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Edition VII.

The Libra Edition

Libra: The End of the State Money Monopoly?

Coin Corner: Ripple Labs Inc. and XRP

Fireside Chat with Nick Szabo on Scaling Bitcoin

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Editorial

Dear Reader,

Creating currency and charging fees for transacting with currency is a very lucrative business. Corporations like Revolut, Transferwise, Ripple, Facebook, Amazon, Google, and JP Morgan are all competing for a part of the action. Meanwhile, startups are launching stablecoins, which adds an additional layer of competition with its own set of advantages and risks. Traditional financial intermediaries are faltering in response.

In this edition we feature separate chapters which extensively cover XRP (Ripple Inc.) and Libra (Facebook Inc.). Effectively, both technologies are competing for the same goal: They want to become a global currency. This means they are both competing with the US dollar. One thing to note is how much backlash Libra has received from regulators in comparison to XRP. This may be because XRP is not actually considered capable of achieving their stated goal. First, XRP does not have access to Facebook's network of 1.7 billion users. Second, Facebook's Libra is intended to have a stable purchasing power, which is absolutely required in order to gain adoption as a medium of exchange and unit of account. Libra will be backed by reserve assets, such as fiat currency and government bonds, and should therefore be able to maintain a low volatility. In contrast, XRP is backed by nothing. The price of XRP is based purely on speculation.

However, the fact that XRP's network is smaller than Libra and XRP's volatility is higher than Libra's does not take XRP out of the race to become a global currency. The main point is that if XRP was able to back their currency with financial assets and stabilize the purchasing power of the currency, then that would mean that XRP coins should have no price appreciation. In fact, only the equity shares of Ripple Labs would profit from XRP's adoption as a global reserve currency. But Ripple Labs is a privately held company. After fully understanding what XRP is, one is left seriously questioning the investment case for the XRP.

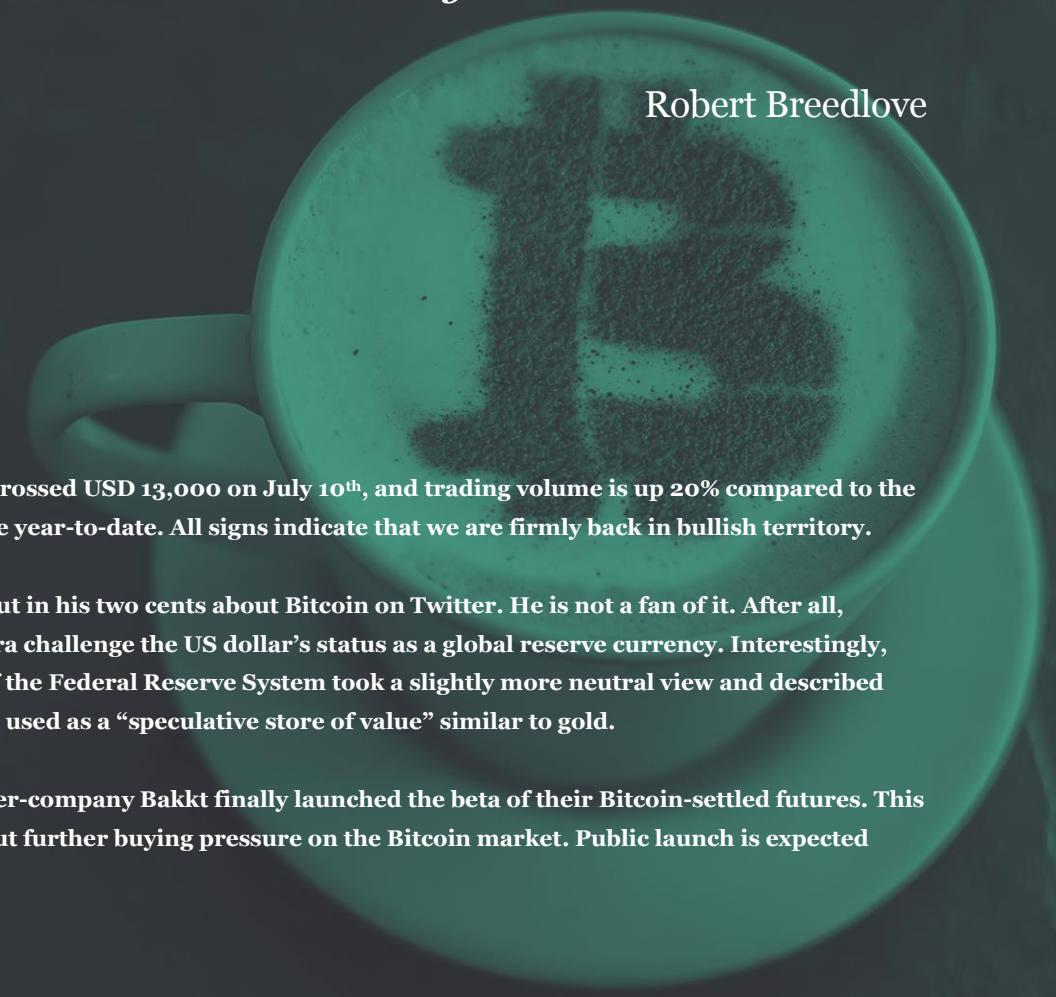
50 years after the breakthrough discovery of asymmetric encryption and the Internet, a race to create the optimal form of money has begun, and, so far, there are three main contenders: **state-issued monies**, **corporate-issued monies**, and **decentralized cryptocurrencies**. The outcome depends on trust. Even though the US dollar has a lot of weak points, do we really trust Libra or XRP more? In case we don't, trustless monies like Bitcoin and gold offer an exit option.

Demelza Kelso Hays and Mark Valek,
Incrementum AG

In Case You Were Sleeping: Facebook Edition

"In an age of unlimited fiat currency printing, all value flows to scarce assets – and Bitcoin is the scarcest liquid asset in history."

Robert Breedlove



Key Takeaways

- **Bitcoin's price crossed USD 13,000 on July 10th, and trading volume is up 20% compared to the monthly average year-to-date. All signs indicate that we are firmly back in bullish territory.**
- **Trump finally put in his two cents about Bitcoin on Twitter. He is not a fan of it. After all, Bitcoin and Libra challenge the US dollar's status as a global reserve currency. Interestingly, the chairman of the Federal Reserve System took a slightly more neutral view and described Bitcoin as being used as a "speculative store of value" similar to gold.**
- **The NYSE's sister-company Bakkt finally launched the beta of their Bitcoin-settled futures. This is expected to put further buying pressure on the Bitcoin market. Public launch is expected later.**

Is Crypto Spring finally here? Bitcoin prices have experienced a remarkable recovery since April. Many new projects are springing up, existing ones are bearing new fruit. And then there's Mark Zuckerberg and his plan for a Facebook coin.

The NYT Indicator

Sometimes it's uncanny how closely markets and the media are connected. We've seen this time and again in asset classes like gold. When the shiny metal lands on the cover of the local tabloid, it's time to sell. There's something even better in the crypto sector. Perhaps the best-known newspaper in the world provides the most reliable indicator for Bitcoin prices: The New York Times.

On January 13th, 2018, the Times marked the final end of the last bull market with the wonderful headline: "Everyone Is Getting Hilariously Rich and You're Not." The first picture shows two crypto fans in Bitcoin and Ethereum pullovers. The price of Bitcoin was still USD 14,600. In the three weeks following the article, the price plummeted by almost 60 % and briefly even dropped below USD 6,000.[1]

A little over a year later, the New York Times strikes again. This time it goes in the other direction. The newspaper reported, "Smart Money knows that crypto is not yet ready," on April 2nd, 2019.[2] The pessimistic article came just one day after the Bitcoin price jumped more than 20 % in a matter of hours. One may forgive the editors of the Times for not simply withdrawing the article that had been researched over the long term. On April 2nd, there was also general confusion as to what had actually happened in the markets the day before.

"Le roi est mort, vive le roi!"

Charles VII, 1422

After all, the sudden jump from around USD 4,000 to more than 5,000 came at a time when most analysts were predicting a continuation of the bear market and new lows. The mainstream media, which had already mostly forgotten about Bitcoin, even attributed the price jump to an April fool's joke. In fact, on April 1st there was a rumor making the rounds on social media that the US Securities and Exchange Commission had approved two Bitcoin ETFs – in an alleged "emergency session" nonetheless.[3]

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[1] See "Everyone is Getting Hilariously Rich, And You're Not!," Nellie Bowles, *The New York Times*, January 13, 2018.
[2] See "Amid Bitcoin Uncertainty, 'the Smart Money Knows That Crypto Isn't Ready,'" Nathanial Popper, *The New York Times*, April 2, 2019.
[3] See "Bitcoin mysteriously rocketed above $5,000 – and one theory pins the rally on an April fool's gag," Trista Kelley, *Business Insider*, April 2, 2019.

