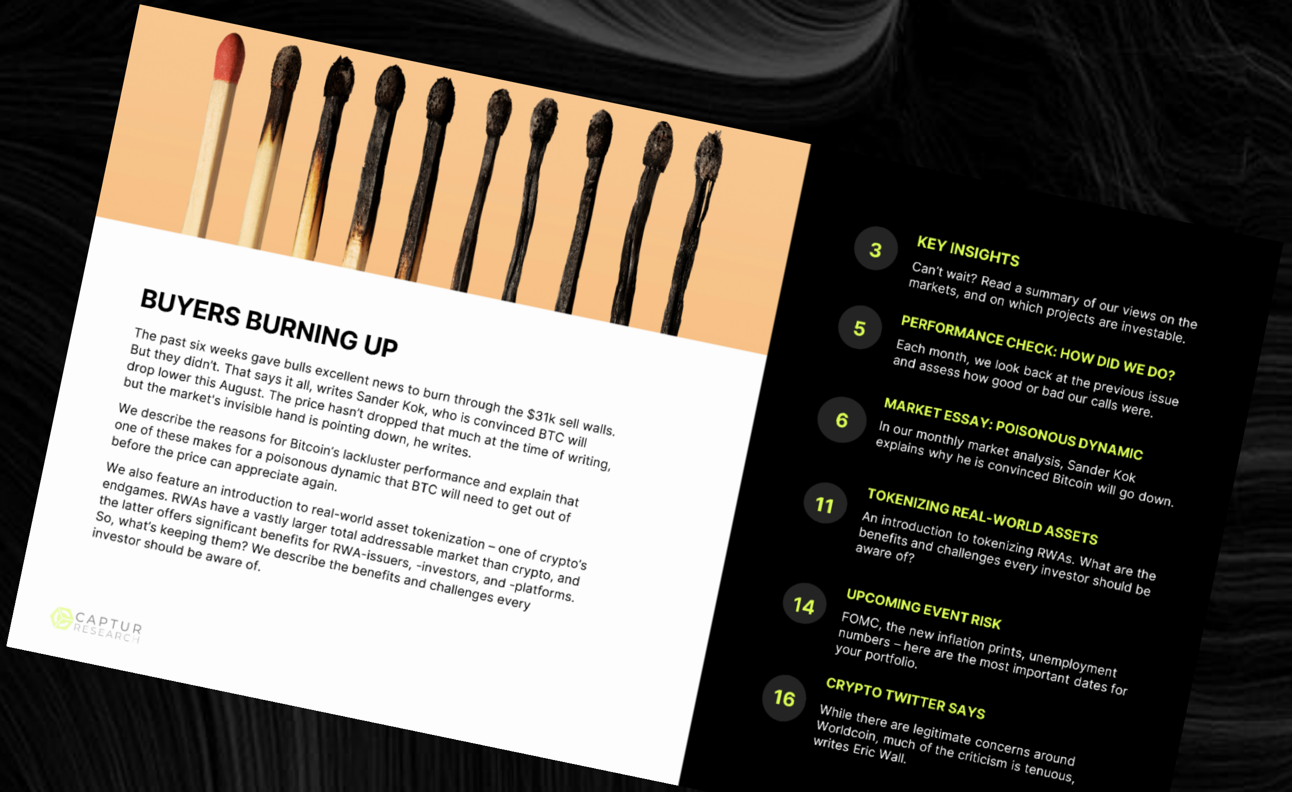
CAPTUR RESEARCH

ALPHA BOOK

AUGUST 2023



BUYERS BURNING UP

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We describe the reasons for Bitcoin's lackluster performance and explain that one of these makes for a poisonous dynamic that BTC will need to get out of before the price can appreciate again.

We also feature an introduction to real-world asset tokenization – one of crypto's endgames. RWAs have a vastly larger total addressable market than crypto, and the latter offers significant benefits for RWA-issuers, -investors, and -platforms. So, what's keeping them? We describe the benefits and challenges every investor should be aware of.

