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# Ethereum, The Triple Halving

## How Ethereum can achieve $150,000 by 2023 and a plea for Ethereum bulls to dream bigger dreams

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# Part 1 - Prologue


On April 17th, 2021, Justin Drake, an ethereum researcher, dropped a tweet estimating the change in "net annual buy pressure" as a result of the Ethereum network's coming upgrades, EIP1559 and Proof of Stake. He linked to a spreadsheet showing his work and analogized the shift in buy pressure to the amount in the ETH2.0 deposit contract and Grayscale[1].

When I saw the spreadsheet, I realized he was dramatically underselling the effect. Using his math, I calculated that sell pressure would drop 90%, the effect of more than 3 bitcoin halving events[2]. Cryptocurrency enthusiasts model nearly all of their predictions of price around the bitcoin halving events, so I didn't think twice about it. However, when I saw the response to my thread, I realized most of twitter just thought I was posting as a way to pump ethereum on crypto twitter.


I was not. I am glad that "the triple halving" meme really clicked for everyone as to how big the coming shift is for ethereum. I believe every word I wrote. But the triple halving is more than a meme or an analogy. It's a legitimate thesis on how asset prices are affected by shifting money flows. The reaction to my tweet was a reaction to a crypto hype thread[3], when what I was trying to communicate was much more sophisticated. I truly believe the world is dramatically underestimating the price change we're about to see.

## The triple halving is more than a meme

The "triple halving" isn't just a pump, it is an analysis of financial flows to model the way Bitcoin moves as a result of the halving event and forecast what will happen to the price of Ethereum by January 2023. In this report I hope to write an institutional grade analysis of Ethereum towards an audience who may be skeptical of cryptocurrency as an asset class.

I challenge institutional investors who are skeptical of cryptocurrency to read my analysis and reconsider their skepticism towards ethereum as an investable asset in the next 1-2 year time horizon, and perhaps beyond.

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[1] https://twitter.com/drakefjustin/status/1383325832467214337

[2] Current Sell Pressure *(0.5^3) = Future Sell Pressure = 12.5%, still greater than the 10% that Ethereum will be left with.

[3] I will admit, I leaned into the hype in the marketing of this report. I always knew I wanted to write a serious research report, no hype, but without a readership it wouldn't do any good. Apologies if I triggered anyone with my enthusiasm, but I'm no less enthusiastic now than before I had written this.

***In formal institutional speak:*** *In this report, I will claim that when the upcoming ETH2.0 shift to EIP1559 and PoS is viewed in the context of a flows based model of asset prices, it leads to an estimated realized upside volatility that will exceed market expectations for an asset whose realized volatility is already high relative to any major asset class.*

***In casual FinTwitter speak:*** *I'm going to tell you why money flows govern markets and prices, why that framework for asset prices explains the effect of the bitcoin halving event on cryptocurrency cycles, and why ethereum's triple halving event will kick off a supercycle.*

This is a thesis about the flow of investors' money and its effect on prices. This is not your crypto investor's crypto thesis because this is not a crypto account. If you want a technical analysis of Ethereum the technology, ask the experts. I invest in the assets I believe offer the best risk adjusted returns at any time. For the next 18 months, I believe that is Ether. If I find an investment with a better risk adjusted return profile or a response to this research convinces me I'm wrong, I will quickly move my money elsewhere.

## A note for readers

My goal is to write a thesis that inspires serious interest from major institutional investors. While I will strive to remain balanced, I will often refer to the objective truth that people in this market will hype cryptocurrency. The cryptocurrency narrative is potent for potential pumping, and this narrative pumping predictably moves money. This argument is written so someone could conclude cryptocurrency will fail in the long term, yet still conclude it will explode in price in the 1-2 year horizon, and decide to buy to arbitrage a known future shift in flows and sentiment.

This report will represent my best effort at institutional grade flows analysis of Ethereum. I'll strive to add the full repertoire of complexity I am capable of. For you the reader, this should add depth, and for me, this is an opportunity to show the world what I am capable of.

*Disclosure: I am not an investment professional, and nothing I write can or should be interpreted as investment advice. This, while fun for me, is creative writing, and should be treated by you as such. Do your own due diligence and make your own decisions for any investments you consider. The author has long exposure to Ethereum.*

## Roadmap

We will start by exploring ideas on supply and demand in markets from prominent finance twitter accounts like Christopher Cole, Corey Hoffstein, Kris Sidial, Cem Karsan, and Lily Francus. I will use these ideas to create a framework for asset prices in terms of known information on future supply and demand flows and their effect given liquidity conditions in a market.

By applying these concepts to the Bitcoin Halving event, I will form a theoretical framework for how the halving event mechanically affects Bitcoin's price and volatility. With the bitcoin halving event as context, we will apply this framework to the future Ethereum 2.0 events (EIP1559 and Proof of Stake), "the triple halving," to get a sense for how price could move in their wake. I will end with case studies of some ethereum valuation models, make some falsifiable predictions, and flesh out my case with a broader discussion of common topics regarding the cryptocurrency space.

# Part 2 - A flows-based theory of asset prices

In this report, I argue that the prices of cryptocurrency, like any investable asset, are a story of flows[4]. When I say "flows," I am referring to the flow of money from current or prospective investors, whether into or out of an asset[5]. When I say "liquidity," I'm referring to the ability to buy or sell an asset without impacting its price[6].


## Basics: Supply, Demand, and Elasticity

Quick review - The price of any good is a function of supply and demand. Broadly, if demand increases for constant supply, price will rise to create more supply or reduce demand until equilibrium is reached again.

Elasticity refers to the amount that supply and demand change in response to a shift in price. The more supply increases per $1 increase in the price of an asset, the more elastic the asset. If supply barely changes at all as price increases, the asset is "inelastic."

## Thinking about price elasticity of assets and flows

For something like an apple, you can simply model demand increasing as price declines because consumers prefer lower prices. Investable assets are never so simple. Rather than thinking of elasticity of the asset itself, we can think about the elasticity of flows from investors. For example, short-term investment funds that quickly sell holdings on small increases in price can be considered a highly elastic source of supply flows, whereas long-term investment funds

[4] https://twitter.com/profplum99/status/1385260844989042697?s=21
[5] "Supply flows" refers to investors entering new sell orders, and "Demand flows" refers to investors entering new buy orders. Concretely, when I refer to supply flows from bitcoin miners, I'm referring to the market sell orders they are placing to liquidate some or all of their bitcoin in order to pay expenses.
[6] If stock A, that I want to buy, is illiquid at $5 that means to buy more of stock A, I might need to transact at $6 so that new investors come to the market willing to sell me their shares. The more "liquid" an asset, the less price needs to move for me to get in or out as I please.

that hold assets regardless of increases in the price of their assets can be considered a highly inelastic source of supply flows.

For a classic value investor, price declines in a certain context lead to increased demand and vice versa. By contrast, for a momentum investor, price declines lead to decreased demand. If you are modeling the liquidity of a given stock, you have to model how supply and demand flows for the stock change at any given price. In this example, knowing that the stock is primarily seen as a value stock gives you insight into where liquidity will arise and from whom. If you know that a large % of the float of a stock is primarily owned by "buy and hold forever" value investors, you could conclude that supply of the stock will be more inelastic to price changes. From there you can forecast that if demand were to increase, the stock would see increased volatility relative to a stock with more supply elasticity. This is an analytic edge over other investors who might sell you that volatility cheaply[7].

## Liquidity, Volatility, Insolvency

In my view, the concept of elasticity of supply and demand flows nicely captures the relationship between liquidity and volatility. If a $1 price increase in ethereum causes huge supply inflows as investors start selling, ethereum would not keep rising because prospective buyers would not need to pay up. When I say an asset is dominated by highly elastic flows, I am saying that whenever the price changes, there are huge supply and/or demand inflows that increase liquidity and dampen volatility for the asset.


Christopher Cole references the idea of the "unholy trinity," with three axes: Volatility, Insolvency, and Illiquidity. When you start looking, these axes are everywhere in markets. In just the last week, there was a major volatile sell off in all crypto assets due to deleveraging[8] - Insolvency.

Illiquidity is even more obvious - have you ever seen a stock gap up or down overnight? Stock markets don't have overnight liquidity, so if an event happens that changes investors' view of the price they'd be willing to sell or buy at, the stock can suddenly become inelastic to price changes until the price it ends up opening at.

[7] When I refer to buying or selling volatility, I'm referring to the implied volatility of options on a given asset
[8] https://twitter.com/JLHeartsCrypto/status/1385665271562575876 - there is evidence of targeted short attacks that also take advantage of this leverage. The reason this kind of attack could work to create a selloff is because of the known insolvency risk.

**Key Take Home Points**

1. For assets, elasticity is a function of a diverse group of investors who own or would own the asset and the way they respond to price changes in the aggregate
2. More elasticity = more liquidity comes onboard with price change. Vice versa for less elasticity.
3. More elasticity means investors are more price sensitive, and less elasticity means they are less price sensitive
4. More liquidity leads to less volatility; the variation of price reduces. Vice versa for less liquidity.

**So where am I going with all of this?**

Once we feel comfortable modeling the price variation of any asset with concepts regarding flow elasticity and liquidity, I'll present a theory to explain the price action of Bitcoin after a halving event. By applying this theory to Bitcoin and looking at the flows and elasticity dynamics present in Bitcoin, we can see how these dynamics will compare for Ethereum after EIP1559 and the merge to Proof of Stake and forecast volatility and direction of Ethereum's price.

# A framework for modeling concrete supply and demand flows

As mentioned earlier, the elasticity of supply & demand flows for investable assets (the amount of new supply and demand flows that enter the market for $1 change in price) is not so simple. To predict elasticity, you have to have a model for the investors with the money behind those supply and demand flows.

Most discussions of investor supply and demand flows on mainstream media occur on an extremely abstract level. Institutions have a "risk appetite" and money follows narratives like "the inflation supercycle" or sentiment like the "double dip recession fears." At best, people say things like "the federal reserve is injecting liquidity" and "this is a risk-on environment."

When you listen to what professional investors say, there's a stark contrast. When an investor says "realized volatility is reducing so equity demand flows from risk parity funds will start coming into the market" or "The VIX represents demand for equity hedging, so a decline in the VIX will be associated with demand inflows in the coming months," they're making a much more specific and evaluable claim with clear cause-effect relationships to prices. Even these claims are a bit crude (turns out if you look into it, "risk parity" can mean literally anything, and VIX futures are a complex market that can move for many reasons other than investor hedging).

Once you're down this rabbithole, market price movements start to look completely different to you. You can assess professional skill by their ability to infer more and more specific flows underlying price action with less and less information. Concrete, specific estimation of supply and demand flows for an asset is a robust edge that can be difficult to arbitrage away, so it represents something of a holy grail for sophisticated market actors. Usually, however, information that confers an edge on predicting these flows has a significant time decay as new information arises or investor sentiment changes.

## Types of Supply and Demand Flows

This report is a discussion of flows, so I'll start by breaking down the types of flows we'll talk about and some ways to think about how they affect asset prices.

### Structural Supply and Demand Flows

Structural supply flows represent forced changes to supply of an asset that cannot be moved by price. This is usually due to regulation, though in cryptocurrency halving events it is due to the underlying code. For instance, if miners must sell their bitcoin to pay their taxes, or insiders must sell their shares at IPO lockup expiration, this is a structural supply inflow to the market. Structural supply outflows are a bit more abstract, but represent assets that become unable to be sold. When Mike Green of Logica Capital laments the rise of passive investing and its impact on markets[9], one aspect of his discussion is structural supply outflows as investors everywhere decide to take a "buy and hold forever" approach to their investment decisions. If you buy a house that you legally cannot sell for a period of time, that's a structural supply outflow as supply is being removed from the market. This concept will be crucial to understanding volatility in Ethereum as I will argue that "staking" Ether and holding forever has similar volatility dynamics in Ethereum's price as does buying a Vanguard fund you refuse to sell for decades - it makes the entire asset class's supply more inelastic to price changes.

Structural demand flows represent forced changes to demand of an asset that cannot be moved by price. The classic example of a structural demand inflow is an ETF that must track an index. I'll case study how this structural demand flow affected the price of Tesla briefly in late 2020. An example of a structural demand outflow would be if India bans the purchase of cryptocurrency. Regardless of how price changes, demand from Indian investors will not be able to lead to a flow of money into the asset. In a sense, the demand inflow of indian investors to crypto markets would drop and become inelastic to future price changes until the regulation was lifted. Other structural demand flows include margin-call based deleveraging, short squeezes and gamma squeezes. These are instances where investors or market makers have no choice but to transact, regardless of price.

Forced structural flows, given their immense predictability and price insensitivity, are the most powerful sources of alpha. The most obvious example is GameStop's short squeeze and gamma squeeze in early 2021, where onlookers became aware of how unprecedented prices can get when price insensitive actors enter a space. Professional investors model these flows in different ways to give them an edge.

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[9] https://www.youtube.com/watch?v=6SVEaK7eDNk - Investing in the Upside Down: Logica's Michael Green Describes Why Passive Flows Corrupt... (EP.16), *Resolve Asset Management*

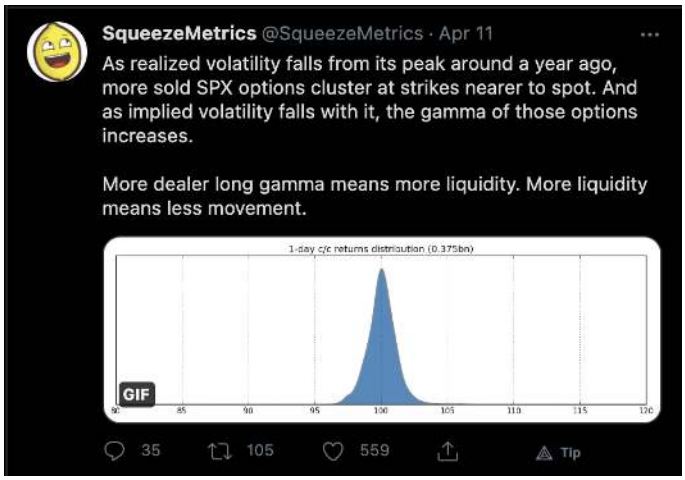
Cem Karsan of Kai Volatility Advisors, and the legendary twitter account, @SqueezeMetrics[10], both show the almost magical predictive ability of flows. Most market participants learn early that in shorter time frames, price movements are entirely noise. They are only right because the flows they are analyzing respond to longer term movements like adoption of a new narrative or valuation analysis. If you analyze shorter-term flows, such as dynamic hedging of options by market makers, short-term price movements can make much more sense.

The thesis of all of many of the volatility hedge fund managers, ranging from Cem Karsan of Kai Volatility Advisors to Christopher Cole of Artemis Capital to Wayne Himelsein and Mike Green of Logica Funds, is that in equity markets right now "the tail is wagging the dog." That is to say, short-term flows from dynamic hedging of options, the tail, are becoming a larger and larger percentage of overall supply and demand flows and so end up determining the overall trend of the equity market, the dog.

The most famous example of this is how "coincidentally" the top and bottom of the March 2020 COVID liquidation occurred just adjacent to options expiration (OpEx). Volatility managers wouldn't claim the outcome was guaranteed - but knowing the direction of a large percentage of short term flows gives them an edge on when volatility would emerge. I'll make a similar claim about the catalytic events EIP1559 and the merge to proof of stake that are occurring in Ethereum in July and November 2021. New flows, outside of those identified, could always emerge, expand in size, or shift in direction, so uncertainty remains. However, investing is a probability sport and identifying flows is an edge.

*Price leaps from one pocket of liquidity to another*

A few more concepts to build out our theory. First, the concept that a price can be "pinned" or "sticky." By this, volatility traders mean the price will have less movement[11]. What causes a price to be sticky? Liquidity. If it's easy to move money in and out without affecting price, price won't be affected.

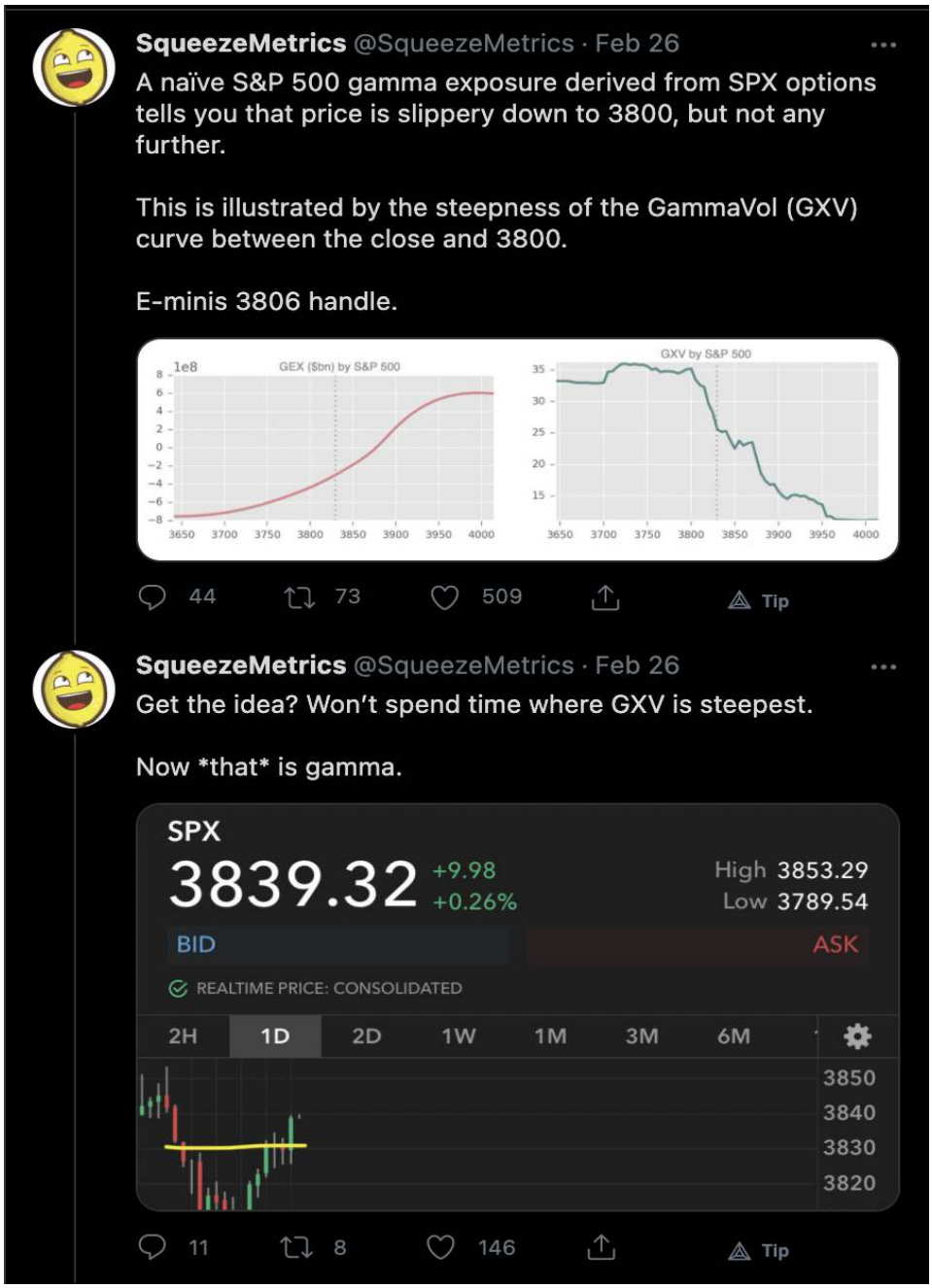



Second, when the liquidity at the current price is low, price is "unpinned" or "slippery" and will keep moving until it unlocks more liquidity. This means if price is falling and there is no liquidity at $5, it will keep falling until new buyers emerge. If price is rising and there is no liquidity at $5, it will keep rising until new sellers emerge. Approaches like this by SqueezeMetrics, or Lily Francus' Net Options Pricing Effect

[10] The Implied Order Book by SqueezeMetrics.
https://squeezemetrics.com/download/The_Implied_Order_Book.pdf
[11] https://twitter.com/squeezemetrics/status/1381280799920623618?s=21

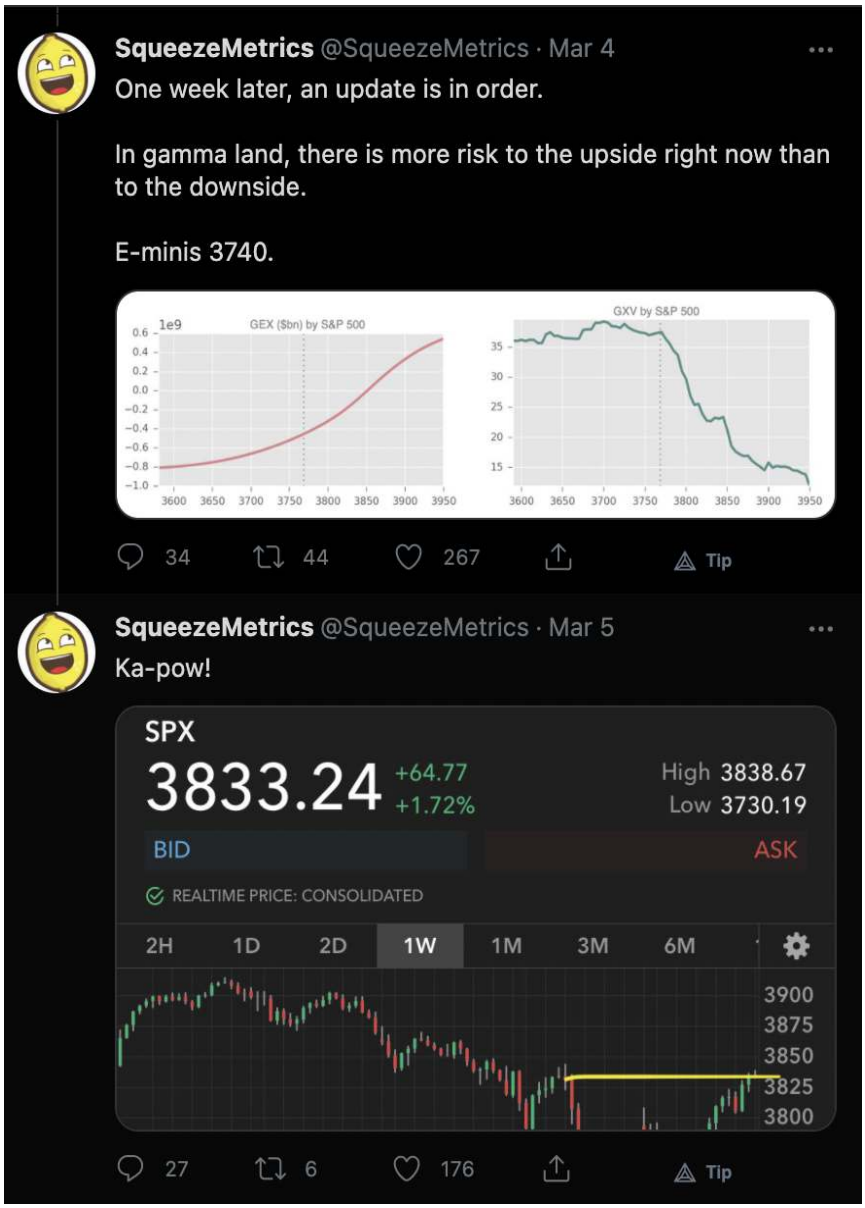
indicator, use measurements of how many shares options market makers will have to buy or sell to understand what % of the volume during a time period is available for everyone else. This is a great proxy for liquidity. If 90% of shares usually traded are sucked up by market maker hedging, then unless abnormal new shares start trading, liquidity will dry up and prices will move more.

So what can we conclude? First, the more accurately you can measure flows, the better your sense will be for liquidity conditions. Second, to predict the strength of a move, you need to predict how much price must move for supply to arise. Third, if you have some reason to believe abnormal new shares won't start trading (maybe a huge % of those shares are held by insiders, maybe a huge % of those tokens are staked - locked in algorithmically to the Ethereum



blockchain), then you can have a higher confidence that volatility will emerge with a smaller catalyst.

This can take a bit to get your head around if you haven't been obsessively reading Volatility Twitter for the last 12 months, so if you're familiar with options greeks, take a moment to read and think about these SqueezeMetrics tweets[12] below and how they work. If you're not as familiar with options hedging, don't worry - this is just a conceptual example of how powerful flows can be, and I'm not sophisticated enough (yet) to model ethereum flows with the level of specificity of the volatility quants, so you'll still definitely be able to follow the plot.




[12] https://twitter.com/squeezemetrics/status/1365184172751470598?s=21

This, as you can see, is a real edge. SqueezeMetrics' edge is that their analysis skips directly to known supply and demand flows. Contrast this, for instance, to a valuation model. There, you only have predictive validity on price if you can confirm that valuation is what drives the behavior of market agents, affecting supply and demand flows.

