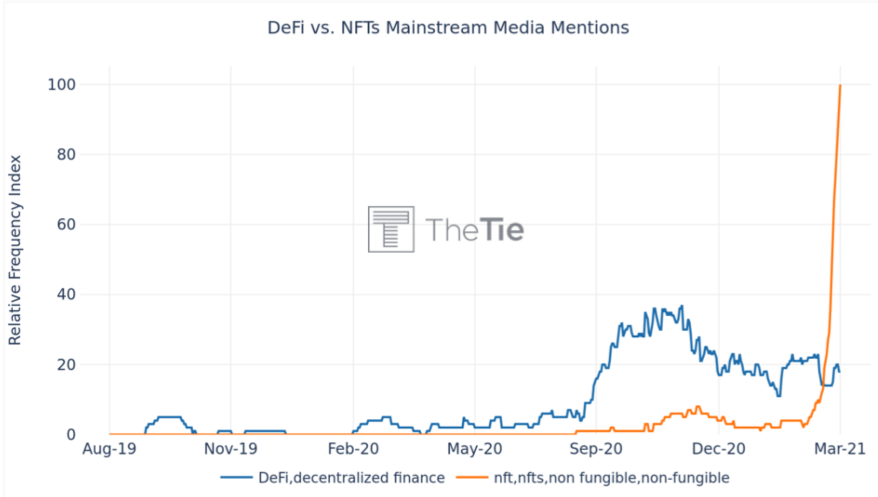


Not only has the number of tweets being sent out increased, but so has the number of unique Twitter handles sending those tweets out. Since the beginning of the year, the number of Twitter users talking about NFTs & Collectibles Tokens has surged by +206%. These 10 tokens now average a combined total of 2,295 unique Twitter users tweeting per day.



Mainstream Interest

For the past year or so, you could hardly go online to any crypto news website or forum and not come across someone talking about decentralized finance (DeFi). DeFi, aside from Bitcoin, has received more mainstream media attention than the likes of Ethereum, Litecoin, Chainlink and other major crypto players. While the DeFi buzz has been ongoing, there's a new hot buzzword that is emerging. NFTs have completely taken over mainstream media mentions, while DeFi is lagging behind outside of the crypto world.



What's Real vs. Hype

With heightened demand for digital asset ownership comes increased NFT supply. The NFT market has recently been flooded with a ton of supply by various parties, including mediocre artwork, Logan Paul's Pokemon pack opening videos (that sold for a total of $5M), and Lindsay Lohan partnering with Justin Sun to release NFTs on Tron. Whether it's copycat ideas, blatant scams, or simply useless collectibles, the sheer number of NFTs being released is something to be aware of before making any major investments.

Simply because someone throws the letters NFT onto something doesn't mean it suddenly has a ton of value. While there are some questionable cash grabs being released, there are certainly many solid and useful projects out there. The overall acceptance of NFTs at a mainstream level is a major accomplishment.

Closing Thoughts

There is a great migration from the physical world to digital. Just this past year with the global pandemic, the majority of companies and their employees have started to work remotely online from home. The NFT craze has provided even more evidence that crypto and blockchain technology have the power to change the world in profound ways. NFTs serve as the backbone to the digital economy, and with enough adoption, can have a big societal impact. As society becomes increasingly digital, there's a need to cement ownership of digital work created and shared on the internet. NFTs solve the problems that exist within this space such as proof of ownership, uniqueness of digital assets, and scarcity.

The biggest use of NFTs today is in the digital content realm. That's because that industry today is broken. Content creators see their profits and earning potential swallowed up by platforms. An artist publishing work on a social network makes money for the platform who sells ads to the artist's followers. NFTs power a new creator economy where creators don't hand ownership of their content over to the platforms they use to publicize it.

PART 3

Sector Analysis: Which Category of Coins is Best?

Do certain groups or sectors of coins perform similarly? Here, we look at the extent to which coins can (or should) be categorized into specific sectors, how these sectors have been performing, and potential drivers of total sector growth.

First, let's look at how these sectors are defined. We categorized over 200 coins into five different sectors. A brief description of these can be found below along with a table showing some examples of tokens in each category.

NFT	*Infrastructure*	*DEFI*	*Payment*	*Data*
ENJ	VET	UNI	ONE	ELF
MANA	SKL	LINK	BCD	NU
FLOW	MATIC	LUNA	NANO	RUFF
SAND	NRG	AAVE	DASH	STEEM
WAXP	REN	DAI	DGB	WTC
RFOX	ONT	SNX	ZEN	HIVE
AXS	ROSE	SUSHI	XLM	CVC
GALA	KSM	GRT	BCN	KIN
COS	QKC	CAKE	DOGE	HOT
REVV	CKB	MKR	DCR	ANT