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KEY INSIGHTS

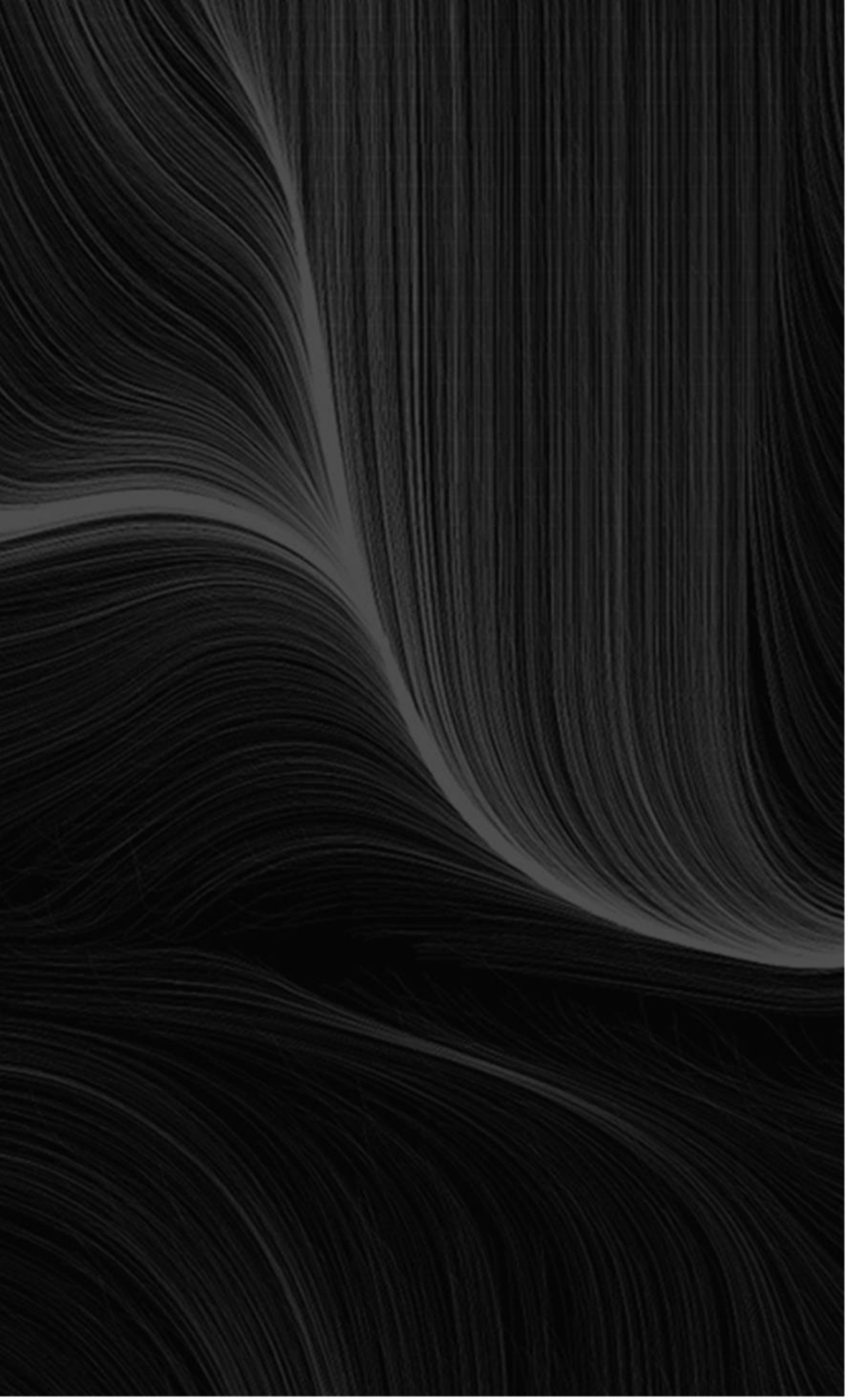
- Despite excellent news and the S&P 500 moving accommodatingly higher, BTC has performed poorly over the past month. Also, with the US government TWAP selling a quarter of a billion dollars worth of Bitcoin last week, we should have seen the price rebound as the selling neared its end. But that didn’t happen. To us, these facts provide convincing evidence that the path of least resistance for Bitcoin is down. BTC failed to break the $31,000 resistance and now looks poised to retrace the BlackRock ETF news move toward $25,000. Late buyers of the ETF news are trapped from higher up, which leads us to believe that if the price bleeds out into support, a flush-out becomes the highest probability scenario.

- Reasons for BTC's weakness are buyer saturation, Binance fears, and, counterintuitively, the excellent news from the regulatory front. (For more on the latter, see the next point.)

- Our base case in which BTC's price bleeds all the way into support over the coming month seems probable due to a poisonous dynamic in which altcoins, galvanized by recent good news from the regulatory front, move higher whenever BTC looks likely to bottom, thereby sucking liquidity away that BTC needs to actually bottom, causing ever lower lows until capitulation.

- Such a flush-out could provide the solution to the dynamic mentioned above, but the mere passing of enough time may also be enough. With the broader market performing poorly, the good news from the regulatory front will eventually retreat from speculators' minds, making them less eager to buy altcoins, resulting in higher odds for Bitcoin bottoming as it no longer has to share meaningful amounts of liquidity and attention with the likes of SOL and MATIC.