In my next chapter, I will argue that the tail wagging the dog metaphor applies to bitcoin and the halving, but in a very different sense. Notice that not one of these volatility managers would claim to know the exact future price with 100% certainty. They are claiming an edge in probabilities, in expected values, or more accurately in expected volatilities. Similarly when I argue "the halving can't be priced in," I won't be arguing that bitcoin's price can't go down. I'll be arguing the weaker claim that structural flows from the bitcoin halving, combined with a well known illiquidity from bitcoin's HODLing culture (will explain below) and discretionary flows from investors concerned about this macro environment gives me an edge on bitcoin's price over the long term. Nothing is 100%, but a structural tailwind gives the bet a positive expected value. My model of crypto will not be nearly so finesse as the options models, but what I lack in the quality of my estimation of short term flows, I'll make up for in quantity and durability of the identifiable flows over longer time horizons.

The reason I went into so much detail on these mechanisms is that I think this is the missing link for most crypto investors. Much of the supply reduction and demand inflows that I'll discuss are not original or unexpected findings, but as I'll show, most crypto investors will mention it and then never have truly clicked as to how those changes affect the price of the underlying.

Okay back to the types of supply and demand flows - next up: Systematic Flows.

## Systematic Supply and Demand Flows


Systematic flows are an in-between category. Here I'm referring to flows from funds with a clear systematic mandate, such as a value investing fund, a risk parity fund, commodity trend advisor fund, or volatility targeting fund. They are more predictable than the idiosyncratic decisions of an individual investor because they often have concrete investor mandates. We know how the elasticity of a CTA funds' flows work - they just vary with a model of trend rather than a static mandate. If we can create a CTA replication model[13] [14], we can predict their flows. Also notice that while CTA funds represent a small % of flows, over a long period of time, replicating CTA positioning is a recognized source of potential alpha. The structure of my argument around the bitcoin halving is going to situate itself in this kind of edge.

[13] https://overcast.fm/+SFPyEx5PY - Lars Kestner: The Intrepid Quant, Resolve's Gestalt University
[14] Kestner, Lars N., Replicating CTA Positioning: An Improved Method (July 4, 2020). Available at SSRN: https://ssrn.com/abstract=3674828 or http://dx.doi.org/10.2139/ssrn.3674828

Unlike structural flows, however, there is a lot more heterogeneity in systematic flows. The requirements of these funds and how those mandates lead to investor flows varies a lot. For instance, many different CTA funds could have different views on whether an asset was really in an uptrend, leading to varying degrees of demand inflows for the asset. Unlike structural flows, you have the idiosyncratic risk that a CTA manager just tries to be unique.

Systematic rebalancing programs represent another source of systematic supply and demand flows. A simple model for Jan1 rebalancing does not account for the real world heterogeneity of rebalancing schedules and the incredible amount of rebalance timing luck[15] that professional investors unwittingly take on. Other examples of systematic supply and demand flows are tax loss harvesting flows (seasonality[16] effects in momentum strategies are a great example of systematic flows) and options-based vanna and charm flows. These are not as simple as a structural requirement that an index buy a stock on a date, but they're much more predictable than discretionary investor flows.

## Discretionary Supply and Demand Flows

Discretionary flows really refers to all the supply and demand flows that we know exist from reported exchange volume for each asset, but we can't identify. These could be sophisticated institutions making discretionary decisions or random robinhood investor pile-ins. It's important to note that when a fundamentals-oriented investor argues that you should buy Stock X because its intrinsic value is $50 and the current price is $30, they are implicitly arguing that when investors realize their analysis is correct, discretionary demand inflows will move the price to their target. "Efficient Market" theories are built on the assumption that these flows both dominate markets, respond perfectly to new information, and cannot be predicted. When I discuss the adoption of cryptocurrency narratives, I'll be referring to discretionary flows.

Some concrete models I've seen for looking at discretionary flows include looking at the ratio of copper to gold prices or lumber to gold prices as a metric for how consumptive, risk on, people are feeling in the economy. These are crude indicators, but they do seem to have potential.


It's also important that this does not just refer to buying and selling. Have you heard the term "HODL" in cryptocurrency? It's a term for choosing to hold a cryptocurrency rather than sell it. HODLing has become a cultural movement for investors in Bitcoin in particular, and adoption of HODL culture is an explicit discretionary supply outflow. Have you heard the meme "Diamond Hands" from the GameStop saga? The call to have diamond hands is an explicit call for supply outflows as well. It

[15] Hoffstein, Corey and Faber, Nathan and Braun, Steven, Rebalance Timing Luck: The (Dumb) Luck of Smart Beta (February 2020). Available at SSRN: https://ssrn.com/abstract=3673910 or http://dx.doi.org/10.2139/ssrn.3673910

[16] Gray, Wesley. "Momentum Investing: Why Does Seasonality Matter for Momentum?" *Alpha Architect*, 18 Aug. 2017, alphaarchitect.com/2015/11/30/momentum-seasonality/.

predictably makes supply inflows inelastic to changes in price and spurs volatility. On a much larger, systemic scale, Mike Green of Logica's thesis on passive flows can be viewed through this angle as well. Set it and forget it passive investing, intentionally or not, is professional investment advisor language for "diamond hands!!!" This has the same effect on reducing elasticity and increasing volatility in broader markets.

Finally, discretionary flows move from narratives and narratives move from price. Sure, Gamestop was rising before January 2021, but what really kicked off the run in early January? An announced change in management. Price was a catalyst for markets to start paying attention, and narrative was a catalyst for price to rise further. Sure, Tesla was already going up, but what really let things get out of control? Adoption of a robotaxi narrative for valuation models. There is a reflexive cycle, and understanding the power of that reflexivity requires understanding both the elasticity of supply and the "convincingness" of the narrative.

Who will be convinced? To what degree? How much money do they have? How much money will they be convinced to put in? When? - These questions guide the estimate of the impact of narrative on discretionary flows and discretionary flows on price.

It's important to notice you could've seen Gamestop and Tesla as good investments without deciding the management was actually solid or robotaxis would actually function. Although this thesis won't require you to believe cryptocurrency will change the world, the belief that cryptocurrency will change the world does cause money to move into crypto. So, when I detail the various elements of the ethereum 2021 narrative, remember that you don't need to view it as an argument for believing in ethereum - view it as an argument for why there will be future discretionary flows into ethereum, whether the technology is valid or not. Yes, I do personally believe this is a revolutionary technology, but my point is that whether we're all using ethereum for everything 10 years from now doesn't bear on the flows I'll be talking about, so the only reason it's relevant is because my ability to convince others affects my ability to move flows. Even if you personally are unconvinced, you should still be able to assess the likelihood that this narrative will convince investors in the future, and if so you can know something about future discretionary flows and predict price. Long term fundamentals and 18 month price action do not need to be necessarily related, though having long term conviction absolutely makes things more comfortable along the ride.

## Concluding on Flows

We can never know all the flows, but we can estimate with volume the total flows, and get hints on different kinds of particular flows. For instance, when Ethereum investors talk about "staking their funds," we can actually track publicly the amount of ether that has been staked - we have perfect access to this small, known supply outflow and its trend over time. It shouldn't be surprising that this could be a source of alpha. Characterizing these different kinds of flows for bitcoin and looking at their effect on bitcoin's price in prior halvings will help us contextualize the kind of price movement we can expect to see from Ethereum in the coming months.

## Relevant Case Studies

### Why does it look like Tesla joining the S&P 500 was not priced in?


I can't prove this effect. Markets are not so simple. Maybe Tesla joining the S&P *was* priced in and it just happened, by random chance, to go up afterwards. For tesla stock in 2020, that would be pretty ordinary. Many stocks were in uptrends, and Tesla in particular. However, this was a well known event and price *did* rise materially on the news beforehand, and there *were* known structural demand inflows as S&P 500 tracking ETFs were forced to buy huge quantities of tesla stock in the context of known investor inelasticity[17] . Did price have to go up? No, it was *possible* that new discretionary supply could emerge to match the ETF demand share for share until the forced buying stopped as ETFs had gotten their allocation. Anything *can* happen. But on a probability basis, the fact that the stock ran up 40% before the event does nothing to convince me the next 40% wasn't due to S&P 500 ETF structural buying. I can't prove that, no one can, but hopefully it gets you thinking about how upcoming Ethereum US ETF's might affect price.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The Tell

**He began buying Tesla at just $7.50, and now he's retiring at 39 years old with $12 million worth — he still refuses to sell a single share**

Last Updated: April 10, 2021 at 8:10 a.m. ET
First Published: Jan. 11, 2021 at 1:07 p.m. ET

[17]https://www.marketwatch.com/story/he-began-buying-tesla-at-7-50-and-now-hes-retiring-at-39-years-old-with-12-million-worth-he-still-refuses-to-sell-a-single-share-11610392063

Finally, it's worth noting that some investors *did* make this bet and made millions in the process. I didn't - but here's the description of this Dave Lee on Investing Youtube Video[18] from Nov23, 2020 (1 month before S&P 500 inclusion, halfway into the initial "pricing in" rally):


*"I dive details of a real-time trade that Emmet Peppers put on last week. He bet almost 3 million dollars on a short-term option play where he could easily lose all of it."*

Why would you bet 3 million on a short-term option play? When I saw this, I thought this guy had just gone insane. But honestly, maybe he just knew something I didn't understand. This could be a highly intentional bet on a catalyst for forced demand inflows into a HODLing investor base with a huge hype narrative.

It honestly sounds exactly like the case I'll make for Ethereum, just on a smaller scale/time horizon and a more relaxed execution (I'm advocating for owning the underlying ether, not options). My thesis is essentially that insane demand inflows from discretionary narratives and discrete demand catalysts like ETF flows will combine with supply outflows from discretionary HODLing and discrete supply catalysts like triple halving event related supply outflows. This should cause acute drops in liquidity and price must keep rising (no matter where it started from) until new supply emerges. Do you see how price changes could quickly become ridiculous? With or without knowledge of the flow dynamics guiding these price changes, investors will see head turning price moves and think "maybe I should take another look at Ethereum, is there something I'm missing?". Depending on the degree to which the narrative can convert to demand inflows, a positive cycle could emerge...but let's not get carried away. This next case study is crucial to understanding the flows involved in a crypto halving event.

## IPO Lockup Expiration Flows

After an IPO, there's a period known as the "IPO lockup period" where insiders are not allowed to sell shares. This is a situation where you have newly minted millionaires unable to access that wealth. As soon as the lockup expiration date occurs, these millionaires sell their shares to realize their millionaire status, creating a well known depressing effect on the stock.

[18] https://www.youtube.com/watch?v=CJUlkzFfBUU. Dave Lee on Investing: Emmet Peppers betting 7 figures on TSLA S&P 500 Inclusion (Ep. 194)

There is a lot of evidence[19] [20] [21]for the IPO lockup expiration depressing stock prices. The mechanism makes sense - these are price insensitive sellers. They provide massive, coordinated, price insensitive supply inflows. Everyday, they load order books with tons of extra market sell orders, so in order for price to not go down, there needs to be significant elasticity of demand - investors wanting to buy at lower prices need to have enough conviction to not wait for that large of a price drop and to put serious money behind it.

Do you see how it would be hard to price in the IPO lockup expiration date? If anything, if the price of an IPO were to start severely declining ahead of the lockup expiration date, it would make the newly rich insiders, seeing their fortunes evaporate in front of them, even more desperate to sell faster. In the next section, I'll make an explicit connection between Bitcoiner's saying "the halving can't be priced in" and the concept that the IPO lockup can't be priced in.

### Net Options Pricing Effect (NOPE), created by Lily Francus

Okay, one last important example. Lily Francus (@nope_its_lilly) created the NOPE[22] [23] [24] [25] indicator, a measurement of the degree to which delta hedging flows dominate trading volume for an asset. It's a simple indicator - divide the net delta from all options traded by the total volume of shares traded and you get a crude measurement of the % of flows coming from purely delta hedging of those options. When that % gets high enough to meet a threshold[26], your flow-based edge is a large enough percent of total flows that you can use it to make reliable short-term predictions about price. Lily[27] has gotten a lot of attention for this, and it is well deserved - inventing the NOPE indicator is the definition of inventing an edge; this is the stuff alpha-seeking hedge funds should be built on.

NOPE is interesting to me because it is a simple model to characterize a flow-based edge, and it allows me to compare this edge to the edge I'll be describing in the bitcoin halving. Hopefully that context will get things to really click.

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[19] Field, L.C. and Hanka, G. (2001), The Expiration of IPO Share Lockups. The Journal of Finance, 56: 471-500. https://doi.org/10.1111/0022-1082.00334

[20] Rajesh K. Aggarwal, Laurie Krigman, Kent L. Womack, Strategic IPO underpricing, information momentum, and lockup expiration selling,Journal of Financial Economics,Volume 66, Issue 1,2002, Pages 105-137, ISSN 0304-405X,https://doi.org/10.1016/S0304-405X(02)00152-6.

[21] Brau, J.C., Carter, D.A., Christophe, S.E. and Key, K.G. (2004), "Market reaction to the expiration of IPO lockup provisions", *Managerial Finance*, Vol. 30 No. 1, pp. 75-91. https://doi.org/10.1108/03074350410768859

[22] https://medium.com/swlh/options-degenerate-marketplaces-part-1-b0ddf1c96fa6

[23] https://medium.com/the-shadow/options-degenerate-marketplaces-part-2-57c9816c5977

[24]https://www.bloomberg.com/news/videos/2021-02-12/-nope-indicator-shows-options-market-impact-on-price-lily-francus-video

[25]https://www.scribd.com/document/487296659/Investigating-Delta-Gamma-Hedging-Impact-on-SPY-Returns-2007-2020

[26] https://nopechart.com/

[27] nopeitslily.substack.com

There are 2 big things I want to focus on:

1. When I talk about the bitcoin halving, I'll be talking about structural flows, just like the ones measured by Lily's NOPE indicator. However, there are important differences. In the case of the NOPE indicator, there is an edge in knowing something about a high percentage of short-term flows. These delta hedging flows change quickly day to day, so there doesn't seem to be a durable edge (more than 1 month) here[28]. However, since you know such a high % of the flows, you can predict intraday movements with a remarkable degree of accuracy. When I model the flows around the bitcoin halving, I'll be looking at a measure of a much, much lower % of daily flows, so there is no intraday or intra-week edge in price prediction the way there is with NOPE. However, unlike NOPE, I know all halving related money flows are long lasting, persistent, flows that don't change in direction over time. My thesis is that this creates an edge in price action over a different time frame, and given illiquidity conditions of the underlying, can kick off a supercycle.
2. On the Infinite Loops podcast[29], Lily noted she believes the NOPE indicator cannot be arbitraged away because the information is not indirect. NOPE is not about factors that affect flows, NOPE measures the flows themselves. I fully agree with her. Later in this thread, I want to make the case that the same kind of dynamic happens with the bitcoin halving, and that this is what Bitcoin proponents like Anthony Pompliano are getting at when they say "the halving can't be priced in" and "the algorithm is built for bitcoin to tick upward, like clockwork." It's the same sentiment Lily is getting at when she says NOPE cannot be arbitraged. It's not overconfidence, it's not 100% forward predictive accuracy, it's just keeping your eyes on the flow of capital. Notice that this does not mean we can perfectly predict, that price will immediately move on a specific day, or that Bitcoin can't go down. Just like with NOPE, an edge from structural flows is a statement about probabilities given a tailwind. Just like with NOPE, new supply or demand inflows could emerge for idiosyncratic reasons that we cannot account for. However, all else equal, we have an edge on how price will change.

## Concluding our discussion of flows

People like Lily Francus and Cem Karsan will say options drive equity markets. And read their work - they're right. Flows dominate prices. But guess what - in crypto markets, halvings drive flows. Just like with models of option market maker hedging, halving-directed flows have little to do with narrative and everything to do with market structures. If we know total volume, and we know parts of the volume and their direction & price sensitivity, and we know something about the shares that aren't trading and how elastic their supply will be in the future, we can have an edge. If you want to understand why the price of bitcoin moves so much after the halving, and where ethereum might move after its triple halving event, look at each type of flow and understand its elasticity to price changes in different directions.

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[28] I'm actually not super familiar with newer research she has done on her indicator, so maybe an edge on a multi-month time frame does exist, I'm just not familiar.
[29] Lily Francus - Options, Passive, and Speculation. Infinite Loops (podcast)

None of this requires a thesis on the fundamentals of the underlying. That doesn't mean that research isn't useful, it's just a different approach. You don't need to believe the S&P 500 is undervalued to invest in SPY or believe genomics companies will take over to invest in ARK genomics, and you don't even need to believe in crypto to invest in Ethereum over the next 18 months. The flows are the edge, and in genomics, EVs, crypto - what makes that flow edge so potent is the combination of structural effects (ETF involvement, halvings), investor base's inelasticity to price (all of them are looking for 10x increase in price and will not provide supply after a 'mere' 50% gain), and a tantalizingly realizable narrative. These products just may actually change the world - and for narratives to convert to discretionary money flows, that possibility makes all the difference.

Lastly, these effects cannot be priced in because they are the flows themselves. The concept that the market "prices in information" is one we take for granted. But when you dig into it, what we mean is that money flows react to new information relative to current prices so as new information comes online, price rises and those new inflows decline until the price reflects that information. Structural flows, however, aren't reflexively changing in response to information, so they can't be priced-in ahead of time without the structure changing (for instance if regulators did something to allow flows to be more dynamic).

# Part 3: A flows based theory of the Bitcoin Halving


What is a halving event[30]? Every 4 years, per the Bitcoin algorithm, the amount of new issuance of Bitcoin to bitcoin miners is cut in half. Imagine if every 4 years gold miners could only extract half the amount of gold per year that they used too - it reduces the supply of new bitcoin coming onto the market but does not affect the amount already in circulation. In the history of Bitcoin, every major cycle is kicked off with a halving event.

In the tweet[31] that kicked off this report, I noticed that the amount of sell pressure reduction that will occur from the shift to EIP1559 and Proof of Stake, a 90% reduction, is equivalent to just over 3 consecutive halving events (10% remaining sell pressure < 50%*50%*50%). For context, in its entire lifetime, Bitcoin has only had 3 halving events. The price implications, on its face, seem enormous.

But other than saying "this is huge! Pump it!" - what does that actually mean? Based on the twitter comments that followed, I could tell a lot of people either didn't think it through or had a misconstrued understanding of what 3 halving events means we should expect from the price. You can't just jump from 90% reduction in issuance to price will go up 9x[32]. You also can't take

[30]https://www.binance.com/en/blog/421499824684900376/Bitcoin-Halving-2020-Some-FAQs-on-What-It-Is-and-Why-It-Excites-People
[31] https://twitter.com/SquishChaos/status/1383435339910418432
[32] https://twitter.com/zaoyang/status/1385384224153346050?s=21

the move in the last halving cycle and raise it to the third power. You have to have a model for how the halving causes price to move and then you can apply that model to the conditions in ethereum to project a move. That's the goal of this chapter - lets understand what flows we're dealing with and characterize them so we can get a more concrete sense for how the "triple halving" will really compare in terms of moving price.

So next steps: To understand Ethereum's triple halving and its effect on the price of Ether, we'll look at the structural flows from the bitcoin halving alongside the discretionary flows from bitcoin investors and funds to get a sense for how money flows into bitcoin and how those money flows are related to price. Then we'll use that theory to analyze Ethereum and project a price.

## Discretionary Supply/Demand leading up to  halving event

Before we get to the halving event, it's important to understand the baseline conditions we're working in so we can see the market microstructure the halving event flows are interacting with.  These baseline conditions come 3 years after the last halving event, when halving-related flows will have reached an equilibrium with demand. Therefore, the primary dynamic is discretionary flows, which are inherently more speculative. While it is not crucial to take a stand on this, I have a speculative theory for price action during this period. Again, this is just speculation, an educated guess on how discretionary supply might work in this period.


In the chart above, you can see the volume-weighted adjusted price (VWAP) drawn from the start of each year. It shows the average price that bitcoin transacted at during 2018, showing

that people buying throughout the year were in losing positions. My view is that the price refusing to bounce above the VWAP shows incredible levels of elastic supply from frustrated investors who bought at the peak, only had the experience of losing money in bitcoin, and were definitely not Bitcoin Maximalists. As soon as the price was near break-even, they sold, creating supply and liquidity and stopping upwards price action in its tracks.

However, bitcoin is unique as it has a cult following of devoted investors. There is even a cultural habit called "stacking satoshis[33] [34] [35]" where investors put parts of every paycheck into bitcoin no matter the price. How many assets do you know of that have entire companies devoted to automating purchases of more of the asset with every new paycheck regardless of the price? These are incredibly inelastic demand flows.


In my view, by the end of 2018, all of that elastic overhead supply was exhausted by incredibly inelastic demand flows, clearing the way for another run much closer to the peak, where the same process repeated itself as investors who bought the peak and never sold could now liquidate at break-even 1 year later.

Again, price gets stuck, but on each upswing bitcoin investor demand transfers the most elastic supply from scarred investors to the most inelastic supply, investors who are stacking bitcoin at any price and plan to never sell. Notice that in 2019, the price of bitcoin rarely went far below its volume weighted moving average? I interpret that as a dearth of supply inflows at those prices compared to continual inelastic demand inflows at any price placing a floor on Bitcoin's price.

This could also explain why the ethereum to bitcoin ratio drewdown so much in the aftermath of the halving. While both assets had speculative blow-off tops and crashes, Ethereum was a very different asset back in 2017-2018 and there were scarcely any investors stacking it the way investors were accumulating Bitcoin. Without a floor, Ethereum prices declined much farther and took much longer to exhaust overhead supply in the last 4 years.

This theory is obviously extremely speculative, but it's worth thinking about because if true, I'm modeling a process where committed investors, new from the last cycle, join original bitcoin stacking investors to gradually buy out the most elastic supply as the Bitcoin halving approaches. This is a process of converting "weak hands to strong hands", "paper hands to diamond hands", or "elastic supply to inelastic supply," and it gradually sets up the kindling for

[33] https://coinguides.org/stacking-sats/
[34] https://www.coingecko.com/buzz/coingecko-guide-to-stacking-satoshis
[35] https://www.swanbitcoin.com/

Bitcoin's price to realize a massive increase in volatility upon any trigger of a supply/demand mismatch, narrative adoption aside.

## The halving event as a "tipping point"

Unlike a normal asset, where an organic catalyst might have to arise from a new product release or gradual increases in market share of a company, Bitcoin automatically triggers this supply demand mismatch on a preprogrammed schedule, every 4 years, with its halving event.

So what kind of flows constitute the halving event? At baseline, Bitcoin is being mined by Bitcoin miners and sold at a high rate. Why do miners sell? They need to cover expenses from electricity to air conditioning for overheating mining rigs to paying taxes on profit-taking or paying employees. These are price insensitive market sell orders, the expenses that need to be paid certainly don't respond to price in any way, and they are always flooding the bitcoin marketplace at baseline. At all times, the price of bitcoin reflects supply and demand flows that include these market sell orders.

A great analogy for this is the IPO lockup expiration selling I discussed earlier. Bitcoin is perpetually in that state, where miners act as the rich insiders who while extremely desperate to sell their holdings and secure their wealth, seem to never quite be able to get rid of it all. In the IPO lockup expiration case, the IPO would see massive negative flows on the expiration date that would eventually be exhausted by new demand at lower prices. After that, prices normalize.

What happens if an asset is perpetually on its IPO lockup expiration date, metaphorically speaking? Why doesn't price just fall forever? Well that temporary artificial price depression from the IPO lockup expiration becomes a baseline state for the price of Bitcoin. Rather than just falling forever, Bitcoin's price finds a level where there is enough constant market demand to sustain market price. Consider that in an IPO lockup the insider shares eventually get consumed. In this case, however, there is continuous new issuance, so demand would be consumed and price fall until the demand at current price levels is so high and continuous as to constantly soak up those market sell orders without exhaustion. As a result, miner price insensitive selling causes Bitcoin's price pre-halving to be artificially depressed and the halving creates pressure which must be released through a dramatic price increase.

When the halving event happens, miners suddenly are receiving half the bitcoin they were mining before, and we can simplify by assuming the selling pressure that comes from miners selling their issuance must halve as well. Previously at its equilibrium price, Bitcoin had a constant investor demand that was inelastic enough (stacking sats without looking at price) to soak up price insensitive elastic supply from miners. After the halving, half of that investor demand does not have a price insensitive miner to buy from. Those investors' market buy orders start going to the investors most willing to sell, the "weakest hands," and again we have a dynamic where weak hands are converted to strong hands, paper hands to diamond hands, elastic supply to inelastic supply. Because even the most paperhanded Bitcoin investor isn't as price insensitive as a miner who must structurally sell, there is upward pressure on price, if only a little at first, until new liquidity pockets emerge at higher prices. Once that supply is exhausted,

if new investors don't come to sell at that price, the price rises further because the price insensitive inelastic Bitcoin demand inexorably marches forward. You can see now how as it goes up, Bitcoin again becomes less and less elastic and requires more and more price increases to create this run-rate supply. Eventually, at some price, enough investors will be willing to sell whenever it hits that price to satisfy the inelastic demand, but typically that price is far, far above where Bitcoin was previously.

