Minutes of the Advisory Board Meeting

September 13th, 2024

The Grand Part of Bitcoin's Current Halving Cycle

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Key Take Aways:

- **Bitcoin's volatility remains a key topic, with opinions differing on whether it will decrease as the asset matures. In contrast, gold's physicality contributes to its stability.**
- **Combining Bitcoin and gold in a portfolio makes for excellent risk-adjusted metrics.**
- **We are now entering the part of Bitcoin's four-year halving cycle when large gains have historically been seen.**
- **The often misunderstood Stock-to-Flow model remains an excellent metric in predicting Bitcoin's price trajectory.**
- **Although institutional adoption of Bitcoin seems slow, significant shifts in sentiment, especially among portfolio managers, are happening.**
- **More nation-state adoption of both gold and bitcoin seems imminent as game theory plays out and state debt levels spiral out of control.**

Biography of our special guest: Chris Kuiper

- Chris Kuiper is the director of Research at Fidelity Digital Assets. He brings extensive experience in financial analysis and valuation to his role.
- Before joining Fidelity Digital Assets, he served as Vice President of Equity Research at CFRA, conducting fundamental analysis and valuation assessments within the consumer finance, capital markets, and REITs sectors.
- His career includes roles as an analyst for a large-cap value fund, a fundamental analyst at Calamos Investments, and a credit analyst at TCF Bank.
- In addition to his industry experience, Chris was a research fellow at the Mercatus Center at George Mason University.
- As a Chartered Financial Analyst (CFA), Chris offers invaluable insights into the evolving landscape of digital assets.

Biography of our special guest: Plan B

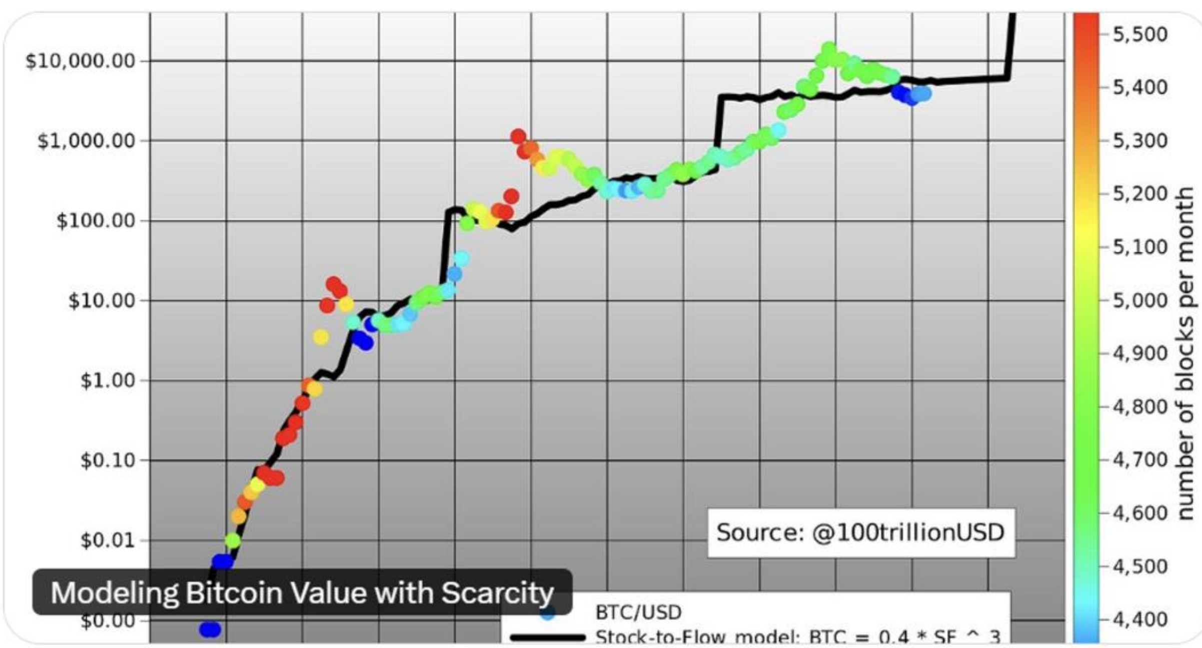
- Plan B is a distinguished Bitcoin analyst and the creator of the renowned Stock-to-Flow model.
- Plan B published his Stock-to-Flow model in March 2019, when the Bitcoin price was below $4,000.
- This model has gained significant attention and credibility within the Bitcoin community.
- Despite maintaining anonymity, Plan B has had a substantial impact on the discussion surrounding Bitcoin, offering valuable insights that both investors and industry experts highly regard.
- His contributions on X (formerly Twitter) and his analyses have significantly influenced the discourse on Bitcoin.
- In addition to following him on X, we highly recommend his monthly updates on Bitcoin on his YouTube channel, where he discusses trends and developments across various indicators related to the Bitcoin price.

Mark Valek

Welcome to our Incrementum Advisory Board meeting for Q3 2024. First of all, Ronnie is in the US, so I'm doing this by myself today with two very special guests. We are joined by Plan B and Christopher Kuiper, and today we will be talking about Bitcoin. I'd like to focus on institutional adoption, nation-state adoption, and the halving cycle. Welcome, gentlemen.

Mark Valek

We have two high-caliber guests who are very knowledgeable about Bitcoin, and we have a lot to discuss, especially regarding the halving cycle, which we find to be at a quite interesting point right now. I'd like to start by discussing the halving cycle in relation to the Stock-to-Flow model. Plan B, you're very well known for your model. I think it would be interesting if you could lay out the basic premises of your model before we dive into it.



From medium.com

Plan B

Sure. Well, as you mentioned, before going 100% into Bitcoin, I was an institutional investor for 25 years. As an institutional investor, I saw a lot of technical analysis in the Bitcoin space, but not much fundamental analysis, especially a proper valuation model. It's difficult to value Bitcoin with traditional models, like discounted cash flow, since Bitcoin, like gold, doesn't generate cash flow. I considered production cost-based valuation or even adoption-based valuation models, but I kept coming back to the idea that scarcity is what drives Bitcoin's value.

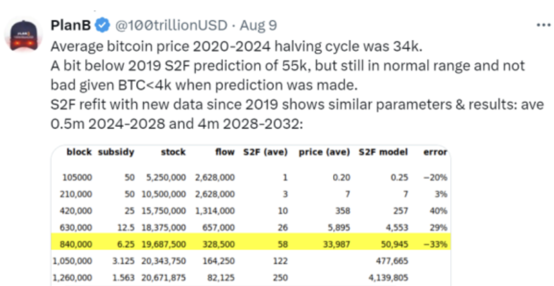
In 2019, I published an article proposing that scarcity drives Bitcoin's value. What drove me to Bitcoin was its limited supply—the fact that central banks can't print more Bitcoin, and its value isn't diluted like shares can be. To measure scarcity, I used the Stock-to-Flow ratio, which I was familiar with from commodities like gold. Stock is the total reserves, and flow is the annual production. For example, gold has a Stock-to-Flow ratio of 60, meaning its supply is highly scarce. Platinum and palladium, on the other hand, have a Stock-to-Flow ratio of around 1, meaning they aren't scarce at all.