- On-chain data shows stablecoin supplies are still dwindling, and not because they are being converted into other cryptos. Traditional finance is still retreating from the market. There is, however, a potential trend change with the stablecoin reserve ratio having broken upwards, making a higher low. Such a break has only occurred three times since 2020, each time signaling a lasting regime change. While this rare occurrence may turn out to have been an unmistakable buy signal in hindsight, we are not convinced just yet. The circulating stablecoin supply is still shrinking, and we think the trend change is primarily the result of profit-taking rather than increased minting.



- We will change our bearish stance if BTC provides us with convincing evidence of strength. Evidence can take many shapes, the most convincing of which would be technical because, in trading, the only thing that doesn't lie is the chart. If the price manages to climb back above $29,800 and stays there, we will take that as convincing evidence of bullishness. If not, we will assume we are in bear territory. The result of that thesis is that the risk to reward gets more attractive for shorts the closer the price comes below the number mentioned. Shorts filled at $29,800 only take on 1-2% risk. As a consequence, this level will be hard to break without good news to shock the market and blow out shorts.

- SOL is our biggest bet based on technical advances, expected ecosystem growth, and, most of all, community resilience. But, as explained, Bitcoin bottoming causing alts to fly is part of the above-described poisonous dynamic in which nothing can fly without it pushing the others down.

- We have seen early signs of institutional adoption as traditional firms explore investing in platforms and protocols focusing on tokenizing real-world assets. Considering the gigantic total addressable market and the potential benefits for issuers, investors, and platforms, this makes sense.

- The broader crypto market would also benefit, as tokenization of RWAs would bring more users into crypto if successful. The growth of RWAs is a positive development for crypto investors in general, who will have more opportunities outside the comparatively narrow crypto ecosystem. Besides benefiting from higher treasury yields, which especially today seems relevant, integrating RWAs will add more stable assets to DeFi and increase the variety of collaterals in the space.

- We are optimistic that more innovation and development in the RWA space will create more use cases and help drive crypto adoption. However, for this to occur, we either need positive news from the legal front – the recent summary judgment in the Ripple case provides a good start, but we need more clarity outside the question if a token offering entails that token being a security – or at least one project to become so successful in a short period that incumbents will have to adapt to a new reality. If the latter were to happen, as it did with Uber, judges and lawmakers would likely decide favorably on what seems a potentially world-changing innovation.

PERFORMANCE CHECK: HOW DID WE DO?

Each month, we look back at the calls from our previous issue. So far, we are the only public analysts to do so, hoping more will follow.

- We thought July would be a good month for Bitcoin bulls. While it wasn't bad, with the price spiking 5%, it did not manage to break the $31,000 resistance as we had expected.
- At the same time, the S&P 500 went up 3%. While not yet confirmed, the S&P may indeed be ranging at the current level. The steep drop we said was unlikely did not occur, as expected.
- Bitcoin's correlation to the S&P 500 continued dropping off, as we wrote it would.
- All other calls were longer-term.

UP AND UP SOME MORE

A beautiful summer. The sun shines through the leaves. The market doesn't move. There's nothing to worry about, except of course your next worry.

Up or down? Well, why not sideways? It befits the summer lull. Sander Kok unfolds two high-probability scenarios for the S&P 500. Without a catalyst until August, a "nuke" is not among these. "We would need that nuclear warhead to drop from under the wings of a black swan." How will crypto do in the two scenarios? Does BlackRock's Bitcoin ETF provide a strong enough narrative to see BTC go up despite an S&P correction?

We also feature a deep-dive by Thor Hartvigsen into layer-2s. We've discussed them often on these pages. Can we expect a bull run in this sector this year? According to Hartvigsen, one thing seems clear: proto-danksharding will be among the biggest narratives in crypto in the coming months.

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A POISONOUS DYNAMIC

MONTHLY MARKET ANALYSIS – READING TIME: 10 MINUTES
By Sander Kok

Figure 1: BTC has performed poorly despite excellent news and the S&P 500 moving accommodatingly higher. The price failed to break the $31,000 resistance and now looks poised to retrace the BlackRock ETF news move. Late buyers of this news are trapped from higher, which leads us to believe that if the price bleeds out into support, a flush-out becomes the highest probability scenario. A bleed-out may result from the poisonous dynamic described in this essay. (Source of the signals: Scipio Pro.)

SUSPENSION OF BULLISHNESS

We have switched sides: from bull to bear. In recent weeks, more and more investors have become convinced of the bullish case, particularly for traditional assets, which even broke their yearly highs, but the invisible hand of the crypto market is pointing downwards.

