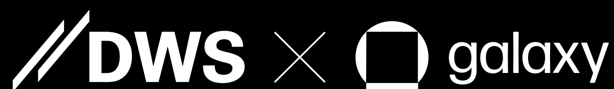
An interview with four senior leaders from DWS and Galaxy.

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# About "Flipping the Crypto Script"

*To coin a phrase, cryptocurrencies have simply become too big to ignore. But, whatever your view of these relatively nascent financial innovations, we can surely agree that better understanding will lead to better decisions. With that spirit in mind, the DWS Research Institute sat down with four senior leaders, two from DWS, and two from the digital asset manager and our strategic partner, Galaxy, to discuss several topical issues for investors as they evaluate this space. We hope their insights help you to take a considered and thoughtful approach to cryptocurrencies.*

Bjoern Jesch
Global Chief Investment Officer
DWS

Thomas Schuessler
Global Co-Head of Equities
DWS

Steve Kurz
Global Head of Asset Management
Galaxy

Chris Rhine
Head of Active Strategies
Galaxy

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# Setting the Stage – The Investor Case for Cryptocurrencies

## Thomas, could you give us your headline thinking on cryptocurrency, its development, and the investor use case?

Thomas:
First, one should probably say "cryptocurrencies" plural, it's a wide field! I think there are thousands of them. In terms of investing, I mainly think about Bitcoin, and maybe Ether, and that's about it because all the others are out of scope for us now. It's a new asset class. Bitcoin is only 14 years old. It has grown a lot, created lots of interest, and I think it has a certain utility in the marketplace. If you look at an emerging market, it will be immediately clear why that is the case, but it may be less obvious when you live in Germany or in the U.S. Nevertheless, I think about it as a store of value, and as a currency that is outside of the central bank system. These would be the key points of attraction for me as an investor.

## Bjoern, your thoughts?

Bjoern:
I find it pretty fascinating, and as a firm we are always excited to understand an emerging asset class. Finance has always been, and will always be, innovative. And it's part of our job as stewards of capital to understand and evaluate these innovations. I realize the underpinnings for the founding of Bitcoin, and other cryptocurrencies, is partly a symptom of the global financial crisis with its undercurrents of concern at government bailouts and the soundness of the traditional institutions. For example, one original intent was to create a currency that was not based on a fiat system, and so couldn't be inflated away. But we have really moved on since then, as use cases have developed. Now I think investors are holding crypto for other reasons too. Perhaps for simple price appreciation, or as an alternative means of payment, or as a diversifying asset.

Along with that growing use case, there has come a growing financial ecosystem. We have futures on cryptocurrencies, we have researchers, analysts, dedicated asset management firms—one of which, Galaxy, we are delighted to have a strategic alliance with—institutional sales and trading efforts at major banks, not to mention teams of digital innovation professionals at firms like ours, who work hard to understand how crypto and blockchain could change the way we do business. But ultimately, we care about the benefits for our clients, whether that be products that enable access, or new ways of digital trading, clearing, and confirming transactions. Like many new technologies, we don't exactly know where we'll end up, but we must be involved.

## Absolutely. Galaxy, thoughts to add to this? Perhaps specifically from the asset management use case as opposed to the payments case?

Steve:
I think we're still early, and the crypto community doesn't understand yet that just because Bitcoin is 14 years old, that means it necessarily needs to, or should, have a footing in an institutional context, in a portfolio context, in an allocation framework context. Bitcoin has had 10+ years as a network of really being tested - the kitchen sink has been thrown at it! At different times Chinese policymakers have banned industrial crypto mining, though the blocks kept going. We have seen resilience through multiples cycles, through regulatory questions and concerns. But behind all the headlines, you have a network that keeps running, that is robust, and resilient. You have a use case that's developing, but hasn't fully landed into portfolios. And you have a macro picture that I think allows for a really important story to be told about Bitcoin and its potential uses in a portfolio.