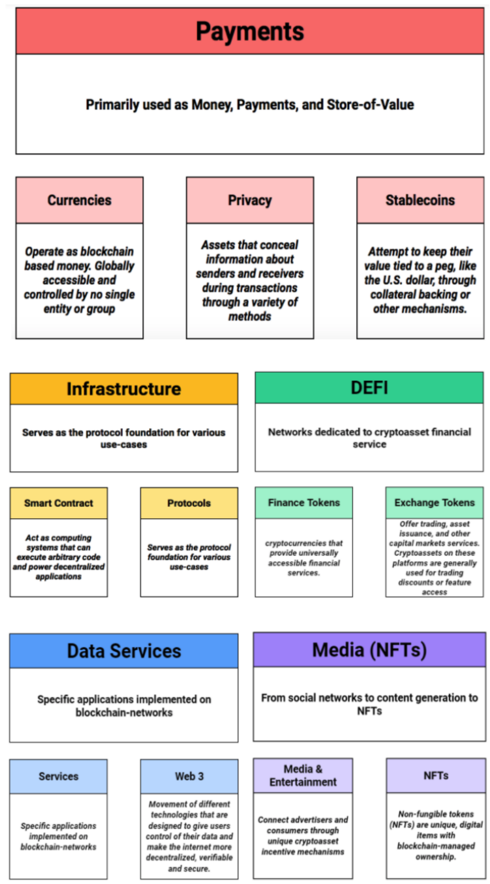


Figure 1

To gain a handle on how each of these sectors have been performing recently, in Figure 1 we simulated the average returns over the last four months if you held all coins within each sector equally.

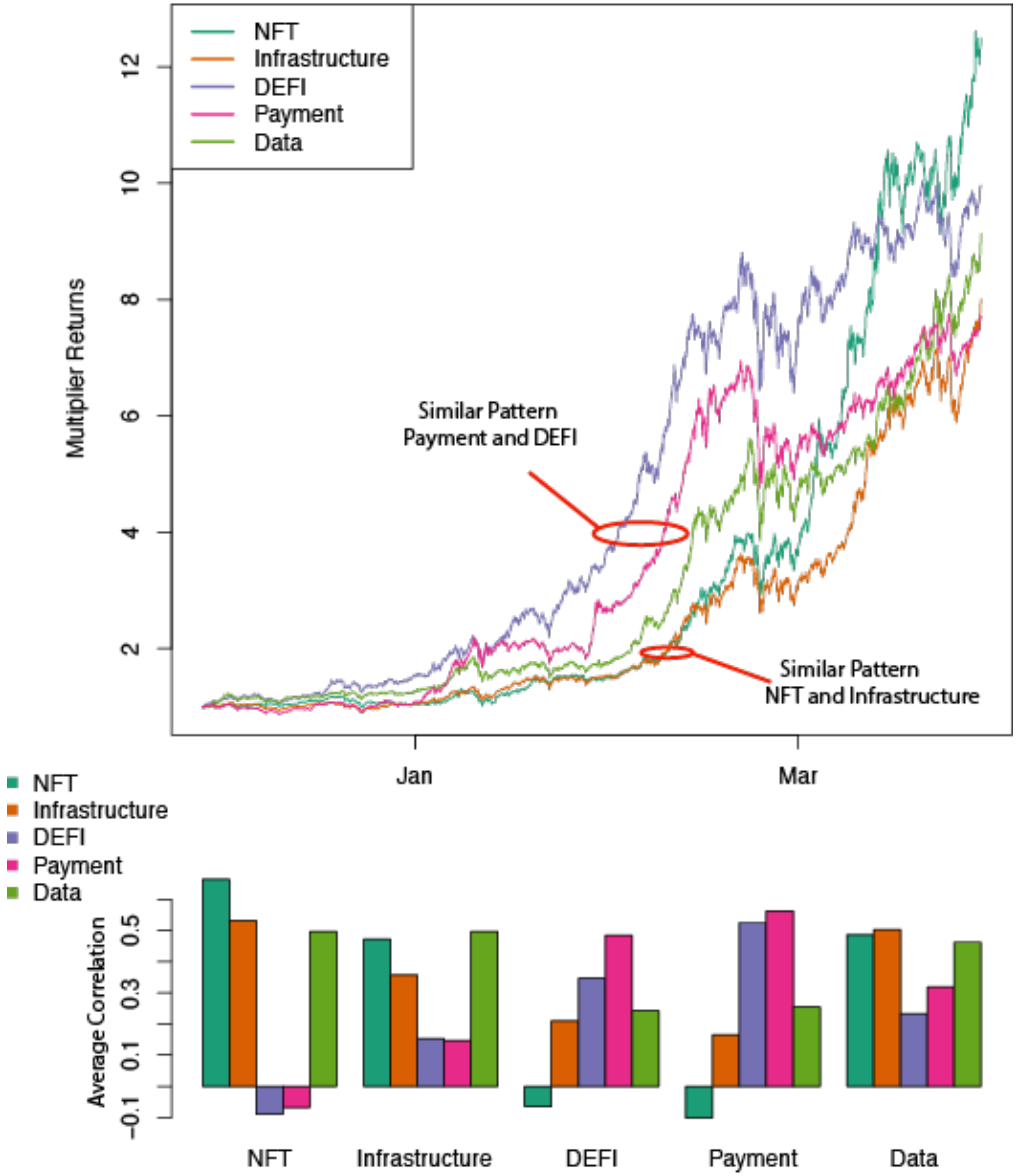


Figure 2

Figure 2 shows the average performance of the top 10 coins in each of these sectors. We see that a

Interestingly, we see some similar patterns in these lines — not all sectors are totally independent. We can see that DeFi and Payment sectors perform similarly, the same goes forNFTs and Infrastructure coins. We can quantify this by measuring the average correlation between the top 10 coins in these sectors, as shown in the bar plots. For example, NFTs are highly correlated with each other, as shown by the far left (green) bar in the NFT barplots. NFT coins are also highly correlated with Infrastructure coins, as expected, but they are not correlated with Defi or Payment tokens on average. It is worth noting that Data tokens seem to be somewhat correlated with everything.

But what are some potential drivers of sector movement? Perhaps news articles about these assets are driving prices.