**A few notes to characterize this effect**

1. Why does the price of Bitcoin take months to rise rather than explode on the day of the halving? What most people look for in a structural supply outflow is a deterministic shock effect like we saw in GameStop's price action. However, the quantity of the flows matters. Miner market sell orders everyday constitute a very small part of overall market supply. If miner market sell orders are only 1% of supply every day, then the unsatisfied inelastic demand on the day of the halving constitutes only 0.5% of daily demand. You can see how it could take months before that inelastic demand chews through elastic investor supply, even with the halving.
2. In this context, Anthony Pompliano-style hyperbole regarding the Bitcoin halving's inevitability makes more sense. 1) this is a flow based edge in a cultural context of inelastic Satoshi stackers - you don't need conviction in Bitcoin's price to be right, you need conviction in how inelastic your community of HODLers are.2) the hyperbole regarding the halving reinforces the community's inelasticity, creating a self-fulfilling prophecy. If he pumps everyone up, they become more inelastic and the halving causes price to rise, causing people to become satoshi stackers and the cycle reinforces itself.
3. We can see now how the halving flows are different than the edge in Lily's NOPE indicator and even the IPO lockup period. Halving flows are a much, much smaller % of total flows than either of those effects; However, because they operate at baseline for any Proof of Work cryptocurrency, they are matched by equal and opposite sources of demand at whatever price the asset has settled at. Therefore, the mismatch in supply and demand from the halving is much longer in duration and more predictable in direction than either the IPO lockup or the NOPE indicator's flows. It also makes sense that you couldn't intraday trade bitcoin halving flows the way you can NOPE's option hedging flows. The bitcoin halving's edge is insignificant on any single day's trading volume, it's an edge that is significant only because it persists through time.
4. Finally, remember that such a small edge can easily be overwhelmed by an exogenous event creating an increase in investor supply. No amount of halving sell pressure is enough of a mismatch to overwhelm the market supply in the event markets go through a period of turmoil.

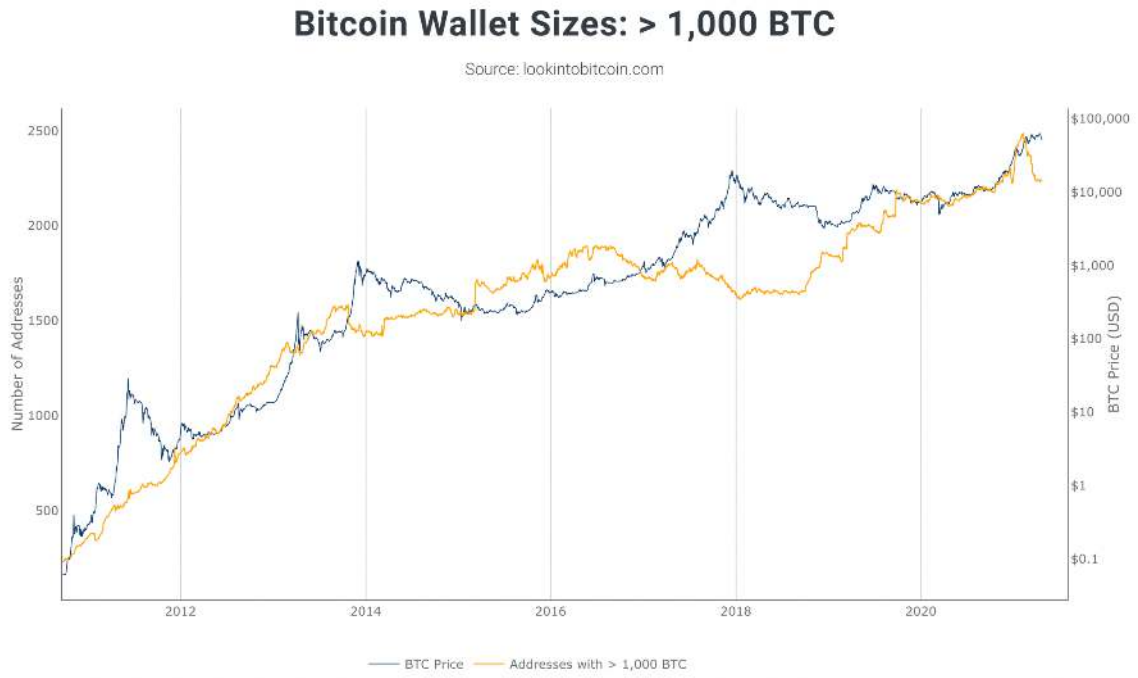
## Discretionary Supply/Demand after the halving event

Fundamentally, markets have a core question: does price lead narrative or does narrative lead price? For cryptocurrencies with halving events, the halving answers this question by kicking

things off with price through the supply/demand dislocation. Once price rises, people can more convincingly spread the narrative and the vicious cycle begins whereby more elastic investors are replaced by newly minted HODLers. It's a process by which each halving event increases the inelasticity of supply from Bitcoin's investor base.

The spread of bitcoin's narrative after a halving has major effects. Recognize the important role that Bitcoin investors' expectations play in this. Bitcoiners tend to believe that in a crypto cycle, price will go up on the order of 10x at least. That matters here because even satoshi stackers who have made life changing gains are inelastic to price changes of 100%, 200% that are incredibly for normal assets. This is where narrative matters - where do they get the conviction? There is a community, there is past price action to confirm the narrative, and there is a macro environment of monetary debasement to propel it forward. Adoption of the narrative brings identifiable discretionary demand inflows. We have seen this already this cycle in the form of Paul Tudor Jones, Stan Druckenmiller, Dan Loeb, and many others.

## Characterizing Bitcoin HODL rates[36]




You can infer investor behavior at various levels of capital from the behavior of these wallet sizes, knowing it's a crude measure as investors can have multiple wallets. Remember, Bitcoin's dollar price has been steadily increasing, so the value of 1,000 bitcoin has gone up from $10M to $50M since the last cycle. In any ordinary asset, you would expect rebalancing out of such an insane amount of capital, but these large bitcoin wallets are all held by HODLers, so instead you

[36] https://www.lookintobitcoin.com/charts/wallets-greater-than-1000-btc/

continue to see the number of large wallets rise, showing the growth and stability of HODL culture in the Bitcoin community.

## Concluding thoughts on the Bitcoin Halving

In conclusion, Bitcoin's halving event kicks off a major cycle as a natural result of a supply/demand dislocation that consumes elastic investor supply in the context of an incredibly inelastic investor base and a macro narrative that are perfect for today's conditions. The combination of HODLer inelasticity with supply/demand dislocation of the halving event and discretionary investor inflows leads to substantial price increases as price is unpinned from liquidity and must rise much more in order to find the next pocket of supply.

In my view, none of this requires that you actually believe in bitcoin as a store of value. If you do believe it has this property, power to you. However, you need only look at the macro context, other investors' propensity to believe the bitcoin narrative based on their beliefs about inflation and monetary debasement, and the way narrative adoption is affected by price. If you can do this, then every four year bitcoin cycle you can identify the kindling and the match - an investment edge.

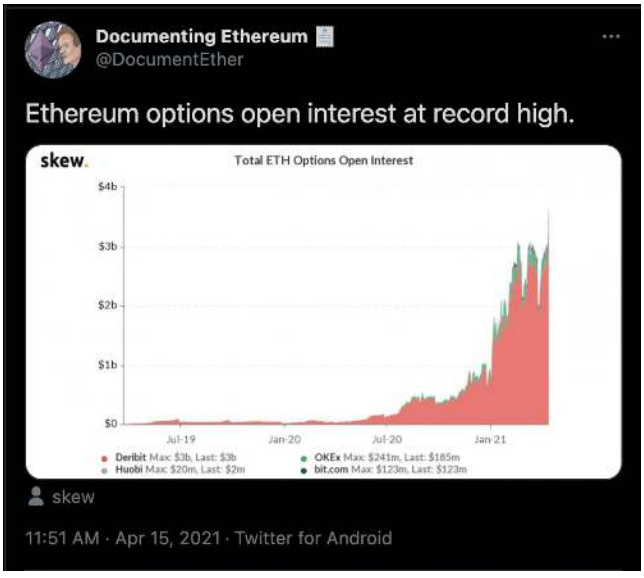
Remember, bitcoin does not have to move up after a halving. In theory if there was a new consistent source of investors selling bitcoin into the halving event, price could stay constant. However, that requires a big shift in the status quo on the flip of a switch - an unlikely event.

Now that we've looked at Bitcoin, I'll explain how Ethereum will differ in the next 18 months and review some valuation methods before explaining my price targets.

# Part 4: A flows based theory of Ethereum's Triple Halving


## Discretionary Supply/Demand leading up to triple halving event

It's important to note that the lead up to the triple halving for ethereum is not normally how a bitcoin halving event would go. Cryptocurrency prices have already risen quite a bit. This could be a negative if you believe the Ethereum narrative could run out of room for further adoption - maybe you believe flows will peak too early. I'll address this later on, but for now realize that when Bitcoin experiences its shift in flows from the halving, it has a significant amount of overhead supply that is gradually drained as a larger move forms.



For Ethereum, it is in the strange position right now of outperforming Bitcoin in the last 12 months without having had the volatility lubrication of its own halving event. Ethereum's move so far is purely contagion from inflows into broader cryptocurrency assets, as can be seen from the high correlations across cryptocurrencies. There may be genuine narrative adoption as Ethereum is outperforming, or Ethereum could be outperforming just because it's smaller and rebalancing flows from Bitcoin could be enough for Ethereum to outperform. I believe we have yet to see truly Ethereum-focused inflows move price, and that's reflected as the ETH/BTC ratio is still far from its 2017-2018 peak.

Remember that the beginning of a Bitcoin halving event involves the draining of "paper hands" investors at low prices to power a larger, more powerful move in the upcycle? I believe the same sort of thing could happen here, but at prices that are near many ultra-bullish analysts' full cycle targets, as triple halving supply/demand mismatch could drain out investors who are willing to sell at prices like $10,000 to $20,000, setting the asset up for an astonishing move.

# Structural illiquidity from staking and DeFi

## Capital locked in Staking - Structural Supply Outflows

In order to make the move from a Proof of Work blockchain, where miners secure the network, to a Proof of Stake blockchain, where stakers secure the network, Ethereum requires a substantial number of "early adopters" to agree to be the first stakers. This prevents a period of time from occurring where the network is unsecured. After proof of stake has merged, stakers will earn a baseline issuance rate, like a set dividend yield, in return for locking up their capital and validating transactions on a staking node. The intricacies of the technology is less relevant for my investment case, but it's critical to understand that this involves putting up Ethereum as capital whereas Proof of Work involved putting up expensive computer hardware as capital. The former drains liquidity and better aligns stakers with ethereum investors whereas miners supply liquidity and have no choice but to depress price in order to pay their expenses.

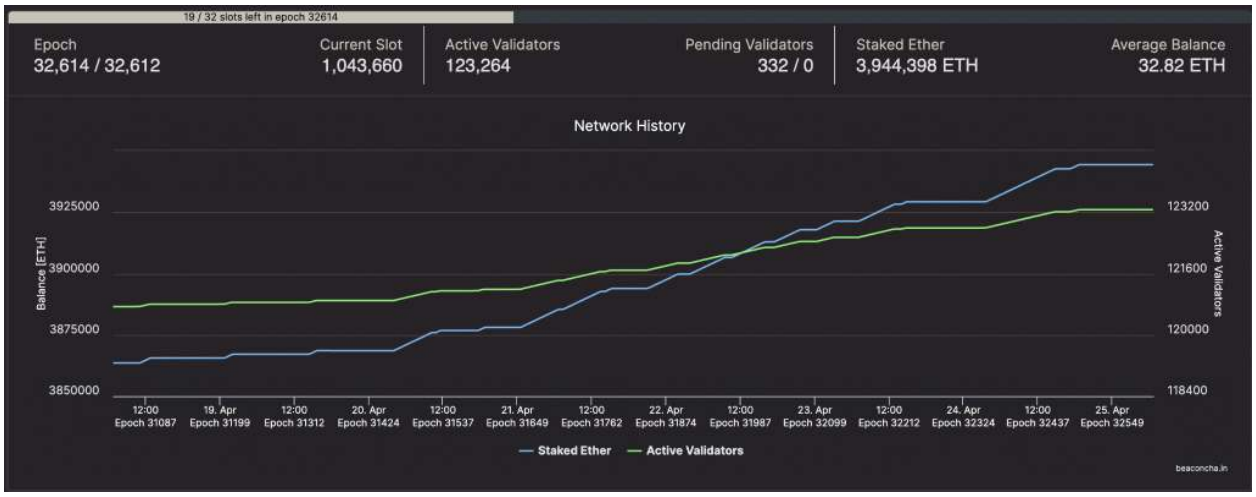
Early staking capital, the validators who allow the move to PoS in the first place, is capital that is moved into staking pools before staking has begun. With the smart contracts in place, the capital cannot be removed until after the merge to Proof of Stake. The incentive for this capital to be staked is that it accelerates adoption of Proof of Stake, a more efficient and secure system, while setting them up to receive staking rewards like miners receive mining rewards for putting up their capital. However, given there are no staking rewards for a few more months, this is a decent way to see Ethereum's HODL community beginning to take shape.

Another way to look at funds that are moving into the deposit contract or choosing to be staked is as structural supply outflows. Remember, this is not a dynamic that has ever been present in a proof of work system like Bitcoin and Ethereum. Where currently mining creates a structural "IPO-lockup" style deluge of market sell orders, Proof of Stake does more than remove them. It also creates a structural supply outflow as the capital previously moving into expensive graphics cards and computer hardware to secure the Bitcoin network is now going into buying Ethereum

out of the circulating supply. Again there is a crucial analogy to Mike Green's thesis on passive funds moving into a Vanguard index fund for equity risk premium and refusing to budge for decades regardless of price action. It makes the overall supply of the asset, whether equity markets at large or Ether, significantly more inelastic to price movements and is kindling for a jump in volatility. For Ether this is hard to imagine because it is already so volatile, which is why I believe this is so underpriced an opportunity.

To get a concrete view of how much supply has already moved into the deposit contract, here's a graph of the supply in the deposit contract today. Keep in mind that this supply cannot collect staking rewards yet, so we should expect the supply moving into staking to accelerate once those rewards begin as a direct function of capital efficient investors waiting for compensation before taking on risk.

**Ethereum 2.0 Beacon Chain[37], 4/25/21 6:53AM**




This is incredibly important, so I want to contextualize this again. As of 4/25, when this screenshot was taken, 3.94 million ETH had been staked. Due to the lack of staking rewards, this represents the earliest of early adopters - folks willing to give up the ability to sell their Ethereum without receiving compensation yet. Due to the dynamics of staking, where a dividend will be provided and stakers will no longer have their capital trapped, we can easily expect this number to increase dramatically after the merge to Proof of Stake. Again - why would you lock up your capital for months without compensation only to sell before receiving your staking rewards?

Even without any compensation yet, there are already 3.94 million Ethereum that have been staked, representing 8.8 billion dollars. At the moment of writing, that represented 3.3% of Ethereum's total market cap.

[37] https://beaconcha.in/

## Capital locked in DeFi

Staking ether, however, is not the only way that Ethereum has had massive supply outflows as it approaches the triple halving. As DeFi has matured, investors have used their Ethereum as collateral to gain yield from DeFi products.

Again, I want to pause here to remind non-crypto-minded investors that you do not have to believe in the long-term viability of DeFi to follow this thesis. I do believe DeFi offers real value, but even if you do not, you can simply look at the capital inflows to DeFi to agree with the more limited claim that significant supply has in fact moved from circulating Ethereum into the DeFi space, and that given the trend this supply outflow is likely to increase in the next 18 months.

**DeFi Pulse, 4/25, 7:45 AM**


The image[38] above shows how the total value locked (TVL) in DeFi assets has grown in the past 4 years. It's worth noting that 4 years ago, DeFi didn't really exist at all. I have the scale set to measure the amount of Ethereum locked, but at current prices that 10.8M ETH represents $24.4 billion, or 9.1% of Ethereum's market cap. This is a bit less than 3x as much as has been staked, which makes sense because these funds are actively earning yield on DeFi products.

The idea that this ethereum that is locked in DeFi represents a supply outflow is supported by the accompanying drop in supply of ethereum on exchanges[39]. According to @DocumentEther[40], as of April 19th roughly 2 million ETH had depleted from supply on exchanges in the past 30 days. Illiquidity leads to volatility, and this is a prime set up.

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[38] https://defipulse.com/
[39] https://twitter.com/iamjosephyoung/status/1385181218715668481
[40] https://twitter.com/DocumentEther/status/1384200431610470403


Now notice that this section on staking and DeFi illiquidity wasn't in the Bitcoin halving section. Bitcoin has HODLers, and presumably much of the staking activity represents "HODL" culture within Ethereum investors as well. However, if you view it this way, anytime in this writeup where I mention Ethereum investors HODLing their Ether and they haven't staked it, remember that they will be staking it after the merge. Money may be the only more effective means of enforcing HODLing behavior than a community narrative, so recognize how much more infectious an Ethereum HODL culture built around pre-existing investing narratives around income-investing and dividends will be compared to the current Bitcoin narrative. Explicitly, I am making the case that future inelasticity of Ethereum's supply will, for reasons of simple economic incentives, vastly outweigh current inelasticity of Bitcoin's supply.

Now, you might say that the fact that 12.4% of Ethereum's market cap is either staked or locked is reflected already in price - and you'd be right. But consider 2 pushbacks:

First, the trend of staked and locked ethereum both go upwards and are accelerating. These trends are backed by fundamental reasoning, a shorter time of lockup before rewards for stakers and increased adoption of DeFi for locked Ethereum. Future illiquidity from staking and locked Ethereum will likely be much, much higher. How high could staked and locked Ether go as a % of market cap?

Second, while current illiquidity conditions are reflected in price, that is in the context of current supply and demand flows. Remember that even in this upcycle, Ethereum has not had its own halving event before. These illiquidity conditions make future supply/demand mismatches all the more potent. I'm trying very hard not to overhype anything, but again - when the merge happens, there will be a reduction in elastic supply of 90%, equivalent to 3 consecutive bitcoin halvings, with a latent known structural demand inflow to come from ETF approval in the US and growing illiquidity. I do not believe any of this is reflected in current price action as it is all flows that haven't yet come online, and so, like the IPO-lockup expiration or Tesla joining the S&P 500, they could not be priced in even if investors were paying attention.

# The halving event as a tipping point

## Characterizing the structural supply/demand flows from EIP1559

First, I'll characterize what these events that I'm calling "the triple halving" are. The first change is an Ethereum network update known as EIP1559. This network update has a number of important upgrades for Ethereum developers, many of which are beyond my technical understanding. Here's a link to a podcast[41] that I found helpful. There is one critical change, however, that is simple to understand and profoundly changes the way that ETH as an asset functions.

*As a result of EIP 1559, 70% of transaction fees on the Ethereum network will be burned (the supply will be deleted from circulation). The remaining 30% will be delivered to stakers in addition to their regular issuance as a further staking reward.*

For ethereum as an asset, this is the ethereum community deciding that it wants to compete with Bitcoin as a store of value. Ethereum researcher Justin Drake[42] [43] projects that given current transaction fee trends, Ethereum will be net deflationary, losing 2% of supply annually after accounting for the issuance of new ether to stakers. Ethereum is trying to have its cake and eat it too, and it looks like it can pull it off.


Again, consider that the way in which Ethereum is going to become a deflationary store of value is by taking the most liquid flows, ethereum that is being used as gas to transact on the network, and burning 70% of it. While many ethereum bulls fully understand that EIP1559 will improve Ether as a store of value, I don't think they are modeling for the further way it effects elasticity of supply. If supply is being removed, it matters more if it's being removed from HODlers who were already inelastic anyway or speculators who can't sell that Ether in the future. There is no more inelastic source of supply than nonexistent supply.

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[41] https://shows.banklesshq.com/p/-eip-1559-hasu
[42] https://twitter.com/drakefjustin/status/1382249926156021764
[43] https://shows.banklesshq.com/p/-ultra-sound-money-justin-drake

Again contrast this with Bitcoin. After a halving, Bitcoin's miner issuance reduces by ~50%, but the overall state of circulating Bitcoin supply is still increasing overall each year. Bitcoin has a hard cap, 21M bitcoins will ever exist, but the amount of circulating bitcoin has yet to reach this number. Bitcoin proponents actually acknowledge this increase in circulation as the "stock to flow ratio" measuring the new issuance per year relative to the amount in circulation is a common valuation model for Bitcoin to be discussed later. Ethereum in this model will have a hard cap at the number of Ether that exist on the day of the merge, but it will also have a net decrease in circulating Ether, a negative stock to flow ratio. Again consider the implications of this on liquidity if there were large incoming demand inflows.

When EIP1559 comes online, even without Proof of Stake, it will represent a significant reduction in daily market supply of Ether. To model this, I used Justin Drake's published spreadsheet[44] [45] "net buy pressure" and fiddled with the math to understand how much of the reduction in sell pressure came from EIP1559 and how much from Proof of Stake. I won't go through my math here, but please feel free to check my work as all of the data is publicly available.

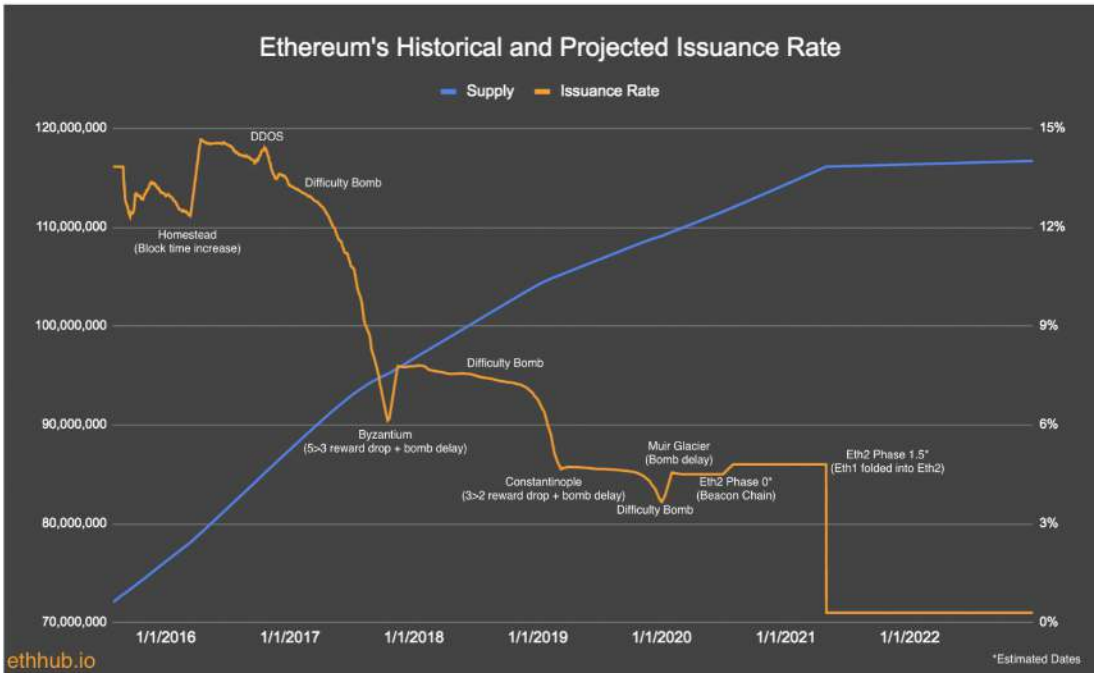
Using Justin Drake's assumptions, current daily sell pressure is 22.3k ETH per day. Per my calculations using the same assumptions, sell pressure after EIP1559 but before Proof of Stake will reduce to 15.7k ETH per day. Sell pressure after EIP1559 and Proof of Stake will then drop further to 2.6k ETH per day. This drop from 22.3k to 2.6k is where the ~90% reduction in supply comes from that I used to calculate the "triple halving" (50%*50%*50% = 12.5% remaining).

The drop in sell pressure purely from EIP 1559 is still significant, however, and represents a 30% reduction, or about half of the effect of a single Bitcoin halving. This is important because I view the staggering of these catalysts as another important difference. As the market adjusts to the supply dislocation from a July EIP1559 upgrade, 3-4 months later it is hit again with an even bigger dislocation from the merge to Proof of Stake. My belief is price volatility will be unprecedented after this.

## The History of Ethereum Monetary Policy

It's tough to contextualize these supply reductions, but I think I found another useful way to view the size of this supply reduction. Ethereum's monetary policy[46] is always a topic of debate, but so far in its history it has only reduced issuance.