The big tension about cryptocurrency is expectations that just because this system is beautifully designed—which I happen to think it is—the adoption needs to happen immediately. Thinking about crypto as an allocation, and not a trade, and where to source it from is just being worked through now. I think Bitcoin is like a teenager, or a pre-IPO growth company, not a public company, if you want to put it that way. We're stepping into a much bigger phase for Bitcoin over the next three to four years.

I like your point about being tested in a few different ways in the market environment, because it is important for any asset class. And presumably the more cycles it survives through, the more robust it becomes.

Steve:
Bitcoin has certainly been tested relative to the toddlers in the space. In a way it is like the Internet. It is like judging everything on the Internet in 2001. We're just developing this new asset class, and this new technology. Our approach at Galaxy is much less about trying to defend, or even define, all of a decentralized, open-source global phenomenon, and much more about parsing through that and focusing on two things: those cryptocurrencies that matter today and are investable, and those that are not yet investable today, but also matter. And then there's a big tail that doesn't really matter too, and that's okay. The goal is sifting through all of that, and being consistent with a framework for how you see this space in a portfolio context.

# Where Can it Fit in a Portfolio?

Thomas, you mentioned the use of Bitcoin and Ethereum specifically at DWS, can you give us a sense of what type of funds might be using those cryptocurrencies, and whether you think that's being driven more by client demand, **or by DWS' belief that there is a** need to include crypto?

Thomas:
At the moment, it's still being piloted, and in a very limited number of equity funds, which cater to specific themes and in which exposure to cryptocurrencies is within scope. The idea of including crypto at the moment is less client driven, and more on the fund manager side, and how they think they can invest into this kind of synthetic product.

Bjoern:
I would add that for many of our fund structures digital assets won't work for regulatory and operational reasons. For example, many traditional custodians do not yet allow for digital asset custody. But the key point is that, because at DWS we have expertise in, and invest in, a wide range of asset classes, and because cryptocurrencies have grown to a considerable size, we believe they warrant serious consideration by asset managers like ourselves.

Building on this, we have to think very carefully about the investor type that this is appropriate for, in terms of demographics, geographical placement, risk appetite, and time horizon. Chris, any thoughts on this?

Chris:
If you look at this through Thomas' lens for equity funds, the growth thematic becomes more central when funds invest in companies pushing technological boundaries. And investors in this type of strategy might expect some assets to be a little less traditional. They might not expect a manager to buy mega-cap companies that everyone knows, but rather try to find those new opportunities, new technologies, new products and services that have the potential to disrupt some of the incumbents. In my view, those investors understand that they will be taking an incrementally higher amount of risk, but the incremental reward on that can be greater.

Clearly, if one thinks of a large-cap, blue-chip income strategy, crypto doesn't fit into that right now. One reason is because Bitcoin doesn't generate income. And a second reason is that it's not like a traditional large public company with the relatively low risk that an investor expects. Bitcoin is still very volatile. Adding crypto to your portfolio, you must understand the type of fund that you're in, the type of investors that are in there, and finally, you must size the positions correctly based upon the contribution to portfolio volatility. For example, making Ethereum a 10% weight in an equity fund may not make sense because it would probably contribute to the majority of the entire risk of the portfolio.

Any portfolio manager should size the crypto positions appropriately to make sure that that contribution to total portfolio risk isn't excessive.

Steve:
I want to add that what's unusual about Bitcoin in the portfolio context is that the largest marginal increase to the Sharpe Ratio of an overall portfolio is going from a 0% to a 1% position in Bitcoin, if you look at, let's say, the last five years. We're not talking about 3% or 5% or 10%. There's a "get-off-of-zero" question. There is also a discussion in multiple different contexts about how that could be used as a weapon - an offensive weapon, if you think of it as a growth asset, and a defensive weapon, if you think of it as a macro hedge and what that might mean in different portfolio context. For us, crypto itself is about a trillion-dollar asset class, and exposure to crypto is a choice. As a portfolio manager, once you have over a trillion or two trillion in an asset class you must engage. It is fine to have a view and make that a "no" decision, but in that case, at least you've taken a proactive decision not to put it in the portfolio.