But this obvious fake was by no means the reason for the sudden rise in the Bitcoin price. **In fact, it was probably a single mysterious buyer who had invested the sum of USD 100 million in the cryptocurrency on several exchanges within a few hours.** Specifically, the exchanges Coinbase, Kraken and Bitstamp were used, as Reuters reported. Whether an individual investor or an institution stood behind the order, we still do not know. **But we do know the consequences.**[4]

A Strong Sign of Life

"The fact that central banks continue to hold onto their gold, and have even started increasing their reserves, testifies to the confidence they have in their own currencies in the long term."

Saifedean Ammous

After more than a year in a depressing crypto winter, especially Bitcoin but also some altcoins have awoken. In the months that followed, prices went steeply uphill. Even the USD 6,000 mark, where the price remained on its way down for a long time, did not prove to be major resistance. As we write these words, the price hovers just above USD 10,000. The chart technicians are now arguing whether we are already in a new bull market or just seeing a sharp bear market rally. With the price having reached the price of over USD 13,000 on July 10th, things seem to become ever more obvious that cryptoassets are back on bullish territory. But should we really be in a bull trap, new lows would be possible despite the returning euphoria. Some, like Tyler Jenks of Lucid Investments, still think it's likely that the Bitcoin price could fall to USD 1,000.

His colleague Leah Wald brought the example of historical sugar prices into play to support this theory.[5] In the mid-1970s they had risen dramatically. Then the bubble burst, just like Bitcoin's. A few years later there was a sudden rise, all indicators were bullish, and the price almost reached its all-time-high, just to collapse a second time and mark a new low.

Will Bitcoin be similar? Or do we actually already see the return of the bull market for the crypto space? The fact that the whales, the really big players on the Bitcoin market, bought almost half a million Bitcoin in the nine months before the price increase, is a hint but no proof yet. From their point of view, they obviously took advantage of favorable prices, but they can sell again just as well if the rally loses momentum.

In the long run, we are still in the accumulation phase, say Tuur Demeester and Michiel Lescrauwaet of Adamant Capital. In a paper they took a very close look at the market and found some reasons for cautious optimism.

> *"We believe Bitcoin is in the last stage of this bear market: the accumulation phase. The current sentiment has recovered from capitulation and the*

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4 See "Bitcoin jumps 20 percent, mystery order seen as catalyst," Tom Wilson and Tommy Wilkes, *Reuters*, April 2, 2019.
5 "Is it still possible for BTC to hit the phase 1 line? Even though indicators are now bullish, there is historical precedence. Yes, one example is sugar." [Tweet], Leah Wald, *Twitter*, May 21, 2019.

blockchain shows us that Bitcoin HODLers are committing for the long term again. This is confirmed by our drawdown and volatility analyses."

"While lower prices are still possible, Bitcoin's fundamentals are gaining momentum. Embraced by Millennials, its ecosystem is developing at rapid clip, both as a decentralized bottom-up disruptive technology, and as an uncorrelated, highly liquid financial asset for institutional portfolios around the world."[6]

"There's bitcoin, and then there's shitcoin!"

Warren Davidson, Republican Congressman

As always with these things, we'll only be smarter after the fact. Demeester and Lescrauwaet published their analysis in mid-April, **assuming a medium-term trading range of USD 3,000 to 6,500.** Values that we have already left behind since then. The two experts expect Bitcoin to experience its "Windows moment" in the next five years, i. e. to establish itself globally as a financial asset and as a payment network. The enthusiasm of millennials for new technologies and the growing skepticism towards traditional banks are the decisive drivers.

The Facebook Moment

But they're not alone. A certain Mark Zuckerberg also wants to enter the crypto business. Maybe we won't experience a "Windows moment" this time but a "Facebook moment"? Hardly any other large company seems to have such ambitious crypto plans as Facebook does. **When details became known at the beginning of May, the Bitcoin price rallied immediately.** The market seems to regard the push as positive.[7]

So, what's it about? For one year now, Facebook has been working on the Internet giant's entry into the area of payments and money. Zuckerberg wants to enter payments, e-commerce, and even banking. In India, pilot projects are already underway in which WhatsApp users can use the app for payment transactions. That makes sense. Particularly in emerging markets, the introduction of new money technologies is often easier than in developed industrial countries. You can also bring customers into the financial system who don't even have a bank account yet. But that's just the first step.[8]

According to media reports, Zuckerberg wants to build a whole digital economy around his social media services. Libra is supposed to act as a bridge and payment channel. Billions of users will be able to buy directly from influencers via Instagram, and dealers will be able to advertise products directly on WhatsApp. In mid-June, the Wall Street Journal reported that Facebook had meanwhile brought 27 renowned partners on board for the project. Visa, Mastercard, PayPal and Uber among others will each provide at least USD 10 million as members of a

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[6] See "Bitcoin in Heavy Accumulation," *Adamant Capital*, April 18, 2019.
[7] See "Facebook is reportedly looking for allies to support its planned cryptocurrency payment service," Salvador Rodriguez, *CNBC*, May 2, 2019.
[8] See "Facebook in Talks to Build Ecosystem for Planned Stablecoin: WSJ," Yogita Khatri, *CoinDesk*, May 3, 2019.

consortium. Ultimately, however, Zuckerberg wants to have 100 companies in the consortium and collect a billion US dollars, which will serve as a reserve for Libra. Apparently, the currency is not going to be tied to the US dollar, but to a basket of currencies and low volatility government securities. That would give the coin its own price while staying relatively stable. The payment platform Stripe, the travel website Booking.com, and the South American trading platform MercadoLibre will also cooperate with Facebook on Libra.[9]

"The attributes of money are now a topic of discussion in American political discourse. Thank you, Bitcoin."

Erik Voorhees

What is clear is that Facebook will have no direct control over the coin. They want to cooperate with other consortium members on a Blockchain, whose rules are fixed. This could lead to broader acceptance and trust in the long term. It looks as if Facebook wants to use the blockchain technology to provide its users with a cheap and fast way of payment that they can trust. **As Zuckerberg said, "Sending money must be as easy as sending a photo."[10]**

A stablecoin makes sense, of course, because the wild volatility of cryptocurrencies like Bitcoin is a deterrent for the average person. The fact that Libra is tied to a basket of currencies and not to the US dollar also reflects the global orientation of Facebook, which is growing fastest outside the western industrialized countries. Whether this push is positive for Bitcoin, as some analysts and investors expect, remains to be seen. Many Bitcoin fans have pointed out that if you look at Facebook's plans, you can't speak of a cryptocurrency at all. Others argue that the global acceptance of new currency forms should be strengthened by the project in any case. Be that as it may, the Zuckerberg project meets the demands of many young people for new, affordable alternatives to the traditional monetary and financial system. In a later chapter in this report, we will analyze the Libra project a little more in detail.

Adoption, Adoption, Adoption

Back to the "Windows moment." The old lady Microsoft always has been very open to real cryptocurrencies like Bitcoin. Already in 2014, it was possible to use the digital coin in the X-Box-shop.[11] The option was abolished around the bubble at the end of 2017, because Bitcoin as a payment system suffered under the burden of its own popularity. It was simply too slow and the price too volatile. But Microsoft has not lost sight of the issue.

In mid-May, the company presented a project designed to give users control over their own login data and thus their identity on the Internet. A closed blockchain or a solution based on Ethereum is not used**. No, Microsoft relies on the oldest and most secure blockchain of all: Bitcoin.[12]**

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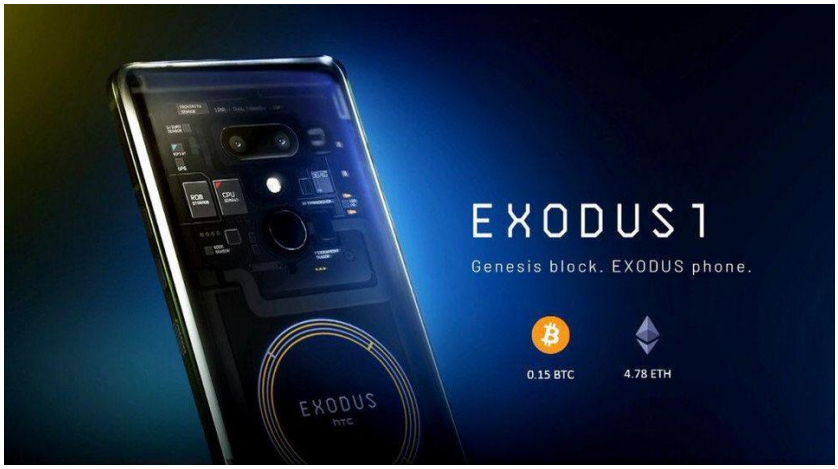
[9] See "Facebook's New Cryptocurrency, Libra, Gets Big Backers," Anna Maria Andriotis, Peter Rudegeair and Liz Hoffman, *The Wall Street Journal*, June 13, 2019.
[10] See "WhatsApp at Facebook F8: 'Sending Money Should Be As Easy As Sending Photos' – Mark Zuckerberg," Trisha Jalan, *Medianama,* May 2, 2019.
[11] See "You Can Now Buy Xbox Games With Bitcoin," Dan Kedmey, *Time*, December 11, 2014.
[12] See "Microsoft Wants To Protect Your Identity With Bitcoin," Gregory Barber, *Wired*, May 14, 2019.