I applied the Stock-to-Flow ratio in a simple regression model. At the time, Bitcoin was priced below $4,000, but the model predicted a price of $55,000, which many found absurd. However, over time, the model gained attention, and I ended up with 2 million followers on X (formerly Twitter). The model is not perfect, but it has sparked valuable debates and discussions.

Mark Valek

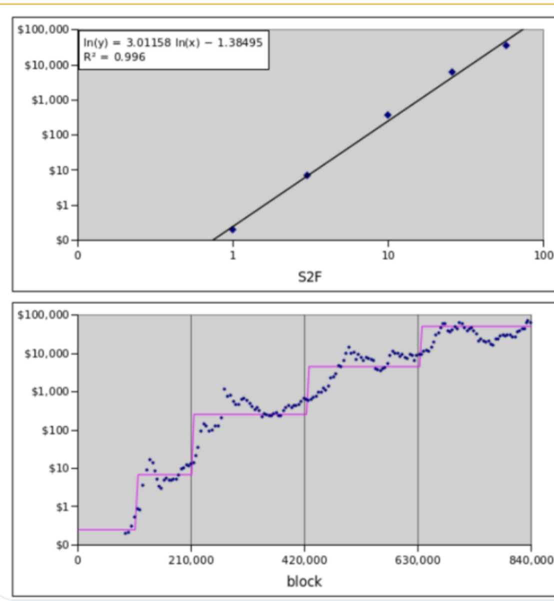
Thank you for that explanation. One of the common misunderstandings about your model is the broad range it predicts due to Bitcoin's high volatility and the logarithmic scale the model is based on. Recently, you tweeted some updates, and it would be interesting to go through those results.

Plan B S2F Model – Model Results vs. Live Results


PlanB @100trillionUSD · Aug 9

Average bitcoin price 2020-2024 halving cycle was 34k.
A bit below 2019 S2F prediction of 55k, but still in normal range and not bad given BTC<4k when prediction was made.
S2F refit with new data since 2019 shows similar parameters & results: ave 0.5m 2024-2028 and 4m 2028-2032:

block	subsidy	stock	flow	S2F (ave)	price (ave)	S2F model	error
105000	50	5,250,000	2,628,000	1	0.20	0.25	−20%
210,000	50	10,500,000	2,628,000	3	7	7	3%
420,000	25	15,750,000	1,314,000	10	358	257	40%
630,000	12.5	18,375,000	657,000	26	5,895	4,553	29%
840,000	6.25	19,687,500	328,500	58	33,987	50,945	−33%
1,050,000	3.125	20,343,750	164,250	122		477,665	
1,260,000	1.563	20,671,875	82,125	250		4,139,805	



Source X.com

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Plan B

Yes, that's correct. There are several misunderstandings about the model, but one of the biggest is regarding its wide prediction bands, which are due to Bitcoin's high volatility. Bitcoin has an implied or realized volatility of around 80%, making it one of the most volatile assets. Any model that tries to predict its price has to account for that.

I revisited the model after five years of new data, and what we found was that the average price over the last halving cycle was around $34,000, which is lower than the original $55,000 estimate, but still close given the initial conditions in 2019 when Bitcoin was below $4,000. With the updated model, the prediction has shifted slightly, with the current halving cycle predicting a price of $50,000 instead of $55,000, and the next cycle predicting $500,000 for the 2028 halving, and the next cycle the model predicts $4 million.

Chris Kuiper

I remember following your model closely when Bitcoin seemed to be tracking it month by month, almost exactly, which was amazing. But I think that period led some people to expect the model to give exact monthly prices, which it wasn't really designed to do. Regarding the model's bands, can you give us some insight into how long Bitcoin would need to stay outside of those bands for you to consider the model inaccurate?

Plan B

That's a good question. The prediction bands are quite wide. For example, the current halving cycle has a point prediction of $500,000, but the one standard deviation range is $250,000 to $1 million. Two standard deviations would be $166,000 to $1.5 million. So, as long as Bitcoin stays within these bands, the model is still valid.

However, if we look back in 2028 and the average price is below $250,000, it would be outside the one standard deviation range, and we might have to revisit the model. But, like I said, given Bitcoin's volatility and the limited data points we have, it's still a rough estimate.

Mark Valek

Okay, great. Perhaps, if I can just ask Chris at this point at Fidelity. Talking about valuation, it's a very difficult task to evaluate Bitcoin. I guess you have different models. Do you look at Plan B's model? Obviously, you do, because you know it very well, it seems. What is the array of valuation techniques you are looking at over at Fidelity?

Chris Kuiper

Yeah, so we've looked at a few. Some we've published and talked about; some we've just looked at internally. I think the easiest "back-of-the-envelope" approach is to go back to the investment thesis of Bitcoin as a store of value and aspiring money. Potentially, if it ascends as a store of value and money, people could use it as a medium of exchange. So you start doing a simple total addressable market analysis: What percent of X market could Bitcoin capture? And of course, gold, as you know, Mark, is the foremost market to capture first, in our opinion, as it's the most similar and can play a similar role in the portfolio. But we can talk more about that; I'd be curious to hear your thoughts as well.

We're only a fraction of gold's market now, but then you start looking at other asset classes that have a monetary premium embedded in them, like real estate. People aren't just buying real estate to live in; they buy it as an investment, as an asset to hold, and they expect it to appreciate, especially in certain tier-one cities or on the water, or what have you. You even have things like collectibles, art, and even equities. To some extent, a passive investor isn't looking at all the discounted cash flows of the equities they buy. They just view it as a savings vehicle and put their money in every single paycheck or month or whatever it is. So that's one way to do it, and everyone can run those numbers themselves, whatever they think is comfortable. You obviously get very wide bands, but it's a start.

The other thing we looked at is the stock-to-flow model. From the supply side, I know, as I alluded to, some people have disregarded it, or it's come out of favor as it's moved within these bands—they think it's broken. Personally, I still think it's very helpful to look at. It's a model that should still be looked at regularly as another data point. We include it in our quarterly signals report. We publish a report that has all kinds of on-chain data on Bitcoin and Ethereum, and we include the stock-to-flow model there. It's not verbatim Plan B's model because we get it from one of our data providers, Glassnode. I'm sure Plan B could talk about some of the differences there—he's got the original—but that's one thing to look at as well.