Thomas:
You could also argue that Bitcoin is an asset class, and so it would naturally fit into certain multi-asset funds, more so than in pure equity funds. I see here a space for broader adoption.

Steve:
And that's the confusing part about Bitcoin. It's a macro asset. It's a growth asset. It's an asset class. It's a hedge to the system. You can view it through a lot of different lenses.

Chris:
It's macro, and it's also a hedge fund. In the world of traditional, long-only funds, crypto adds a lot of tracking error into a fund, and if fund managers' performance is measured relative to a specific benchmark, they don't need that significant tracking error. Whereas in a hedge fund or even in a multi-asset strategy, the benchmark is not as important, and it's easier to add an asset class in which you have a lot of conviction.

# Is it a Separate Asset Class?

**This is a very nice transition into my next question. Think about a multi-asset portfolio with traditional, well-defined assets, such as equity, fixed income, commodities, real estate, cash, etc. It seems that cryptocurrencies have some of the characteristics of these asset classes, but sometimes not enough to be easily defined. Thomas, if you think about where to put Bitcoin and Ether, where do they go?**

Thomas:
I'm not a multi-asset fund manager. And it is a very young asset class, that you should buy only in certain circumstances. But one idea is that it can be like a "risk-on gold." It's a commodity in my view, but it is more "risk-on". It has a low correlation to other assets in your fund. It can make a significant difference to the performance because the upside is substantial.

Steve:
I think that correlation for Bitcoin is less than 0.25 against all major asset classes over the last five years. We've seen it bucketed in the Alternatives part of a portfolio, in Commodities, as a macro-overlay, in a hard assets bucket, in a fintech context or tech bucket. It really depends on the lens, and the framework of looking at the portfolio. Taking the allocation out of fixed income buckets in the last five years has been a thing to do for Sharpe optimization, but that's not a forward-looking recommendation.

Bjoern:
I agree it's obviously not equity or fixed income, though keep in mind that some cryptos do offer an ownership aspect in a network so it's important not to lump all cryptos into the same bucket. But if we're talking about Bitcoin specifically, then probably it's more like a digital currency, or a commodity. It is still very volatile compared to currencies and gold, so it needs to find some equilibrium to

act as a store of value, and while it can be, and is, used for payment in many cases, some users will fear that more substantial price rises make using it to buy goods and services a bad choice, at least for now.

As a firm we typically allocate it to the Alternatives bucket of a strategic asset allocation, and I think I am currently most comfortable thinking of it as a new asset class with its own unique properties. There are just so many differences from other traditional asset classes, and so many new ways of evaluating it, such as mining costs, active user accounts, etc. We might just have to be flexible enough to accept that there are these new ways of understanding it.

# How to Value Cryptocurrencies?

Another nice lead-in to my next question! We have talked about the asset class part, now **let’s switch to the valuation part. Thomas and** Bjoern, have you got any thoughts about a reasonable way to value Bitcoin?

Thomas:
It’s not an income producing asset, which obviously opens it up to controversy. You can see investors like Warren Buffett saying it's worth nothing, but a piece of art is also worth what other people are willing to pay for it. The same is true for gold as it doesn't create an income. So, Bitcoin falls into the same bucket for me. You cannot value it based on its income stream, but you could value it relative to other asset classes or based on its own history. People use a cost basis or a realized price for Bitcoin, or they look at its valuation floor based on mining costs.

An absolute valuation is tougher for Bitcoin than for gold because you only have about a ten-year time horizon. For gold, you can go back hundreds of years, and it's much more stable. But you still can evaluate Bitcoin in various liquidity environments, stock market environments, and so on.

Bjoern:
We have a team at DWS that has tried to address exactly this question. They did it in a quantitative way, examining economic, market and “crypto ecosystem” factors that they believed could be relevant to the price of Bitcoin and Ethereum, and then working with those that seemed most promising. I won’t give away all the ingredients of the secret sauce, but, in addition to some of the intuitive market metrics that one might expect, we have found that it’s also extremely useful to analyze publicly available user account and chain activity numbers. These have tended to give good insights into explaining and forecasting cryptocurrency prices.