[44] https://twitter.com/drakefjustin/status/1383325832467214337
[45]https://docs.google.com/spreadsheets/d/1TsrdbdusUop4NJbvjGBbOWTUwYH-Jgg1QBkQ5CtY_-k/edit#gid=0
[46] https://docs.ethhub.io/ethereum-basics/monetary-policy/




Notice how from 2016 to 2021, supply reduced from about 115M to 85M? It turns out that represents the same 30% decline in issuance as we'll see from EIP1559 without Proof of Stake.

*The decline in sell pressure from EIP1559 alone is equivalent to the decline in Ethereum issuance in the last 5 years combined.*

## Characterizing structural supply/demand flows from Proof of Stake

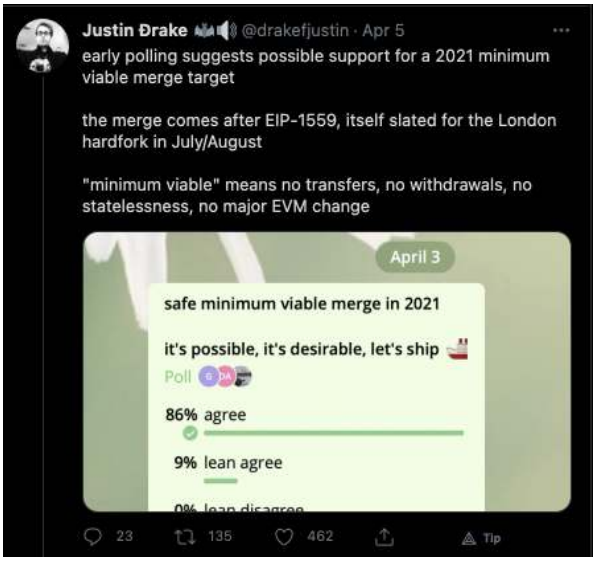
Next we'll look at the supply reduction after Ethereum undergoes the transition to Proof of Stake. Remember, the merge[47] to Proof of Stake involves a change in how Ethereum validates transactions and secures its network from using miners who perform computational work to using stakers who put up capital. The most important result is that the efficiency by which the network is secured increases dramatically, so that much less issuance of ethereum is required to achieve the same level of security. This goes along with Ethereum developers stated goal of "minimum necessary issuance," but for us it is most relevant because it will cause a dramatic drop in issuance analogous to 2.5 consecutive Bitcoin halving events. This is the majority of the effect of the "triple halving" catalyst.

As I said before, the effect of that drop may sound big, but as a percent of daily transactions it's quite small. By my calculations[48], it's about 1% of daily volume (significant considering volume is exploding in the bull market). However, the effect is just like that of the bitcoin halving, but amplified. Miner selling was a long-term supply source that was baked into price, a daily deluge

[47] **https://ethmerge.com/**
[48] I used this link (https://bitinfocharts.com/comparison/sentinusd-eth-ema90.html#6m) to estimate daily volume

of market sell orders from price insensitive sellers like an infinite post-IPO lockup period. In the merge to Proof of Stake, that is removed. When it is gone, there is a significant recurring source of demand, market buy orders that are normally filled, that are mismatched with supply. The resolution of this mismatch is an alchemic process by which the Ethereum investor base is gradually moved along the spectrum from paper to diamond hands. Demand is consumed by shares from those most willing to release it, and price continues to rise to release more supply until the run-rate supply at a given price provides enough liquidity to pin the price. As this effect is like 3 bitcoin halvings at once, it is likely that this new equilibrium price will be much higher than the move that Bitcoin's price makes for new supply to emerge (although it depends a lot on how inelastic Ethereum's investor base is). Another result of the supply/demand mismatch being larger is that we shouldl see the effect more quickly in Ethereum's price than in Bitcoin's previous halvings. This is especially true in the context raised earlier - 12% and rising of Ethereum's market cap is illiquid and with Ethereum so near all time highs, the overhead supply, is much lower than in Bitcoin halvings. This assumes that the price of Ethereum doesn't decline significantly in the next 6 months, however, which remains uncertain.

With increasing staking and low overhead resistance, there should be much less liquidity, fewer investors who are eager to sell at higher and higher prices. Moreover if a catalyst were to occur, a US ETF, for instance, where funds can flow into a more liquid instrument (fund flows into the Ethereum ETF) which has to turn around and put those funds into a less liquid instrument (underlying Ethereum), things could get very interesting[49].




## The Triple Halving Timeline

This is the part of the report that will be most prone to information decay. All of the information here was released in the last few days and will definitely change. As of today, Ethereum developers seem to be leaning towards a July 14th, 2021 upgrade to EIP1559[50] and a November, 2021[51] [52] merge to Proof of Stake. There is discussion of moving the merge to Proof of Stake earlier to October, 2021[53] but it seemed speculative to me for now.

[49] I promised not to make this a hype piece. Let it be known that I tried.
[50] https://twitter.com/TimBeiko/status/1385617652274532354
[51] https://twitter.com/drakefjustin/status/1379052831982956547
[52] Source: Ethereum developer in my direct messages told me November was the majority view
[53] https://twitter.com/nethermindeth/status/1385699335355125766

# Non-Structural Supply/Demand after the triple halving event

## Staking will rise due to yield → systematic supply outflows

### Staking liquidity will increase, paradoxically reducing overall liquidity

I set up this discussion earlier as even before the triple halving there has been a significant supply staked or locked to pursue yield. This supply outflow for staking is still limited because of the structural illiquidity (if you place ether into the deposit contract, you cannot remove it until after the merge). For potential major institutional flows, this structural illiquidity presents a huge problem. However, these issues are alleviated in multiple ways with the merge to Proof of Stake. First, the merge itself will allow you to remove capital you've staked whenever you'd like. Second, there is a lot of sophisticated discussion taking place on the development of liquid derivative markets for staked Ethereum. My understanding is that there would be a protocol at a higher level of abstraction that validates that you have staked your ether and rewards you with a sETH (staked ETH) token that can be used to redeem the staked ETH its associated issuance. When a liquid market develops for sETH, it will likely approximate the value of ETH due to market arbitrage, just like the price of ClassA and B shares of an equity. For an institution, the shift from being unable to remove capital from a network about to undergo a massive transformation to being able to remove it directly, having opportunities to liquidate without unstaking the capital, and receiving yield by keeping it staked, is a dramatic transformation. This converts from a risky, uncertain asset in the midst of transformation to a glamorous source of potential returns in a matter of months. Paradoxically, now that staked Ethereum isn't structurally removed from supply (it can be sold), more investors will enter to stake Ethereum for systematic yield strategies. A small structural supply outflow transforms into a large systematic supply outflow. Liquidity breeds illiquidity. It's actually quite beautiful.

### How much will staking yield?

To estimate staking yields, I'll again lean on Justin Drake's irreplaceable research[54]. The staking yield is intended to incentivize more people to stake to increase decentralization and network security, but to do so with the smallest possible new issuance.

| parameter | optimistic | lean optimistic | best guess | lean conservative | conservative | unit |
|---|---|---|---|---|---|---|
| ETH staked at merge | 4.5M | 5M | 6M | 10M | 15M | ETH |
| daily EVM fees at merge | 15K | 12K | 10K | 8K | 6K | ETH/day |
| fee burn percentage | 50% | 60% | 70% | 75% | 80% | |
| **calculation** | | | | | | |
| max issuance per year | 353K | 372K | 407K | 526K | 644K | ETH |
| fee rewards per year | 2,739K | 1,753K | 1,096K | 731K | 438K | ETH |
| staking APR with issuance only | 7.8% | 7.4% | 6.8% | 5.3% | 4.3% | |
| staking APR with fee rewards | 68.7% | 42.5% | **25.1%** | 12.6% | 7.2% | |

This is a screenshot from my downloaded copy of his google sheet[55] with the calculations. For context, remember that I showed earlier there are currently 3.95M ETH staked, representing 3%

[54] https://twitter.com/drakefjustin/status/1384124998084792324

[55] https://docs.google.com/spreadsheets/d/1FslqTnECKvi7_l4x6lbyRhNtzW9f6CVEzwDf04zprfA/edit#gid=0

of market cap. As you can see, Justin Drake estimates that if this is the case the initial yield on staking (including both issuance and the 30% of fees not burned from EIP1559) will be 68.7%. He estimates that more likely staking will increase to 6M ETH where yields will reduce to 25.1%. Conservatively, he estimates that if 15M ETH were to be staked, yields would be 7.2%.

So we have 2 extreme scenarios that demonstrate where the future is headed:
**Yield is 'only' 7.2%:** If 15M ETH were staked, the staked ETH alone would represent 12.6% of market cap, and alongside the DeFi (assuming that does not increase), over 20% of market cap would be locked. We know DeFi locked Ethereum will increase, especially amidst a cryptocurrency bull market, so this number is likely to rise. With that level of illiquidity, expect more volatility than ever before.

**Staked and Locked ETH is only 12%:** If only 4.5M ETH were staked, assuming no change to DeFi Total Value Locked, only 12% of market cap would be locked up. However in this scenario, Ethereum offers 68.7% yields for staking. With that level of yields, expect more demand inflows than ever before to increase staking and affect price.

The most likely outcome is Justin Drake's "best guess," a reasonable middle ground. You can see how compared to normal growth assets, a 25% yield will increase the rate of HODLing and dramatically increase the FOMO on the part of investors who do not have exposure. We've seen how far Tesla's stock could go in a world with a 1.5% 10 year treasury yield, but imagine if Tesla, at these heights, began offering a 25% dividend yield while buying back stock at 2% per year and had no risk of being unable to cover this yield from cashflow constraints. How many people do you know that would have been able to resist?

One note - I don't have any edge over Justin Drake on how much will be staked. Once things pick up, I believe the amount staked will be public information on the blockchain. However, while a lot of people are still waiting before staking programs are released, we might get a peak at how much Ethereum is gearing up to be staked in Coinbase's upcoming earnings report. They recently announced they are taking people off the waiting list for their staking service[56], and they should provide more information on how many people are interested soon.

### Yield is USD price insensitive and no one is prepared for that

Another important thing that people haven't quite figured out yet is that there aren't any easily investable assets with a coupon that varies due to a non-price variable. Things like TIPS or variable rate mortgages do exist, but they have very well understood mechanisms and uses within portfolios already. The way that yield on ethereum varies, to minimize issuance necessary to secure the ethereum network, will be incredibly unusual to investors unfamiliar with Proof of Stake blockchains (ie. everyone). If you buy Ethereum at $2,500, you'll get a 25% ETH yield. If Ethereum triples in price and a new investor comes in at $7,500, they'll still get a 25% ETH yield

[56] https://www.coinbase.com/staking

until enough has staked to move yields down. Price isn't the relevant variable here, so we could see prices skyrocket before enough people stake for yields to reduce.

Remember, "buyback yield" from fee burning after EIP1559 depends entirely on transaction fees. "Staking yield" from issuance and transaction fees depends on transaction fees and the number of stakers (degree of decentralization of the network). That means whether the price of ether is at 2.5k or 150k, if there are 4.5M stakers, staked ether will yield 68% with current transaction fee assumptions[57].

The norm for nearly any yield-based investment is that as price increases, yields go down. Ordinary capital asset pricing models (CAPM) are based on the idea that these yields can be arbitraged through price so that no asset can offer superior risk adjusted returns - they are all set on the capital market line.

For ethereum, the only way to drive down yield is to increase illiquidity (to increase volatility). Therefore, it seems inevitable that market incentives will cause 20%+ of Ethereum's market cap to be staked, and volatility of Ethereum will naturally rise as a result.

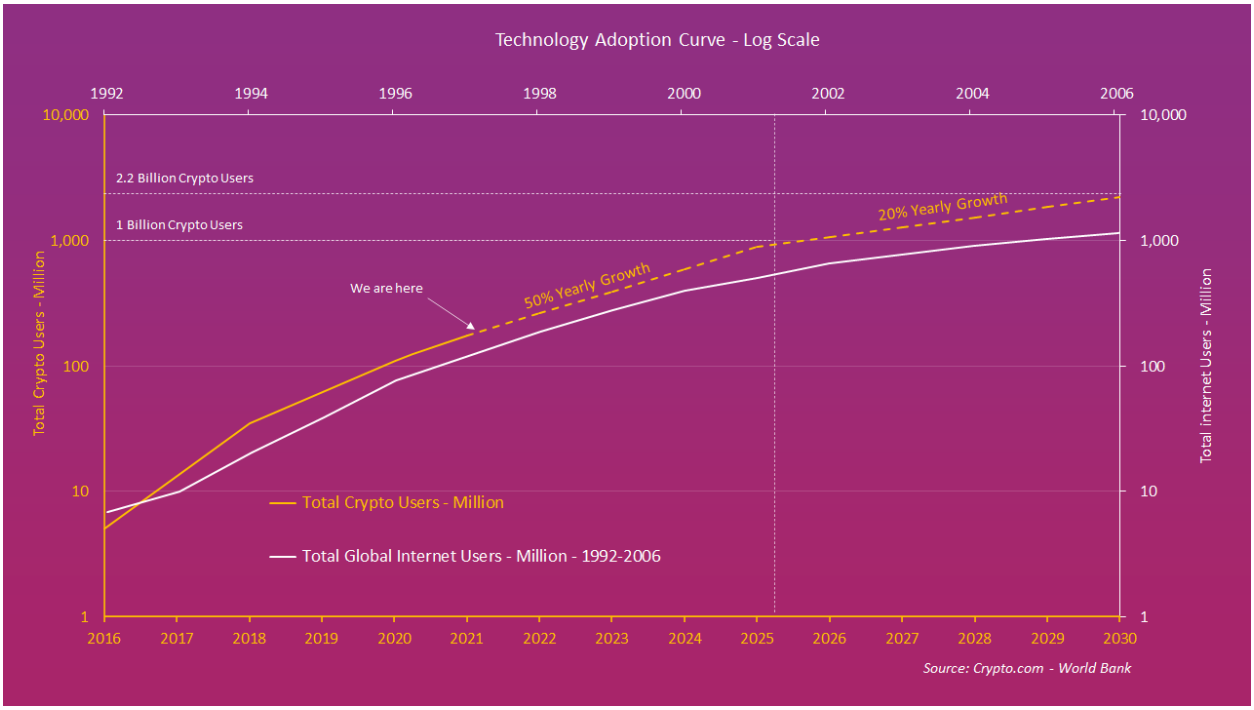
## Discretionary Flows from Narrative Adoption

We're finally at discretionary flows. This is where I'll dive into the Ethereum narrative to give you a sense for how convincing Ethereum's potential will be to prospective investors. Remember, I'm not trying to convince you that Ethereum has potential - ask Ethereum technology experts for that. My role is to argue that the narrative has attributes that make it exciting to investors and it will convince a lot of people to move money. It's a subtle distinction, but it's important because I would structure my argument differently if I were trying to convince you of the former. The ethereum narrative is a narrative that is well known among Ethereum investors, but hardly covered at all by mainstream financial news. I believe it is not priced in largely because Bitcoin commands 99% of the media's attention in the cryptocurrency space, leaving Ethereum and DeFi to obscurity.

Also, these discretionary flows are not just retail. As price goes up, the ethereum narrative will proliferate. This section will discuss how convincing that narrative will be, and then I'll detail how retail and institutional flows will enter ethereum in my next section.

[57] One caveat is that there may be a link between the USD price of ETH and transaction fees. It's not something I feel comfortable commenting on, but worth looking into if confirming this angle of the thesis.

Price drives narrative adoption drives price

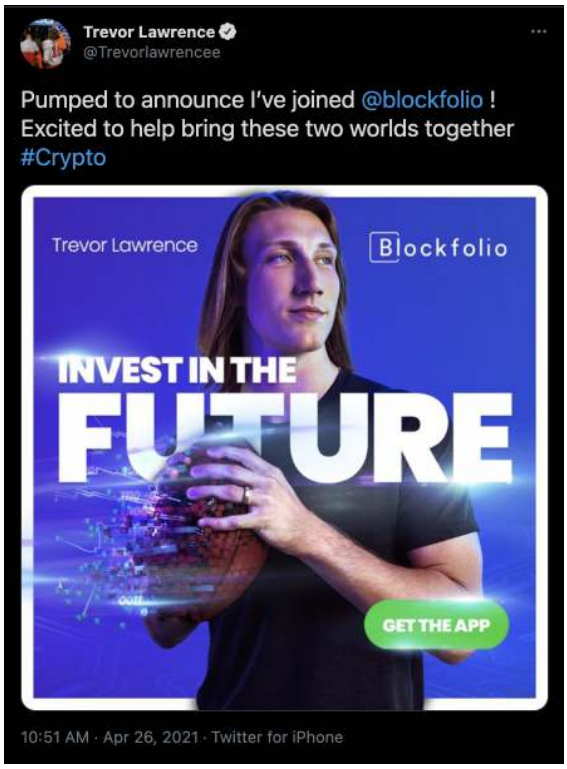



I've explained my argument for why price will go up from the initial conditions before the halving event and the triple halving alone. However, the meat of the cycle comes from narrative adoption which drives both increasing inelasticity (HODL behavior, staking behavior) and increasing demand inflows. What does this narrative adoption look like?
I included the chart above from Remi Tetot[58] to give you a sense for where the narrative adoption is today. In his tweet, Mr. Tetot shows we're early to "crypto" adoption, referencing both Bitcoin and Ethereum and projecting a long term macro trend. This is a genuine thesis, and even more specifically the narrative of Ethereum as "the only protocol with a substantial network effect" is one that people already know about.

I believe that as price continues to rise, the narrative will change to a much shorter-term shift that shocks the media. Aftab Hossain[59] posted a tweet this week that gives a sense for how media narratives could change around Ethereum in the near term after the triple halving. This short term attention will trigger real


[58] https://twitter.com/TetotRemi/status/1384468716935520257
[59] https://twitter.com/iamdcinvestor/status/1384946780853391363?s=21

attention on the DeFi space just in time for scalability from L2 rollouts and PoS.




These kinds of catalysts will increasingly come with cultural onboarding as well. There have already been many NFL players who have chosen to receive compensation in bitcoin. Last night, the presumed number 1 pick in the upcoming NFL draft, Trevor Lawrence, announced[60] an endorsement deal with blockfolio. Lawrence chose to receive his signing bonus not only in Bitcoin, but Ethereum and Solana as well[61].

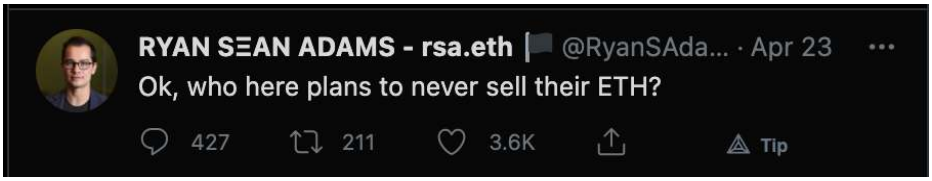
## The present and future of ETH HODLing

As I've discussed earlier, HODL and diamond hand culture makes inelastic supply, which reduces the liquidity that appears as price changes. As price moves farther and farther to get from pocket of liquidity to pocket of liquidity, volatility increases. Staking, due it's yield, is better HODLing than HODLing. It's economically incentivized so it can go more viral and sustain crashes more easily. But how about HODL culture? How do ethereum investors today and in the future view HODLing, and is it similar to how Bitcoin's HODL culture works?

For culture, a picture[62] is worth a thousand words, so here is how I've seen HODL culture emerge in response to EIP1559 and Proof of Stake[63].

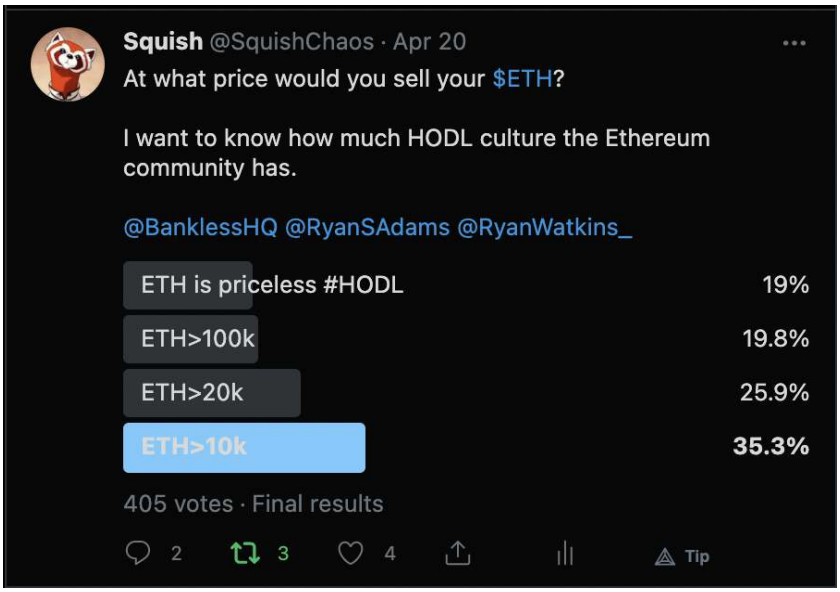

[60] https://twitter.com/Trevorlawrencee/status/1386694353091842053
[61] https://abcnews.go.com/Sports/wireStory/trevor-lawrence-adding-cryptocurrency-playbook-77328532
[62] https://twitter.com/jamesspediacci/status/1385060859450314754?s=21
[63] https://twitter.com/DocumentEther/status/1386290605169381378


The link to the paid service for the above chart[64] is here, I couldn't afford a subscription but feel free to check for yourself[65].


[64] https://twitter.com/sassal0x/status/1316345694597259264?s=21
[65] https://studio.glassnode.com/metrics?a=ETH&category=&m=supply.HodlWaves&mAvg=7&zoom=all

I ran a poll[66] myself, but at the time I had a far smaller audience and the sample size may have been skewed. It was much less optimistic, but still nearly 40% of my audience would not sell their ether until 100k.




As you read this, I'm begging you to remember I'm not just saying "there's going to be tons of hype so it'll go up!" We're specifically talking about demand inflows oriented towards reducing liquidity in an already illiquid asset with known sources of supply/demand mismatches and future demand inflows incoming. I take this part of the argument very seriously, and I hope you'll think about it that way as well.

### Ultra-Sound Money, "Programmable Store of Value"

Briefly, Bitcoin's well understood narrative is that it is "sound money," a fortresslike store of value in a macro context of low interest rates, Fed printing, expanding M2 money supply, real inflation concerns, and rises in prices of real estate and healthcare among other things. Bitcoin makes the argument that because it has a hard cap on total supply with only circulating supply increasing each year, it stores value better than other assets. As a result, Bitcoin investors argue it can be modeled with a "Stock to Flow model[67] [68]" the same way people theoretically model gold or diamond prices.

On that aspect, Ethereum's narrative quickly proves superior. Ethereum post-EIP1559 has a deflationary supply, meaning the amount of Ether present on July 14th, 2021 will be Ethereum's "hard cap[69]" - from that point on, supply will be reduced. Moreover, on a model of scarcity, Ethereum will have a **negative stock to flow**, definitionally more scarce than anything with a positive stock to flow.

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[66] https://twitter.com/squishchaos/status/1384361450974613504?s=21
[67] https://medium.com/@100trillionUSD/bitcoin-stock-to-flow-cross-asset-model-50d260feed12
[68] https://medium.com/@100trillionUSD/modeling-bitcoins-value-with-scarcity-91fa0fc03e25
[69] https://twitter.com/drakefjustin/status/1386670011742306310?s=21 - Justin Drake estimates that Ethereum's peak supply will be 120M.

There's another aspect of a sound store of value that gets overlooked. A store of value needs a strong community behind it. If I paint something, it is worth the paint I made it with. If Picasso paints on a napkin, the napkin is a better store of value than most houses. Bitcoin investors understand this, and HODLing BTC is a cultural phenomenon that the community enforces through memes and hype. Ethereum doesn't need so crude a device as a dogmatic approach to asset collecting. The reason you'll never stop storing value in ether is because ether will provide you with incentives. You'll use value on the network to get a loan or collect yield to pay bills. The narrative for why Ethereum will have a thriving community years from now is much more intuitive than bitcoin's narrow case for being digital gold. The truth is that many people outside of finance are still shocked that professional investors buy regular gold. Ethereum's narrative as a store of value will be that it is both scarce and fundamentally useful as it sits atop an emerging economy built on novel technology. You may feel as though this is a false promise, but to me it's clear that it is a more tantalizing promise - one that has the potential to move substantially more money than another pitch to add a gold replacement to a portfolio.

## Climate Change Narrative and ESG Demand Flows

Climate change is a major macroeconomic theme in the world right now. Markets are understandably moving money to reflexively respond to that narrative. As a result, however, Bitcoin is ensnared in controversy over the electricity use of its mining operations. Bitcoin analysts have responded to these accusations by putting out pieces like this[70] [71] [72] [73]to quell fears. I haven't figured out whether I believe these claims yet, so I don't have a stance, but it makes sense that they are fighting this narrative. Bitcoin needs those climate-affiliated funding sources for price to continue to rise.