The other thing we've looked at and published on is the demand side. We published a piece called "Valuing Bitcoin." Here, you look at who's demanding it and how you could value it based on demand. One thing you notice is, if you chart a regression line of addresses—number of Bitcoin addresses—to the price, it matches up pretty well. As the number of addresses goes up, the price has gone up. Of course, there are correlation versus causation questions there, but it's a rough proxy. Then you say, well, if addresses could be a very rough proxy of users—and of

course, it's not perfect, because one person can have multiple addresses, or one address could be the address for thousands or millions of people at an exchange—but it's what we have.
If you think of that as one way to look at users, then you could start to map that onto other technologies that have been adopted. We looked at the adoption of cell phones and the adoption of the internet, and Bitcoin has kind of moved between those. You get very different bands based on that as well, but it is one way to project or look out at what the price could be. Again, the past is no indication of the future, but it's something to hang your hat on. I'd actually be curious to hear from Plan B—this is one thing we've wrestled with, or at least I'm wrestling with: people look at the price of Bitcoin and see diminishing returns. Obviously, Bitcoin had the most fantastic performance when it went from a couple of cents to $1, and from $1 to $10, and so on. So, of course, you're going to have fantastic performance in those early years.

Bitcoin Price Trajectory After Past Halvings (Indexed to 2024 Halving Price of USD 64,773 on April 20th, log), 11/2012-09/2024

Source: blockchain.com, Reuters Eikon, Incrementum AG

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But then, lately, with each halving cycle, you get a longer cycle, and you get a lower return, a lower upside with each cycle. So people conclude that this is the trend now going forward. But then I look at something like the demand-side model, and I say, we don't know exactly where it is, but I'm pretty confident that less than 10% of the world has truly adopted Bitcoin. So if you're going to map it onto things like cell phones, which have 90-plus percent world penetration, or the internet, how is it possible that we're going to have diminishing returns when less than 10% of the population still owns this?

If people are just listening and not looking at the video, I'm talking with my hands here—if you look at those S-curves of technology, there's an initial rise, and it kind of levels off. Then, when the mass market, the general consumer, adopts it—that middle piece—that's when the slope gets really, really high again. We're talking about adoption. So looking at something like 20% adoption to 80% adoption—most people have adopted it—there's a really steep slope there, especially for technologies like this, where you don't need a lot of capital infrastructure, like electricity or something like that. So to me, it doesn't make sense that the returns for Bitcoin have to keep diminishing if we haven't gotten to that middle part of the S-curve. But Plan B, you alluded to this in one of your videos, so I'd be curious to hear your thoughts on that as well.

Plan B

Yeah, I think very much like you, exactly like you. And so, I think that's one of the big questions for this halving cycle and the years to come: will there be diminishing returns or not? Because that would invalidate a lot of models and validate a whole set of other models. And that's the big question that every investor should answer for themselves. I do not believe in diminishing returns, and I've been very clear about it. I do not believe in diminishing returns for the exact reason you're talking about—the S-curve.

If you look at the S-curve, we don't know where we are exactly—whether it's 1%, 2%, 10%. I don't think we're even at 10%, but if you look at the S-curve—that's the percentage of adoption, the "S"—and it could also be the value if you apply Metcalfe's Law. But if you look at that S-curve on a logarithmic scale, you'll see that the growth of adoption or value is exponential until about 50% adoption, and then it levels off. So it must follow that if Bitcoin follows the S-curve, like computers, the internet, telephones, etc., its value must grow exponentially and not show diminishing returns until about 50% adoption. I really believe that.

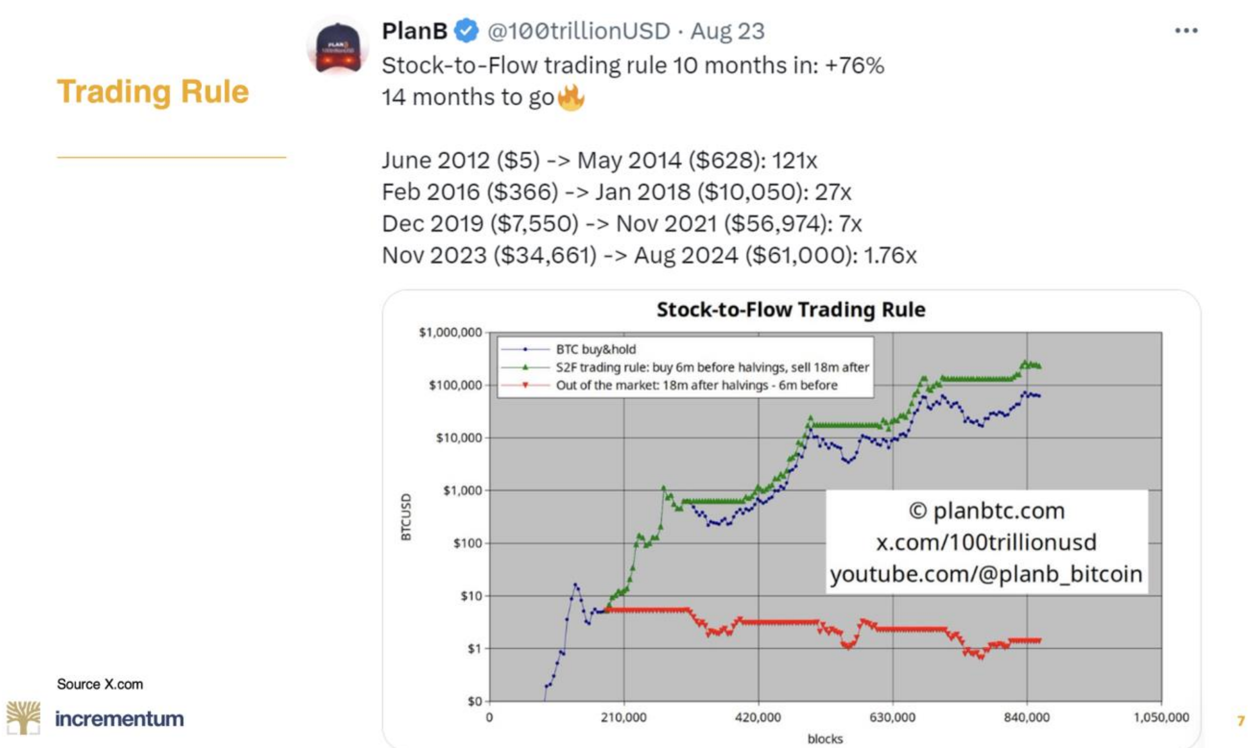
I also believe that I can understand why people see diminishing returns. Of course, if you look at the data, you see it—especially the last cycle was very off, but I think it's an outlier. Actually, no matter what model you take—the addresses model, the stock-to-flow model, the time model—it doesn't matter. You'll see three big outlier years: 2013, 2017, and 2022. The big all-time highs of 2013 and 2017, of course, but also 2022, which was too low. In my view, that causes the data to look diminishing, when, in fact, we'll see exponential growth. But I'm not sure, and that's what will be very interesting to see in the next couple of years.

Mark Valek

Great discussion. Thanks, gentlemen. Perhaps just to describe these diminishing returns for now, at least, which we saw during the first three cycles. We've had this page on for a few minutes now already, so we saw the first halving cycle from 2012 onwards with the highest returns. The second one, which began in 2016, in dark blue, had medium returns, basically. And the last one had, over the cycle, at least the lowest returns, right? So this is what we're talking about when we mention diminishing returns.