That said, we still maintain that’s it’s very challenging indeed to value and forecast cryptocurrencies because of their inherently still high volatility. For that reason, we put a wide range around our results, and recognize very well the risk of relying too heavily on any single number.

I think one of the important features that many of our readers will know, but some won't, is that Bitcoin is quite different from fiat currency, and some other asset classes, because the supply of Bitcoin is absolutely fixed at 21 million coins. At the moment, we're at 19 and a half or 20 odd million or so and if you go back to Econ 101, this means there is a vertical supply curve. Therefore, the demand is what's making the difference here. Is this fair to say?

Chris:
Yes, that's definitely fair. And like other assets with a fixed supply, the price changes are not always incremental because demand can spike or drop quite significantly. That's why we see more volatility in the pricing of Bitcoin relative to other assets. I think the artwork example is a great example. Even though art is not priced daily, when you look at the absolute magnitude of price changes over a year, the volatility can be phenomenal. As more and more people have moved into art collecting, it has pushed prices up very significantly.

And it's also true for Ether. The difference with Ether is that if you think of Ether as the world's new accounting system, the world's blockchain, the way that Ether works in terms of supply and demand results in a relatively fixed supply of Ether with the new burn mechanism that's built in. But the demand is going to be in the use of the block space. Since Ether is a smart contract platform and builders are creating use cases on top of that, as the activity on the Ethereum blockchain moves up, and as the use cases develop, the demand to acquire Ether to post transactions will grow. So, it's a little bit different from Bitcoin in a way that use cases and more onboarding onto Ethereum is going to drive demand for Ethereum. Unlike a store of value concept, it's much more commodity based. I think of oil demand, which increases as people have an increased demand to drive. Then the price of oil goes up. So, as new use cases for Ethereum bring users in, the demand for Ether is going to rise, and that could push the price of Ether up over time as well.

Steve:
I think this discussion unlocks a few really important things. If the average portfolio manager comes into this with fresh eyes, or with a skeptical view, learning about Bitcoin on a relative basis through a gold comparison or using an Ethereum comparison allows them to understand more about Bitcoin than any other way of doing it. On the supply point, Bitcoin is verifiably scarce. We think gold is verifiably scarce as well, but it's impossible to know everything - think of asteroids containing gold, or just of a price point that suddenly makes a particular gold mine economical. But there is no supply response for Bitcoin because of the nature of the code it's built on.

In terms of adoption, another relevant gold analog is what happened to the gold market after a gold ETF came to market. Access to gold via ETFs has arguably given it a sustained bull run. And this is why we're watching the drama unfolding in the U.S. about a Bitcoin ETF. If 100 million people own Bitcoin today in an 8-billion-person world, then there is a real gap in its access. It might be an unconventional lens to look at it through, but I think it's instructive.

Definitely. You opened a whole other topic, which is the development of the ecosystem. For example, some argue that the creation of high yield ETFs has significantly improved the cash market for high yield bonds in various ways, benefiting all players involved. But that's probably getting a bit beyond scope.

Steve:
This is that "on steroids" argument because you have a liquid transferable asset as the underlying and then you have the leverage of the futures and the ETF on top of that.

# Have We Moved Past the Original Intent of Cryptocurrencies?

**Let's switch from the** supply/demand conversation and talk about the origins of Bitcoin. One of the founding ideas was distrust in the financial system post the global financial crisis, and concerns about fiat currencies. Do you think this type of concern still leads to a valid use case, or do you think we've grown past it?

Chris:
I think Bitcoin is always going to maintain that aspect of being an asset class that is completely separate from monetary authority and maintain its store of value, irrespective of any money printing behavior.

I think in general a lot of technologies have been created for a particular purpose, and then we realized that there are much better use cases for that technology than the original intention. And we're seeing that in the digital asset space, in the crypto space, particularly with smart contracts. A lot

of the crypto ecosystem up until today has been built with this concept of decentralized finance in mind and for using Bitcoin as a payment mechanism. But what we've seen recently, and where I think we're heading in the next five years, is that a lot of this development on the retail side has shed light on the potential of the technology's use on the institutional side. For example, we have discussions on the tokenization of assets, or using public blockchains to do 24/7 cash payments across borders, where, for example, a multinational company in Australia wouldn't have to wait until banks open in North America to settle a payment. These use cases expand the original strict view of the concept of cryptocurrency to be an anti-government, anti-establishment way to do business.