Bitcoin has been looking heavy these past weeks despite excellent news from the regulatory front for the broader crypto market and despite the tailwind provided by the ETF applications. We currently find ourselves in a situation that looks similar to that of November 2022. Nine months ago, the market stomached a string of bad news without it pushing the price meaningfully lower. Last month, we had two pieces of excellent news that couldn't drag the price higher. In November, at $15,900, we made the case for buying Bitcoin. Now, at a little below $30,000, we believe it makes sense to suspend our bullishness.

Also, with the US government TWAP selling a quarter of a billion dollars worth of Bitcoin last week, we should have seen the price rebound as they were nearly done. But that didn't happen. Add that to the evidence list.

WHY DOWN

We see three causes for Bitcoin's poor performance:

1) Binance and TUSD fears. Given the fact that these have been around for months and have only gotten worse over time, we can assume they are priced in by now. It is true: there will always be FUD, even during relentless uptrends. But never did it keep the price down for long if the longer trend was up. This leads us to believe the Binance fears are not the main cause for the current weakness. (Anecdotally, market participants do see it as such,

providing upside risk. If any bad Binance news comes to the surface that isn't as disastrous as expected, we will likely squeeze up.)

2) Buyer saturation at the $30,000-$31,000 level with ETF momentum stalling. The chart doesn't lie. Apparently, whoever wanted to buy at this level has already bought. We are among the majority of analysts who expected BlackRock's ETF application to direct new money to the market through countless asset managers worldwide following their lead. We were wrong. On higher timeframes, stablecoin supplies are still dwindling, and not because they are being converted into other cryptos. They are dwindling because traditional finance is still retreating from the market. Hard to believe with the ETF applications decisions due over the coming months, but on-chain data is incapable of lying; it reveals a harsh truth (Fig. 2). To be fair, there are more ways to buy crypto than through stablecoins, but aside from getting exposure to crypto through equity such as Coinbase's, these haven't been utilized much. We don't expect that to have suddenly changed during the past month. (One bullish thing about the chart on this page caught our attention, though, and that's the first sign of a potential trend change. Ever since 2020, if the stablecoin reserve on exchanges made higher highs and higher lows, it continued doing so for at least a year (the result of increasing profit-taking and stable-minting). The same occurred when the reserve made lower highs and lower lows (the result of increasing dip-buying and stable-redemption). A few days after the BlackRock ETF news broke, the reserve trend broke as well. In hindsight, this may turn out to have been *the* buy signal of 2023, but we have reason to believe this sign to have been the result of profit-taking rather than stable-minting since the latter does not show up on minting charts.)

3) Counterintuitively, the good news coming from the regulatory front. Most market participants, including us, expected this news to lead to a "rising tide

Figure 2: The stablecoin reserve on exchange paints a bearish picture with dwindling reserves despite bullish sentiment and rising asset prices. It also shows early signs of a long-term trend break. In hindsight, this may turn out to have been a clear buy signal.

lifts all boats" type of situation. And with Bitcoin not having had to endure the abovementioned trouble, this may well have happened. But with no new money flowing in – by new money, we mean money that wasn't already in crypto, but rather new money that grows the proverbial pie – there was not enough liquidity to go around in order to make both altcoins (the main beneficiaries of the good news) and Bitcoin go up. Put differently: altcoins stole Bitcoin's bid.

This made for a poisonous dynamic that will be hard to break. Whenever Bitcoin reached a level where it might bounce, speculators picked assets

Figure 3: Figure 3: From a technical perspective, SOL looks poised to be among the best-performing altcoins if this category resurrects and breaks above last summer's resistance. Ripple's win against the SEC will prove helpful in this regard.

such as SOL and MATIC for their higher beta. In other words, whenever BTC started to look good, altcoins looked better and buyers acted rationally. The result was BTC failing to bounce for lack of buyers, and speculators buying into tokens that got heavier and heavier.

ALTSEASON

As anyone who has been in the crypto market for longer than a few years knows, the broader crypto market needs Bitcoin to remain steady for altcoins to do well. If Bitcoin goes down, altcoins go down harder. You don't want to be caught holding a long position in any altcoin during sharp BTC moves, precisely for this high beta. With fearful altcoin speculators withdrawing their money from altcoins, you would expect BTC to benefit. But not if it looks this weak. And whether or not the weakness was caused by the US government selling that quarter of a billion dollars didn't matter. You don't take your money out of a weak-looking asset to put it into another weak-looking asset. You look for shelter in stables until at least Bitcoin looks better. The question is: when will that be? Price-wise, BTC looks stuck in a downward spiral until the recent good news from the regulatory front has retreated from people's minds, making them less eager to buy altcoins.