Source: HTC.

And another household name from the US now accepts payments via Bitcoin: the telecom giant AT&T. However, AT&T was not the only telecommunications company to announce that they will be working Bitcoin. The Taiwanese electronics company HTC announced that the next model of their Exodus 1s phone will contain an entire Bitcoin full node.

This does not mean, however, that Ethereum is being left behind. The opposite is true. The second largest cryptocurrency has always been popular with companies due to its flexibility. But, so far, hardly any application based on Ethereum has achieved broad use – unless you count the ICO boom, which would never have been possible without Ethereum.

"We see this reverse trend – the Bitcoin full node is client dependent whereas more of our media is more cloud dependent. You have to go to the cloud to get your music, video, your YouTube, your photos even. But the Bitcoin one is special, you want it here on your device to be able to verify and relay transactions."

Phil Chen, HTC

On the Forbes list of the 50 largest companies that do something with blockchain, **more than half work with Ethereum.** These include names such as Anheuser-Busch, British Petroleum, Comcast, Amazon, Foxconn, Google, HTC, Intel, Samsung – and a long list of banks, from Citigroup to BNP Paribas.
The consulting giant EY unveiled its "Nightfall" project in mid-April. This software is designed to help EY's corporate customers use the Ethereum blockchain. 200 developers have been working on the product for over a year. EY thinks of areas of application such as supply chains and transactions.

EY doesn't want to make any money directly with "Nightfall" either. The platform is provided free of charge, a license is not necessary. EY's blockchain chief Paul Brody explains:

> *"We want to maximize adoption and community involvement, we want people to adopt it, and adapt it, and improve it. If we retain ownership, people may not invest that much time and energy in something they might not control. The cleanest way to make everybody use it is just to give it away with no strings attached. A year of coding work. This is a million dollar's worth of stuff we're giving away."*[13]

"Nightfall" will run on Microsoft's Azure Cloud and integrate with SAP's enterprise software. EY is particularly keen on getting as many industries as possible to use open blockchains in order to take full advantage of the technology. A series of private blockchains of individual companies would only create silos and stand in

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[13] See "Auditor EY Unveils Nightfall, An Ambitious Bid to Bring Business to Ethereum," Anna Baydakova, *CoinDesk*, April 16, 2019.

the way of growth. Also, the treatment of tokens has been considered a lot, says Brody:

> *"We have made a big investment in the token technology. We built a special kind of token, which is ERC 721-compatible, to separate a physical asset from the legal ownership of that asset."*[14]

S&P 500 on the Blockchain

Another extremely exciting project based on Ethereum aims to link the old and the new financial markets. **The platform UMA (Universal Market Access) has created USStocks, an ERC20 token that reflects the American stock market.** More precisely, it reflects the 500 largest companies by market capitalization. In other words: "USStocks" is an index fund tracking the S&P500 equity index. Until a few weeks ago, it was tradable on the decentralized DDEX platform – with the stablecoin DAI. In the meantime, however, the experiment was terminated.[15] They just wanted to show what was possible and draw conclusions from it, according to UMA in a blog post. The smart contract had been well received. But early crypto entrants are often uninterested in "traditional" markets for ethnical or financial reasons. The UMA experiment was somewhat short at eight weeks.[16]

"Capital One had over 100 million customers' data accessed in a massive security breach.

No one has ever hacked Bitcoin.

It is the most secure computing network in the world."

Anthony Pompliano

A central problem, however, is that people who do not have access to the US stock market today usually do not have access to the crypto markets either. So, it will probably take some time before the cost advantages of the blockchain world can be transferred to the "normal" financial market. However, we will monitor developments very closely here, because it is precisely these cost advantages that could ultimately give many people access to financial markets that have hitherto been excluded.

We also expect the traditional market to move faster and faster towards Bitcoin and cryptoassets. Fidelity Investments aims to provide access to its institutional clients as soon as possible. The demand is certainly there. **According to a survey by Fidelity, 22 % of institutional investors already hold cryptocurrencies.** And almost half (47 %) believe that digital assets have a place in their portfolio. Among the investors surveyed were foundations, pension funds, and family offices, according to Fidelity.[17]

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[14] Ibid.
[15] See "Announcing US Stock Index Token, Powered by UMA and Dai," Hart Lambur, *Medium*, March 27, 2019.
[16] See "USStocks: Learnings and Next Steps," Allison Lu, *Medium*, May 15, 2019.
[17] See "Fidelity is reportedly about to offer cryptocurrency trading for pros within a few weeks," Maggie Fitzgerald, *CNBC*, May 6, 2019.

Source: Twitter.

The long-awaited Bitcoin futures from the crypto project of the ICE exchange, which is also behind the New York Stock Exchange, are also due to start soon. On July 22nd, the test operation starts. In a statement, Adam White, the COO of Bakkt:

"This is no small step. This launch will usher in a new standard for accessing crypto markets. Compared to other markets, institutional participation in crypto remains constrained due to limitations like market infrastructure and regulatory certainty. This results in lower trading volumes, liquidity, and price transparency than more established markets like ICE's Brent Crude futures contract, which has earned global trust in setting the world's price of crude oil."[18]

Bakkt also wants to become an important custodian for digital assets, **and they took out an insurance policy of USD 100 million to calm investors' fears of losing their assets, for example, through hacks.** These are certainly ambitious plans. If the start of the Bakkt futures goes well, we believe that Bitcoin will be able to further establish itself as an asset class – and will rise in standing for traditional investors.

Source: g2fp.com

Closer to home, the parent company of one of our premium partners of the *Crypto Research Report*, GenTwo in Switzerland, launched an actively managed investment certificate (AMC) platform with CAT Financial Products. The platform allows Swiss asset managers to launch regulated certificates that can invest in all financial asset classes including cryptocurrencies. Information about the platform can be accessed on GenTwo's Blog, where Demelza Hays also regularly contributes articles. Her latest article, "The Pursuit of Optimal Money," explains why neither Bitcoin nor gold make good monies. Instead of being digital cash as the original whitepaper wrote, she argues Bitcoin is digital gold. To subscribe to GenTwo's blog in order to receive exclusive new articles by Demelza and other authors, signup at g2fp.com/blog.

The Central Banks are Haphazard

All the positive news about price and adoption should not obscure the fact that there are also shadows where there is light. The controversies around Bitfinex and

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[18] See "Putting Bakkt's Bitcoin Futures to the Test," Adam White, *Medium*, June 13, 2019.

Tether do not come to an end. The New York State Attorney General accuses iFinex, the parent company of Bitfinex and Tether, of **misusing USD 850 million from the reserve of the stablecoin Tether**, which is tied to the US dollar. iFinex denies all allegations as unfounded.[19, 20]

Binance, the world's largest crypto exchange, also has problems with the authorities in the US and, therefore, now wants to set up a regulated, US-centric exchange.[21] In addition, there was a hack, and the perpetrators were able to steal USD 40 million worth of crypto.[22] **But neither the controversy surrounding iFinex nor the problems at Binance have had any effect on the price rally since April.**

"This is why in a free market, whatever assumes a monetary role will have a reliably high stock-to-flow ratio: the new supply of the money is small compared to the overall existing supply."

Saifedean Ammous

This also applies to the many attempts to damage Bitcoin and the crypto space from the outside. Veterans like economist Joseph Stiglitz continue to argue that states and central banks will one day intervene to avoid jeopardizing their currency monopoly. Stiglitz is particularly aggressive. "**I think we should ban crypto currencies**," he said in early May. And then:

> *"I've been a great advocate of moving to an electronic payments mechanism. There are a lot of efficiencies. I think we can actually have a better regulated economy if we had all the data in real time, knowing what people are spending."*[23]

So, it is not the technology that bothers him but the fact that it is not controlled by the state. This is, of course, the core of the idea behind Bitcoin: a currency and monetary policy that cannot be influenced by individual states or central banks. Many Bitcoin supporters also argue that it is not possible to simply ban Bitcoin. Such attempts have always failed in the past. But some are still trying. China wants to ban mining again.[24] And in India, **even a prison sentence of up to ten (!) years is being considered for the owners of cryptocurrencies.**[25] This, of course, is in stark contrast to the plans of Silicon Valley and Wall Street, which still have a lot to do with Bitcoin and Blockchain.