I guess we would actually need to see accelerating returns again to still validate the stock-to-flow model, right? I think one can also basically say that since the halving cycle... I don't know how long it's been—more than half a year now, I guess roughly half a year—we need to be over $250,000 on the average price. We haven't been there, right? We've been significantly lower. We obviously need significantly higher prices, at least for some time, during the next three and a half years, correct, Plan B?

This S-curve thesis, if it plays out, could still validate the model, which I think we all hope for. But perhaps, before we go too much into that part, I think regardless of whether one thinks returns may be diminishing or even accelerating, from a conservative investor's perspective, I'm okay if returns diminish as long as they stay positive, right? Even if one wants to take the conservative stance, one would be okay with diminishing returns as long as they're positive. But now, back to



this graph. Most of the returns have been in the first two years after the halving. This is basically what we saw in the last three cycles. Where are we currently in the halving cycle?

Plan B:
Yes, exactly. This takes us back to the discussion we had about wide prediction bands and diminishing returns. Let's first look at the previous chart because it captures a lot of key insights. It shows that most of the price increase happens shortly after the halving, then it stabilizes for about three years. We've seen this happen four times now, which suggests a pattern, though it could still be random. Another point is the diminishing returns over time, where the green line, representing the expected price increase, could fall below the brown line, perhaps somewhere between $100,000 and $200,000, or even lower during bear markets. If we follow this trajectory, we'll gain some clarity.

The wide prediction band is evident in the chart, with the upper yellow line and the lower brown line showing the limits of the band. This is the range of possible outcomes for Bitcoin, ranging from $250K to $1M in the Stock-to-Flow model. I created a simplified version of Stock-to-Flow because there were too many misunderstandings about it, with people focusing too much on econometric discussions like autocorrelation and cointegration. These debates distracted from the core hypothesis: that the halving increases Bitcoin's scarcity, and that scarcity is valued by investors, either directly or indirectly.
If you make a simple Stock-to-Flow trading rule—buy Bitcoin six months before the halving and sell it 18 months after—you'd outperform the buy-and-hold strategy. Buy-and-hold is the blue line, while the trading strategy results in the green line. The inverse strategy (buying 18 months after the halving and selling six months before the next) would result in the red line, which decreases value over time. While it could still be random, I believe Bitcoin's scarcity is fundamental and will drive value in the future.

Mark Valek:
Absolutely, this makes it more applicable and practical, even though it's not financial advice. You're right that 14 months remain in this current cycle, but I want to stress that we haven't yet seen the most significant phase of this halving cycle. We're heading toward December 2025, so we've got the last 12+ months of this period ahead of us. Historically, it's in this phase that the most dramatic price action occurs, which should get really interesting soon.

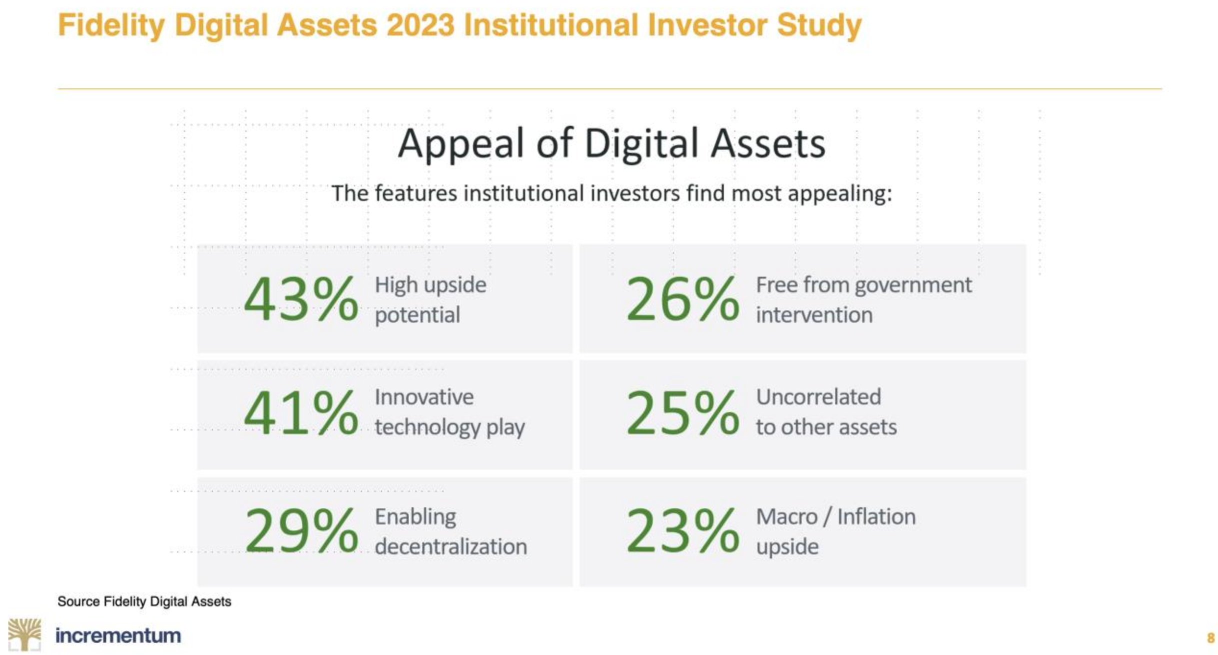
Plan B:
Exactly. Historically, this is where the fireworks have started, and it seems like we're heading in that direction again.

Mark Valek:
Right. So we're potentially looking at a very bullish 12–14 months if the pattern holds. What's interesting is that we're below the lowest point of the previous cycle in the current one. This underperformance could be explained by a variety of factors, such as pre-ETF hype and high performances in 2023. There were some supply overhangs as well, like government dumps and liquidations due to bankruptcies. These factors have caused the market to trade water, but once we clear these, we could see another major rally.

Chris Kuiper:
Yes, and while there's always a temptation to attribute market moves to specific events, it's important not to over-interpret news. That said, we came off strong 2023 performance (up 155%), and the anticipation of ETFs likely pulled demand forward. We've seen some overhang from supply sources like governments dumping coins or exchange-related liquidations, but once these are absorbed, we could see a cleaner run-up.
Looking at on-chain metrics, we're in the middle of a bull market, but the price action historically comes in the second half of the cycle. So, we may just be waiting for the fireworks to begin.

Mark Valek:
Exactly. With institutional investors now coming into the space, we have the potential for significant demand growth. The ETF approval was a game-changer, and institutional adoption could bring new demand that drives the next bull market.

Chris Kuiper:
I agree. Institutional investors are starting to look at Bitcoin more seriously. In our survey, the top reason institutions are interested in digital assets is the high upside potential, which has remained consistent over the years. While some institutions may have ignored it in the past, Bitcoin's price action has made it impossible for them to do so now. They will eventually be questioned about why they don't have exposure to it, and whether they're fulfilling their fiduciary duty by ignoring it.