Time will solve this problem, but also price action. Counterintuitively, crypto speculators with longer horizons should hope for a good cleansing. All three reasons for the current weakness would be solved at much lower prices. Any Binance news won't do as much damage when Bitcoin is already cheaper. Lower prices may also attract renewed interest from ETF application front-runners, rekindling that narrative. And as for the third point, a good cleansing would purge all hope of an altcoin season, as alt-investors will be too distraught to direct their capital back into alts, by which they otherwise would have diluted the available liquidity. All of this would favor Bitcoin.

Hopes of an altseason do not die quickly, especially when there is finally an excellent reason for one due to the recent regulatory news. Going by experience, it may take around three or four times of hope flaring up again and being hosed down for liquidity to stop flowing into alts. That would be good for BTC and eventually for alts as the broader crypto market needs a strong hero whose strength to rely on, and no other project, with the exception of Ethereum, can play that role, much less to outsiders whose new capital the crypto market needs to attract. Any altcoin going up 1,000% will not turn heads from outside crypto, but if Bitcoin were to grow a tenth of that – for instance, by going from $25,000 to $50,000 – people would pay attention. Would they buy Bitcoin at that price? More than they would now, as high prices attract interest (from the masses and also from traditional funds, as was painfully evident in 2021). For their presumed cheapness, both the masses and the funds would primarily buy altcoins again, just like in the previous cycle, but not before "crypto" manages to get their attention back. For now, only Bitcoin and Ethereum are in a position to do so, and only through significant price appreciation, which – I'll repeat this – is hard to achieve when the market keeps bidding altcoins before the attention is back.

NEWS

Aside from a flush-out or the recent altcoin narrative decaying over time, there is a third way out of the poisonous dynamic described above. As a possibility, it's almost not worth mentioning, as it's always there – good news to shock the market. While the possibility of good news happening may be too obvious to mention, the contenders from which such news may stem merit some remarks.

• ARK ETF decision. The SEC is expected to make a decision on the ARK Invest Bitcoin ETF by August 15, but it is likely that they will delay it as they have done with other applications. A delay would be neutral for crypto, while an approval would be bullish, and a rejection would be bearish.

• Grayscale court decision. Grayscale is facing a class-action lawsuit from investors who claim that they were misled about the nature and value of the Grayscale Bitcoin Trust (GBTC). The plaintiffs allege that Grayscale misrepresented GBTC as an ETF and charged excessive fees that eroded its premium over Bitcoin's spot price. A win for Grayscale on August 31 would be positive for Bitcoin's price. On the other hand, a loss would be very damaging, as that would mean thousands of now-stuck Bitcoins can get liquidated.

• Binance FUD becoming a reality. One of the primary sources of the current uncertainty resolves around Binance, the largest crypto exchange by volume, which has faced scrutiny and restrictions from regulators in several countries. "Binance DOJ news" has been hanging over the markets for months now. Any such news may turn out to be a buy-the-news event, especially if it isn't as terrible as expected.

• US political debates. The first Republican presidential debate for the 2024 election is scheduled for August 23, and the long road to the White House will feature at least one high-profile pro-Bitcoin candidate, Robert F. Kennedy. Although he is unlikely to win the Democratic nomination, his presence in the debates could generate media attention and public interest in Bitcoin. The topic of Bitcoin has been largely absent from the mainstream discourse lately, but it could regain relevance and appeal if people start to associate it with their political preferences or ideologies.

INVALIDATION

We will change our bearish stance if BTC provides us with convincing evidence of strength. Evidence can take many shapes, the most convincing of which would be technical in nature, the reason being that, in trading, the only thing that doesn't lie is the chart. If the price manages to climb back above $29,800 and stays there, we will take that as convincing evidence of bullishness. If not, we will assume we are in bear territory. The corollary of that thesis is that the risk to reward gets more attractive for shorts the closer the price comes below the number mentioned. Shorts filled at $29,800 only take on 1-2% risk. Consequently, this level will be hard to break without good news to shock the market and blow out shorts. If the latter occurred, the price would quickly revisit the battered resistance at the top of the range and likely break up higher. But good news is not something to count on, if only because it's impossible to time. That is why we remain bearish until the chart convinces us otherwise.

For reasons explained extensively in previous Alpha Book market essays, we remain as bullish as ever on Bitcoin in the long term. Our bullishness in alts has even increased with the regulatory news from the Ripple case. Once BTC bottoms, we will probably see alts fly. SOL is our biggest bet based on technical advances, expected ecosystem growth, and, most of all, community resilience. But, as explained, Bitcoin bottoming causing alts to fly is part of the above-described poisonous dynamic in which nothing can fly without it pushing the others down. The ways described above – time, flush, and news – can provide a solution. These also mean there is enough upside risk, but we will patiently remain bearish until any of these rescuers sucks the poison out of Bitcoin's wounds. ◆ Sander Kok

TOKENIZING REAL-WORLD ASSETS

An Introduction to Its Benefits and Challenges

INTRODUCTION

Real-world assets (RWAs) are assets that exist in the physical world, such as stocks, bonds, commodities, real estate, and art. RWAs represent a vast and diverse market with an estimated value of around $1,000-$1,500 trillion.