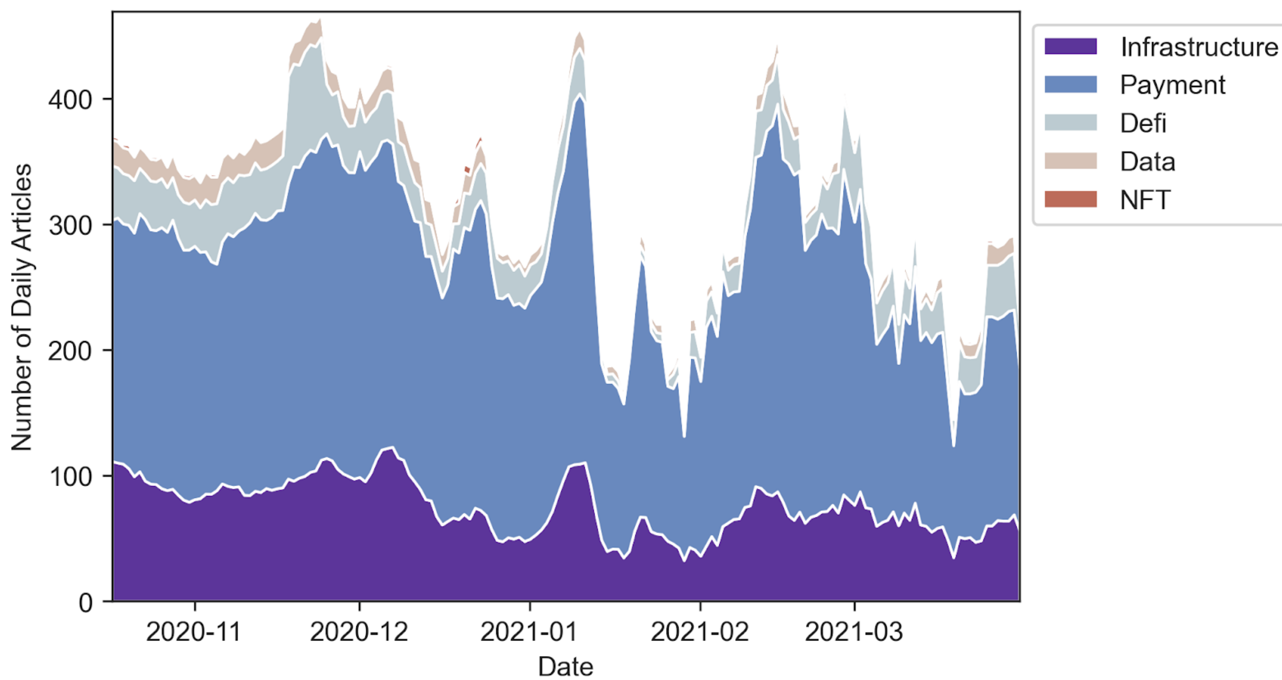


Figure 3

In Figure 3, we see that news articles about these sectors were initially high in late 2020, corresponding with the early stages of the current bull market. This was followed by a lull in the number of articles in late January, then a subsequent increase again in February. We see that February is when most of these sectors really had significant increases, perhaps because of the number of new articles.

However, when we take a closer look at the general relationship between the number of articles and price change of tokens, we find a significant relationship — at first.