Switching to another potential use case, Thomas, I'd love to hear your thoughts on the use of Bitcoin as an inflation hedge. This is something that clients may have been hearing in the media, and if they are genuinely concerned about inflation what would be your thoughts?

Thomas:
Well, it doesn't work like this. You can't just say this or that asset is an inflation hedge. It depends on what kind of asset it is, and what its short-term history looks like. In the current inflationary environment, not even our homes are an inflation hedge. Gold hasn't worked either. If Bitcoin went up five times the year before, it cannot be an inflation hedge. After 2021, Bitcoin couldn't be an inflation hedge because it quadrupled, it's just too expensive. In short, nothing is an inflation hedge by itself.

Bjoern:
Broadly speaking, the main run up in the price of Bitcoin came in a period when inflation was low, and then really since inflation has reared its head, the price has significantly reduced. But I am not sure we can necessarily say those two things are directly related. It's the old correlation and causation argument.

I think that post financial crisis the world was awash with liquidity and easy money, it's plausible to believe that investors put some of that money to work in new assets, and that might be one of the reasons for the swift run up we saw in Bitcoin. You also can't really argue with the idea that since its creation it has certainly vastly out-paced inflation, so made significant real returns.

I think what people are really getting at when they talk about Bitcoin as an inflation hedge, is the idea that the actual number of coins that can be minted, is absolutely limited at 21 million with a transparent and fixed issuing schedule. And the reason the creators fixed the supply was precisely to remove concerns around printing currency and changing the money supply.

# The Government Perspective

In the last part of our conversation, I would like to ask about the regulatory and government aspects of crypto. There is this idea that governments could get concerned at some point. They may feel it's a threat to their own currency and their ability to transmit monetary policy. Do you believe that there's any likelihood that the U.S. government could come and regulate this to death because they see it as a threat to the dollar or for other reasons?

Steve:
I think the answer is yes. If you asked me four years ago, I'd say the biggest threat to crypto is a coordinated G20 crackdown. But let's ignore cryptocurrencies themselves for a second. What has become obvious is that it is impossible to ignore the technology behind cryptocurrencies. When you look at the Chinese digital renminbi, it is clear that digital money is absolutely part of the future. And in fact, there's an arms race for that. In countries with more top-down political systems, just as you can build trains and properties, you can also build digital money, and you can

force the creation of your currency, and the expression of that currency via cryptographic means, into digital wallets.

In the U.S., which has a different political system, it's really difficult to do that. At the same time, without these companies, these entrepreneurs that are driving progress in the United States, and, without thoughtful regulation around stablecoins and central bank digital currencies, or CBDCs, you don't have an ability to provide the foundation for the expression of digital dollars globally.

But if you look under the hood and compare it to three or four years ago, in my opinion, knowledge has been built by all sides - on the Republican side, on the Democratic side, and both in the House and in the Senate. I would expect stablecoin legislation and market structure legislation to be almost ready-to-go. And, while there is debate, my personal view is that the inertia of where we are right now, it's not a big risk to the existence of Bitcoin or to Bitcoin being able to operate in a regulated context. The best that the U.S. government can do, which they've been trying to do very much in the first half of 2023, is to slow it down. Let's just slow everything down, and then build it back up in the system that we're comfortable with, and that we can control.

It is also important to remember that right now, and for the foreseeable future, crypto is traded in dollars. It would be hard for me to think that the Federal Reserve (Fed), or even the government, is very concerned about an impact on the dollar or a threat to the dollar when all crypto trading is dollar-based. The bigger issue would be if the U.S. continues to try to arrest the development of digital assets, and we then see other geographies take over, with a larger share of transactions being priced in euros, or in yuan, or in a different currency.