My point is not whether or not Bitcoin is or is not actually negative for climate. My point is that because the debate exists at all, it prevents significant institutional inflows from funds that can't afford to stick around to find out. This is more of a view on the political narrative than a scientific impact of Bitcoin's actual carbon footprint. Moreover, as a crypto cycle heats up, hash rates for Proof of Work miners tend to rise, and more miners join the network. Graphics cards are already in short supply[74]. Climate impact estimates in the media (whether accurate or not) will be a recurring battle for bitcoin investors.

Meanwhile...Ethereum is moving to Proof of Stake. It has no negative environmental impact, and therefore is the default climate friendly cryptocurrency exposure. Honestly the reason I personally don't yet have an opinion on whether Bitcoin is environmentally friendly is because I can just hold Ethereum and get a perfectly good store of value instead of looking into Bitcoin's mining electricity consumption. I wonder if others will feel the same way.

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[70] https://twitter.com/yassineark/status/1384912169884602378?s=21
[71] https://wintonark.medium.com/bitcoin-mining-impact-on-renewable-uptake-fc91c5aa9be0
[72]https://assets.ctfassets.net/2d5q1td6cyxq/5mRjc9X5LTXFFihlITt7QK/e7bcba47217b60423a01a357e036105e/BCEI_White_Paper.pdf
[73] https://twitter.com/CathieDWood/status/1385082685111087104
[74] https://www.pcgamer.com/gpu-shortage-mining-crisis-solutions-or-mitigation/

Here's another angle on the climate narrative - a favor to ask of you the reader. I've run into a conundrum. I can't seem to find an ESG ETF that doesn't hold a payment processing system (Paypal, Visa, Mastercard) amongst its holdings. Huh. I know of a payment processing system with a low carbon footprint with blazing high growth rates and price insensitive yields that should soon have a liquid US ETF… Ethereum after merging to Proof of Stake!

Notice how even if an ESG manager knew enough about Ethereum to want to allocate, they couldn't until *after* Proof of Stake? How can information be priced into markets if the information can't move the flow of money? Moreover, which ESG manager do you think will risk getting fired by allocating to the Bitcoin ETF, no matter how many rebuttals ARKInvest publishes? Which ESG ETF managers do you think will risk underperforming by not allocating at least some funds to the Ethereum ETF?

I can already imagine the managers now, walking into the office thinking "if I pitch Ethereum today, they'll think I'm crazy!...but if I don't and another fund does, I'll underperform…"

### Scalability

The biggest problem with Ethereum's narrative as a global decentralized payment system to date has been scalability. The fees of the system get too high when user activity hits a limit, and since Ethereum has had no problem with growth it has always been at that edge. From a narrative perspective, scalability is the boss battle. Ethereum developers have known this for years and have several approaches in the works to fix it. I'll summarize the technology, but again - go to someone else for the technical details, I'm more concerned with how the technology affects narrative and moves money.

One approach to scaling the network is continued upgrades to the underlying Ethereum blockchain - which we will call "Layer 1." These upgrades include technology called sharding[75], where the blockchain is split into multiple parts to process more transactions. There is another technology, however, that doesn't require messing with the Ethereum Layer 1 at all. This technology operates on "Layer 2" and most commonly works via side chains off the Ethereum blockchain that process transactions much, much faster. These would only interact with the Layer 1 chain when absolutely necessary to maximize efficiency. The most popular L2 solutions are called "rollups." While that concept might seem complicated, the important part for modeling demand flows is that sharding and rollups have the potential to increase Ethereum's ability to process transactions from ~15 transactions per second to ~100,000 transactions per second[76].

The timeline is rollups, which will increase the network to 2,000 to 3,000 transactions per second, is later this year, while sharding, which increases the network to 100,000 transactions per second, will be farther in the future. In my 18month time horizon, rollups play the role of the catalyst - showing investors that scalability is actually possible. There is a lot of evidence accumulating that scalability for the Ethereum network will cause an incredible acceleration of growth.

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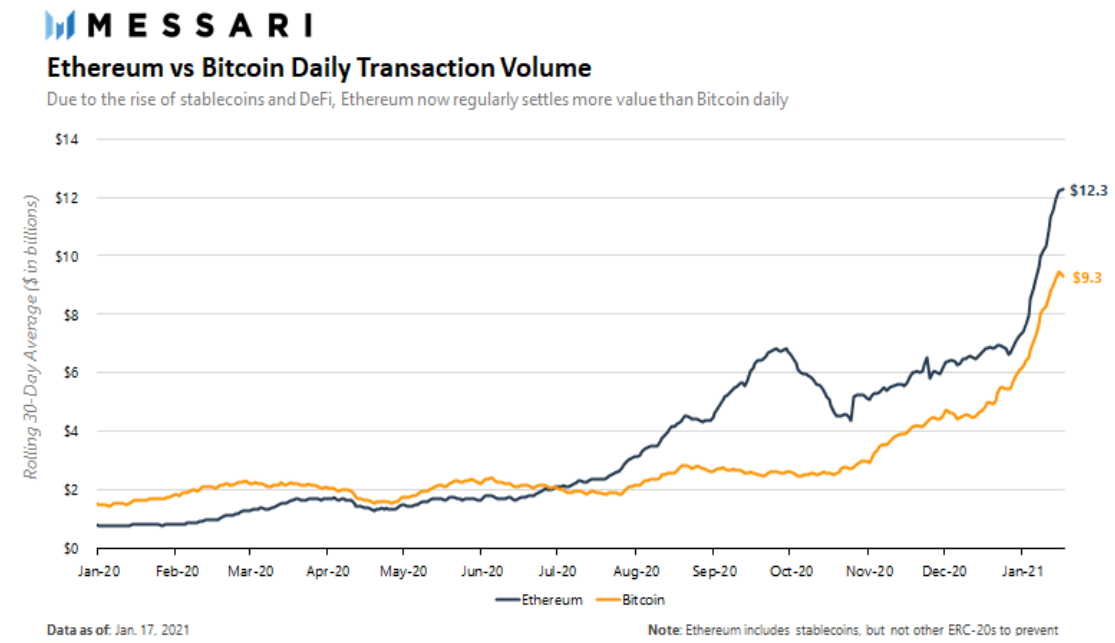
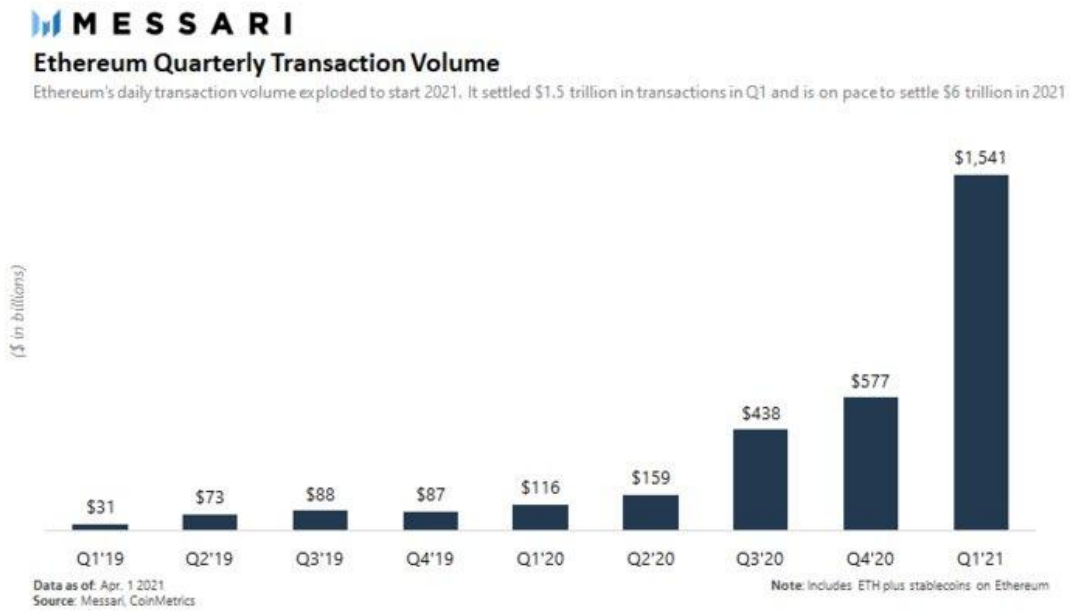
[75] https://vitalik.ca/general/2021/04/07/sharding.html
[76] https://twitter.com/VitalikButerin/status/1277961594958471168?s=20

Ethereum transaction volume, without scalability, speaks for itself

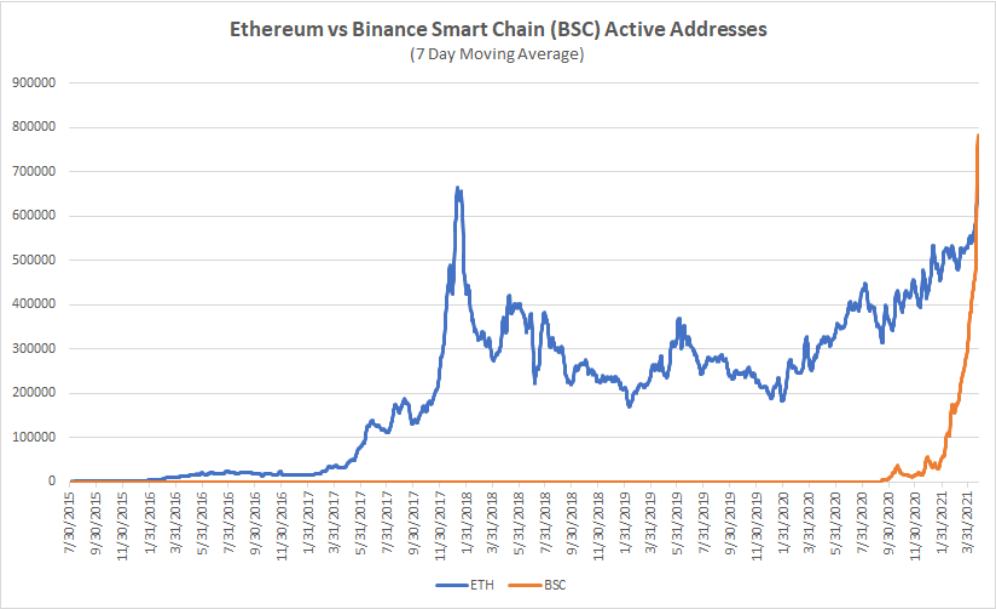



These charts from Messari[77] Crypto's Ryan Watkins[78] [79] show growth in transaction volume in the Ethereum network in the past 2 years. Notice how it has accelerated past bitcoin and is on pace to settle $6T in transactions in 2021? That is happening *without* scaling solutions onboard.

[77] https://messari.io/
[78] https://twitter.com/ryanwatkins_/status/1351349824961077249?s=21
[79] https://twitter.com/RyanWatkins_/status/1351349824961077249/photo/1

So what happens when we do have scaling solutions? The expectation is normal supply and demand economics - if transactions are growing now, they must be growing in spite of high gas fees. Lower the gas fees and transactions will explode.




Above is a chart of the active addresses of Ethereum compared to Binance chain[80]. Binance-chain is a centralized blockchain, and in sacrificing decentralization, it was able to skip over technical hurdles of scalability. As a result, in just 8 months, active addresses exploded beyond the last 4 years of growth in the Ethereum network. Ryan Berkmans[81], an ethereum analyst, noted that Binance Chain's growth[82] in active addresses gives us a good way to look into the future of Ethereum's active addresses when transaction fees scale from 15tps to 3,000tps later this year from taking rollups online.

This is more important than pure narrative. It affects valuation models for major macro players as well. As a bit of foreshadowing - Raoul Pal, a macro investor, has a thesis that Ethereum and Bitcoin can be valued using Metcalf's law to relate the growth of the network active addresses to the price. When he analyzed Ethereum, he argued that Ethereum can be modeled as a younger Bitcoin - with the same value Bitcoin had at an equivalent number of addresses. Therefore, he modeled Ethereum for an $20,000 price target by analogy to Bitcoin's price at the same network size. I'll go into this in more detail, but you can see how the Bitcoin analogy quickly fails after rollups are released as Ethereum's growth in active addresses will likely suddenly accelerate as a result of declining costs. I don't have Raoul's model, but I find it hard to believe he won't adjust his forecast upwards as a result.

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[80] https://twitter.com/RyanBerckmans/status/1386393123199258626?s=20
[81] https://twitter.com/RyanBerckmans/status/1386393123199258626?s=20
[82] I'll note one could see Binance Chain as competition. I don't want to get into the details here, but suffice to say based on my research I consider that laughable from a technology and a narrative standpoint. If you read this report and take it as a Binance chain bull case - power to you - I'm not going to get into that debate in this report.

Evidence that L2 scaling works

There is already evidence that we're seeing scaling of the Ethereum network today. Here are comments on Ethereum's transaction fees by twitter users on 4/24/21[83] [84]:



Moreover, Layer 2 scaling solutions are already being deployed[85]. Solutions like dydx are proving out their worth in real time[86].

The most well known L2 scaling solutions are rollups, and there's evidence that we'll see them roll out scalability within the next 12 months. Here is a link to popular rollup "ZkPorter" announcing they will be coming out in August[87]. Another solution called Arbitrum announced their mainnet release candidate would be trialrun on the testnet back in late March[88], implying the shipping to mainnet could happen within 2021.

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[83] https://twitter.com/sassal0x/status/1386261210585178119?s=20
[84] https://twitter.com/bigmagicdao/status/1386205363918102530
[85] https://twitter.com/ryansadams/status/1384861561236381697?s=21
[86] https://twitter.com/ukolodny/status/1383992554211864582
[87] https://twitter.com/zksync/status/1381955843428605958?s=21
[88] https://medium.com/offchainlabs/arbitrum-updates-buckle-up-80483d71718c

## Scalability changes the narrative

If Ethereum proves out L2 scalability late this year, the narrative shifts in multiple ways. First of all, growth estimations based on historical network growth will all become as worthless as 2020 GDP forecasts pre-COVID. We'll have undergone a structure change and that has to be accounted for. Second, the narrative around Ethereum and DeFi goes from "big hype, no delivery" to "oh shit - maybe this can actually work" as low gas fees allow you to make product pitches without huge caveats. Don't underestimate the burden this relieves on cryptocurrency startups as they try to find product-market fit in a system that currently has such high gas fees.

I will note one caveat. In the very short term, when scalability first onboards, it will take time for demand to emerge in response. It took Binance chain 5 months to really see the exponential growth play out. In this period, gas fees may be substantially lower and enough users may not have emerged to increase activity and compensate, so we could see a temporary period of lower overall transaction fees - leading to lower estimates of staking yields and transaction fee burning. I can't imagine that scalability will be a negative narrative catalyst given that it so dramatically improves Ethereum's real world use case, but there will be a period of doubt where Ethereum skeptics extrapolate the fees to show that Ethereum is not net deflationary. Per Ryan Berckmans[89], we're already seeing this, at least temporarily, in the past week likely due to a recent increase in the gas limit on the Ethereum network and the use of flashbots, a scaling technology. It remains uncertain but its worth acknowledging as a possibility.

## Non-Fungible Tokens

Non-fungible tokens (NFTs) are a new use-case for blockchain technology that really emerged on the Ethereum network this year. NFTs that we've seen this year have largely been used in art, whether digital media or music albums, and collectibles. More recently, I've seen the technology used to monetize writing - here's a link to cult classic "Meditations on Moloch by Scott Alexander" in NFT form[90].

NFTs are an entire discussion into themselves, but suffice to say if you think you've heard enough about NFTs now, just wait until network scalability improves. NFTs add an entire layer of narrative moving discretionary demand flows to the network. I'm linking here to Andreesen horowitz's "NFT Canon[91]," probably the best resource on NFT's if you want to learn more.

## Decentralized Finance (DeFi) is exploding

Even without scalability, DeFi has been accelerating. Per @DocumentEther, "Decentralized exchange volumes [are] up over 8000% in the past 1 year."[92]

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[89] Citing a conversation Ryan Berckman in twitter DM's, with permission.
[90] https://zora.co/scottalexander/2143
[91] https://a16z.com/2021/04/02/nfts-readings-resources/
[92] https://twitter.com/DocumentEther/status/1385630765858246659

As you can see on the right, tractable use cases are starting to emerge as Visa now accepts USDC, a stablecoin pegged to the US dollar, via the Ethereum network.

Mar 29, 2021, 05:00am EDT | 68,767 views

**Visa Will Start Settling Transactions With Crypto Partners In USDC On Ethereum**

**Nina Bambysheva** Forbes Staff
Crypto & Blockchain
*I cover cryptocurrencies and other applications of blockchain*

### Proof of Stake security improvements reduce geopolitical risk

If you listen to the Bankless podcast episode with Ethereum researcher Justin Drake[93], you'll notice how much of an emphasis the shift of Proof of Stake puts on security. Per Justin Drake, the ratio of dollars necessary for security to market cap of asset secured is the key ratio to watch. The shift to Proof of Stake both dramatically reduces that ratio and introduces game theoretic devices (slashing the staked ETH of nefarious actors on the network) to make the Ethereum network after the merge substantially more secure against the various types of possible attacks than the Bitcoin network.

This has 2 major implications. First, major hedge fund managers like Mike Green of Logica have expressed concerns over the lack of decentralization of bitcoin mining hubs. He suggests that at a high enough market cap, this could allow Bitcoin to pose a real geopolitical threat. Anthony Pompliano, a prominent Bitcoin investor, disagrees[94]. Similar to the climate change issue, however, Ethereum manages to totally sidestep this debate as proof of stake allows anyone to validate transactions without an expensive computer, increasing decentralization, and is built to be more efficiently secured at higher market caps than Proof of Work. Second, if I'm going to suggest that Ethereum can achieve a price as high as $150,000, I'll be claiming Ethereum's market cap will be above $15T. While the market cap is sub-500 billion, geopolitical security risks aren't a point of discussion, at $15T the incentives for a malicious actor become incredibly high. By merging to proof of stake, Ethereum quells security risks at higher market caps before it gets there, preventing the fear and uncertainty that might cause a fund to sell Bitcoin at similar valuations.

## Discretionary Retail Flows have easier onramps

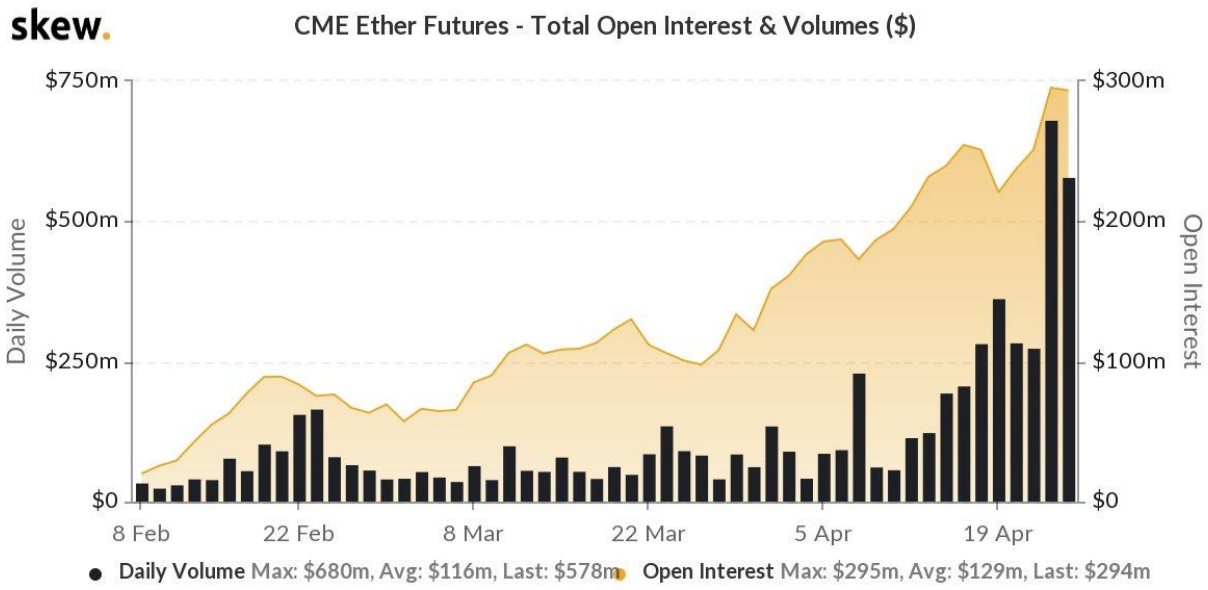
I hope you'll agree that investors from retail to institutional will find much of this narrative incredibly convincing, especially in the context of rising ethereum prices. However, for your everyday retail investor, investing in cryptocurrency used to be difficult. People don't necessarily want to open an entire new Coinbase account just to buy into a single asset. However, there are

[93] https://shows.banklesshq.com/p/-ultra-sound-money-justin-drake
[94] https://www.youtube.com/watch?v=zA5jnK4v884

many more ways for flows that have been convinced by the ethereum narrative to pull the trigger in this cycle than there were in the past.

Robinhood Crypto started January 25th 2018 - the end of the last crypto cycle. Moreover, Paypal and Venmo[95] have announced they will have offerings to purchase cryptocurrencies. This is the first full cryptocurrency bull run where most adults I know, without opening any new accounts, will find themselves able to buy ethereum if they so choose. Oh and I almost forgot, an ETF is coming.

## Discretionary Institutional Flows have easier onramps




Ethereum futures[96] were only released by CME on February 8th 2021, so this is the first chance major institutional flows have had to access Ethereum exposure in this way. As you can see with the increase in daily volume, they are gaining more and more traction. Just like I mentioned with ESG funds earlier, I believe CTA futures flows are likely to increase exposure to Ethereum the more the narrative is adopted. If Ethereum begins to see volatility beyond its previous cycle, a CTA fund that adds it as a diversifier could view this as an edge to outperform competitors.

Generally, Ethereum at $300B is much more investable as an asset class for institutions as well, and if it reaches the market cap of gold, with a dividend and ecosystem, it could attract major institutional flows from a dramatically different investor base.

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[95]https://www.newsweek.com/venmo-app-cryptocurrency-how-buy-sell-bitcoin-ethereum-litecoin-bitcoin-cash-1585305
[96] https://twitter.com/DocumentEther/status/1386352545078013957?s=20

I'll go into detail on this later on, but Ryan Berkman has written a case for valuing Ethereum like a traditional equity - a discounted cash flow model based upon Ethereum's network revenue YTD. If you model fees as returning to stakers through fee burn or staking rewards, this valuation model makes a lot of sense. I think it's important not to underestimate the importance of a valuation model in attracting institutional investor discretionary demand flows.


Finally, as institutional flows have found their way into Bitcoin, resistance is lower to entering Ethereum when narrative adoption rises. More specifically, to reference the Pomp tweet[97], the rate of JP Morgan client money moving into Ether per unit of Ethereum narrative adoption will be much higher now that the bank has developed cryptocurrency strategies, pitched clients on it, and raised a fund.

## Flows from Cryptocurrency ETFs (both retail & institutional)

Ethereum and Bitcoin are likely to have US approved ETFs sooner rather than later given Canada has already approved their own. How will this impact demand?

### Structural aspects of ETH ETF Flows

Ethereum ETF inflows and outflows act like structural buying or selling because the ETFs have no choice but to buy/sell ethereum to ensure their ETF tracks the price of the underlying ether. If there is a liquidity mismatch, where it is easy to buy the liquid ETF and provide funds, but it is difficult for the ETF provider to purchase the illiquid underlying, it could create forced buying of inelastic ethereum supply flows.

If Ethereum tokens are incredibly illiquid, and a billion dollars of investor flows[98] enter the ETFs, the ETFs have no choice but to buy Ether regardless of how illiquid the underlying Ether is. We've already talked about this, but between significant investor flows into staking, significant investor flows into locking up their Ether in DeFi, and significantly increased rates of Ether HODLing, these new funds aren't going to find a lot of available supply - but they have no choice but to buy anyways, at any price. Again we're back to our volatility model - Illiquidity breeds volatility. More illiquidity breeds more volatility.

[97] https://twitter.com/APompliano/status/1386642136851001345
[98] The amount of US investor inflows to an Ethereum ETF is unclear. If you look at the first 2 days of documented inflows into the Ethereum ETF's approved in Canada and assume the US will see 10x those flows, you get $1.2 billion in flows in the first 2 days, so it seemed like a good start.

### Other relevant features of an ETH ETF

1. The Ethereum ETF will be unique because it can stake its Ether. This means the Ethereum ETF will provide a dividend to investors and likely attract even more flows than Bitcoin's ETF after investors figure this out. Note that currently Bitcoin's ETF is getting more flows in Canadian ETF releases. This makes sense as Ethereum currently pays no dividend yet without Proof of Stake and Bitcoin is the well recognized household name. That will likely change.
2. When investors can set and forget their Ethereum exposure in a dividend paying ETF, HODL behavior will likely rise as investors set up standard dividend reinvestment plans with their Ethereum ETF holdings. Do you really need to time the market top if you're collecting a 25% yield?