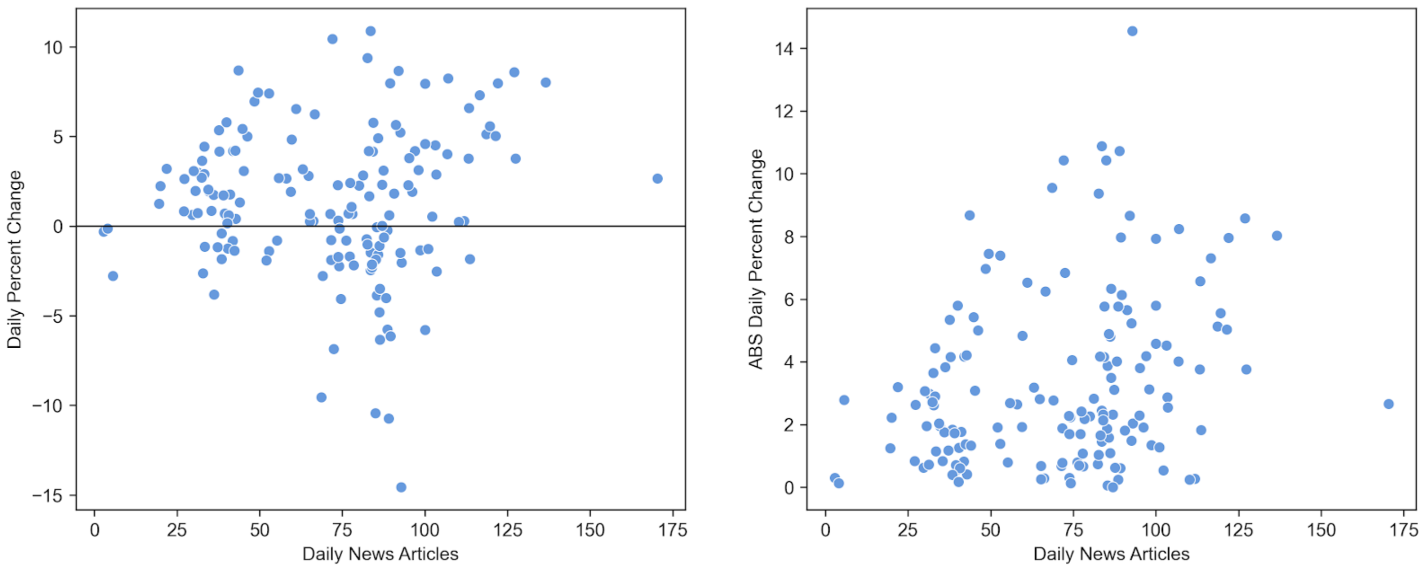


Figure 4

The left plot in Figure 4 shows the daily percent change in tokens within these sectors, on average, compared to the total number of news articles. At first glance, there appears to be no relationship. However, the right plot shows the absolute value of price change plotted against news articles. We do find evidence for a relationship here — but what does this mean? We suggest that news does have an effect on price, but it can be either positive or negative. Simply looking at the number of news articles may not be so revealing, rather, the content is what matters.

To look carefully at potential drivers of sectors, we zoom in on two of these groups: DeFi and NFTs. We chose to turn our attention to these two sectors because, 1) they are the top two performing sectors recently, 2) they show clearly separate behavior, and 3) they are everyone’s favorite these days.

For those that are unfamiliar with NFTs and DeFi protocols, in short, NFTs are unique digital assets, typically art, that an individual can create, purchase, and/or own, while DeFi (decentralized finance) protocols allow for typically centralized financial services (e.g., loans, savings accounts) to be performed without a middleman.

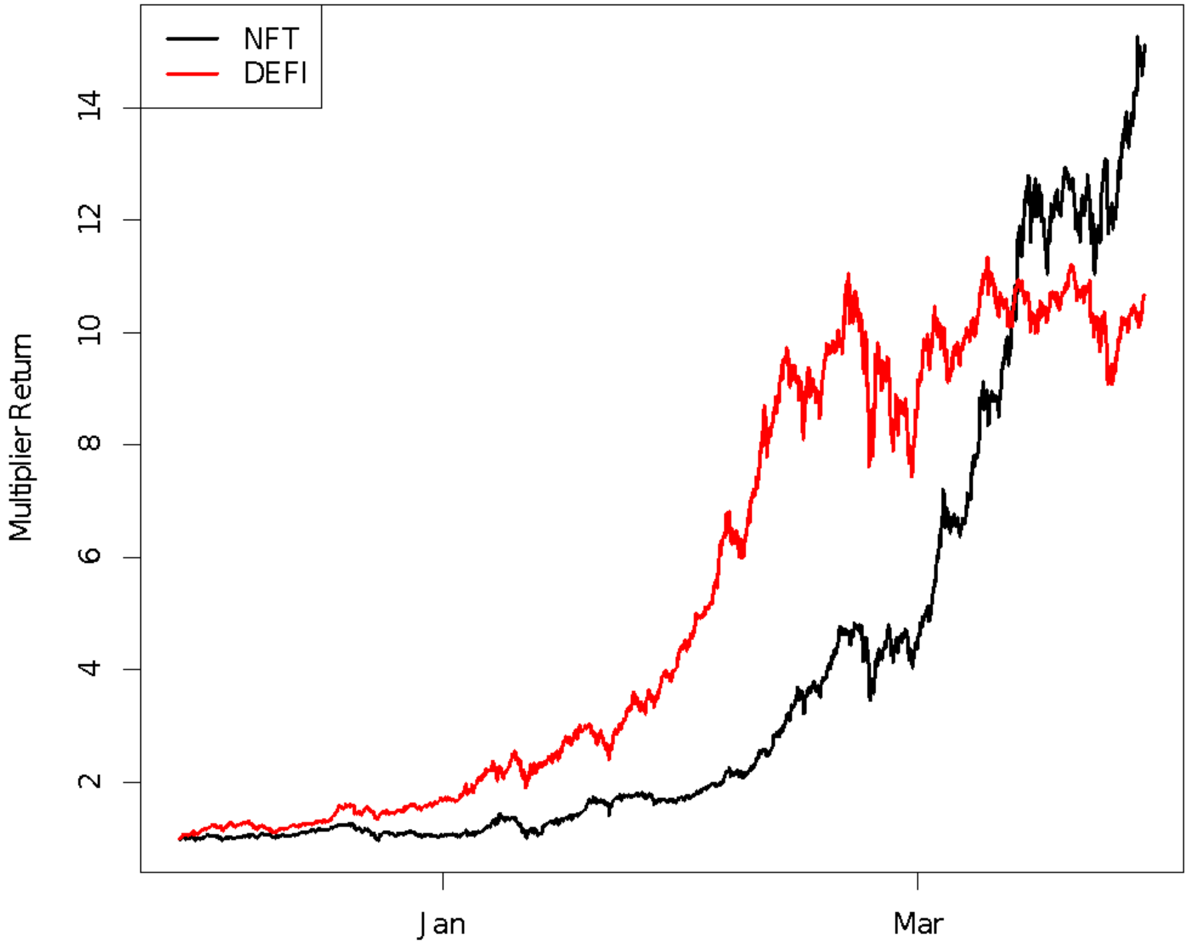


Figure 5

As seen in Figure 5, DeFi tokens saw a surge in price in February, before NFT tokens saw their sharp increase in early March. Since reaching peak average returns in late February, DeFi tokens have seemed to flatten out while NFTs have been gaining value through late March.

To try and explain what might be driving these price changes, we look to an obvious source — Twitter activity. There has been a lot of hype around these two sectors lately. In fact, a chapter of this report is entirely dedicated to NFT hype. But can this hype be used to explain price growth?