Mark Valek:
Exactly. So, why haven't they adopted it yet?

Chris Kuiper:
One of the top reasons cited by institutions is price volatility. This has been the number one concern for five years straight. While volatility is a legitimate concern, institutional investors should be able to manage it. In fact, volatility presents opportunities for institutions with long time horizons. Despite this, many still use volatility as an excuse not to engage with Bitcoin. They are also working on bad information. It's not as volatile as they think, especially recently.

Mark Valek:

That's true. Volatility should be managed through position sizing. This is the basic job of a portfolio manager. But in practice, Bitcoin is still seen as an exotic asset, and institutions may be hesitant to take personal risks for what they perceive as a small position. However, the ETF approval has significantly reduced the legal risks, making institutions more comfortable engaging with the asset. They have realized that this thing is not going away, and they are talking about it.

Chris Kuiper:

Yes, the legal risks have diminished, but there's still career risk. Institutions may not want to stick their necks out for a small position, especially if they see Bitcoin as risky. But as more institutions enter the space, the career risk will diminish over time, just like the legal risk has.

Mark Valek:

Perhaps you want to guide us roughly through these numbers, because I think they are very interesting when it comes to this asymmetry and risk-return dynamics.

Fidelity Digital Assets 2023 Institutional Investor Study

Bitcoin vs. Major Asset Classes:

Asset Class	Total Return (8 years)	Annualized Return (CAGR)	Std. Deviation	Max Drawdown	Sharpe Ratio	Sortino Ratio
Bitcoin	9789%	77.6%	81.2%	-73.8%	1.07	2.31
US Stocks	200%	14.7%	16.4%	-23.9%	0.82	1.27
Int'l Stocks	77%	7.4%	15.7%	-27.6%	0.42	0.62
Emerging Market Stocks	47%	5.0%	17.3%	-36.5%	0.26	0.38
U.S. Investment-grade bond	6%	0.7%	5.4%	-17.1%	-0.20	-0.27
U.S. High Yield Corp Bonds	37%	4.1%	8.0%	-15.3%	0.30	0.43
Gold	70%	6.9%	13.2%	-18.1%	0.43	0.74
Commodities	64%	6.4%	16.6%	-37.8%	0.34	0.50
Real Estate	30%	3.3%	18.4%	-32.8%	0.17	0.24

Source Fidelity Digital Assets

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Chris Kuiper:

Yes, there's a lot going on with this chart, but it's trying to answer the risk versus return question. Getting back to the comment on volatility: volatility is no reason not to invest. Instead, as a sophisticated investor, you should be asking, "What kind of return am I getting for taking on this risk?"

I don't think the timeframe is shown here; it may have been missed, but I'll note it verbally. This data covers the past eight years. You might ask, why eight years? I try to be intellectually honest in all of our work, and I think Plan B will agree—if you're going to look at Bitcoin, you've got to include a full cycle of four years. You need to look at multiples of four because if you do more or less, you risk picking tops and bottoms, which could skew the numbers. By using eight years, you get a bigger dataset. If you only did the past four years, Bitcoin's performance wouldn't look quite as strong as this. So just being upfront about that. But over the past eight years, Bitcoin's total return and an annual return of 78% far outpace everything else.

Of course, what stands out is that big red box next to it, showing its risk—far above everything else. You've got a standard deviation of 81%, as Plan B alluded to, with volatility above 80%, and a max drawdown. So you have to stomach at least a 75-80% drawdown. But when you put those two together, your Sharpe ratio—which is your return over the risk-free rate divided by your risk, or standard deviation—is the best among all these assets.

The Sortino ratio is also very interesting. It's similar to the Sharpe ratio, but only looks at downside deviation—because investors don't care about volatility when prices are rising. When Bitcoin is skyrocketing, no one cares about volatility. They only care about the downside. I think the Sortino ratio is instructive as well. I'd be curious if Plan B has any comments from the quantitative side on how he views Bitcoin versus other major asset classes.

Plan B:
Yeah, I could talk for a whole day about this chart. I love it. I think there's a lot of misunderstanding about it, even among institutional investors. By the way, I think the institutional investor class is very diverse. For example, Chris, you work for Fidelity, which is mainly a fund business—assets under management with very little balance sheet or own capital to manage—whereas I worked for banks and investment insurance companies that had balance sheets. Asset-liability management and capital management were our main focus, and that makes a big difference in how you look at this chart. For example, the high volatility would be very concerning for a bank that has short-duration savings products as liabilities and is looking for low-risk assets to hedge against those liabilities. For a pension fund, however, it's different because they have a much longer horizon. So, for example, the four-year or eight-year horizon you mentioned—or even a 12-year horizon—would be a better fit. But even then, I couldn't sell this exact table to my colleagues in the institution where I used to work.

They are all highly schooled in mathematics, statistics, and risk-adjusted returns. Despite all the risks mentioned in the chart, this table loudly suggests you should have Bitcoin in your asset mix. I mean, this is the best-performing asset no matter how you look at it—whether through the Sharpe ratio, the Sortino ratio, or, as I prefer, the Calmar ratio, which divides by the maximum drawdown, further punishing the risk.

I think there is a fundamental flaw in the way asset-liability committees approach this. It's nerdy, perhaps, but if you look at a drawdown definition of risk versus return, Bitcoin outperforms the classic 60/40 stock-bond portfolio that banks and pension funds typically have. So, I'd actually argue for a Bitcoin-and-cash-only position for pension-related purposes, because on a risk-adjusted basis, it outperforms the classic 60/40 portfolio.

Chris Kuiper:
Yeah, I think that's very interesting. It's not intuitive, but I think you're right. If you have something

as “jet fuel-charged,” whatever you want to call it, you pad that with a massive cash balance sheet to absorb some of the risks companies face.

Mark Valek:
Well, I have to bite my tongue here because we actually have a solution at Incrementum. We combine Bitcoin (digital gold) with physical gold. That was one of our learnings when we initially pitched Bitcoin and addressed the volatility problem. You can outperform Bitcoin on a risk-adjusted basis when you combine Bitcoin with gold and rebalance it. We were able to do that—not by a huge margin, but it was possible. I think it will continue to be possible, provided gold rises and contributes to returns. That’s how we think about constructing a broad portfolio—a mix of non-inflatable assets as a supplement to the 60/40 portfolio of financial and hard money assets. But sorry for that little bit of shameless promotion.

Chris Kuiper:
That brings up a question I have for both of you, Mark and Plan B. One comment relates to how red the bond boxes are in this chart. Bonds have been one of the worst performers—just 6% total return over eight years, including dividends. I had to triple-check those numbers! It's abysmal. I think, Mark, you and I are probably on the same page when it comes to concerns about structural deficits and government debt accumulation.

My question is: how do you think about Bitcoin and gold in a portfolio? I recently tweeted, borrowing from my colleague Jurrien Timmer at Fidelity, who says Bitcoin and gold are like different players but on the same team. Sometimes gold and Bitcoin pass performance back and forth. For example, in 2020, gold moved up 35%—a massive move—while Bitcoin rose just 20% and then went flat compared to gold’s surge. Later, Bitcoin outperformed gold. How do you think about this dynamic from a portfolio perspective?