Canada's Ethereum ETF's[99] were just recently released to unusual amounts of volume, leading to expectations that when a US ETF arises, it will be a seismic event for Ethereum demand inflows. Given the immense staking illiquidity, @smilingllama may have the most accurate market forecast[100] I've yet seen for Ethereum's future price in this tweet.

## How much of Ethereum's narrative is already priced in?

As I've discussed, I strongly believe the structural flows from the triple halving *cannot* be priced in. However, the discretionary flows from retail and institutions could easily have already affected price based on most of this information. Has this happened? From the perspective of most Ethereum investors, it's hard to believe this is the case. I've seen Ethereum misspelled on CNBC and downright ignored, and no one seems to know what Ethereum is at all. However, can we quantify this? I've mentioned how even now, without any shift having occurred yet in the kinds of flows Ethereum is experiencing compared to Bitcoin, the ETH/BTC price ratio is breaking out. Well look at the ratio of Ethereum to Bitcoin in terms of their Google Searches! Due to scaling issues, please ignore the absolute value of the Y-axis and focus on the trend ( Ethereum actually gets significantly fewer search results in absolute terms than Bitcoin; Methods[101]).

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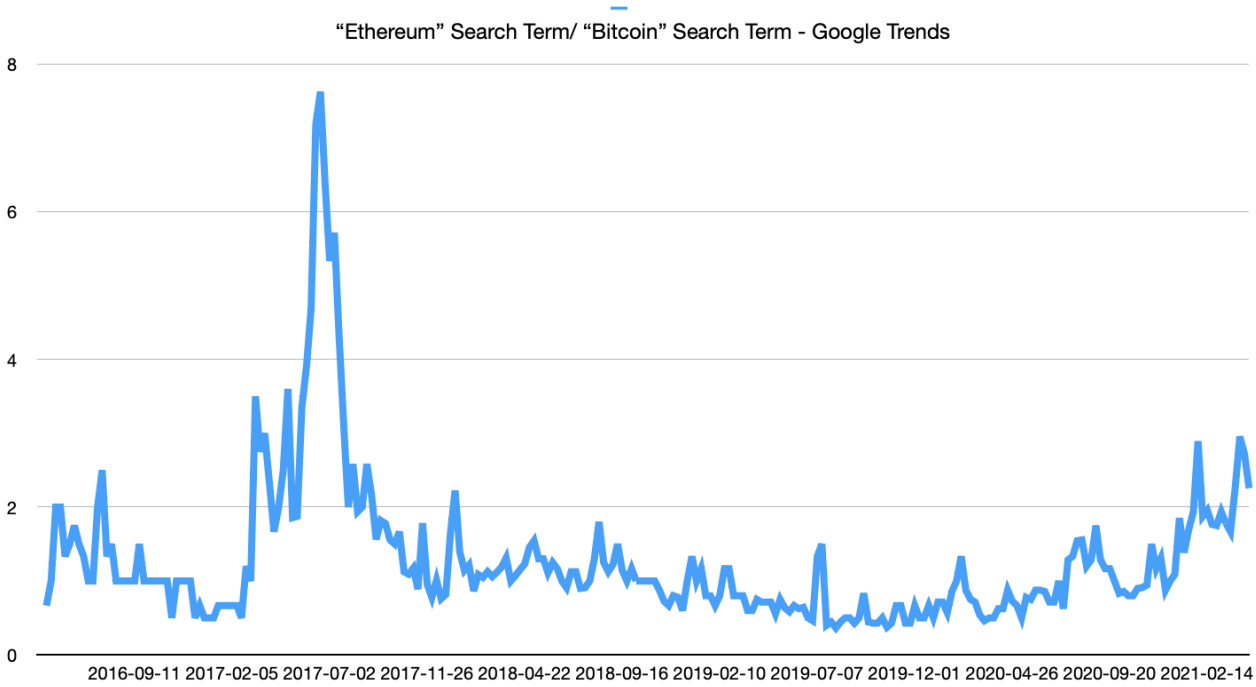
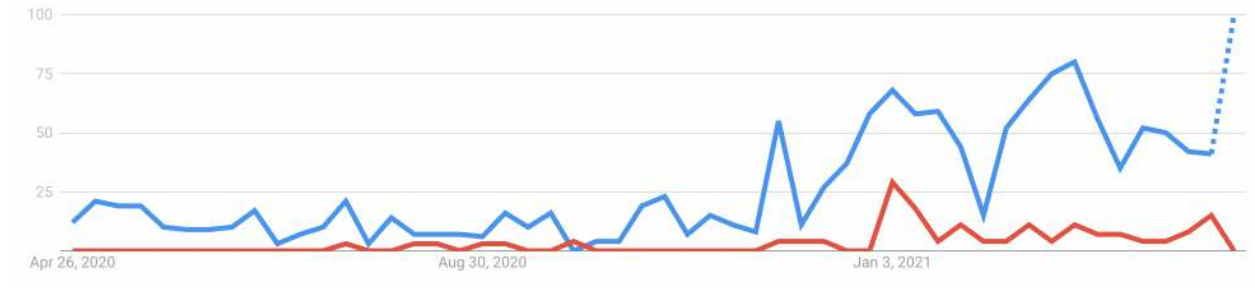
[99] https://twitter.com/ericbalchunas/status/1385199191341867009?s=21
[100] https://twitter.com/smilingllllama/status/1385571166736326657
[101] Method: I downloaded the Ethereum and Bitcoin Google Trends data for the last 5 years separately (when downloaded together, Google scales the data down and Ethereum has multiple "<1" values that break the math). I then divided them to get a sense for the trend ratio. The absolute number, however, is useless as I ignored scaling. Again, this chart does NOT suggest Ethereum has been getting 2x the search interest of Bitcoin, only that the relative search interest has doubled in ETH's favor.




Technical analysts all of this past week have been noticing this in the Ethereum/BTC price chart, and it's worth noting that as far as narrative adoption of Ethereum to Bitcoin, the same ratio is awakening. I think this also supports my crude theory that the ultimate arbiter of narrative adoption is price action.

CNBC Awareness isn't great either. Check out the graph below. Moreover, when you actually google "Ethereum CNBC" look at how many of those articles are Bitcoin or Coinbase articles rather than actual articles covering Ethereum-related topics. I truly believe Ethereum has received nearly 0 coverage in mainstream media, and that outside of largely a core group of cryptocurrency enthusiasts and developers, the world considers Ethereum and Bitcoin to be the same. Price action, with high BTC to ETH correlations, reflects this.

*Google Trends: Blue "Bitcoin CNBC", Red "Ethereum CNBC" 4/26/21*




It's no wonder that even within cryptocurrency investor circles, everyone talks about Ethereum price targets in terms of Bitcoin's price or asks me if my price target for Ethereum is "for this

cycle?" My response, as someone outside of crypto, was always - Why would Ethereum's price operate on 4 year cycles? It doesn't undergo 4 year halvings. The obvious answer is that Ethereum's price to this point has almost entirely moved off of Bitcoin-adjacent contagion inflows (rebalancing of cryptocurrency diversification into Ethereum, people wanting a bit of "higher beta crypto exposure," etc) rather than moving off of its own narrative. The only time it did that, it moved due to a weak initial coin offering narrative that had no more promise than broken internet companies of the 2000's tech bubble.

This Bitcoin halving cycle, however, is different. Ethereum is no longer without a narrative home. It's not just sound money, it's ultrasound money. It's not just a means of exchange, it's moving scalability up by over 100x in the next few months. It's not just a unit of account for enthusiasts, it is an economy denominated in ETH whether in NFT pricing or yield being denominated in ETH rather than USD or maturing DeFi products using ETH to denominate gas fees. **Ethereum, even just from a narrative perspective, is a different asset class than Bitcoin, entirely.** Yet its price, has never yet reflected this difference. What happens to price when Ethereum finally has its own halving event in a much more powerful way in the context of immense illiquidity?

# Part 5: Analyst Targets for Ethereum's Supercycle

## Approaches to valuing ETH

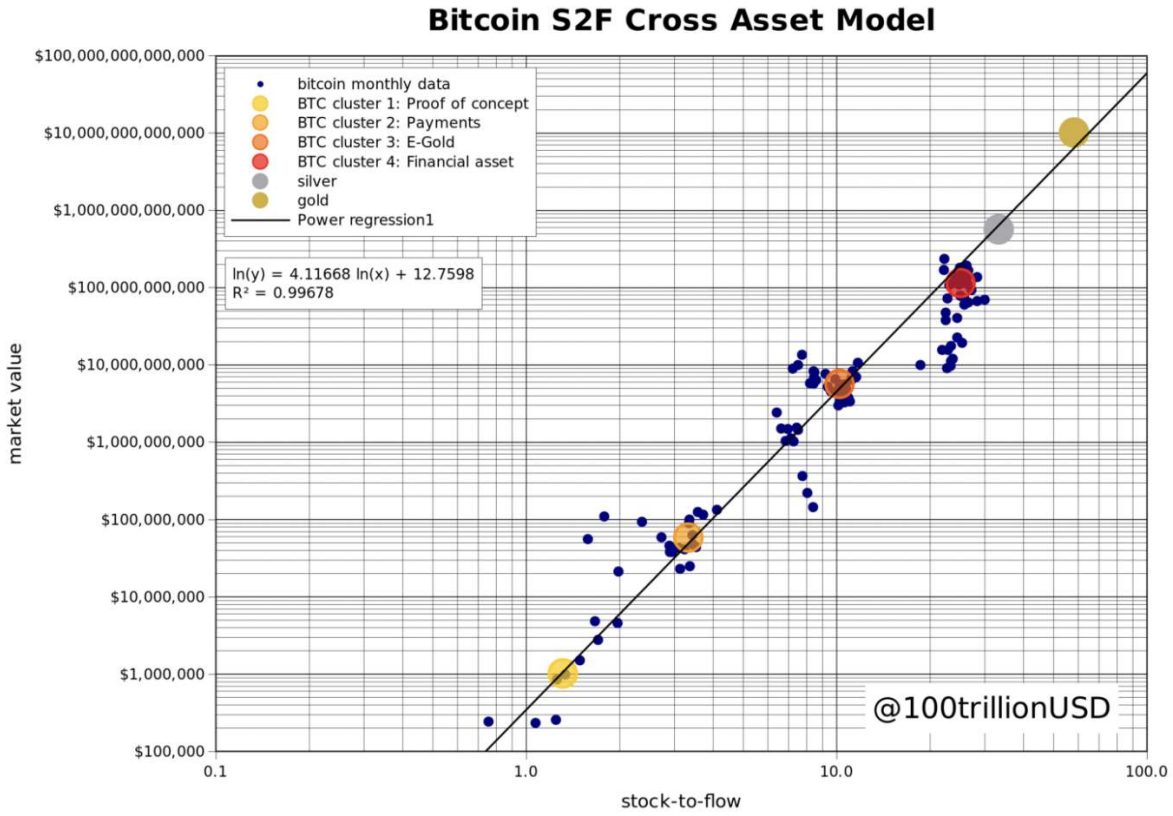
### Apply S2FX to BTC

The most common method to value Ethereum so far has been in comparison to Bitcoin valuation methods. Bitcoin analyst Plan B[102] popularized an approach to valuing Bitcoin called the "Stock to Flow" model. "Stock" being the amount currently circulating, and "flow" being the amount of new issuance. He applied this to assets that, like bitcoin, presumably had hard caps on supply like gold or silver and regressed Stock to Flow against price to get a valuation model.

What makes Bitcoin unique is that every halving, its issuance drops and stock-to-flow ratio rises. Plan B's regression projected a $288,000 price for Bitcoin during the 2020 halving cycle. There has been significant debate on the econometric validity of this regression. I'm personally very skeptical that this isn't just another case of mathematics being misused. However, we're focused on narratives and the truth is this model is everywhere. Again, never underestimate the importance of a valuation model on moving institutional investment funds.

Ethereum has never previously had a "hard cap" on supply before, and it has never had a halving, so it's a gross oversimplification to apply the model here. However, many analysts take Bitcoin's 288k price target and apply a projected ETH/BTC ratio to get a simple anchor for where Ethereum's price could go in the 2020 halving cycle. In the last 3 years, the ratio has ranged from 0.02 to 0.1, leading to Ethereum price targets ranging from $5,700 to $28,000.

[102] https://100trillionusd.github.io/




As I've mentioned, this kind of "slap a multiple on Bitcoin's price" approach makes no sense. If Bitcoin's S2F model *does* have any predictive validity, you have to wonder why the price of Ethereum - which has no hard cap so far - would be so correlated to Bitcoin's S2F price targets. In my view either the model is completely wrong, or Ethereum is completely mispriced as a younger Bitcoin by current market participants. To date the main reason for their incredibly high correlation in my view is that Bitcoin's halving event generates broad money flows into all crypto assets and Ethereum joins for the ride. While the market is pricing Ethereum this way, a simple multiple will be predictive, but I fully expect this relationship to break when the triple halving event occurs.

However, for the first time after EIP1559, Ethereum will have a hard cap (the currency in supply at the time of the upgrade). It will have decreasing stock and negative flow. In my view, if Ethereum had the same stock to flow as Bitcoin, its status as at least equivalently sound money alongside its use as gas in a booming DeFi and NFT economy and its ability to provide significant investor yield while maintaining that stock to flow would at least merit a multiple of the value of its scarcity. However, Ethereum after the merge to proof of stake will have a negative stock to flow and rather than becoming increasingly scarce as it approaches a hard cap, its total circulating supply will decrease every year. It will not only be more scarce on an issuance basis, but be more scarce on a circulating supply basis than bitcoin each year. If we said this dramatically increased scarcity alongside the value of its emerging economy was worth a 5x

multiple of its current ETH/BTC ratio range, that would move prices to $28,500 to $140,000. This makes $150,000 an achievable price target.

Again, I'm actually skeptical that the stock to flow model has internal validity. I'll leave that to those with more modeling chops. However, if this is a model that moves the flow of money, especially in the context of immense inelasticity so that small money flows affect large price changes, it can be its own self-fulfilling prophecy.

## Comparable Payment Networks[103]


I made the point earlier that ESG funds in other payment networks could flow to Ethereum. Could we value it that way? I don't know if Spencer Noon meant this literally, but I took it that way. If just last quarter Ethereum settled 6.4x the transactions of paypal and paypal's market cap is $310B, then unless Ethereum extracts far less value from each transaction than Paypal, it should be worth at least $1.8T or around $16,000 as a base case. However, we know Ethereum staker's profit margins on transaction fees are 100% (70% burned, 30% to stakers). WIth the accelerating growth of transaction fees, a valuation of $64,000 doesn't require aggressive assumptions. However, with scalability onboarding in a few months, the growth rate should massively increase even from here.

## Metcalfe's Law

*"Metcalfe's law states that the value of a telecommunications network is proportional to the square of the number of connected users of the system" - Wikipedia[104]*

*"[On valuing network effects] a single fax machine is useless, but the value of every fax machine increases with the total number of fax machines in the network, because the total number of people with whom each user may send and receive documents increases. Likewise, in social networks, the greater the number of users with the service, the more valuable the service becomes to the community." - Wikipedia*

I had never heard of Metcalfe's law before Raoul Pal's tweet relating it to cryptocurrency prices in January 2021. I want to say, I have issues with his method here, but credit to Raoul Pal for always thinking out of the box. Raoul Pal[105] graphed Bitcoin's active addresses against Bitcoin's price and market cap and ran a simple regression on what looks like a very obvious relationship in the data.

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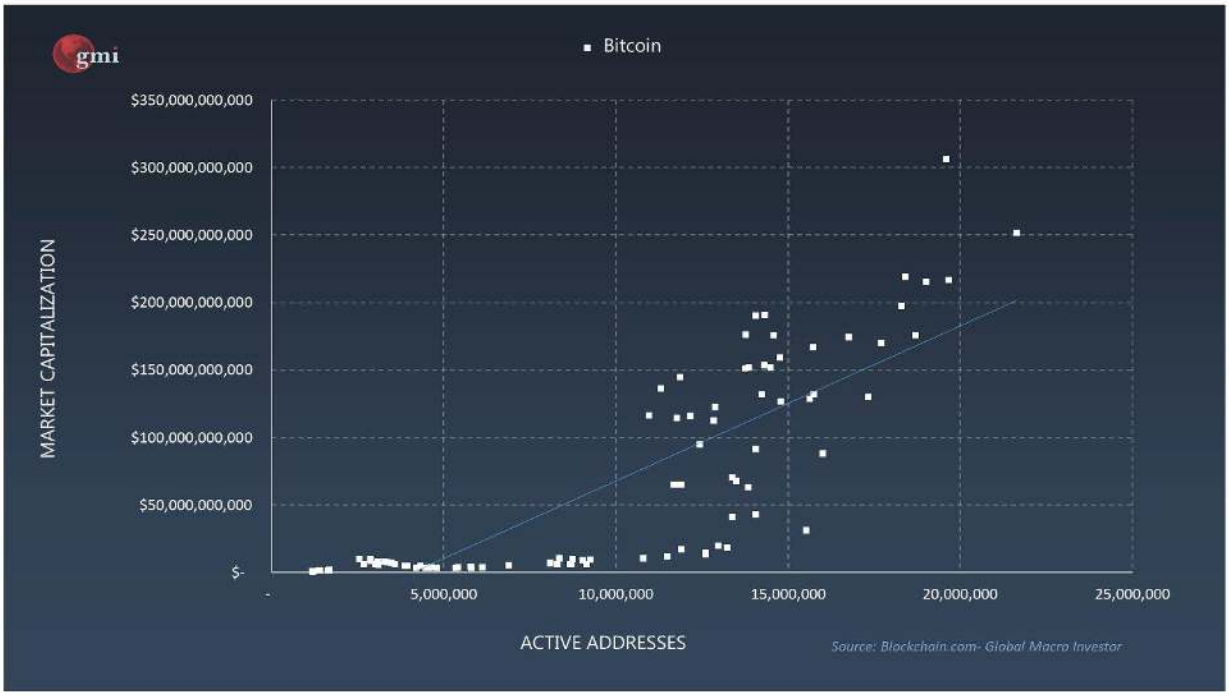
[103] https://twitter.com/spencernoon/status/1384844776432971776?s=21
[104] https://en.wikipedia.org/wiki/Metcalfe%27s_law
[105] https://twitter.com/RaoulGMI/status/1347013567799848961?s=20

The same is true obviously of Market Cap...

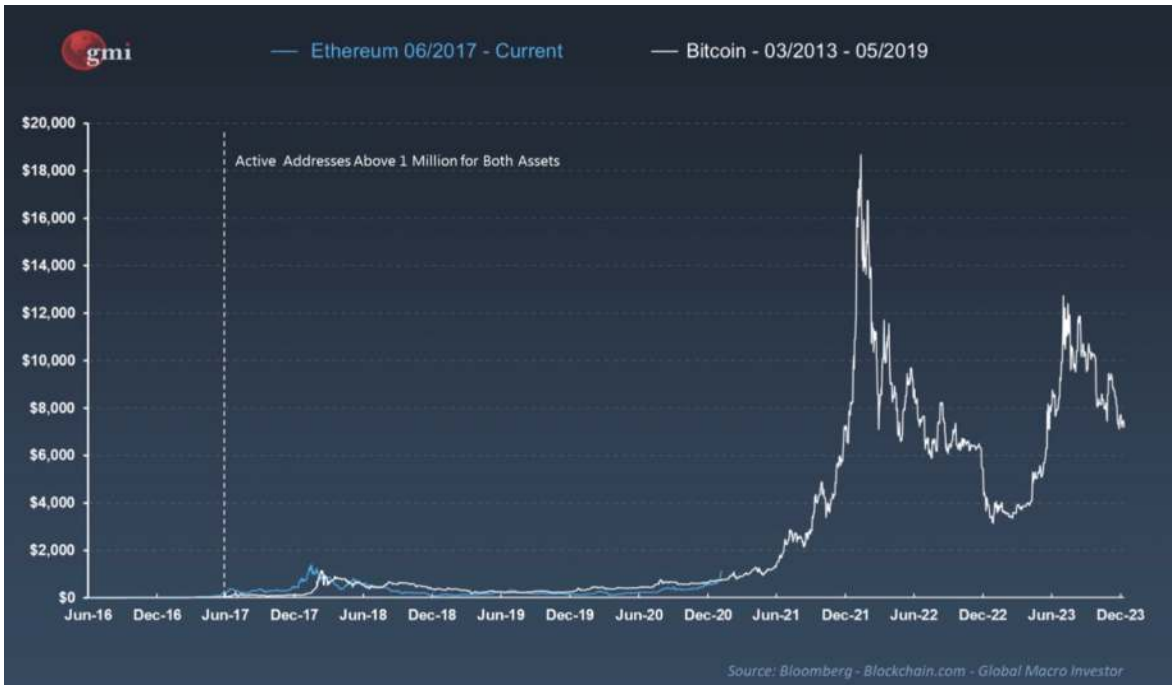



He then found that Ethereum's Active Address relationship to price looks exactly the same, just earlier because Ethereum is a younger network with roughly the addresses Bitcoin had in the last cycle. He then mapped Ethereum's price to Bitcoin's price action in the last crypto cycle (when they had comparable active addresses) and got a price target of 20k.

I think Raoul Pal is onto something with the idea that networks have value, and his model actually has basis in academic literature[106] from back in 2017. However I think he whiffs with the analysis from there. Want to know why Ethereum's market cap is related to its active addresses in the same way as Bitcoin's network so far in its history? Because Ethereum is being valued by the market as identical to Bitcoin but younger. To get to a price target of 20k, you have to believe that Ethereum's future active address growth will match Bitcoin's and that its market value per address will stay the same as how the market values Bitcoin's addresses. I believe neither, and I can even disprove the former.

The assumption that Ethereum's active addresses will grow analogous to Bitcoin is already dated. The first time the 7day moving average of Bitcoin's active addresses breached 950,000 was in January 2021[107]. Ethereum reached those highs in April 2021, just 3 months after Raoul Pal's tweet, and as of writing has more active addresses than the Bitcoin Network. From a narrative perspective, the Ethereum network is objectively larger than the Bitcoin network. Moreover, as I showed with Binance Chain's scalability explosion earlier, when Ethereum achieves scalability, we can expect the growth in active accounts to rise exponentially from there. Bitcoin's active addresses will not. This leaves alone the fact that Ethereum has more pathways to extract value from its network with a growing DeFi and NFT economy.

[106] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3078248
[107] https://bitinfocharts.com/comparison/activeaddresses-btc-eth-sma7.html#3y




I don't have Raoul Pal's math, so I'm not sure where his model would reprice Ethereum today. However, Raoul Pal valued Ethereum at 20k based on a valuation model where Ethereum was where Bitcoin was in 2017. Bitcoin today is worth ~5x what it was worth at its peak in 2017 and most Bitcoin investors believe the rally is not yet finished. If Ethereum now has more addresses than Bitcoin, it should be worth at least 5x the value of its Bitcoin 2017-based projected peak given current Bitcoin prices. I'd be surprised, therefore, if Raoul Pal's model didn't project at least a $100,000 price target given where active addresses are now.

At the moment, Ethereum has already bridged the valuation gap of an entire halving cycle with upcoming catalysts in scalability solutions to leave Bitcoin's active address count in the dust and extract more value per user. If Metcalfe's law does have any validity, Ethereum at $150,000 is not at all unreasonable in the next 18 months.

In my view, this relationship the market has created between the price of Bitcoin and Ethereum will break when the market begins to view Ethereum as a separate entity later this year. This tweet by @camchis[108] captured it quite well, and to get the market to listen, EIP1559, Proof of Stake, and Scalability are the perfect catalyst.


What did Raoul Pal get wrong here? In my view, he's making the same mistake everyone from the most bullish crypto analysts to the mainstream media makes independently of how well they know

[108] https://twitter.com/camchis_/status/1385201135582072832?s=21

the space. He's inadvertently anchoring to Bitcoin when he considers the future of what Ethereum can be.

A major lesson I've learned from hours of listening to volatility fund managers like Kris Sidial and Christopher Cole is that when correlations break, nobody expects it. I believe EIP1559 and Proof of Stake are a regime shift, expressed directly in supply and demand flows, and it will be seen as ludicrous within the next few years to have ever valued Ethereum in Bitcoin terms.

## Anthony Sassano on Staking Supercycle

Anthony Sassano has a fantastic analysis of Ethereum here[109] [110]where he points out the virtuous cycle coming to Ethereum staking. He describes succinctly why staking with a high APR leads to more staking and more Ethereum is pulled from circulating supply. However, he concludes with a conservative price target of 10k for "this cycle" and $100,000 "if your outlook is decades." Again, Sassano is an absolute Ethereum expert - understands the technology and its implications better than I ever will, and yet when it comes to his target price, he uses analogies to Bitcoin and the likelihood that Ethereum reaches a peak at Bitcoin's current prices. He titled his post "The Ethereum Supercycle," and I think our main difference of opinion is on when that supercycle will happen. Based on the analysis I've provided, I believe it will first takeoff in the next 18 months due to all of the identified flows entering a cycle of increasing illiquidity. He seems to think it may need decades. I hope to change his mind.