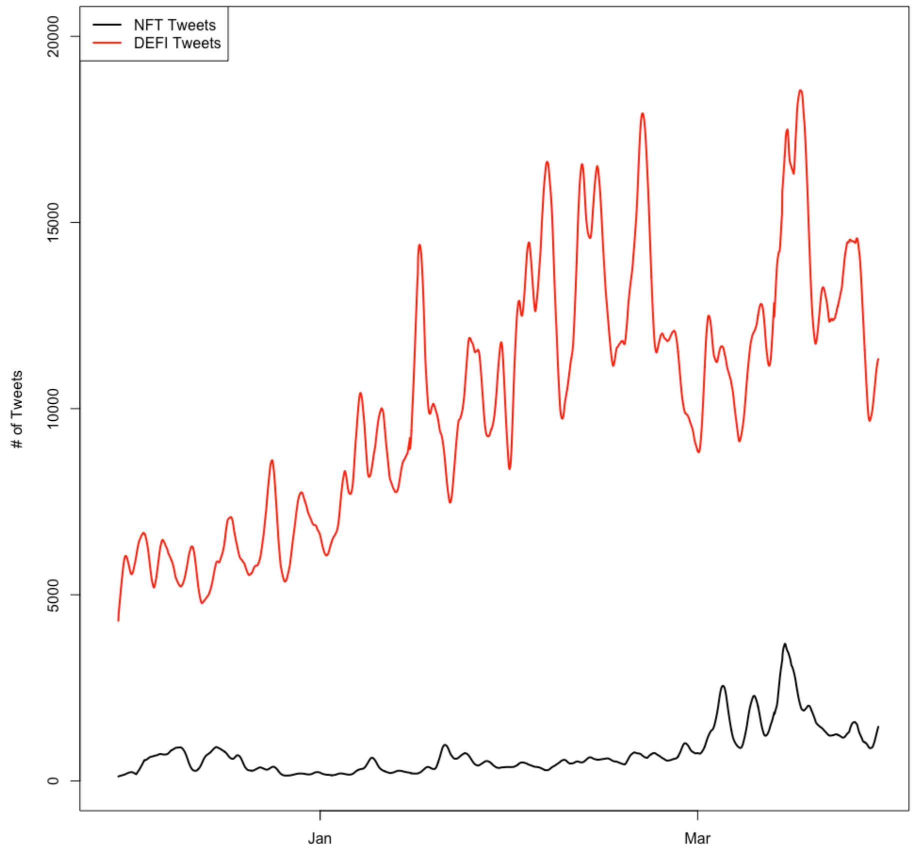


Figure 6

At first glance in Figure 6, it seems weird that there are so many more tweets about DeFi tokens than NFT tokens given that NFTs have had such massive returns lately. However, there is a simple explanation for this; when people are tweeting about NFTs, they are usually posting about their art that is on a specific platform, not the token associated with that platform. However, tweets about DeFi inevitably tag the token associated with the specific DeFi protocol. Nonetheless, despite differences in the magnitude of tweets, we do see a compelling pattern; DeFi tweets started increasing in February, nearly tripling January tweet counts, aligning with when DeFi tokens saw their strongest returns. Analogously, NFT tokens saw their peak in tweet volume in mid-March, corresponding with their strong increase.

Perhaps it's not the quantity of the tweets, but rather the content of the tweets. Of course, lots of tweets can be a bad thing for a token's price if people are saying bad things. Sentiment is calculated using The TIE's natural language processing algorithms that analyze millions of tweets per day to calculate an overall sentiment score about different assets. Here, we show the sentiment of those tweets across a one-month average as dotted lines. If the dotted lines are high, that means sentiment is high.