In their present, non-blockchain form, RWAs face many inefficiencies and frictions, such as high issuance costs, low liquidity, limited access, lack of transparency, and intermediation, theoretically making them ripe for disruption. Blockchain technology offers a solution by enabling the tokenization of RWAs. Digital representations of RWAs can be transferred, stored, and traded in a decentralized and trustless manner, solving all the abovementioned problems.

RWA tokenization is a complex and evolving field that requires constant research and analysis. This essay is, therefore, not intended to be exhaustive or conclusive but is meant to provide an overview and introduction to the topic. The future of tokenized RWAs will depend on court decisions throughout the world that are impossible to predict. It may be sensible to consider, however, that lawmaking follows technology more than the other way around. Looking for successful RWA tokenization projects with meaningful network effects may be sensible in the coming years. Their success can solve at least some legal issues that currently dampen innovation in a field that is one of the most promising in crypto. We have seen this before with the advent of Uber. Incumbent parties were too slow to react and eventually had to adapt to a new reality.

The tokenization of RWAs seems promising enough to attract enough interest from users before lawmakers can set their laws in stone – or such is our thesis. Tokenization promises:

- Lower costs. Tokenization can reduce issuance costs, custody, settlement, and compliance while eliminating intermediaries with smart contracts.

- Higher liquidity. Tokenization can increase the liquidity of RWAs by enabling fractional ownership, global access, and 24/7 trading.

- Wider access. Tokenization can democratize access to RWAs by lowering the barriers to entry, such as minimum investment amounts, geographic restrictions, and accreditation requirements.

- Greater transparency. Tokenization can enhance the transparency of RWAs by providing verifiable provenance, ownership, and performance data on blockchains, similar to what the invention of NFTs means for the art market.

- More innovation. Tokenization can foster more innovation in the RWA market by enabling new products, services, and business models, as we have seen in other areas in the crypto space.

These promises would benefit at least three categories of stakeholders: issuers, investors, and platforms. We will delve deeper into these benefits below.

BENEFITS FOR ISSUERS

- Grow the investor base. Issuers can reach a global and diverse pool of investors who are interested in their assets, regardless of their location, wealth, or status.

- Reduce capital costs. Issuers can lower their cost of capital by accessing more efficient and competitive funding sources on blockchains.

- Increase the asset value. Issuers can enhance the value of their assets by improving their liquidity, transparency, and governance, as arguably happened in other areas of crypto.

- Diversify risk. Issuers can more easily diversify their risk exposure by creating portfolios of different types of assets across different markets and jurisdictions.

BENEFITS FOR INVESTORS

- Access new asset classes. Investors can access new types of previously unavailable or inaccessible assets, such as private equity, venture capital, or art – again, similar to what has happened elsewhere in the crypto space.

- Enhance performance. Investors can enhance their portfolio performance through the increased ease of diversifying, optimizing their risk-return profile, and capturing arbitrage opportunities.

- Protect their asset rights. Investors can protect their asset rights by having full ownership and control over their tokens without having to rely on third parties or intermediaries.

- Participate in asset governance. Investors can more easily participate in asset governance by voting on proposals or changes that affect their tokens or underlying assets. In practice, this benefit has not been capitalized on much elsewhere in crypto. Even most DAOs are governed by just a fraction of the token holders, the latter time and again proving to be uninterested in exercising their democratic rights if that involves having to spend some time researching what is best for themselves or the project. But it is nevertheless a benefit.

BENEFITS FOR PLATFORMS

- New revenue streams. Platforms can create new revenue streams by providing services such as issuance, trading, custody, or lending for RWA tokens, similar to what we have seen during the 2020 DeFi boom.

- Grow the user base. Platforms can increase their user base by attracting more users who are interested in RWA tokens or underlying assets. These new users could come from crypto or the mainstream public.

- Enhance network effects. Platforms can enhance their network effects by facilitating more interactions and transactions among users who hold or trade RWA tokens, again similar to the DeFi boom.

CHALLENGES

- Recourse risk. Presently, there exists no legal framework to ensure investor protection. In case of a default, investors have no mechanism to recover their loans.

- Regulatory uncertainty (as mentioned above). This is the hardest challenge for now. RWA tokenization involves solving complex legal and regulatory issues. Aside from a crypto-hostile US government, different countries and regions will have different rules and standards for RWA tokenization, which can cause inconsistencies for issuers, investors, and platforms. Also, some regulators may view RWA tokens as securities or derivatives, which can subject them to stricter regulations and restrictions.