Another attack against Bitcoin was leveled by the US president himself, Donald Trump. On Twitter he openly declared:

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[19] See "Bitfinex Used Tether Reserves to Mask Missing $850 Million, Probe Says," Paul Vigna, *The Wall Street Journal*, April 25, 2019.
[20] See "Bitfinex and Tether respond to NYAG in court saying that there is no ongoing fraud, and no victims," Larry Cermak, *The Block*, May 6, 2019.
[21] See "Binance Says It's Launching a US Exchange With FinCEN-Registered Partner," Nikhilesh De, *CoinDesk*, June 13, 2019.
[22] See "Binance Suffers $40 Mln Hack, Crypto Community Outraged After CZ Suggested Bitcoin Rollback to recover Funds," Alex Dovbnya, *U.Today*, May 8, 2019.
[23] See "Joseph Stiglitz: 'We should shut down the cryptocurrencies,'" Andrew Davies, *CNBC*, May 6, 2019.
[24] See "China Plans to Ban Cryptocurrency Mining in Renewed Clampdown," Edwin Chan, *Bloomberg*, April 9, 2019.
[25] See "Exclusive: India Proposes 10-Year Jail For Cryptocurrency Use, May Introduce Its Own Digital Currency," Nikunj Ohri, *Bloomberg*, June 7, 2019.

"When I fell from $30 to $2, they said I was dead

When I fell from $220 to $70, they said I was dead

When I fell from $1,100 to $200, they said I was dead

When I fell from $20,000 to $3,100, they said I was dead

Fall down seven times, get up eight..."

Mark Yusko

> *"I am not a fan of Bitcoin and other Cryptocurrencies, which are not money, and whose value is highly volatile and based on thin air. Unregulated Crypto Assets can facilitate unlawful behavior, including drug trade and other illegal activity..."*[26]

Alongside his knock against decentralized cryptoassets, he also commented on Facebook's "virtual currency" Libra. In his statement, he made it crystal clear that if Facebook wanted to become a bank, they would have to seek a new banking charter and become subject to all banking regulations – no different from all the other banks. At the end of his little Twitter thread, he then portrayed the US dollar as the only real currency, which would be dependable and reliable, making it stronger than ever before. So, with all of his very provocative Twitter comments, he really managed to trigger the Bitcoin Twitter community, while he might have also caused some really cognitive dissonance within liberal and green left-wingers: Should they now be of the same opinion as their arch-enemy or rather side with a new digital currency that is oftentimes pictured as one great pollutive counter force in the struggle for a better climate?

Interestingly, Bitcoin's price did not suffer a significant decline after arguably the most influential person in today's world issued a public statement slamming Bitcoin. Many Bitcoin enthusiasts take this as a sign of Bitcoin's resilience and antifragility.

As far as the introduction of digital currencies by central banks is concerned, we are not getting anywhere fast. Central banks are notoriously slow. And their experts still seem to be uncertain whether the technology makes sense at all. The well-known Bitcoin opponent and head of the Bank of International Settlements, Agustin Carstens, recently warned against the introduction of digital central bank currencies. If citizens can store their money via blockchains operated by a central bank, they could withdraw money from the traditional banking system, which would be dangerous.[27]

But the European Central Bank (ECB) expresses it best. According to a recent paper, a digital euro could either help or harm the economy. The consequences could simply not be assessed. In addition, much would depend on the design of the currencies. The ECB writes:

> *"Depending on its specific features, central bank digital currency could either allow monetary policy to reach a wider range of economic actors more directly or weaken the tools available to the issuing central bank for the conduct of its monetary policy."*[28]

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[26] [Tweet], Donald Trump, *Twitter*, July 11, 2019.
[27] See "Bitcoin Critic Warns Against Central Banks Issuing Own Tokens," Catherine Bosley, *Bloomberg*, March 22, 2019.
[28] See "Digital Euro Could Either Help or Harm Economy, ECB Paper Says," Carolynn Look, *Bloomberg*, May 17, 2019.

The negative opinion of states and central banks can be observed in Russia. The head of the central bank, Elvira Nabiullina, said at the end of May:

> *"We are generally opposed to cryptocurrencies being launched into our monetary system. We do not see the possibility that cryptocurrencies could act as monetary surrogates."*[29]

It's all about relative supply curves – the supply curve for bullion is far more inelastic than is the case for paper money. It really is that simple.

Dave Rosenberg

Ironically, Nabiullina said in the same conversation **that Russia would at least consider using a gold-covered cryptocurrency of another state**. But so far, only a handful of central banks are seriously considering whether to introduce digital currencies. We assume that this process will continue for many years to come.

Long Live the King!

With all this negative publicity the world was taken by surprise, when the Federal Reserve Chairman Jerome Powell compared Bitcoin to gold. Testifying before the Senate Banking Committee Powell stated that Bitcoin is used more as an alternative to gold, sort of like a speculative store of value.

Another watershed moment, indicating that officials and politicians are not all hostile to and clueless about Bitcoin, was when Congressman Patrick McHenry made another remarkable statement during one of the hearings:

> *"The world that Satoshi Nakamoto, author of the bitcoin white paper, envisioned is an unstoppable force. We should not attempt to deter this innovation … those who have tried have already failed."*[30]

But that was not the only praise Bitcoin got from representatives of Congress. It was Warren Davidson, who made the rather trenchant statement that "There's Bitcoin and the there's shitcoin[31]". While even among crypto-friendly bankers, out of decency, the term "shitcoin" is oftentimes avoided to actually describe just that, it's all the more astounding that in Congress, where such a wording would be least expected, representative call a spade a spade!

While there is still a lot of negativity, there are also some very enlightening and favorable assertions coming from public intellectuals, which might go to show that **at the margin people are waking up to crypto and understand what Bitcoin all is about** in the first place. Projects such as the Facebook join Libra, the Bakkt futures, the Fidelity platform for institutional investors and experiments such as the Ethereum-based equity fund will have far more significance for the sector in the short and medium term than the statements and experiments of the

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[29] See "Bank of Russia may consider gold-backed cryptocurrency," *Russian News Agency*, May 23, 2019.
[30] See "'There's Bitcoin and Then There's Shitcoin (Libra).' Congress Finally Gets It," Ben Brown, CNN, July 18, 2019.
[31] Ibid.

central banks. That's also the opinion of long-term bull Mike Novogratz. **"I feel better than ever about Bitcoin,"** he recently told Bloomberg. The co-founder and CEO of Galaxy Investment Partners has admitted to having been overly optimistic in the past. But nevertheless: Bitcoin has proven itself in the meantime and functions as a value store, like gold, he said. According to Novogratz, other cryptocurrencies must find their niche and sustainably occupy it. **Or to put it another way: The king is dead, long live the king!**

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Libra: The End of the State Money Monopoly?

"Money is an honest ledger that individuals use to keep track of real wealth, defined as productive assets. Sorry Facebook but real wealth doesn't include 'bank deposits and short-term government securities. That said, thank you Facebook for widening the conversation about what money really is. That is a true service to society. Libra is the first denationalized 'money' that billions of people in the world will encounter."

Caitlin Long

Key Takeaways

- **Libra is challenging the US dollar. If every Western depositor were to move a tenth of their bank savings into Libra, its reserve fund would be worth over USD 2 trillion, making it a big force in financial markets.**
- **Libra is viewed critically by many economists, politicians, and public intellectuals. Their concerns revolve around privacy, trading, national security, and monetary policy. The Libra Association based in Switzerland will be responsible for managing the financial reserves that back the currency, and this will always be a single point of failure that makes it more centralized than Bitcoin.**
- **Although many state officials have a negative perspective on Libra, Facebook's digital currency could turn out to be a boon for government, since Libra could funnel third-world savings into first-world debt. That is why Libra is a wolf in sheep's clothing.**

Will we witness the end of state money monopoly during our lifetime? Andreas Antonopoulos recently gave a speech in Scotland about how the next decade will witness competition between three types of money: state money, corporate money, and decentralized cryptocurrencies.

"Libra vs the US dollar – Silicon Valley vs Wall Street."