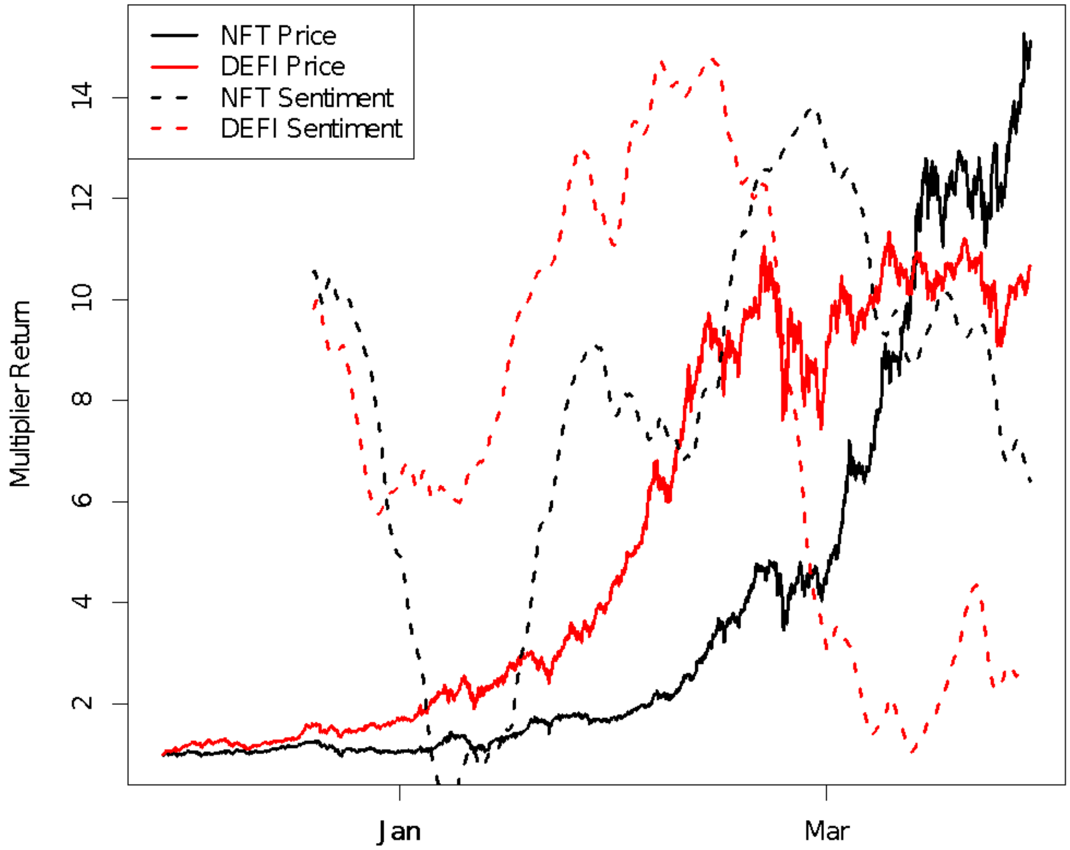


Figure 7

This plot shows compelling evidence that sentiment plays a huge role in the performance of these sectors as a whole. Both price increases in DeFi and NFTs were immediately followed by peaks in their monthly-averaged sentiment scores. This suggests that these coins are strongly driven by the hype around them.

Is it the sector as a whole that is moving, or individual coins within the sector? Let's take a closer look at what exactly is going on within these sectors.

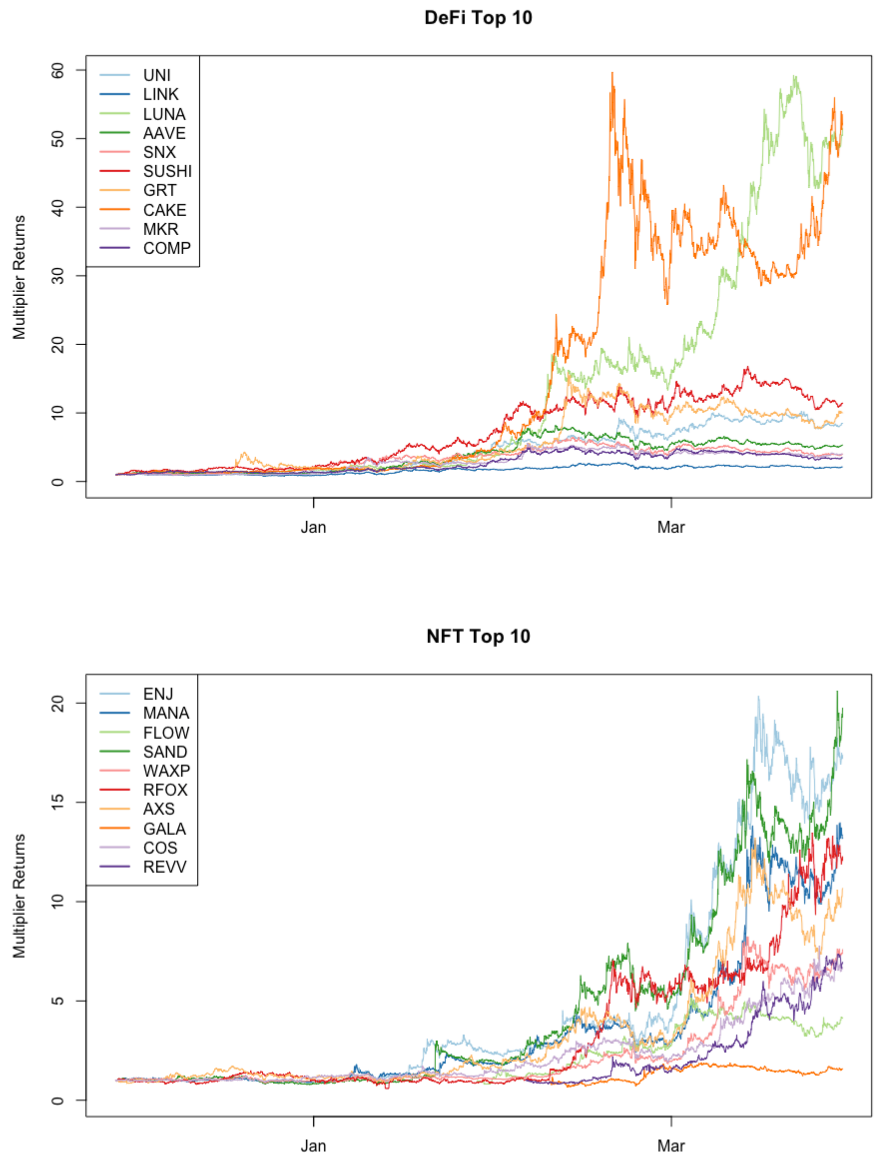


Figure 8

We see that not all coins are doing exactly the same thing within each of these sectors. In fact, we limit this analysis to just the top 10 coins by market cap within each sector, because the lower market cap coins are often entirely uncorrelated with the rest of the sector.

An obvious question is, are coins within a sector more correlated with each other than between sectors? We know from the bar plots in Figure 2 that this should be true for NFT and DeFi sectors, as the the left (green) barplot for NFTs is highest, showing that NFTs tokens are most correlated with each other, while the pink bar is highest for DeFi, showing that DeFi tokens are also most correlated with each other. We can also visualize this concept with a helpful tool in any data scientist's toolbelt — a correlation matrix.