- Technical hurdles. RWA tokenization involves technical complexity and coordination, such as data verification, asset valuation, (over)reliance on oracles, smart contract development, and auditing. These processes require time and high levels of expertise, resources, and collaboration among different parties and stakeholders. What's more, some technical challenges, such as interoperability, scalability, and privacy, are still not sufficiently developed.

- Operational risk. RWA tokenization involves operational risks, such as human error, fraud, hacking, or system failure. In that respect, it is not fundamentally different from the current ways in which RWAs are traded. But since tokenized RWAs would be new and arguably much talked about, they could illicit more criticism than their traditional counterpart. There are also some new operational risks that come with tokenization, and some of these will prove hard to eliminate. We are mainly thinking of oracle risk here, but custody and counterparty risks are also to consider. Insurance can mitigate these last two risk types, but the oracle risk problem may be more challenging. Oracles connect blockchains to external systems from the real world, enabling smart contracts to execute based on "objective facts." For instance, the price of Apple stock on the Nasdaq or the apple price on your neighborhood market. RWA tokens and the ecosystems in which they function rely heavily on oracles. Especially when collateral and leverage are involved, markets can be hit hard by oracle failures or exploits.

CAUTIOUSLY OPTIMISTIC

We have seen early signs of institutional adoption as traditional firms explore investing in platforms and protocols focusing on tokenizing RWAs. Considering the gigantic total addressable market and the potential benefits for issuers, investors, and platforms, this makes sense.

The broader crypto market would also benefit, as tokenization of RWAs would bring more users into crypto if successful. The growth of RWAs is a positive development for crypto investors in general, who will have more opportunities outside the comparatively narrow crypto ecosystem. Besides benefiting from higher treasury yields, which especially today seems relevant, integrating RWAs will add more stable assets to DeFi and increase the variety of collaterals in the space.

So, we are optimistic that more innovation and development in the RWA space will create more use cases and help drive crypto adoption. However, for this to occur, we either need positive news from the legal front – the recent summary judgment in the Ripple case provides a good start, but we need more clarity outside the question if a token offering entails that token being a security – or at least one project to become so successful in a short period that incumbents will have to adapt to a new reality. If the latter were to happen, as it did with Uber, judges and lawmakers would likely decide favorably on what seems a potentially world-changing innovation. ◆ grypto digital

UPCOMING EVENT RISK FOR AUGUST

August 2

LITECOIN HALVING

This is the tentative date for Litecoin's 4-yearly halving event.

August 3

US ISM SERVICES PMI

US ISM Services PMI released (previous: 53.9; expected: 53.2)

August 4

US EARNINGS AND UNEMPLOYMENT | US CPI

US Earnings print m/m (previous: 0.4%; expected: 0.3%)
US Non-Farm Employment Change (previous: 209k; expected: 203k)
US Unemployment Rate (previous: 3.6%; expected: 3.6%)

August 10

US CPI

US consumer price inflation (data pending)

August 11

US PPI

US PPI and core PPI (data pending)

August
15

RETAIL SALES

US retail sales (data pending)

August
16

US FOMC MEETING MINUTES

The minutes of the previous month’s FOMC meeting are released

August
30

US PRELIMINARY GDP

Change in the inflation-adjusted value of all goods and services produced by the economy

August
31

US PCE

US Core PCE Price Index m/m (data pending)

CRYPTO TWITTER SAYS

"If the Worldcoin technology works as described, scanning your iris does not link your iris to your "World ID" nor your financial transactions.