Simon Dixon, Bnk to the Future

Over the past decades, the state money monopoly has rarely been called into question. In the 1970s, Nobel laureate Friedrich August von Hayek articulated the idea of competing, non-state currencies in his book *The Denationalization of Money*. For a long time, Hayek's ideas were regarded as theoretical thought experiments far removed from economic and political reality and, therefore, received no broad public attention. Five decades later, however, with the advent of the Internet and the development of Bitcoin, we are returning to the debate. The phenomenon of cryptocurrencies has led the broader public to focus on the issue of money, what is money and how to create the optimal money?

What Do We Know About Libra ?

Facebook announced that they will be launching a cryptocurrency named Libra. In collaboration with 28 large companies including PayPal, eBay, Visa, Mastercard, and Uber, Facebook has raised USD 280 million and hopes to raise USD 1 billion in total before the launch of the coin in 2020. What is called the Libra Association is projected to reach one hundred different members, which are supposed to be geographically dispersed through the globe. None of the members shall have more than one percent of the votes within the system – not even Facebook. The conglomerate of companies will base their operations in Geneva instead of the USA because of Switzerland's friendliness towards the blockchain technology. Facebook has plans to integrate a wallet called Calibra on the Facebook messenger applications and on WhatsApp, which combined has over 1.7 billion users around the world. At the same time, Calibra is set up as a regulated subsidiary to ensure there will be a separation of social and financial data. This way, Calibra is aiming not to share customers' account information or data with Facebook unless the subsidiary is to prevent fraud or comply with certain regulations.

"That's what Libra is about: developing a safe, secure and low-cost way for people to send money around the world."

David Marcus, Calibra

Figure 1: The Founding Members of Libra.

Source: The Block, June 18, 2019.

On the more technical side, Libra is structured as an open-source project, allowing all sorts of developers to read, build, and provide feedback.[32] As marketed, this open-source protocol will go by the name of Libra Core, while the Libra network is supposed to be powered by what is called the Libra Blockchain. The latter will be using Merkle trees and a Byzantine Fault Tolerant (BFT) consensus protocol, both of which are technologies associated with the blockchain technology. Nevertheless, Libra will neither be using blocks nor a chain, but rather a single data structure that records the history of transactions and states over time.[33]

"The attributes of money are now a topic of discussion in American political discourse. Thank you, Bitcoin."

Erik Voorhees, ShapeShift

The Libra network is referred to as a permissioned blockchain. Unlike Bitcoin, the Libra network is not open for anyone to run a node. As for now, members must be given permission to connect their servers in order to record and validate transactions on the network. Only in the future, the Libra network is supposed to be transitioning to a public blockchain, according to Facebook. This obviously is a bold statement to make. If Libra will be able to pull this off and become a permissionless system, it'd be really one of a kind. If history tells us anything though, chances of the Libra project becoming decentralized are rather weak. In this context, Nic Carter, partner at Castle Island Ventures and cofounder at Coinmetrics, with great irony pointed to a famous quote by Friedrich Engels talking about state become obsolete at one point in time:

> *"The interference of the state power in social relations becomes superfluous in one sphere after another, and then ceases of itself. The government of persons is replaced by the administration of things and the direction of the processes of production. The state is not 'abolished', it withers away."*[34]

As we know today, things have turned out quite the opposite from what Engels imagined. And even if Libra should succeed in becoming more decentralized over time, there remain central points. After all, as long as Libra will be tied to a basket of reserves, there's always the need for a third party to manage the reserves, which would mean the project would at least have one point of centralized control.

How Libra Could Change the World

The most interesting aspect of this new medium of exchange and its basket of reserves is that the value will not be pegged to the US dollar, which means that it will have a floating exchange rate with the dollar. The currency's value will be backed by a basket of assets including currencies and bonds from all over the world. Facebook's stock responded kindly towards this news with a 4 % increase on the day of the announcement as shown in the figure below. Regulators in the US and Russia have already expressed their concerns regarding the currency and

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[32] S"Libra will be open-source under an Apache 2.0 license, allowing developers to read, build, provide feedback, and take part in a bug bounty program. Testnet is launching soon. Mainnet will be launched in 2020." [Tweet], Larry Cermak, *Twitter*, June 18, 2019.
[33] See "Your Guide to Libra," *VerumCapital*, 2019.
[34] Quote tweet], Nic Carter, *Twitter*, June 18, 2019.

"Crypto assets don't take power away from banks and governments to print money. They empower anyone to print their own money and then the market can choose which monetary properties are most desirable."

Jameson Lopp, Casa Hodl

rightly so. As longtime Bitcoin enthusiast and CEO of Shapeshift Erik Voorhees has expressed, the fact that Libra is not backed by the US dollar alone, will have profound implications. As Erik envisions, Libra could arguably become a medium-term replacement to any single government fiat currency because it is a conglomeration of many different fiat currencies, which makes it into a more diversified asset.[35] In our age of currency wars, this could be a very desirable feature going forward.

Figure 2: Price Hike of Facebook's Stock in Response to Libra.

Source: Yahoo Finance, Incrementum AG.

"We're here to go beyond the headlines… Washington must go beyond the hype to ensure that we are not the place where innovation goes to die."

Patrick McHenry, Congressman

Since the media depicted Libra as a fierce competitor to banks – it is interesting that no single bank has been announced as one of the 28 founding members. Since this is also a competitor to the US dollar, it was no surprise that politicians reacted in a negative tone towards Libra.

For the banks, the Libra project could indeed become a nightmare. In terms of reaching customers, Facebook is way beyond what even the biggest banks like JP Morgan, Citibank, or Goldman Sachs, could ever reach. If every Western depositor were to move a tenth of their bank savings into Libra, its reserve fund would be worth over USD 2 trillion, making it a big force in bond markets.[36] This would certainly affect banks badly, since they would see their deposits shrink, which could then trigger a panic over their solvency. In our world of today, banks have become too big to fail. A competitor like Libra that could seal their fate and be the nail in their coffin, doesn't come over unnoticed. In a quest to critically assess the newly planned digital currency, economists, politicians as well as other technocrats have turned their attention to Libra.

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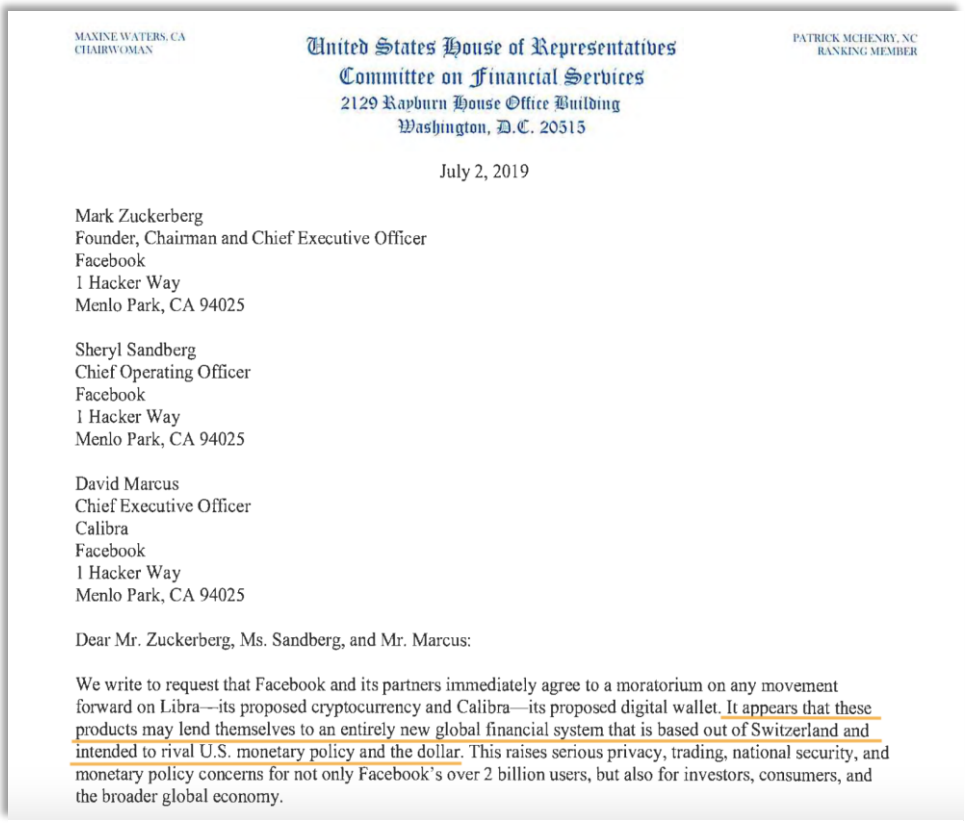
[35] See "Thoughts on Libra (and my first tweetstorm!): first, zoom out for a second and realize how far this industry has come. The biggest companies in the world are now launching cryptocurrencies. BOOM." [Tweet], Erik Voorhees, *Twitter*, June 18, 2019.
[36] See "Weighing Libra in the balance. Facebook wants to create a global currency," *The Economist*, June 22, 2019.