## The Discounted Cash Flow Model

Another recently proposed way to value Ethereum is via a discounted cash flow model. Ryan Berckmans and his co-author, Vivek Raman published their report on this recently[111] [112] [113]. You can view Ethereum's transaction fees as going directly to holders via fee burn and staking yield and value Ethereum on a cash flow basis - the same way you would for any equity. Given how much more comfortable institutions are with a discounted cash flow model than stock to flow models, this is a fantastic approach to valuing Ethereum and moving institutional funds.

Berckman and Raman model Ethereum stakers are collecting 99% margins on Ethereum transaction fees as fees accrue to stakers through staking rewards or fee burn. If you take transaction fee data in USD for the trailing 12 months and project it forward, you can get an estimate of the USD accruing in the future to ETH holders. Discount that back to the present and you get a value of Ethereum in USD! Their model values Ethereum at $16,700.

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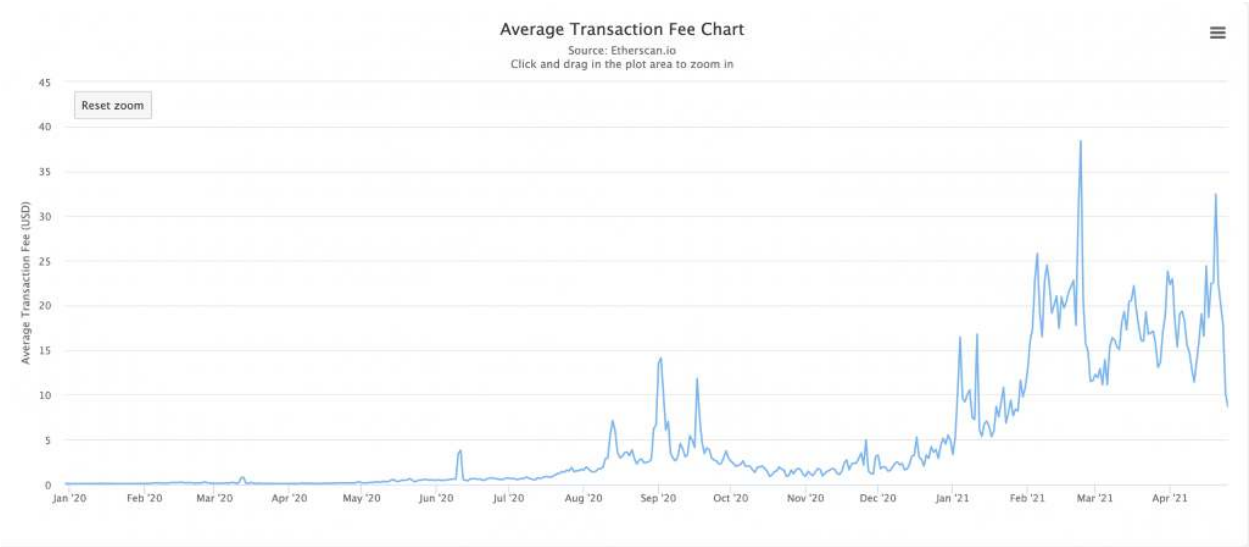
[109] https://thedailygwei.substack.com/p/the-eth-supercycle-the-daily-gwei
[110] https://thedailygwei.substack.com/p/fun-with-fundamentals-the-daily-gwei
[111] https://twitter.com/ryanberckmans/status/1384669430542598144?s=21
[112] The discounted cash flow model is in a footnote of his report on page3, performed by Ryan Alis, Author of Coinstack
[113]https://docs.google.com/spreadsheets/d/1rnGxZmE168XQoitgT3s1SiE8ZS-7rKa8xawkGfdWn1M/edit#gid=0




This sounds great, but I'm not sure all of their assumptions hold up. I'll leave their growth projections alone because they likely are better informed than I am on how the network is growing.

**Discounted Cash Flow (DCF) Valuation of Ethereum by Ryan Allis at Coinstack**

*Subscribe for free at Coinstack.substack.com.* | Join our Telegram group at t.me/thecoinstack | Model built: April 19, 2021

| Model Inputs | |
|---|---|
| Ethereum's revenue YTD | $2,160,000,000 |
| Projected revenue for 2021 | $8,000,000,000 |

| Current Value Per ETH | DCF Value Per ETH | Expected Increase |
|---|---|---|
| $2,300 | $16,770 | 629.13% |

**Ethereum Discounted Cash Flow (DCF) Valuation**

| ASSET NAME | Ethereum Valuation Based on Present Value of Expected Cash Flows | DATE COMPLETED | DISCOUNT RATE | 12% |
|---|---|---|---|---|
| Ethereum | $1,937,612,802,395 | 4/19/2021 | | |

| YEAR | YEAR DATE | INCOME | EXPECTED GROWTH | DISCOUNTED CASH FLOW | | PRESENT VALUE | NET PRESENT VALUE |
|---|---|---|---|---|---|---|---|
| | | NET CASH FLOWS | | PRESENT VALUE | CUMULATIVE PRESENT VALUE | | |
| 1 | 2021 | $ 8,000,000,000 | 150% | $ 7,415,047,063 | $ 7,415,047,063 | $ 7,415,047,063 | $ 6,620,577,735 |
| 2 | 2022 | $ 20,000,000,000 | 100% | $ 15,943,877,551 | $ 23,358,924,614 | $ 15,358,924,614 | $ 11,478,734,545 |

My first nitpick is the discount rate. In a valuation model, the discount rate can be boiled down to the multiple you're willing to pay on current cash flows for future ones. If you buy a stock with a higher multiple, more of your value comes from the future than the present. With treasury yields at 1.5% and S&P 500 earnings yields at 2.3%, I don't think the 12% discount rate that they used is reasonable. The renowned valuation professor Aswath Damodaran posts updates on what he believes the implied equity risk premium is on his website and he estimates 4.1%[114]. Therefore, a discount rate of 6% seems more apt. This would nearly double the valuation to greater than $30,000. However, this is a case for why value investors might get interested in Ethereum at $20,000. It's far too conservative in a flows-based market like today. Look at the approaches needed to justify the valuation of any number of unprofitable growth equities in this market, from Tesla to CRISPR therapeutics, and consider that Ethereum on its first day after the merge will be extremely profitable with 99% margins and exploding growth. This is another case where I

[114] http://pages.stern.nyu.edu/~adamodar/

think in the context of known incoming demand inflows and a supply shock, price could easily exceed $150,000 given today's market context.

However, there's another issue with this valuation approach that actually reveals a key insight as to how Proof of Stake unlocks the market value of Ether. In this DCF, Ryan Allis took Ethereum's YTD revenue and converted it to USD in order to perform the DCF analysis. However, actual staked ether will receive income purely denominated in ETH. The USD based revenue accruing to staked Ether is much more volatile than it would seem in ETH denominated terms as it both reflects the volatility of network transaction fees and ETH/USD price changes. Importantly, this analysis is philosophically circular - you can't assume ETH/USD price of $2,500 (market price) to calculate your inputs in a discounted cash flow model and then conclude that this price yields a fair value of an ETH/USD price of $16,700. When ETH/USD goes up to adjust to your valuation target, would your valuation target move up with it?

This sounds bad. For someone thinking about valuations as theoretical intrinsic value, it's terrible - it means we still don't have a way to ground ETH in USD terms with traditional valuation metrics. However, this actually is a great way to see where the value driver from Ethereum proof of stake comes from. The key insight here is that staked Ethereum, because it provides a cash flow, should be worth more than unstaked Ethereum. This makes sense in exactly the same way bonds are priced. If I can give you $100, get 5% back for 5 years, and then get the $100 back, I make $125 at the end of it. Depending on where yields are, the price of that bond can be discounted back to between $100 and $125. However, what is certain is that as soon as the cash is converted into a cash-flowing loan, its value as an asset is definitely above the original $100.

Similarly, in my view the key insight from Berkmans, Raman, and Alis' calculations is that we can view staking Ethereum like a bond. This is not a new insight - Bankless has been talking about Ethereum as a "triple point asset" for a while now - but the new aspect is that because we know yields, we can now assess in ETH denominated terms how much that ETH bond should be worth.

Consider it this way. If I can buy 1000 ETH and stake them for a 25% yield (Justin Drake's best guess for APR after Proof of Stake) and a 2% annual share repurchase (Justin Drake's best estimate for supply deflation after Proof of Stake), then my 1000 ETH produces a pretax "owners earnings" of 270 ETH. Let's assume I sell 40% to cover my tax bill, so I get an after tax earnings of 162 ETH per year on my 1000 ETH "loan" to secure the Ethereum network. Remember, I'm valuing it in ETH-denominated terms, so I don't need to account for ETHUSD risk. As a bond, in this interest rate environment with the S&P 500 at an earnings yield of 2.3%, a discount rate of 3% seems fair. This yields 5400 ETH. In other words, 1 staked ETH is worth 5.4 unstaked ETH. **Staking Ethereum unlocks more than 5x the value of each Ether**.

Again, this doesn't ground a valuation in a USD price. It purely shows how staking unlocks value in ETH denominated terms. However, it explicitly shows how Proof of Stake increases value for Ether tokens.

Let's consider 2 ways to ground the valuation in USD. First, consider that ETHUSD is at $2,500 right now. At this value, Proof of Stake gives us a price target of $13,500. You could argue that this is being priced in as Ether has been in an uptrend, but again - why would that uptrend be so highly correlated with the price of Bitcoin as Bitcoin will not be undergoing a shift to Proof of Stake. No, I believe the value unlock of Proof of Stake has not been reflected in the price of Ethereum indirectly through valuation nor directly through the supply/demand mismatch of triple halving.

Second, I mentioned earlier that Raoul Pal's valuation model doesn't account for the way that Ethereum better extracts value from its network through its emerging economy. This DCF model shows us how much better Ethereum will extract value than it did before. If Ether was worth $20,000 from Raoul Pal's valuation model assuming Ethereum had the number of active accounts Bitcoin had in 2017), and it unlocked 5.4x the value per Ether, that would give us a valuation of $104,000 without accounting for the fact that Ethereum active addresses has accelerated to outpace Bitcoin. Again, my $150,000 price target appears entirely reasonable.

## You cannot map last cycle's price chart


Here's a chart from "The Cycle Top… Isn't Here" by Ryan Alis.[115] I should start by saying he's an incredible writer and reporter on the cryptocurrency space. His coverage of the development of all of these assets is detailed, forward looking, and comprehensive. However, again when it comes to the way crypto analysts forecast prices, I take issue with the methods. I do not choose this example to pick on him, but rather because his work is so stellar that I know he can take a hit (Also do check out his past few articles - they're an incredibly rich source of learning material).

[115] https://coinstack.substack.com/p/the-cycle-top-isnt-here

It's a common crypto trope to project this cycle's price action by looking at the last cycle, overlaying the current one, and drawing a line on the chart. This, my friends, is what you'd call a "chart crime." It makes literally 0 financial or mathematical sense. I don't want to get too far off track on how price is a nonstationary variable and has drift so that the relationship between prices contains different information over time, so I'll just bring it back to my core argument - price is a function of flows. If the flows in this cycle are dramatically different than the flows from the last cycle (merge to PoS, illiquid staking activity, increased accessibility, ETF's) then price action in this cycle will not mimic the price action in the last cycle. I know it's tempting to put this kind of analysis out there, but in my view it only serves to confuse by giving false context when price uncertainty is actually just so, so high.

I'll also go farther and just point to a lesson I learned from Kris Sidial's interview[116] on the Flirting with Models podcast by Corey Hoffstein. Sidial talks about how in the volatility world, you can't even model projected forward asset volatility with historical data before 2018 because in 2018 there was such a big regime shift in how options prices move. He laughs about people modeling today's volatility with historical prices from 1999, and I completely agree. If you know the underlying market microstructure has shifted (concretely - you know the amount of circulating supply has changed, the way investors choose to move money has changed, etc), you can't anchor on the past like that.

The interesting thing of note here, however, is that when I fault ethereum analysts for projecting the past into the future, it is because I think price action will change in Ethereum's favor. I think Ethereum will be less liquid in the future, have less selling pressure, and have more differentiated demand inflows than it has had in the past. If Ryan Alis can project a minimum of $5,000 to a maximum of $27,000 based on last cycle's price action, that makes me feel like my base case of $50,000 and peak of $150,000 in 18 months (~6 more months than his projection) is probably where it needs to be. Every ethereum analyst seems to make this mistake, and I think it is holding them back.

## A thought experiment on market caps in a flows-based world

Before I talk about my price target, it's worth talking about market caps and how to view them. A big headache for cryptocurrency analysts is how ludicrous the numbers start to sound. Bitcoin has a trillion dollar valuation right now, and I honestly think the fear of sounding ridiculous played a big part in why analysts did such a bad job of projecting that earlier. If Ethereum is going to hit a $150,000 price peak, that's a $16T market cap. To really make this case, I need to address how insane that sounds head on.

While I do think market cap is as simple as supply*price, I don't think you can just assume that means $1T in funds had to flow into bitcoin for it to achieve that market cap. Remember, Bitcoin is incredibly illiquid due to a strong HODL culture and there is a lot of supply that never

[116] https://overcast.fm/+NrRUUnQLk Kris Sidial - Long Volatility for the New Regime, Flirting with Models Podcast

transacted in this up move. The actual funds required to move market cap from $100B to $1T depends on the amount of liquidity in the market. The less liquidity, the more price moves on smaller flows.

As a thought experiment, consider if I sold you a tulip for $100,000. Would that make tulips the world's largest asset class? No, because my transaction didn't move the price of all tulips. The tulip market couldn't realize that $100,000 price tag and would instantly resettle at normal tulip prices. But what if there was a tulip mania[117] and for a brief period tulip supply was incredibly illiquid and there were other people, few but enough, to maintain tulip prices at $100,000 for a few weeks? If you calculate market cap traditionally, given the amount of tulips in the world, tulips would likely be the new biggest asset class in the world. However, the total money flows needed to achieve that for just a few weeks can be a very small fraction of that value.

Market cap is not a useful measure of possibility, it's a useful measure for a floor - the price where all investors can realize their value because enough other investors agree it is worth that much. So, when I say my base case for Ether is $50,000 ($5.5T) and my target for the peak is $150,000 (~16T) I'm saying that I think investor sentiment could shift positively enough to realize the full 5.5 trillion in wealth increase, but I'm not necessarily saying another $10T on top of that needs to be invested. If Ethereum's market cap is 30% staked or locked and the rest is illiquid with supply demand mismatches and forced buying...a very small amount of inflows can take us all the way.

Viewing market cap as a "reductio ad absurdum" only works if you're assuming full liquidity. But the market we are in is a flows-based world, and we just don't have those kinds of liquidity conditions[118]. A model of infinite liquidity does a *terrible* job at explaining speculative, illiquid price peaks as in GameStop 2021. This is why I'm always so amused at how these events are reported as if a full $25B flowed into GameStop from retail and quant funds when in reality it took a small fraction of that to move price in the most illiquid market price debacle of the year.


[117] https://en.wikipedia.org/wiki/Tulip_mania
[118] https://twitter.com/jam_croissant/status/1331140999914147840?s=20

# Part 6: Target Price by January 1st 2023

**Base Case: $30,000-$50,000** **Target Price for Peak: $150,000**

*"If you were watching in 2017, and you put a price prediction, they probably would've all undershot what happened in 2017...but I think Raoul's approach, which is looking at historical price, I think makes sense...it's part of the reason I got so bullish on bitcoin a while ago. I said look every time there's a halving, this happens, and so I'd rather take the bet... even though I don't have a specific price target, it's almost like you're embarrassed to say what you think the actual price target is, you know, if it's [referring to Bitcoin] sitting there at $7,000 you don't want to say well it might go to $100,000 ….*

*Even for Bitcoin , I didn't give a price target but I said well, it's well north of here... I would kind of view Ethereum in the same way where if it's a good year for bitcoin, I would expect ethereum to also have a very good year, and likely outperform during the bull market of that phase...it's probably north of here and probably by a considerable amount" - Lyn Alden on a Dec2021 price target for Ethereum, Unchained Podcast*[119]

I love this quote because I think it shows how two incredibly astute investors (Raoul Pal and Lyn Alden) are looking at Bitcoin and Ethereum. I'll pause to note that while I disagree with them, they're both very likely positioned to benefit significantly if I'm right. Somehow skilled macro investors always manage to do that - if they're right they make money and if they're wrong they'll make even more!

In a sense, they are both right - the price of exponential assets has an incredibly wide confidence interval. It is really hard to know what happens. On the other hand, as Lyn admitted, there's a tendency to be embarrassed to say the 15x price target in case you're wrong in a way that makes you look silly.

I remember an episode of Meb Faber's podcast where he talked about analyst forecasts of the S&P 500 year to year. It turned out that while the S&P averages ~8%, it almost never returns 8% in any given year. Instead it has well known wide swings. Meb points out that if you have no clue what's going to happen, but you're bullish on the S&P, you're more likely to be right if you take the S&P at 15% than 8% because the asset just doesn't move in that mildly positive way very often. You're just putting the odds on your side. For cryptocurrency, even without all of these catalysts, the most fair price target would probably be either far higher or far lower than analysts would like to admit. If you're bearish on Ethereum now, and it's at $2000, you're not getting anywhere with a $1,500 price target - everyone knows Ethereum has more downside volatility than that on small swings. If you're right you'll undershoot the crash, and if you're wrong you'll be wrong anyways. It's like a trader setting his daily stop loss within 1 standard deviation of price - you know you're getting stopped out so why even put on the trade? If you have a belief about price action as an analyst, let it fit with the volatility characteristics of the

[119] https://www.youtube.com/watch?v=Dul7G-dVTic

asset, even if they look ridiculous. Don't be embarrassed - investing is about learning to bet your beliefs, and if you do that you're setting yourself up to be more likely to be right!

I also think this quote is a great way to introduce the key reason why my price target is so far from the crowd. Notice how both Raoul and Lyn, investors who I highly respect, ground their analysis in a bitcoin analogy. When they say "the halving has happened before," they're referring to Bitcoin and how Ethereum has done during Bitcoin halvings. There are times when valuation by analogy makes sense. However, when you have a first principles analysis like this - looking at the inflows and outflows, the elasticity of the market itself and catalysts in front of you - and it tells you the analogy is broken, you have to let it go. My feed is flooded with quotes on the ETH/BTC ratio breaking to new highs. By definition if I'm right, you'll do well by sticking with ETH as the ratio rises, but I worry you'll be underallocated (whatever that means for your portfolio management plan) if you don't see the magnitude of the move coming our way.

To get to a price target for Ethereum for this cycle that I can live with, I inverted my process. I started with the valuations to get a sense for long-term downside risk. If I'm wrong about literally all of the flows I'm thinking about, then this would be my base case.

Then, to get my expected peak price target, I started looking at flows. As Cem Karsan of Kai Volatility Advisors notes[120], in this market fundamentals don't have bearing on asset valuation. It's a flows-based world.

[120] https://twitter.com/jam_croissant/status/1384752488159588353?s=21

# Ethereum, The Triple Halving - 1 Page Investment Case

**PT $30-50k base case, $150k by Jan2023 in illiquid & speculative peak:** Prior valuation models based on inferior comparables (BTC Stock to flow, Payment networks, Metcalfe's law, DCF model on YTD fees) result in a 30-50k base case. In a flows-based market w/ triple halving catalyst, 150k is achievable.

**What drives 150k? Increased illiquidity, increased demand, catalyst, narrative adoption**

*Illiquidity Drivers:* Stake+DeFi locked up now at 12% market cap, incentives will bring to 30%. Fee burn removes most liquid supply first. Negative stock to flow means no release valve through issuance. Yields cause ETH HODLing to go viral more than BTC HODLing ever could.Yield starts at 25+%, yield is USD price insensitive, attracts more staking & more illiquidity.

*Demand Drivers*: New onramps for Retail & Institutional flows: Robinhood, Paypal, Venmo, Futures. Funds already did the work to get access to Bitcoin, so access to Ethereum will be faster. US ETF timing is wildcard. Massive relative to Canada ETF's so expect >1B in capital inflows. At $1T+ market cap, CTA flows, Risk Parity. ETF unlocks ESG, other discretionary.

*Catalyst*: Triple Halving event is a known catalyst. EIP1559 expected July 14th 2021. Proof of Stake(PoS) expected in Oct/Nov2021. This is a 90% reduction in issuance equivalent to 3 consecutive Bitcoin halving events. The events are staggered by 4 months, giving investors time to look into and adopt narrative.

*Narrative Adoption*: price leads narrative. Rise in price & ETH/BTC ratio  leads to narrative adoption. ETH is not BTC. Ultra-sound store of value, exploding active accounts & transaction volume, insanely low fees, attractive DeFi & staking yields, Visa accepts stablecoins, NFTs are fun, use-case more intuitive than digital gold. Narrative potential means until ETH search>BTC search, party isn't over.

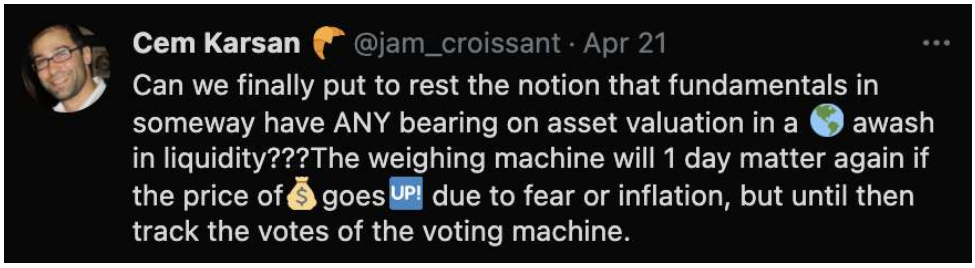
**Why is narrative not priced in?**

*Ethereum remains unknown:* Few outside crypto are familiar with Ethereum. Check CNBC mentions. Check Google Search Trends. ETH search results<BTC search by large margin. Why don't they know? In the last cycle, the world learned about Bitcoin, not Ethereum. When cryptocurrency mania last happened, the current narrative didn't yet exist. No plans for Proof of Stake or EIP1559, no DeFi existed. Notice how many parts of the Ethereum thesis were either only released in the last year or have yet to be released.

*Ethereum is priced via Bitcoin*: Due to lack of narrative adoption, the market prices Ethereum relative to Bitcoin. Ethereum is completely different from Bitcoin yet trades more correlated than stocks within the same industry. Bitcoin's narrative has dominated attention in the cryptocurrency space so far.

**Is a 16T market cap too high? Not for illiquid, manic, peak!** Proof of stake lowers geopolitical risk and increases network security at that market cap. It also locks up float so price is inelastic to new demand even at high market caps. Yield incentivizes further institutional flows which increases volatility.

**Buyer beware! $**30k-50k base case implies $3.5-5.5T market cap, which investors could sustain long term given fundamental network value. $150k peak, however, implies a $16T market cap, unlikely to be sustained past short-term. Illiquidity producing upside volatility just as easily seeds downside volatility.



## Buyer Beware! Easy Come, Easy Go.

Before we move on, I want to pause to acknowledge that an investment report making the case for a fat tail event is a different kind of investment report than many are used too. If Ethereum hits 150k, it will constitute a fat tailed event. A 16T market cap is larger than that of gold and nearly ⅓ of the market cap of US equities. I've made the case so far in this report for why the conditions are set up for such an event. However, it's important to note that the conditions are not necessarily set up to sustain a 16T valuation for long after. Cryptocurrency investors are familiar with this kind of manic peak followed by a major drawdown, but in this case the illiquidity conditions will cause the volatility to be even more massive. Illiquidity seeds volatility both to the upside and the downside. It's a double edged sword. As quickly as a final leg to 150k might happen, a drop back to 50k could happen even faster as investors attempt to monetize that 16T valuation.

This does not mean I'm not confident in my case. At less than $3,000 currently, I believe that a simple buy and hold investment strategy in Ethereum has an incredible margin of safety even if you ignore the 18 month volatility I am projecting. However, if Ethereum realizes a $30,000 to $50,000 market cap, the risk-return profile becomes more symmetrical from there.

## 10σ moves happen when major flows fade the 4σ move

This is a huge move I'm predicting. How do these kinds of moves happen, mechanically? Kris Sidial, of Ambrus Group, teaches that **the way you get a 10σ move is by having tons of people fade the 4σ move.** Look at Gamestop at 40. Look at Dogecoin. Look at Uniswap. Look at lumber futures now. Huge moves up, initial fade over a variable time frame, and then face ripping rallies through what always already looked insane. Christopher Cole teaches the same lesson when he says "Sell the first, small move to buy the next large move." It works because people have the tendency to mean revert on large moves without thinking about it too hard. Is this lumber mania or are people actually just building more houses than they used too? It makes a huge difference. Similarly, if investors see Ethereum go from 200 to 2,000 to 20,000 and think "there's no way it could go up more," they'll fade it without asking key questions. Is this crypto mania? Or is there an actual schelling point for cryptocurrency adoption occurring? When this happens, fat tails emerge.