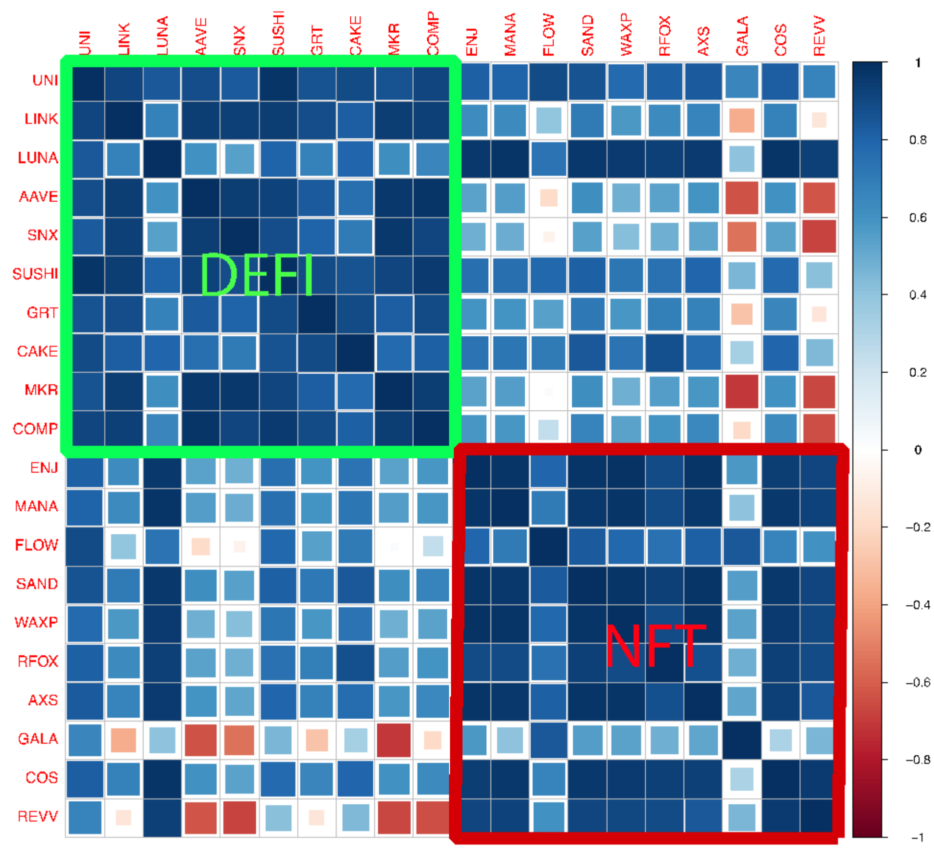


Figure 9

This 20×20 matrix shows the correlations between each pair of the top 10 tokens by market cap in the DeFi and NFT sectors. Dark shading indicates high correlation (i.e., the two tokens' prices tend to move together). We see a dark square in the top left and bottom right sections of the figure. This suggests that there is high correlation within each sector. However, in the other corners of the plot, we don't find such dark shading. This suggests that DeFi tokens are not typically correlated with NFT tokens.

It is interesting that UNI and LUNA seem to be strongly correlated with everything. In fact, LUNA is more strongly correlated with NFT tokens than its fellow DeFi tokens. There are a few potential reasons for this; in the case of Uniswap, it is the coin with the highest market cap out of all coins analyzed. Thus, it is likely to represent the performance of the entire crypto market at large, not just the DeFi Sector. LUNA, on the other hand, simply had a very late surge in price compared to the other DeFi tokens, as shown in Figure 6 (light green line). This relatively late increase corresponded strongly to the increase most NFTs saw in mid-March.