MAXINE WATERS, CA
CHAIRWOMAN

United States House of Representatives
Committee on Financial Services
2129 Rayburn House Office Building
Washington, D.C. 20515

PATRICK MCHENRY, NC
RANKING MEMBER

July 2, 2019

Mark Zuckerberg
Founder, Chairman and Chief Executive Officer
Facebook
1 Hacker Way
Menlo Park, CA 94025

Sheryl Sandberg
Chief Operating Officer
Facebook
1 Hacker Way
Menlo Park, CA 94025

David Marcus
Chief Executive Officer
Calibra
Facebook
1 Hacker Way
Menlo Park, CA 94025

Dear Mr. Zuckerberg, Ms. Sandberg, and Mr. Marcus:

We write to request that Facebook and its partners immediately agree to a moratorium on any movement forward on Libra—its proposed cryptocurrency and Calibra—its proposed digital wallet. It appears that these products may lend themselves to an entirely new global financial system that is based out of Switzerland and intended to rival U.S. monetary policy and the dollar. This raises serious privacy, trading, national security, and monetary policy concerns for not only Facebook's over 2 billion users, but also for investors, consumers, and the broader global economy.

First paragraph of the US Committee on Financial Services' letter to Facebook. Source: Crowd Fund Insider, see reference 37.

Above all is the US government, which is taking Libra quite seriously. In a letter from the US House of Representatives to Mark Zuckerberg, Sheryl Sandberg and David Marcus, the representatives openly express their concern about Libra being a direct rival to US monetary policy and the US dollar.[37] Consequently, Zuckerberg and his associates were requested to agree to a moratorium on any movement forward on Libra, so issues regarding privacy, trading, national security, and monetary policy issues could be discussed.

As always, this is only one side of the coin. In fact, there are also many reasons why the US government should support Facebook's Libra. The main one being the ability for regulators to access information regarding financial transactions if necessary. As such Libra has already been described as Facebook's GlobalCoin, since it could enable a global techno-panopticon that could be used by governments around the world to monitor people's financial affairs.

"It is inevitable that the Bitcoin ecosystem will continue to grow and contribute to the economy. The question is: where?"

Meltem Demirors, CoinShares

What sounds bad from a Libra user's perspective, could, be bullish for Bitcoin in the long run. This could bring the world one step further towards Bitcoin and co., with the next decade witnessing a fierce competition between centralized currencies like Facebook's Libra, Apple Pay, Google Pay, and decentralized currencies like Bitcoin. **Interestingly enough, the genie of private money is out of the bottle.** Politicians and other functionaries will have to come to acknowledge that the future will be a future of competing monies – there is nothing anybody can do to stop it.

—

37 See letter of the House of Representatives to Mark Zuckerberg, Sheryl Sandberg and David Marcus, July 2, 2019.

Seigniorage Pays for the Emperor's Clothes

The stated goal of regulators is to provide security for customers and to stop illegal activities like criminal or terroristic activities. However, there is another fundamental and rarely discussed reason why governments are hesitant to embrace stateless currencies. **Seigniorage. Seigniorage is the difference between the value of the money and the cost to produce and distribute this money.** Originally, seigniorage on specie, or metal coins, occurred because silver and gold was mixed with base metals in order to make coins more durable over time. For example, the British pound sterling was 92.5 % silver and 7.5 % base metal. The cheaper base metal cost less than silver, so the sovereign was able to collect the difference as a profit. Today, seigniorage does not only come from notes being produced for less than their value, it's also derived from the difference between the interest earned on securities purchased by these notes.

Seigniorage also implies a transfer of wealth happening, usually described as the Cantillon effect. As the money producer is usually the first to spend the money, a redistribution of wealth from late receivers to early receivers of the newly created currency is institutionalized. By now, seigniorage has become a significant revenue source for government and banks. Corporate-issued currencies as well as decentralized currencies challenge sovereign currencies. The latter are gradually losing some of their monopoly profits and power from seigniorage, which is why a hostile reaction from politicians and regulators is a logical consequence.

As for the time being, government fiat currencies are highly accepted as a medium of exchange and bid-asks spreads are zero compared to Bitcoin's often 1% spread. Fiat currencies are also protected by laws: legal tender, capital gains taxes and value-added taxes, just to name a few. The first law ensures that there is a constant demand for fiat currencies because taxes have to be paid using it. The capital gains and VATs are a tool to disincentive investors from wanting to hold alternative monies.

In Libra's case, seigniorage will be much lower if Libra fulfills their promise of fully backing each Libra with fiat currencies and government bonds. After gaining a monopoly as a global reserve currency, Libra could abuse their monopoly power and begin earning significant profits from seigniorage, once it would cut off Libra from its reserve as a backing.

Two Scenarios for Regulators

Bitcoin is not even used by 1 % of the world's population, but Bitcoin is ruffling the feathers of the top 1 %. Even the highest political bodies will have to get used to being increasingly confronted with this issue.

Scenario One: Governments are Really Against Libra

Various high-profile US officials have raised concerns about Libra. In June, the chairman of the US Federal Reserve, Jerome Powell, spoke at a hearing before the US Senate in which he was asked several times about privately issued currencies such as Facebook's Libra, but also about decentralized cryptocurrencies, such as Bitcoin. Powell stated, "Libra raises serious concerns regarding privacy, money laundering, consumer protection, financial stability." Because of a whole lot of open regulatory questions, the project "cannot go forward" without having clarification on matters concerning regulations and the law in general. This is also why the US central bank had already met with Facebook representatives before the announcement of Libra and set up a working group to work tête-à-tête with the tech giant.

Taking the same line was Treasury Secretary Steven Mnuchin, signaling concerns that Libra could be a criminal's tool for money launderers and terrorist financiers. Counterarguments pointing out the fact that the US dollar is by far the most laundered currency in the world were played down by Mnuchin referring to the fact that the US anti-monetary standards are among the strictest in the world. The treasury secretary's message was clear: Regulators will do everything to protect the stability and integrity of the overall financial system from abuse through private monies. As he stated, they will make

sure that Bitcoin doesn't become the equivalent to Swiss numbered bank accounts.[38]

"Cryptocurrencies serve no function unless somebody is engaged in nefarious transactions. That is why 46 percent of the Bitcoin transactions are for people doing things illegal under US law according to an academic peer-reviewed study."

Brad Sherman, Congressman

From a more skeptical perspective, it could be said that concerns about money laundering and terrorist financing are just a pretense. What politicians and other state officials are really worried about is losing their monopoly power over money, which enables them to buy votes from voters by promising "free" stuff and then quickly turning on the printing presses. But to camouflage their plea for money they don't have, officials disguise their criticism as a lack of trust vis-à-vis Facebook and their endeavor to launch a private currency.

However, the regulators seem to have come to grips with what the new development of corporate money and cryptocurrencies really means. There's a high chance that the regulatory screws will be tightened going forward, which will affect cryptocurrencies like Bitcoin as well.

Scenario Two: The US Government Figures Out That This is Good

Rahim Taghizadegan of Scholarium in Vienna cleverly pointed out that western governments should actually be in support of Libra. Since Libra will hold a significant amount of western government debt and their currencies, this can actually facilitate an enormous redistribution of wealth from the Asia, the Middle East, and South America to the western world. Since each Libra will be fully backed, this means that Libra can tap into global household savings and use those savings to buy US and European government debt and fiat currency. Along the same lines, Pascal Hügli, a journalist from Switzerland and frequent contributor to this report, has described Libra as a sort of tool allowing the first world to extend its expansionary monetary policy to the third world. In his view, Libra is one more attempt at keeping our fading era of paper money from coming to an end – an end that is inevitable and is slowly but surely ushered in by the new digital age accompanied and fostered by Bitcoin and things coming from it![39]

"Fiat Currency is currency for government. Libra is currency for corporations. Only Bitcoin is currency for the people."

Joe Kernen, News Anchor

So contrary to current political opinions, Libra could actually turn out to be a life buoy for the dollar by propping it up for another decade while Facebook quietly siphons of savings from households in South America, Africa, and Asia and into the coffers of the US government via bond purchases. Since third world savings would be funneled into first world debt via government securities, the governments' respective currencies, especially the dollar, would appreciate, or at least not depreciate as quickly as would absent Libra. Although it is true that the Libra Association isn't bound to back Libra with US treasuries, there is a realistic chance that Libra and US government will go hand in hand to negotiate a win-win deal for both of them.