# Bubble or Readjustment?

Thomas and Bjoern, I want to come back to what you alluded to earlier which is Greater Fool Theory, or the idea that people buy something if they believe someone else will buy it from them later at a higher price. Some would suggest that with Bitcoin, there was a bubble brewing, and that it burst. Often you see when bubbles burst, things go away. For example, many dotcom companies. But in the case of Bitcoin, it came down from a high, and then it plateaued. In a way, it readjusted to a new level, and it has stayed there with relative stability since. How does that make you feel about the Greater Fool Theory, or the bubble notion?

Thomas:
I don't think that that theory is applicable here, because, again, a painting can be bought for the same reason - to hopefully sell it 20 years later at double the price. So, for me, this is not necessarily greater fool, this is a matter of scarcity. Think about land, it's the same thing. As long as you have no income from it, one can say it is speculation. And Bitcoin is a speculation, in that sense.

Looking at the recent history of Bitcoin, I find it follows a longer cycle than we've seen in the past. We saw it being cut in half, or even worse, during the downturn. But, the same happened in 2018, and in 2014, when people thought it would go away and it didn't. We have been in this current cycle for almost four years, and with the Fed raising rates in 2022, everything went down. Bitcoin went down more because it's more liquidity driven. It rebounded in 2023 in line with the stock market. If the Fed cuts rates in 2024, it could be a very favorable environment for Bitcoin.

Bjoern:
In my view, we can't hide from the fact that there was, for a long time, talk of a bubble in crypto, and many were simply waiting for it to pop. But then, when the bubble started to deflate, a strange thing happened - the price simply reset to a different level, but nowhere near the existential levels that would have questioned its viability. In fact, it's significantly up in 2023. So, I think that, to coin a phrase, "reports of its death may have been exaggerated".

It may sound strange, but I am ok with some early volatility, and even a little bubble and crash behavior. It's almost like a training program that a new asset, and its investors, must go through for proper price discovery, and to understand the issues. Of course, I hope that much of that volatility is behind us, but they say one should learn from every good crisis.

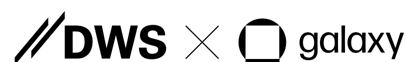
All that said, please don't forget that, as an investor, your simplest and best protection against the risk of any asset class, is to sensibly scale your position size. You need to sleep at night. We are working to give investors more insights around what sort of position size might make sense, and, not to preempt that work, but it's surely got to be a small part of your portfolio.

### Steve and Chris from Galaxy, do you have any parting thoughts or outlook?

Steve:
I think just zooming back to the next six to twelve months, despite it being clouded in terms of macro, Bitcoin and Ethereum may be compelling. We've got a macro environment where rates may be shifting. We've got an adoption story, with new products that are coming to market. We haven't talked about the Bitcoin halving. This is the decrease in the rate at which new bitcoins are released into circulation that will happen in April 2024. If you look at the resilience of Bitcoin through the bear market, plus those dynamics, we have a moderately bullish thesis over the next six to twelve months.

Chris:
I think most of our discussion focused on Bitcoin, which is a unique asset, and it's top of everyone's mind. But delving into the differences between Bitcoin and Ethereum and why one is more a store of value, and another is more of a technology asset would be an interesting topic to address in the future.

### Absolutely. We are working on that exact question right now. Stay tuned for another collaborative paper from DWS and Galaxy. Bjoern, Thomas, Steve, Chris thank you all so much for your time, and for your wonderful insights – just a fantastic conversation.




DWS and Galaxy Digital Holdings Ltd. (TSX: GLXY) ("Galaxy"), a financial services and investment management innovator in the digital asset and blockchain technology sector, have entered into a strategic alliance with the aim of initially developing a comprehensive suite of exchange-traded products (ETPs) on certain cryptocurrencies in Europe. The strategic allies plan to also subsequently explore other digital asset solutions.