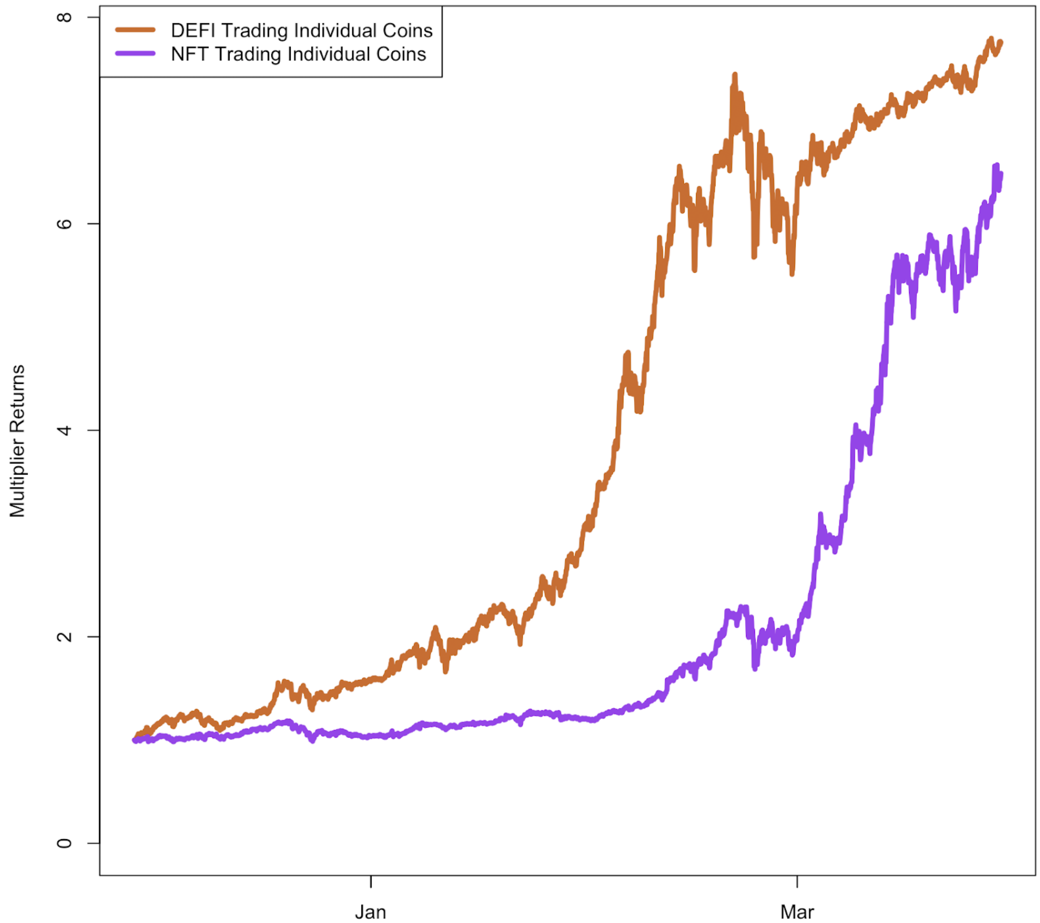


Figure 10

Is it more lucrative to try to trade the individual coins within these sectors, or to treat these sectors like indexes, and hold each coin within sectors equally? In Figure 10, we show the performance of a really simple trading strategy (of course, we do not recommend this strategy). This is just to illustrate the pros and cons of trading sectors vs. individual coins.

The strategy is based on what we see in Figure 7, with price increases in the sectors generally followed by peaks in the sentiment. Here however, instead of considering the average sentiment across the entire sector, we consider the sentiment of individual tokens. If the sentiment is above a specific threshold, we buy and hold that token for one week — the approximate delay between sentiment and peak returns in Figure 7.

We find this simple strategy yields returns lower than holding all the coins of any individual sector. However, these strategies also had a better Sharpe Ratio. (The Sharpe Ratio is effectively a measure of how consistently there were positive returns.) For example, as shown before, the performance of DeFi as a whole in March (red line in Figure 5) has been relatively flat, whereas this strategy shows consistent returns throughout March. This can be explained by the nature of the strategy; if you trade into a coin only when sentiment is high, it is more likely that the price of that coin will increase in the near future. But if you only hold the asset for a week, you are likely to miss out on other large increases that cannot be associated with sentiment analysis. Thus, holding everything all the time, you get everything, the ups and the downs. Conversely, by trading on this sentiment strategy you get mostly ups, but definitely not all of them.

This highlights that there are actually benefits in treating these assets as entire sectors rather than individual coins. When trading individual coins, you have a higher probability to miss out on key movements the entire sector makes.

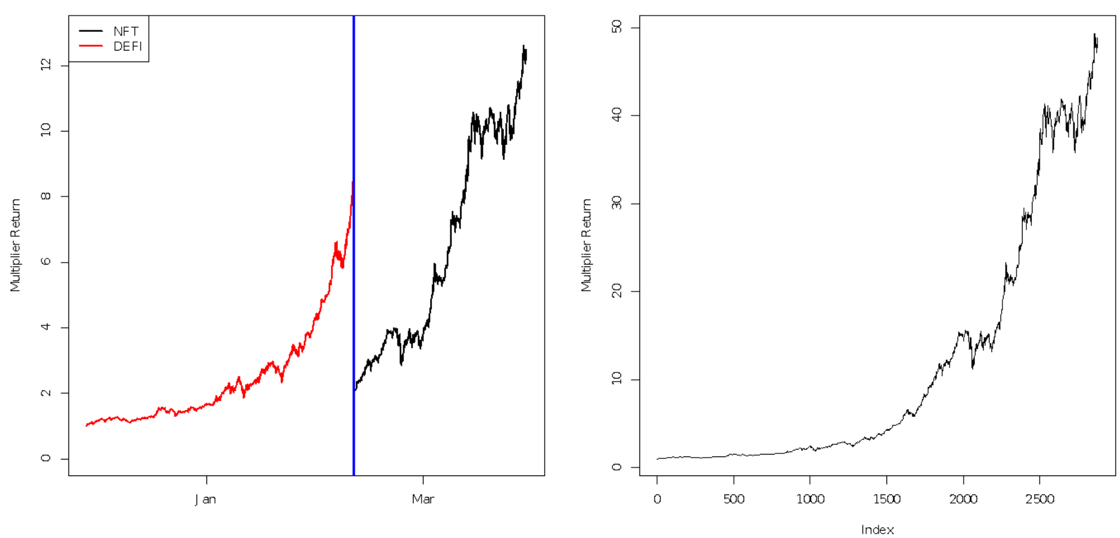


Figure 11

As a last figure, we look at what would happen if you were to perfectly time swapping from holding the top 10 DeFi tokens to the top 10 NFT tokens. The best time to swap was in mid-February. Although DeFi tokens netted a return of about 10x and NFTs 14x, making this single swap would have resulted in an impressive 50x return in four months.

These results show that there are potential benefits to treating coins as sectors rather than individual tokens. Price change in an entire sector is a bit easier to predict based on the Twitter activity around the component assets. However, hype about individual tokens is a bit harder to confidently relate to price.

Inherent Value

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Adam Snyder:
adamsn@etoro.com