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38 See "Are you saying cash has never been used for illicit purposes, @joesquawk asks in response to Mnuchin's concerns about #btc 'We are going to make sure that bitcoin doesn't become the equivalent to swiss numbered bank accounts' says @stevenmnuchin1" [Twitter Video], Squawk Box, *Twitter*, July 18, 2019.
39 See "You Don't Want to Help Bank the Unbanked!," Pascal Hügli, *Medium*, June 26, 2019.

Storing Bitcoin the safe and easy way

With the Card Wallet by Coinfinity and the Austrian State Printing House

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Image: Renaissance cassette, courtesy of Schell Collection

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Coin Corner: XRP and Ripple

"XRP Recently in Green, But Outsized Risks Prevail. XRP's recent rally is unlikely to endure, in our view. Ripple's litigation risks and the prospect of XRP being classified as a security were largely ignored over the past three months as XRP staved off the effects of the broader crypto-price collapse. This stalling has helped to make XRP the second-largest asset of its kind by market capitalization."

Bloomberg Crypto Outlook

Key Takeaways

- **Ripple Labs Inc. claims that they are not the creators of the coin XRP. However, the company Ripple Labs Inc. has earned over $890 million in revenue from selling XRP coins on the market. In June 2019, the company Ripple moved 1,000,000,000 XRP from their escrow account to the market, which could generate approximately $300 million more in revenue from selling XRP.**
- **Ripple was created by Jed McCaleb, the creator of Mt. Gox. McCaleb has since sold most of his 9 billion XRP coins, and he has abandoned the project. McCaleb now is the leader of Stellar and owns approximately 1 billion lumens.**
- **The coin XRP does not need to be used by the Ripple Network for settling transactions. Various investment reports value XRP at close to zero in worth, and XRP could be an unregistered security in the US.**

Soaring 3000 %, XRP was one of the ultimate high-flyers during the 2017 crypto boom. At USD 0.31 the cryptocurrency lost 89 % since its all-time high of USD 3.31 in January of 2018.[40] Ripple has been on the Forbes Fintech 50 List for three years in a row by Laura Shin; however, Shin recently changed her position on Ripple and XRP. **In episode 39 of the Unchained podcast, Shin discusses the main problems with Ripple and XRP.**[41] **We highly recommend the interview.** The main questions that were discussed include:

"If people buy XRP, a financial asset from Ripple Laboratories, it doesn't entitle them to an ownership stake, there's no right to be converted back into conventional currencies, and it doesn't pay any return. It also seemingly has no purpose."

Stewart Hosie,
Member of British Parliament,
during the Ripple Labs hearing

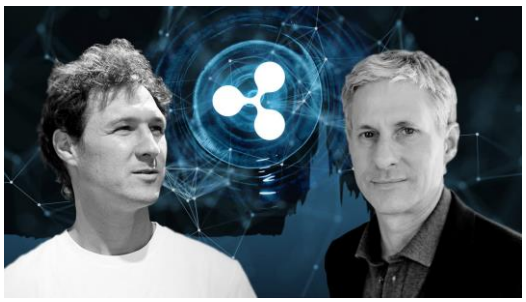
- What is Ripple?
- What is XRP's Elevator Pitch?
- Is XRP an unregistered security?
- Who owns and uses XRP?
- Is XRP centralized?

We will be addressing these questions in this article.

Ripple Came Before Bitcoin

Most investors do not know this, but the concept for Ripple came in 2004 from Ryan Fugger, way before Bitcoin was created in 2008. However, the Ripple we know today, Ripple Labs Inc., was handed over in 2012 to Chris Larsen and Jed McCaleb.

If Jed McCaleb sounds familiar, it's because he was the original founder of the infamous Mt. Gox Bitcoin exchange. When McCaleb sold Mt. Gox to Mark Karpelès, 80,000 Bitcoin were missing.[42] However, the contract of a sale stated that Karpelès could not hold McCaleb legally accountable. Years later, McCaleb's login details for the backend of Mt. Gox were still valid, and they were used to hack into Mt. Gox in order to steal Bitcoin.[43] To this day, the perpetrator of those hacks remains unknown.



Jed McCaleb (left) joined Ripple in 2011. Chris Larsen (right) joined the company in 2012.
Source: BitMEX Research.

XRP Ledger, RippleNet, xCurrent, xRapid, and xVia

The first information to untangle is what exactly is XRP? XRP coins are accounting units in an open source distributed database called the XRP Ledger (XRPL). **In contrast with XRP and the XRP Ledger, Ripple Labs Inc. is a company that provides a closed source software called RippleNet to companies, and Ripplenet contains a suite with three tools: xCurrent, xRapid, and xVia.** The myriad of products and information surrounding the products befuddles investors and distracts them

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[40] See "Why XRP's Price Didn't Explode After Coinbase Listing," Charles Bovaird, *Forbes*, March 1, 2019.
[41] See "Ripple's XRP: Why Its Chances of Success Are Low" [Podcast], Laura Shin, *Unchained*, May 8, 2018.
[42] See Cracking Mt. Gox: Investigating one of the biggest digital heists in digital history – from the outside, Kim Nilsson, *WizSec*, 2018.
[43] Ibid.

from understanding what XRP is. We briefly describe each of the three products in this section.

XRP Ledger

The XRP Ledger is a distributed ledger that stores information regarding XRP transactions and balances. The main question: **Is XRP Ledger's consensus mechanism decentralized?** We searched for a comprehensive technological analysis of XRP's consensus mechanism, but one does not currently exist. A plethora of articles exists online, with answers ranging from the XRP Ledger consensus mechanism is centralized to decentralized and everywhere in between. **What is clear is that RippleNet's xCurrent and xVia are not using the XRP Ledger, so they have centralized consensus.**

According to the latest whitepaper written by Ripple Research by Brad Chase and Ethan MacBrough, to come to consensus on what transactions are valid and what transactions are invalid, the XRP Ledger uses the XRP Consensus Protocol, which is "a Byzantine Fault tolerant agreement protocol over collectively trusted subnetworks."[44] Binance Academy explains in simple terms how XRP Ledger's consensus works,

> *"The XRPL is managed by a network of independent validating nodes that constantly compare their transaction records. Anyone is able to not only set up and run a Ripple validator node but also to choose which nodes to trust as validators. However, Ripple recommends its clients to use a list of identified, trusted participants to validate their transactions. This list is known as the Unique Node List (UNL).*
>
> *The UNL nodes exchange transaction data between each other until all of them agree on the current state of the ledger. In other words, transactions that are agreed upon by a supermajority of UNL nodes are considered valid and the consensus is achieved when all these nodes apply the same set of transactions to the ledger."*[45]

"According to an analysis of the failure of Mt. Gox by WizSec's Kim Nilsson, the platform was already insolvent, to the tune of 80,000 BTC and $50,000, in March 2011 when McCaleb sold it. Shortly after this, Ryan Fugger handed the reins of the Ripple project to McCaleb."

BitMEX Research

However, as BitMEX claims this entire process is unnecessary because, in order for a node to support a proposal for a new set of transactions, a node must download private keys from a server that is controlled by Ripple.[46]

> *"The software indicates that four of the five keys are required to support a proposal in order for it to be accepted. Since the keys were all downloaded from the Ripple.com server, Ripple is essentially in complete control of moving the ledger forward, so one could say that the system is centralised. Indeed, our node indicates that the keys expire on 1 February*

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44 See "Analysis of the XRP Ledger Consensus Protocol," Brad Chase and Ethan MacBrough, *Ripple Research*, February 21, 2018.
45 See "What is Ripple?," *Binance Academy*, December 24, 2018.
46 See "The Ripple Story," BitMEX Research, *BitMEX*, February 6, 2018.

2018..., implying the software will need to visit Ripple.com's server again to download a new set of keys."

According to BitMEX Research, **XRP's Ledger is unable to achieve distributed consensus:**

"For example, one user could connect to five validators and another user could connect to five different validators, with each node meeting the 80% thresholds, but for two conflicting ledgers. The 80% quorum threshold from a group of servers has no convergent or consensus properties, as far as we can tell. Therefore, we consider this consensus process as potentially unnecessary."

Another problem regarding the single point of failure aspect of XRP Ledger's consensus mechanism is that there is no fee for validating transactions. **This means there is no incentive for becoming a validator in the Ripple network. According to Ripple, institutional participants will be incentivized to run nodes at their expense for the health of the network.**[47] For some, this assumption seems arduous: One could argue that large financial institutions will not run an XRP node because of potential legal recourse that could ensue**. As Joe Kendzicky points out:**

"Imagine the PR backlash a bank would receive if it came out that one of its UNL peers was a darknet market, and the bank themselves played a direct role relaying drug and money laundering related transactions."[48]

"At its core, the Ripple business model is a pump and dump scheme, as it undergoes numerous activities to increase the value of the XRP cryptocurrency (crypto)."