Plan B:
Sure. I think it makes sense—they’re certainly on the same team. They’re assets that cannot be printed by governments or companies. You can’t increase the production of gold significantly, because it requires massive capital investment. And for Bitcoin, it's impossible to inflate. So, every time there’s a demand for crisis assets or assets that absorb inflation caused by government and central bank money printing, both gold and Bitcoin play the same role. Mark, you mentioned a minute ago that you like the Incrementum fund because it integrates gold and digital gold (Bitcoin) with volatility. I sometimes say that volatility is an asset in itself. It’s an interesting combination—

not just for commodity funds or hedge funds but also for banks and pension funds. It amazes me that it’s not happening yet.

I expect that central banks and regulators are playing a big role here. I know from my institution that regulators impose massive capital charges on institutions holding Bitcoin, which means they must hold a lot of capital against that asset. As long as central banks continue to punish institutions for holding Bitcoin, they won’t do it. In other words, don’t fight the Fed—that’s what’s at play here, I guess.

Mark Valek

Right, yeah. Well, what should I add? We are convinced that the combination makes sense, and we, wrote in our 2019 In Gold We Trust Report, Bitcoin and gold are friends, not foes. We've been writing about Bitcoin since 2015, and not all of the gold enthusiasts were extremely happy about our position. I end up arguing with Bitcoiners about gold and with gold people about Bitcoin, but I think I'm convinced that both assets actually have their merit. The argument from the Bitcoin side that gold is going to be demonetized—first of all, it has been demonetized already 53 years ago, but it still has a monetary use case, obviously. I always counter that argument by pointing out that central banks, in practice, increase their gold holdings. It's just a fact, like it or not. They could start increasing their Bitcoin holdings, and perhaps we will see this at some point. We can talk about nation-state adoption perhaps in the remaining minutes of our call, but for the time being, and for the geopolitical showdown, as we coined it, what is happening—which is clearly happening currently—gold is increasing in monetary value and properties, at least from central banks, but also from private investors. Perhaps in a distant future, it could become more replaced by Bitcoin. I wouldn't rule that out, but for the time being, I see both roles increasing, and therefore, we think the combination makes sense due to the different risk-return properties. Perhaps we do want to segway to nation-state adoption at this point. I don't know if you have specific views, but I was quite surprised how explicitly two presidential candidates came out at the Bitcoin Conference. It is being talked about that the US could potentially declare Bitcoin as a strategic reserve. At least Trump said that at the Bitcoin Conference, and RFK Jr. said it very explicitly. Obviously, the race is ongoing. But for me, these kinds of statements are very important because this, even a few years ago, was unthinkable that this could happen so fast. Do you have any thoughts on that and potential implications if that really should materialize?

Chris Kuiper

I would first agree with you that the main takeaway here is that we're talking about it and this is even happening. There were people on CNBC, you can go back to interviews, saying they think Bitcoin will be a major election issue in the year 2030, or something like that. Even that was laughed at the time. And here we are. Such long-term trends tend to happen faster than expected. What's the old saying? We overestimate what can happen in the short term and underestimate what can happen in the long term. I was not entirely surprised to see this. In terms of my personal opinion, back in our year in reviews and previews, where we try to make a few predictions, or at least look ahead, at the beginning of 2022, we said we've seen a country adopt it. Now the only thing left is to see more countries adopt it, or perhaps a central bank adopting it. The last thing we haven't seen yet is a central bank adopting it as a reserve asset on its balance sheet. Country adoption has not gone much further, but I'm a big economics nerd, and I love studying game theory. I look at it through a game theory lens. If other countries start adopting it, other countries will have to make a decision whether or not they're going to play the game. Then you start to play out different scenarios and see where the incentives lie of how these countries might need to adopt it just as a defensive mechanism, even if they don't believe in the technology or as an asset class. It just becomes imperative that they at least look at it and start to think about it defensively.

Plan B

Yeah, I agree with that completely. As kind of a joke, I tweeted earlier this year that Trump had to do only one thing to win the election, which is to embrace Bitcoin, because that would gain him 50 million voters. I was surprised to see him do that, but I actually think it's a smart move. But for him to do that, he must first win the election, the entire democratic process has to work, and then he has to probably change Gansler and Elizabeth Warren and a whole bunch of other people because 50% of America doesn't like Bitcoin, and certainly not the government playing a role in it. The fact that, for example, El Salvador was the first nation-state to do Bitcoin, of course, has everything to do with the different government process over there. There's a leader who has a lot more power than in a usual European or American state. So, I would expect that countries with more dictatorial regimes—I'm thinking Russia, but maybe in the Middle East as well—it's much easier to implement a Bitcoin strategy there, and we might see some surprises from that part of the world, which is also a very rich part of the world, and would certainly do more than El Salvador at the moment.

Mark Valek

Right? Well, what was surprising to me is that in the Bitcoin community, we've been talking about game theory for a very long time, and it is happening and has been playing out at different levels. When it comes to nation-state adoption, when we saw El Salvador adopting Bitcoin a few years ago, for me, it seemed like the game would potentially be playing out coming kind of from the periphery. If you think about the dollar-centric global monetary system that we currently have, more like very small states might start using Bitcoin. That potentially hasn't happened yet, but it could leapfrog directly into the center of the global monetary system. That was the big surprise to me. As I said, we've only heard some words from potential future political leaders, so for now, it's still fiction and hasn't happened yet. But this potential of leapfrogging this domino effect, which I imagine and that I think a lot of people imagine, could potentially come from the periphery directly to the center. I mean, what that would cause in terms of knock-on effects would be huge in my imagination. So, I don't know if you have thought about any kind of price ranges that could be the implication of, obviously, not talking about the Bitcoin standard, but just let's think about the US really institutionalizing a strategic reserve of Bitcoin, which in my view, would make it officially some kind of monetary asset. Wouldn't this give it a huge premium the moment this is realized? How big could this premium be? Do you dare make predictions, Chris or PlanB?

Chris Kuiper

I don't have any specific predictions, but one thing I think in terms of mentally looking at this as a model, Mark, correct me if I'm wrong, is that in one of your charts, probably the "In Gold We Trust" one, there is a chart showing when the world was on a gold standard, what percentage gold was of all financial assets. I think if you take something like that as the ultimate, or near ultimate, scenario of Bitcoin becoming a global reserve asset that countries and central banks hold and use, and then stuff gets built on top of it, you can start to do some back-of-the-envelope math. Just like we talked about with the total addressable market, say, X trillion dollars of assets out there, Bitcoin becomes X percent, similar to what gold did in the past, and then you could arrive at a price that way. It's very crude, but it's at least somewhere to start. Yeah.

Mark Valek

I would go that way too. That brings you to huge numbers, obviously, huge numbers.