As the digital asset market continues to mature, DWS and Galaxy's asset management unit will work together to provide European investors access to the USD ~1.4 trillion digital assets market (as of 15 Nov 2023) through cost effective investment solutions that are easy to access via traditional brokerage accounts. For DWS, this alliance fulfils a key priority to develop comprehensive digital solutions, unlocking investor access to the growing blockchain and digital assets universe. DWS will be Galaxy's exclusive ally for cryptocurrency ETPs in the European market. This alliance is expected to significantly enhance Galaxy's international distribution capabilities by deepening access to European investors who are keen to participate in the cryptocurrency market.

The alliance is expected to combine DWS's strong portfolio management, product structuring, and distribution expertise across liquid and illiquid asset classes with Galaxy's technical infrastructure and its asset management and research capabilities for digital assets. The alliance aims to be a catalyst for both firms to jointly profit from emerging digital asset opportunities.

# Glossary

Bitcoin: The first and largest crypto asset, enabling decentralized peer-to-peer transactions.

Block: A block is a data structure where digital transactions are stored. They are the basic building block of blockchains.

Blockchain: A blockchain is a chain of blocks of data that are immutably chained together via cryptography and stored on a distributed and decentralized database.

Central Bank Digital Currency (CBDC): A digital form of a country's fiat currency, which is regulated by its central bank.

Coin: A cryptocurrency or digital asset that is independent of any other platform, native to its own blockchain.

Cryptocurrency: A crypto asset recorded on a Blockchain that is often neither issued nor controlled by any centralized authority.

Digital asset/crypto asset: Crypto assets digitally represent value, rights and obligations on a blockchain.

Exchange-traded fund (ETF): A security that tracks an index or asset like an index fund, but trades like a stock on an exchange.

Ether: The native cryptocurrency of the Ethereum network.

Ethereum: A decentralized, public blockchain network that supports composable smart contracts which can be used to create decentralized applications and tokens and facilitate peer-to-peer transfers.

Exchange-traded product (ETP): A derivatively priced security which trades during the day on a national stock exchange.

Fiat currency: Fiat currencies are issued and backed by governments, such as the U.S. dollar and the eurozone euro.

Halving: When the portion of Bitcoin's block reward comprised of newly minted issuance is cut in half, which occurs every 210,000 blocks. This mechanism controls the number of new bitcoins in circulation, as well as Bitcoin's terminal fixed supply.

Hedge: An investment to reduce the risk of adverse price movements in an asset.

Hedge fund: An investment vehicle less regulated than a mutual fund that pools capital from different investors and uses different investment strategies.

Mining: Mining is the process of creating valid new blocks containing transactions for proof-of-work based blockchains. To link a new block to the last one, a complex mathematical puzzle, that requires computational work, must be solved.

Multi-asset: Determines investing in more than one asset class, thus creating a group or portfolio of assets with varying weights and types of classes. The diversification of an overall portfolio is thus increased, and risk (volatility) reduced.

Risk-on/ risk-off: Describes an investment behavior that is only based on a changed risk perception.

Sharpe ratio: Puts an asset's excess return (the return above the risk-free rate) in relation to the asset's risk as measured by its standard deviation.

Smart contract: A smart contract is a digital agreement stored on the blockchain. They establish the terms of an agreement like traditional contracts, but the conditions are written in computer code, so the agreement automatically executes once the terms are met.

Stablecoin: A stablecoin is a digital token that is pegged to an asset, like a national currency or gold.

Tokenization: The process of transforming assets, rights, and obligations into a digital, tradeable token on a blockchain.

Tracking error: A usually unwanted deviation between, for example, an index fund and a portfolio.

U.S. Federal Reserve (Fed): The central bank of the United States, often referred to as "the Fed".

Volatility: The degree of variation of a trading-price series over time. It can be used as a measure of an asset's risk.

Wallet: A (crypto) wallet is a hardware devise or software that safeguards crypto assets and allows users to transact with crypto assets.

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As of 01/02/2024, Chris Rhine, Galaxy is managing a fund that has allocations to both Bitcoin and Ether.

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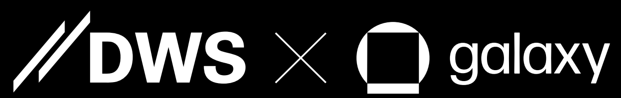

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