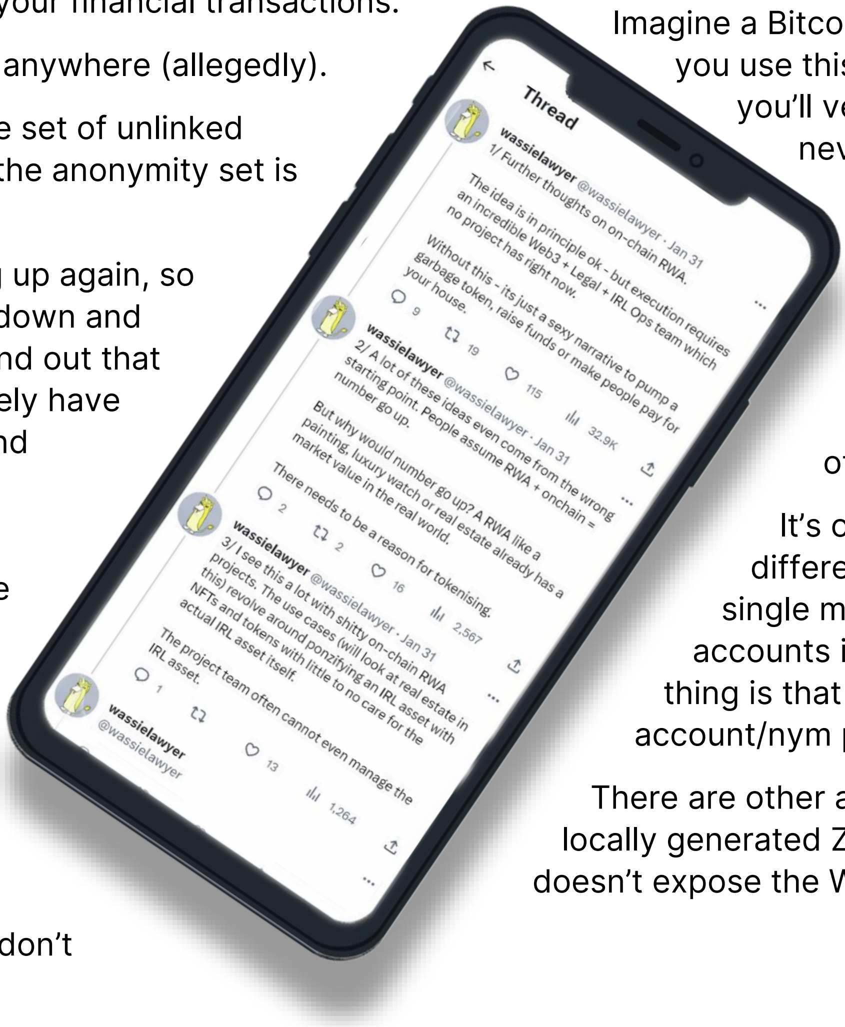
No pictures of your eyeball scans are stored anywhere (allegedly).

A ZKP is used to prove that you belong to the set of unlinked irisCodes (hash of your iris scan). Assuming the anonymity set is large, you should be fine.

These irisCodes do prevent you from signing up again, so we can assume that if someone hunted you down and force-scanned you with an orb, they could find out that you've been scanned before and that you likely have a World ID. But they wouldn't know which. And that's actually about the extent of your taint.

There's a lot of rah rah about the fact that a *hash of your iris scan* is submitted from the orb to Worldcoin *servers* (vs Apple FaceID which is allegedly all local). But no one is articulating which privacy vector this violates other than "it allows Worldcoin to identify previous signups from new".

There is however potentially an issue with the World ID itself. Worldcoin says that they don't collect any data about you (no name, email) to allow you to make use of the World ID.



But then there is the issue of Worldcoin linkability.

Imagine a Bitcoin wallet that doesn't refresh addresses ever. If you use this address a bunch of times for different things, you'll very quickly reveal yourself, even though you never wrote your name or email on that address. You make one in-store purchase with a CCTV camera and bam, all your history is linked together.

Worldcoin has given some thought to this and allows you to generate some number of sub-accounts that cannot be linked to each other or the World ID.

It's on the app you're using to decide how many different sub-accounts you're allowed to use with a single mother ID (they can't allow you to use infinite sub-accounts if they want to prevent botting). One important thing is that you can at least generate a new sub-account/nym per service.

There are other actions, like voting, where Worldcoin supports locally generated ZKPs to prove that you're a unique user, but doesn't expose the World ID or any subaccount.

Worldcoin says they have ongoing research projects to further improve Worldcoin ID privacy to allow e.g. selective disclosures using ZK.

This is why when you talk to a Worldcoin person, your criticism usually falls flat. They believe they have solutions to the privacy issues you're raising. They believe you haven't actually bothered to think any further than "eye scanner orb bad!", and let's be frank, you really haven't, and it's unlikely you'd even be able to think further than that even if you tried.

But you are entitled to your gut feeling. Your gut feeling could be totally correct. In order to trust Worldcoin and orbs, you would need to understand ZKPs and trusted execution environments to even understand that what they're claiming is possible. This is not an easy thing to understand.

And even if you understand that it is possible, you still need to trust that it is being implemented and implemented correctly.

As far as I know, no one external is going around doing remote attestation on these orbs using open source software. That's a design goal Worldcoin has but not something they've delivered or had as a requirement on themselves to deliver before they started scanning 8 pairs of eyeballs per second in the global south.

And how would it even work in practice? If we normalize a VC tech bro scanning your eyeballs and another tech bro sitting next to him saying "it's all good, I verified the TEE" we're still vulnerable as a people since no one really understands these things.

Now, go on, go and have better discussions around Worldcoin."

—Eric Wall (@ercwl)
Eric Wall Eric Wall is a Swedish crypto researcher and investor.

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