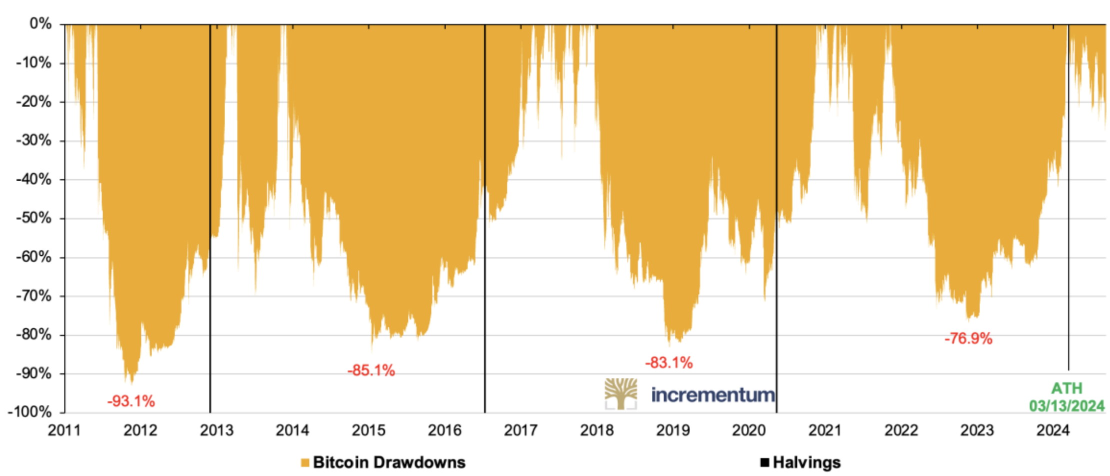
Plan B

Yeah. I think what also plays a role is that, and this would be the next step even after nation-state adoption, we use the dollar as a unit of account for everything now, but there might come a day when we switch back to gold or even to Bitcoin, or at least ditch the dollar as the reserve currency or unit of account. Even at the current levels of inflation, looking at that dark blue line in Chris's table for the yield of bonds, that is really bad. That's negative risk-adjusted returns. That dark red line with negative Sharpe ratios and negative Sortino ratios and even worse Calmar ratios—that's

US investment grade bonds that basically represent the US dollar. I think in the current context with BRICS countries gaining power and the US losing power very rapidly, we might one day, maybe in the not-so-far future, not use the dollar anymore as a unit of account because it doesn't make sense. There's a case to be made that it already makes more sense to use gold as a unit of account because it's more stable in terms of purchasing power. The whole context of BRICS countries doing more trade in everything else but the dollar is very interesting and has the potential to have a black swan event, but in a positive way for Bitcoin. Of course, the Bitcoin price in dollars would jump, and the same for gold. But it would have more to do with the dollar than with Bitcoin, obviously.

One question that bothers me is the volatility in the future. What do you guys think? Will it stay the same? Will it decrease or increase? I think a lot depends on that chart. Will that decline continue, or will Bitcoin be highly volatile for the next 10 years?

Bitcoin Drawdowns in USD from All-Time High, 01/2011–09/2024



Source: blockchain.com, Reuters Eikon, Incrementum AG

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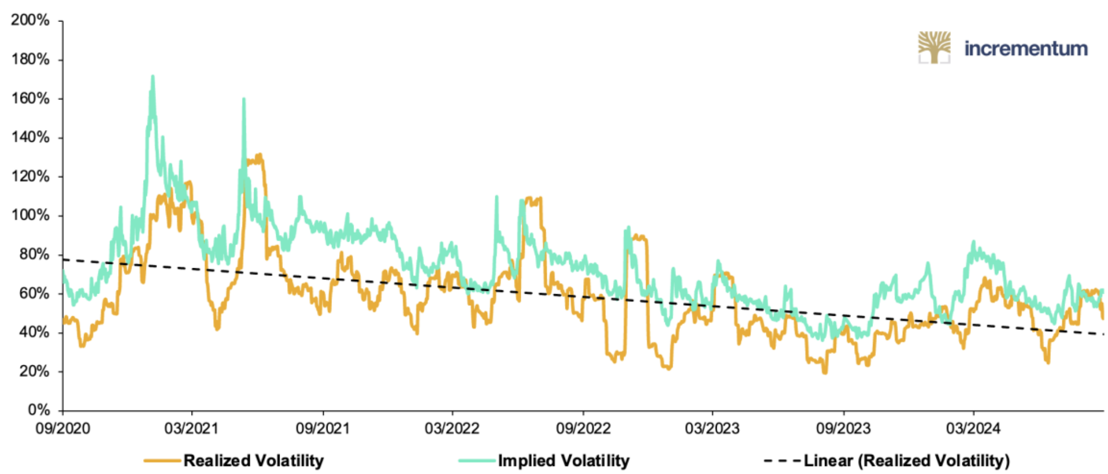
Mark Valek

Well, my opinion is a little different from the opinion that I hear most often from within the Bitcoin community. What we see here is a little bit of a downward-sloping line, so volatility has been falling. These are only the last four years; if one takes this chart back further, the decline was more significant. In the first years, Bitcoin was more volatile than it is today. However, it is often expected that this volatility should decline proportionately to the increase in its market size. I have argued with a lot of people that this is not a given. We could see some further declines. But in terms of actual maximum drawdowns, the declines weren't significant, because the last max drawdown we can see here was around 77%, versus 83%, and that was with a much higher magnitude of market cap. So that’s not a significant decline.

Rolling Bitcoin Volatility (30 days), Realized and Implied, 09/2020–09/2024



Source: T3 Index, Reuters Eikon, Incrementum AG

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What distinguishes gold relative to Bitcoin is its physicality. The advantage that Bitcoin has over gold, in terms of non-physicality, makes it much faster to transfer and verifiable, which is great. However, physicality has an advantage in dampening volatility. Additionally, gold's dual use as an industrial metal presents some disadvantages, as it is not quite perfect money since it is used for industrial purposes, but it does help with dampening volatility.

So, I think Bitcoin's volatility will never approach gold's volatility due to its lack of physicality and lack of an industrial use case, including a secondary store of value use case when it comes to jewelry.

On the demand side of gold, the biggest demand factor has traditionally been India. Now it's China and India, but these are very counter-cyclical market participants. When the market price drops, Indians buy much more, and when it rises, they buy less. It's a very predictable outcome. They always buy as much as they can, relative to the FX rate, GDP, and gold price.

On the supply side, you have scrap gold, which incentivizes individuals to find scrap gold and supply it to the market, also dampening volatility. Therefore, the monetary demand that goes in and out of gold and Bitcoin will always be dampened more significantly in gold than in Bitcoin.

Finally, with ETFs, we have the potential for max drawdowns to increase again on the Bitcoin side during a liquidation event or due to macroeconomic problems, provided that institutional adoption has already increased. If we're talking about perhaps 10% or 20% of all Bitcoin being held by institutions in the future, and there is some liquidity event, I think the potential for high max drawdowns—potentially even higher than the last one—is there. So I do not expect falling volatility.