With this level of illiquidity, expect extreme volatility. If Ether hits 20-30k, there will be significant short seller attacks, especially given the number of ultra-bullish ethereum investors I know who have 20k as their cycle peak target. Given the extreme leverage in the cryptocurrency space, many will (at least initially) succeed in triggering deleveragings, margin calls, fear & doubt, and short-term price collapses.

However, with significant organic demand - boosted by the supply/demand mismatch from the triple halving - significant short covering is exactly the kind of fuel that is necessary for the 4σ move to become a 10σ move.

Time is also on our side. The more staking or ETH that gets locked up in DeFi that happens before these major inflows, the better. I'm in no rush to see the Ethereum ETF. It would be lovely if it showed up in February 2022, and a 12 month delay from the Canada ETF release isn't unreasonable either.

## The Inner Monologue of an Ethereum2.0 Fan

The very nature of a long-term flows based thesis is that the confidence interval around a price target is extremely large. Every time I thought about it and estimated my achievable peak price target, I arrived at $150,000, so I decided it would be dishonest to hedge my bets with a more conservative target. However, sometimes even I will look at the $2,500 current price, get a bit of sticker shock, and need to reread my reasoning to avoid capitulating to a target that sounds less like I've lost my rocker. By the end of writing this report, my inner monologue became something of a crypto hype piece. Rather than hide it away to maintain the integrity of the research, I figured I'd separate it out for readers to view amusingly, skip if they so choose, and decide for themselves whether I'm just missing some other factor entirely.

***An Ethereum Investor's Rite of Passage - An Ethereum Hype Piece***

*What if I could convince you, as I've convinced myself, that ETH/BTC analogies are silly. That Ethereum is a different asset class than bitcoin. That Ethereum is better at being bitcoin than bitcoin itself. That after getting home from work as a store of value, Ethereum works a night job as a world computer, hosting a digital economy on the side. That due to scalability, active accounts will see exponential growth. That illiquidity is already north of 10% of market cap staked and only increasing. That fee burning from EIP1559 steadily drains liquidity even further. And that in the context of this immense illiquidity, Ethereum is about to go through all 3 of Bitcoin's halving events in the next 12 months. Would you stick to BTC analogies to ground your ETH price targets? Would you count on ETH/BTC ratios to guide asset allocation decisions? No, even if it requires the embrace of deep uncertainty, you'd reach higher because you'd know, deep down, that your silly BTC anchored price target is just gonna get torched.*

# Part 7: What Happens Next?

Remember, my entire thesis is about flows that can't be priced in until they occur. For me, the catalysts don't even really begin until July or really November 2021 when the merge to Proof of Stake occurs. These flows could take another 12 months to fully manifest, so my target price expiration date is January 2023 - at which point I'd have to pause and re-evaluate. With that in mind, after all these flows shake out, what happens for Ethereum in 2023 and beyond? Sure, there could be a speculative blow-off top and then a correction, but what about the long view - what about the coming decade?

## Does growth of the network after the Proof of Stake accrue to ether?

This is the big question for investors after these flows reach equilibrium. At that point, the flows into Ethereum become more like those of any ordinary asset, and price will likely move with organic growth of the network. However, astute analysts such as Lyn Alden and John Pfeffer have raised the question of how the ether will extract value from the Ethereum network. This will determine the investment case for Ethereum, especially if there are DeFi assets that extract more value from the same amount of growth in flows.

It's a question in any cryptocurrency investment. It's one thing to understand what it does, another to understand how value accrues to the oken. Is Ether an optimal investment after 2024 purely on the basis of its use as gas in the Ethereum network? I have a hunch that it depends on how aggressive you want to be in your portfolio. It could outperform equities for a decade after but dramatically underperform DeFi, for instance.

As a result, the time to look into smaller DeFi projects is now, while we sit on our hands and wait for the expected move in Ethereum. Look at big projects like Uniswap and Chainlink alongside smaller ones like Alchemix and Balancer. And look out for new names, names that don't currently exist, to break out and thrive.

## DeFi will accelerate

Markets are reflexive. In Bankless' Case for the Ethereum Bull episode, they talked a bit about how the last cycle's peak brought in a deluge of VC flows into the space. From what I can tell, the DeFi space is literally nothing like what it used to look like. Consider that a "blue chip" DeFi play like Uniswap didn't exist even in idea form back in 2017.

The one thing to not underestimate from this upside volatility is how much faster long-term funding will enter the DeFi space in the wake of this cycle. On a larger time scale, the same kind of "future is not the past" view will affect DeFi going forward. These fund inflows won't affect DeFi adoption for a few years, but they make me confident that DeFi will happen much, much faster than any linear extrapolation would suggest.

There could be a fantastic opportunity in 2024, when sentiment regresses to the mean and investors start to say that DeFi products “never met the outrageous expectations we had for them” just as massive funding flows enter the space to accelerate and develop out those products. Watch for it.

## Other sources of potential moonshot growth

There are many other sources of potential moonshot growth for the Ethereum network that are worth mentioning, as they could render current valuation models insanely moot, but are entirely speculative at this point. I’ll list them without an extended discussion.

1. The development of the metaverse in video games, virtual and augmented reality, and the associated NFT economy will likely be built on Ethereum. This emerging economy could end up much bigger than we expect as it creates new value for users.
2. NFTs for retail. If we start using blockchain technology for concert tickets and other daily events, that could dramatically increase TAM.
3. Tokenization of everything. This is a macro trend and would take place on the Ethereum network. Decentralized markets are 24/7 - why trade on the NYSE when Uniswap’s automated market maker is always open?
4. There is a lot of discussion of central bank digital currencies. Will any be built on or interact with the Ethereum network? If so, how will they interact with Ether?
5. Smart contracts could start to see a much more established use case in actual law if the funding comes in to kick that off. What does this look like?

# Part 8: How my thesis fails

1. EIP1559 or Proof of Stake doesn't get passed. Similar to Merger Arbitrage risk. The main risk here is miners revolting[121].
2. EIP1559 and Proof of Stake get passed but there are issues with the upgrade
3. Proof of Stake is delayed more than 2-3 months[122].
4. Transaction fees are too low after scaling for fee burn to have an impact on price[123]
5. Scaling could fail to reduce fees.
6. Volatility doesn't need to mean upside volatility. If illiquidity is created, but bitcoin peaks before demand can flow into Ethereum, maybe illiquid outflows tank the price too much for the triple halving to make a difference.
7. Ethereum is a "risk on" asset and a liquidation event in global markets would tank Ether with all the rest of the world's assets, just like in the 2020 COVID crash.
8. If Bitcoin has major outflows before Ethereum's narrative is adopted, it would be a major headwind for Ethereum's price that could acutely overcome the effect of the triple halving.
9. The SEC could decide to never approve the ETF or the ETF doesn't get expected inflows
10. The SEC could approve the ETF before Ethereum becomes illiquid, reducing the volatility when those flows enter the asset
11. Geopolitical regulatory risk could arise. If Ethereum at 100k is a ~10T market cap, this could easily become a new issue.
12. Ethereum's monetary policy could change towards a more inflationary stance[124]. It never has in Ethereum's entire history, but many Bitcoin investors seem to think that's a real risk they want priced so I figure I'd mention it.
13. What if the triple halving *can* be priced in? What if everyone *does* know about Ethereum and DeFi and I just don't see it in my information bubble? The unknown unknown is always a concern.
14. I could be *technically* wrong but incredibly close. With these kinds of flows and illiquidity events, the confidence interval on price is obviously extremely high. I wanted a falsifiable price target, so I picked $150,000. Price could peak at $100,000 before Jan2023 because there just wasn't enough fuel to move that extra distance.

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[121] https://our.status.im/vitalik-escalates-eth-2-0-merge-as-miners-plan-a-51-attack/

[122] There is concern that staking clients are too centralized, and this could delay the merge to proof of stake

[123] In the past few days, a scaling technology known as "flashbots" has caused gas prices to decrease dramatically, and fees have declined with it. It's unclear if this is a temporary decline and only time will tell if demand rises in response to lower fees.

[124] In the history of Ethereum's monetary policy it has only ever reduced issuance, but this is a major concern for Bitcoin investors so it is worth mentioning.

The truth is, I'm taking a big risk with the $150,000 price target. I think something is going to happen in the next 18 months that we've never seen before, and we've just seen Ethereum move from $200 to $2000 in 12 months, so that is saying something. I have incredible conviction in the fundamentals and flows, and I would be so frustrated with myself if I had this conviction, it paid off, and I hadn't put my work out there for fear of being ridiculed. If investing is about anything, it's about choosing which risks to take. At $2,500, I am excited to take on the risk of holding Ethereum. I'm excited to see how this plays out.

# Part 9: What is my edge?[125]

The goal of this report is to identify and explain an investment edge in Ethereum at today's prices. I believe I have an edge over other Ethereum analysts, and it would be ludicrous to say that relative edge is an edge in understanding the technology. I do not come even close to the understanding of decentralized finance and blockchain technology of professional cryptocurrency analysts. However, I believe there is an analytic edge to be had in understanding how unique the flow of money in Ethereum will be over the next 18 months, how that affects volatility, and how that cannot be priced in before the event.

My edge as an analyst has never been to be the hedgehog that knows one big thing, which is strange to say for a massive investment report on a single investment opportunity. Instead, I hope to be the fox who knows many things.  I believe the number of people looking at Ethereum's price seriously on a flows basis is low. Even for volatility traders interested in cryptocurrency, many of the flows I've discussed are longer term than their normal time horizons and the rapid change of DeFi and Ethereum's product cycle is hard to keep up with .

My understanding of Ethereum's outsized potential may not be new in the cryptocurrency community. However, as is shown in the position sizings of crypto investors, I believe most view the supply/demand mismatch as additional confirmation that Ethereum will move "a lot" rather than a reason to believe it will move more than riskier seeming bets in the DeFi space. The upside in the entire cryptocurrency space obscures the upside in ethereum. Everything in this space has "infinite potential".  How do you distinguish between 100 such choices? The past really doesn't foreshadow the future here, so again we have an edge - even one over crypto-native investors who know the catalyst is coming but underestimate its effects.

As I discussed in the initial framework, I believe the flows from the triple halving at least - the initial catalyst - cannot be priced in prior to the proof of stake merge event itself. This doesn't give me certainty, but it gives me another concrete edge on price uncertainty in the long term, and that's a big head start.

There is an information edge too, just not an edge over crypto investors. Look at the dates on the tweets I reference throughout this piece. Look at when EIP1559 was announced and Proof of Stake. Look at when Justin Drake released his spreadsheet giving us a quantitative glimpse

[125] This section is inspired by Darrin Johnson (@darjohn25), who explained in his podcast appearances that any aspiring investor should strive to clarify, refine, and state their edge as explicitly as possible.

at what was about to happen. The bulk of this thesis could not have been written 1 month ago. This isn't an information edge over many astute crypto investors, but it's a huge information edge over people outside of the cryptocurrency space who don't understand the difference between Ethereum and Bitcoin, let alone stay up to date with L2 mainnet rollouts.

# Part 10: Thoughts on Execution

## On position sizing and portfolio allocation

I believe Ethereum offers an asymmetric return with a long-term time horizon (18mo) in the context of multiple converging flows which offer an edge that cannot be priced in until after defined catalysts (EIP1559, Proof of Stake, ETF release).

Given we're investing in ethereum the asset rather than a smaller DeFi play or an equity with crypto exposure, I'm much less concerned about risk of fraud or mismanagement. This is where ethereum's position as the layer 1, and its decentralization, is so unique and comforting as an investor.

As such, I think the asset merits an outsized part of the cryptocurrency exposure in any portfolio. What that means for a portfolio will depend obviously on their approach to position sizing. For 100% cryptocurrency investors, I don't see the value in holding any other asset for the moment. This is not a Bitcoin maximalist take - there will be a time to hold a number of DeFi assets. This is purely an assessment of the risk and potential reward in Ethereum relative to the rest of the space for the next 18 months.

I vividly remember a discussion where Corey Hoffstein of NewFound Research discussed rebalance timing luck[126], the phenomenon where funds would choose an arbitrary single day to do all of their rebalancing. To paraphrase, he'd ask "by choosing that day, instead of another, you're taking on risk that your arbitrary choice is non-optimal. Are you being compensated for taking on that specific risk?" His implication was that if you did think that there was some structural reason that rebalancing on Jan1 brought superior returns with lower risk, power to you. However, if you knew it was arbitrary, then you were taking on uncompensated risk in choosing 1 day rather than diversifying your rebalancing dates. This concept, that investing is about making sure you are compensated adequately for taking on each and every risk you take, stuck with me. If I choose to invest disproportionate funds in a single ethereum position, am I being compensated for that asset specificity risk? In this instance, for this time horizon, with these catalysts, and this narrative, I believe that my risk will be adequately compensated. However, as soon as my expected returns on Ethereum are about the same as for other assets with asymmetric return profiles such as DeFi plays or any other opportunities I can find, I'll

[126] Hoffstein, Corey and Faber, Nathan and Braun, Steven, Rebalance Timing Luck: The (Dumb) Luck of Smart Beta (February 2020). Available at SSRN: https://ssrn.com/abstract=3673910 or http://dx.doi.org/10.2139/ssrn.3673910

diversify out of my position to make sure I'm always adequately compensated for risks I've taken on.

## Ethereum and Bitcoin cannot coexist in a portfolio for the next 2y

As I first learned about these assets, many smart people constantly tried to diffuse the tribal conflict between owners of these assets by saying "these two assets have different value propositions, they can coexist." They used to be right, but with EIP1559, that is no longer the case.

Ethereum is explicitly deciding to become ultrasound money, and with its use as a means of exchange on an emerging DeFi economy that is already merging with the fiat economy (see Visa's acceptance of stablecoins on the Ethereum network) and its use as a unit of account for DeFi and NFT's, when PoS and EIP1559 take place it will arguably be already farther along that path on the day of its ETH2.0 merge than Bitcoin has ever been.

This doesn't mean there's no place for any other cryptocurrency in a portfolio. Other DeFi plays offer exposure to risk and reward from a variety of other use cases including privacy, lending, exchange volume, etc. However, given the coming inflows into ethereum may stem significantly from previously prospective bitcoin investors, it does not make sense to keep both in a portfolio for store of value exposure.

## Long Term Capital Gains Tax, HODL to use deferred tax liability

As my thesis does not even get started until the merge to Proof of Stake, expected anywhere from October 2021 to early Q1 2022, there is plenty of time to buy Ethereum now and benefit from long-term capital gains tax when you sell. I believe that by not trading, and letting deferred tax liabilities compound in your favor, you'll optimize returns.

## This volatility will be ripe for traders

Darrin Johnson[127] notes that if you are a trader you must flock to volatility to be profitable. In my view, this volatility will be realized in Ethereum in the next 18 months. So, a few notes:

Short-term shifts in flows cause insane whipsawing like in last week's deleveraging. Avoid preset stop losses you'll miss major moves. Use slightly longer time frames. As a long term investor, I only ever really look at the Ethereum weekly chart, and the deleveraging in the last few weeks doesn't even register there.

Be careful with ergodicity when you use margin. Positive expected value doesn't mean you'll win if you position size poorly and can't survive through the volatility of the entire move. I may have a price target, but I don't know how volatile the path will be - I expect it to be unexpected

[127] https://overcast.fm/+QWswimpP4 - Volatility Trader Darrin Johnson, The Market Gaggle by Pollinate Trading

though, so I've refused to lever up even by 10%. If Ethereum flash crashes 90%, margin calls me out, and then rebounds, I wouldn't notice in real time...could that happen? Crazier things have happened in crypto.

I didn't mention any altcoins. If you know the right project, altcoins are small enough that there will be some altcoin somewhere that outperforms ethereum in its supercycle. Ethereum is a schelling point now though, and its risk-adjusted returns are just clearly much higher than any small DeFi project even if you've done your due diligence. Again, ask yourself the Corey Hoffstein question - are you going to be rewarded by market flows for your specificity? I think that this market isn't ready to recognize microcap DeFi value yet. The future will be DeFi. The present is about stacking ETH and calmly reading up on DeFi in anticipation of future buying opportunities.

Don't forget that HIVE blockchain might get bulldozed when mining turns off. It's a publicly traded proof of work miner that is primarily mining ethereum, and I remember kicking myself for not noticing it as, along with riot blockchain, it moved far more than ethereum and bitcoin in the initial parts of their 2020-2021 move. However, when the switch to Proof of Stake occurs, HIVE's business model falls apart. If the market doesn't price that, it could be an opportunity, but don't be the investor who doesn't connect the dots.

## Short Selling will come, welcome it.

As I said earlier, at the end of the super cycle, the way we jump from that 4sigma move to the 10sigma move is when people fade it. My guess is that in the context of these valuation models, we see major short seller inflows around 20-30k where people might think it more reasonable to short. They'll see Ethereum ultrabulls were hesitant the cycle would ever go this far, the initial valuation models had lower prices than this, and it's already moved so far already.

To trade this, look for the GameStop (Jan13th to Jan22nd), or the Dogecoin (Feb7th 2021 to April 13th 2021) move where they corrected from the initial right tail move, and that fueled the even larger move. I wouldn't be surprised to see a similar pattern arise in the price of Ethereum.

## Hedging your risk

Ethereum is a "risk on" asset, and if the market crashes, so will it. Knowing this, we can use non-linear hedges to increase purchasing power in the event that happens. Check out the short-term correlations of VIX to Ethereum. It might be worth hedging Ethereum with deep out of the money S&P 500 puts or VIX ETP call options with a small % of the Ethereum exposure (0.5%-1%) that is rolled every month or two. This will require thoughtful execution but could massively increase returns in the event a calamity does strike.

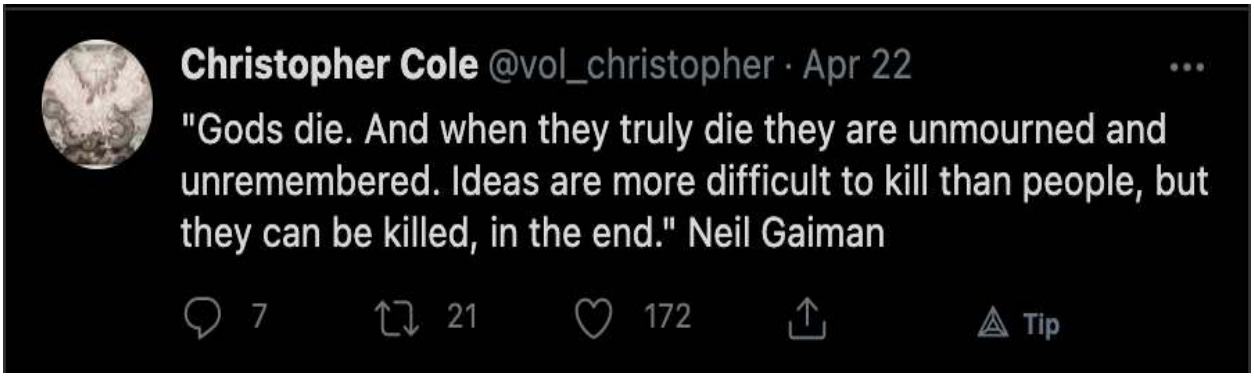
You could also try to time it. This wouldn't cover you from black swan risk, but could still create benefits. If you're going to try that, and like me you don't have the capital to just roll put options, check out Andrew Thrasher's paper on the VIX Tsunami for optimal signals to take your shots[128].

## Ideas for a quant

I haven't had time to look into volume metrics and crypto prices, and I'm starting residency in 2 months so I can't pursue this but given the flow of money is so dramatic, I wonder if there is alpha here. Crude metrics like on balance volume have potential but aren't helpful without normalization to the drift in volume over a cryptocurrency cycle. Definitely something that's worth looking into.

Another idea I had was on slippage. How does slippage work for cryptocurrency? When Ethereum starts getting less liquid, I wonder if traditional quant measurements of slippage will catch onto this or if people will get swindled by the large market cap into thinking they can run the same trades with low price impact. This is outside my expertise, but would be cool to look into further.

# Part 11: What's next for Bitcoin?




## Bitcoin Investors never understood volatility

People love to use words so casually in finance. "Bitcoin's volatility will reduce because…" but don't think too hard about how the rest of that sentence relates to the way volatility happens in an actual cause and effect sense.

Volatility is forecastable. Read Mandelbrot. It's a structural force in markets. Per the model I've laid out, Bitcoin's volatility is a function of algorithmic supply/demand dislocations caused by the halving event every 4 years along with HODLing to create illiquid supply. This effect cannot be priced in ahead of time by markets, and without any elasticity of supply, price must be volatile as it shifts from pocket of liquidity to pocket of liquidity. If bitcoin's algorithm is never changed, and

[128] Thrasher, Andrew, Forecasting a Volatility Tsunami (April 10, 2017). Available at SSRN: https://ssrn.com/abstract=2949847 or http://dx.doi.org/10.2139/ssrn.2949847

Bitcoin HODLers never sell, Bitcoin's volatility cannot reduce. One rebuttal might be that every halving, the issuance reduction is lower. I agree with this, but unfortunately the commitment to HODLing means that in every halving that smaller supply/demand gap operates on more illiquidity. It may not perfectly balance out, but volatility isn't going anywhere.

Let me be clear, I do agree with Bitcoin proponents that bitcoin's volatility has been a feature so far. It is price action that brings investors into the narrative, and once they're here there is a legitimate thesis on debasement of currency that meets a real investor need. However, for reasons of structural flows,  the core mechanics of the halving and HODLing that are so core to being an investor in Bitcoin will prevent volatility reduction. You can't expect illiquidity and supply/demand mismatches and expect reduced volatility unless you never look at how volatility comes about.

## The Flippening will cause (temporary) Bitcoin outflows

Once investors recognize that Ethereum is a deflationary store of value that is a means of exchange (gas) in an emerging DeFi economy and a unit of account (NFT's) while offering investors a meaningful yield, serious investor flows will rotate from Bitcoin to Ethereum. Bitcoin is Lindy, however. Its meme is so old that it will never die at this point. After major outflows settle, it will take its place as not much more than well….digital gold. As the original cryptocurrency, it will exist as fine art, a successful store of value among many others. However, it will never be the "superior store of value" given Ethereum's shift to ultrasound money.

The only rebuttal I have seen for why Bitcoin retains its status as the premier store of value is that Bitcoin is Lindy[129] and Ethereum's monetary policy has changed too often. This rebuttal is fragile to time. If in 10 years, ethereum has not changed its monetary policy and has lost 20% of its original supply and its circulating supply, while Bitcoin continues issuance, it will have lost. Markets won't be willing to wait and find out.

[129] I also have a philosophical bone to pick with this thesis. You can't just yell "it's lindy!" at anything that's old. The lindy effect is a place to start, not finish. I could easily say Bitcoin's age shows that digital stores of value are Lindy, and cryptocurrency is not going anywhere and then look for the best store of value and say I found Ethereum. Before Bitcoin, gold investors argued gold was Lindy so Bitcoin would never replace it. Let's stop bandying big words about and just dig into them a bit. If something is Lindy it should make us ask what about it has allowed it to survive for so long, and why we should believe that will last into the future, not just assume we can stop thinking about it.

# Part 12: Fun Predictions for the coming supercycle

Serious investing is about managing uncertainty, but sometimes it can be fun to make some concrete, falsifiable predictions and see how they go. Here are a few things I predict will happen in the coming months:

1. Before 2023 ArkInvest will release a PT for ETH that is 100k or higher
2. ETH/BTC ratio will surpass 100% of its previous all time high before 2023
3. Ethereum will flip Bitcoin in market cap by 2023
4. ETH-BTC's 200 day rolling correlation coefficient will drop below 0.4 by the end of 2024
5. ETH>150k before Jan2023
6. Bankless will revise their PT's upwards to 100k or more before Jan2023
7. If there is an ETH ETF, ETH exposure will be in someone's ESG ETF.
8. Peter Schiff will spend more of his time calling ETH nonsense than BTC by Jan12023
9. Pomp will comment on this discrepancy by Peter Schiff and imply that he should not have taken Schiff's bearish attention for granted all of these years by Jan12024
10. Elon Musk will add ETH to his balance sheet by Jan12023
11. Raoul Pal will go increase his ETH allocation even further than it is now by Jan 2023

# Acknowledgements

Thank you to @matterhorn, @LRonHoyabembee, and another dear friend for looking at early drafts of this when it still made 0 sense. I hope it's a bit more coherent than it was back then.

For all those Ethereum bulls who held on throughout the bear market, I am in awe. For me, this thesis hangs so much on new developments like EIP1559/PoS. I only started reading about cryptocurrency in April 2020, but for all of you this is a vision that you made your own.

If you the reader found this useful, here is my one ask: Whatever value you would have paid for this research, please consider donating that to Austin Speech Labs, a nonprofit devoted to providing intensive speech therapy to stroke survivors in the Austin area: https://www.austinspeechlabs.org/

Good luck.