Chris Kuiper
Yeah, I agree with a lot of what you just said about the gold market, the stock versus the flow, scrap metal, jewelry, all of it. It aligns very well with the book I just read from a professor I studied under at George Mason University, Dr. Larry White. He wrote a book called "Better Money: Gold, Fiat, or Bitcoin," in which he examines each of these as forms of money. He provides a very objective perspective, using ingenious supply and demand graphs for gold.

He has one supply and demand graph for gold as money, illustrating people's desire to hold and use it as money, and then another for gold as an asset—the stock and flow of it. Those two concepts are linked. I agree with you that because you have those markets, you see counter-cyclical effects and dampening. If the price of gold shoots up, we find better ways to mine it. People start turning in jewelry they no longer want or need.

With Bitcoin, you don't have those dynamics. It's completely inelastic. It is a pure monetary good with a pure monetary premium, so you get these massive swings because any change in demand must be reflected in a change in price. Supply cannot help dampen those moves and changes in demand.

Now, Dr. Larry White believes Bitcoin will never become money precisely because of this reason—it's much too volatile and lacks counter-cyclical effects. I would actually disagree with that; I think the volatility can go down as it gets bigger. It doesn't necessarily have to. Just because something is a large asset doesn't mean volatility has to decrease. For example, we see big stocks, like the Magnificent Seven, make huge moves.

Regarding financialization, I’m not sure where I land on that, as some products could create more volatility. But historically, the introduction of derivatives, futures, and options has dampened volatility because players then want to use volatility as an asset class and participate in those markets. We saw this with commodity markets; they used to not be investable assets, but that changed in the 2000s with new products, leading to much lower volatility.

Mark Valek

I think these are good arguments, but I just want to point something out. I was only talking about the context where we are in fiat currencies. In this scenario, gold and Bitcoin are sidelined as non-inflatable assets—a store of value. I believe these two viewpoints can be reconciled, actually, because I disagree with Larry White. One of his main arguments is that Bitcoin cannot become money; historically, he stated he can't imagine that this kind of network effect actually happens.

However, I think we have considerable evidence that Bitcoin has already gained critical mass. I believe these views can be reconciled, though it may be mentally challenging.

Going back to gold, it had zero volatility until 53 years ago. Gold was actually the riskiest asset, primarily due to government intervention. The government was able to ban it into the universe of risky assets because it can decide what the unit of account is. I don't believe we will necessarily see a Bitcoin standard resulting from ever-decreasing volatility.

It's more likely, if we hope to land in a world where Bitcoin is widely accepted, that it will come through some kind of reverse jump, where someone by decree says, "Now this is the new unit of account," and by definition, the volatility in this new currency is zero. So, that is a possible scenario.

Plan B

I agree that volatility won't go away. I think it's one of the few assets where volatility can freely exist because all the other assets are controlled by circuit breakers or weekends, or at least have their prices managed. With Bitcoin, nobody cares, so the volatility can be quite fierce, and that’s a good thing.

I have one final request for Chris, if I may, and that is my beloved table, the one we talked about with all the risk-adjusted returns. It would be interesting to add one row and one column; the column would be the Calmar ratio, where we use drawdown as a risk factor.

Chris Kuiper

Yeah, I think that's a great idea. I presented this most recently at the Bitcoin Conference, and I got some feedback from people in the financial world who said they had never actually heard of the Sortino ratio. So, things that I take for granted are not widely known, and I would assume the Calmar ratio is probably similar for a lot of people.

Plan B

That's exactly the same experience I've had, and that's why I said there's a significant misunderstanding even in institutions. You would think they know about these ratios, but it's often more in the exotic hedge fund world where people know about the Sharpe ratio, Sortino ratio, and Calmar ratio. In most institutional investment companies, they don't—certainly not at the higher levels.

Using that column would certainly make things clearer. I would also add a row for the 60/40 portfolio because it's the benchmark, which would clearly demonstrate that Bitcoin outperforms that. Coming from you, that would have much more impact than coming from some anonymous Bitcoin account.

Mark Valek

Well, thanks for that. We could go on, I think, for a while still, but I think we're going to finish up soon. I think we heard some compelling arguments when it comes to analyzing the pattern of the previous halving cycles that we could be facing a very interesting time in the next 12 to 14 months. We also covered quite a few potential fundamental reasons for potential price gains in Bitcoin. Gentlemen, any final comments from your side? Did we forget something, or do you want to add something? Where can we find you? Where can we find your research?

Chris Kuiper

Sure, you can find all of the research that myself and our team do at fidelitydigitalassets.com. We put almost all of our research up for free on our website, and you can learn more about us there. I'm also on X, formerly Twitter, at Chris J. Kuiper.

Plan B

I'm on X and YouTube. Just look for Plan B, and you'll find me. Or look at the website planbtc.com, which directly leads you to the social media accounts.

Ronald-Peter Stöferle, CMT

Ronni is managing partner of Incrementum AG and responsible for Research and Portfolio Management.

He studied Business Administration and Finance in the USA and at the *Vienna University of Economics and Business Administration*, and also gained work experience at the trading desk of a bank during his studies. Upon graduation, he joined the Research department of *Erste Group*, where he published his first *In Gold We Trust* report in 2007. Over the years, the *In Gold We Trust* report became one of the benchmark publications on gold, money, and inflation.

Since 2013 he has held the position as reader at *scholarium* in Vienna, and he also speaks at *Wiener Börse Akademie* (i.e. the Vienna Stock Exchange Academy). In 2014, he co-authored the book *Austrian School for Investors* and in 2019 *The Zero Interest Trap*. Moreover, he is a member of the board at *Tudor Gold Corp*. (TUD), a significant explorer in British Columbia's Golden Triangle and a member of board at *Goldstorm Metals (GSTM).* He is also an advisor to *Matterhorn Asset Management*, a global leader in wealth preservation in the form of physical gold stored outside the banking system.

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While working full time, Mark studied Business Administration at the *Vienna University of Business Administration* and has continuously worked in financial markets and asset management since 1999. Prior to the establishment of *Incrementum AG*, he was with *Raiffeisen Capital Management* for ten years, most recently as fund manager in the area of inflation protection and alternative investments. He gained entrepreneurial experience as co-founder of *Philoro Edelmetalle GmbH*.

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About Incrementum AG

Incrementum AG is an independent investment and asset management company based in Liechtenstein. Independence and self-reliance are the cornerstones of our philosophy, which is why the four managing partners own 100% of the company. Prior to setting up Incrementum, we all worked in the investment and finance industry for years in places like Hongkong, Frankfurt, Madrid, Toronto, Geneva, Zurich, and Vienna.

We are very concerned about the economic developments in recent years, especially with respect to the global rise in debt and extreme monetary measures taken by central banks. We are reluctant to believe that the basis of today's economy, i.e. the uncovered credit money system, is sustainable. This means that particularly when it comes to investments, acting parties should look beyond the horizon of the current monetary system.

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