Jason Bloomberg, Forbes.com

In general, Byzantine Fault Tolerant consensus mechanisms are more centralized than Bitcoin's proof-of-work and longest chain consensus mechanism. Since XRP Ledger's is expected to migrate to a different consensus algorithm called Cobalt at a date that has not been determined yet, we will leave the discussion on consensus here and hope for an unbiased analysis of exactly how decentralized XRP's consensus really is.[49] Moving on from the XRP Ledger is RippleNet, which is a closed source software that contains three main products: xCurrent, xRapid, and xVia.

xCurrent

xCurrent's peer-to-peer structure is similar to the Lightning Network discussed in *The Crypto Research Report* March 2018 edition. If Bank A wants to pay Bank B with US dollars, but Bank B wants to be paid in euros, the xCurrent protocol layer could route the transaction. Bank A would submit a transaction to convert the US dollars to euros (in the form of an IOU) to a global

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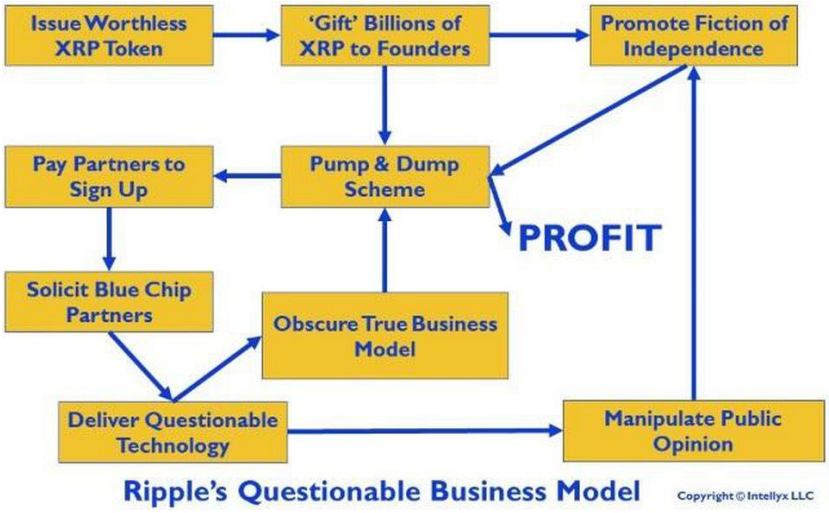
[47] See "Technical FAQ," *XRP Ledger Developer Portal*, 2018.
[48] See "Ripple (XRP) Analysis," Joe Kendzicky, *Medium*, May 4, 2018.
[49] See "Analysis of theXRP Ledger Consensus Protocol," Brad Chase and Ethan MacBrough, *Ripple Research*, February 21, 2018.

order book. xCurrent then acts as a path-finding algorithm to find the cheapest route for the US dollars amount to be exchanged to euros.

One of the most interesting and at the same time most widely ignored features of Ripple are the fact that **transactions on Ripple's xCurrent software do not need to be denominated in the network's native currency, namely XRP.**[50] Contrary to common belief, the network can manage IOUs denominated in any type of asset.

> *"The use of XRP is totally independent of the Ripple network in general; that is, banks don't actually need XRP to transfer dollars, euros, etcetera which is what many small investors might be missing when they are buying the token."*[51]

While the xCurrent protocol layer is currency-agnostic, there is a small transaction fee (~.00001XRP) to access the exchange.[52] This transaction fee is not collected by anyone, but rather destroyed once payed. The stated idea behind the fee is to prevent spamming on the network.[53] However, burning XRP also makes Ripple Labs richer. When the network burns the transaction fee in XRP, the remaining amount of XRP in existence are worth more because the supply is decreasing with constant demand, ceteris paribus. **Since the developers and Ripple Labs own the majority of Ripple, each transaction fee makes the developers and Ripple Labs wealthier.**



Source: Jason Bloomberg, Forbes.com

xRapid

xRapid is built on top of the XRP Ledger and can be used to settle transactions denominated in the native XRP token. xRapid is the only one of RippleNet's three-suite software package that is built on top of the XRP Ledger, which means that as xRapid gains more adoption, there is more demand for XRP.

In order to use xRapid, banks or other participants either need to hold XRP reserves, as the bridge currency, on their balance sheets, or have dedicated liquidity lines operating on the xRapid layer, which is what the Ripple Lab Inc. would like to see because this would give value to XRP, of which they own approximately 60 % of currently. **But why would banks just give away their wealth away to Ripple Labs by buying up XRP off of the open market in order to settle international payments?** In order for banks to use xRapid,

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[50] See "What is Ripple?," *Binance Academy*, December 24, 2018.
[51] See "What is Ripple?," Shawn Gordon, *Bitcoin* Magazine, n. d.
[52] See "Transaction Cost, "*XRP Ledger Developer Portal*, 2018.
[53] See "Reserves," *XRP Ledger Developer Portal*, 2018.

they would need to invest in XRP and potentially hold reserves of XRP. Why would **banks accept the currency risk of holding on to XRP reserves in order to use xRapid, when they can just use a stablecoin or central bank cryptocurrency?**

One reason is if the bank also owns XRP or is a private investor in Ripple Labs equity shares. One of the banks that is often cited as a user of XRP, Strategic Business Innovator (SBI) Remit Co. Ltd., is actually invested in the private equity shares of Ripple Labs Inc., and has a financial incentive to promote positive news headlines regarding the company and XRP because when more banks are shown as using XRP, then Ripple Labs Inc. earns more in quarterly sales revenue from XRP sales.[54]

xVia

"What puzzles me, though, is how XRP owners can hope to profit from Ripple's long-term trajectory."

Juan M. Villaverde,
Weiss Ratings

Various YouTube videos and Twitter tweets state that Ripple is a competitor to the Society for the Worldwide Interbank Financial Telecommunications (SWIFT) network. However, many investors do not even understand how the SWIFT network works. Actually, SWIFT does not settle a single transaction. SWIFT is only a messaging system between banks and settlement systems, such as the Clearing House Interbank Payments System (CHIPS). xVia is the messaging application for RippleNet users that need to send invoices or other information to other users. This is the part of the technology that would compete with the SWIFT network.

Unlike SWIFT, Ripple Labs is an enterprise software company that has a negative customer acquisition cost because they can pay people in XRP to use XRP. In Ripple's 2017 October market report, they explain that they offer a 300 % rebate on integrating the Ripple software.[55] The rebate is paid in XRP. This means that any costs that a firm has for integrating RippleNet into their system will be rewarded with a 300 % return. They seeded a $300 million accelerator fund that helps cover the costs of integrating RippleNet into existing companies.[56] They are willing to lend XRP to market makers at zero cost, which allows market makers to add millions in revenue to their bottom line.[57] Although, this encourages firms to work with the Ripple network and with XRP, some financial analysts say that Ripple's free distribution of XRP to banks that are willing to experiment with RippleNet borders a bribe.[58] **The current security problems that SWIFT has regarding fraud and hacks would be the same with xVia because xVia is part of RippleNet, which is closed source and has centralized consensus and is a single point of failure.**

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54 See "Ripple's XRP: Why Its Chances of Success Are Low" [Podcast], Laura Shin, *Unchained*, May 8, 2018.
55 Ibid.
56 Ibid.
57 Ibid.
58 ibid.

What is XRP's Elevator Pitch?

Ripple and Libra are both effectively trying to become a global private central bank. The main investment argument made by XRP enthusiasts is that retail investors can front-run banks that eventually will adopt XRP for cross-border settlements. Since the banks will rush in and buy reserves of XRP to use as a bridge currency, the price will go up, rewarding early investors with an XRP appreciation. But why would banks give up their market share to XRP voluntarily? Banks currently settle international payments and incur a cost of approximately 20 basis points per transaction.[59] Ripple noted that their system could reduce settlement costs by six basis points, and an additional two basis points if XRP is used on the xRapid network.[60] As CEO and founder of Messari pointed out, Ryan Selkis, there is a negligible benefit of using XRP for cross border settlement compared to the cost banks will have to incur to hedge fluctuations in the exchange rate of XRP.[61]

Furthermore, the token XRP is volatile, which impedes its ability to compete with the US dollar as a global reserve currency. To manage XRP's volatility, **professional market makers ensure that sell walls in XRP order books on cryptocurrency exchanges are reduced when good news are released and buy walls in the order books are built-up when bad news are released.**[62] This makes XRP less volatile than other cryptocurrencies that do not have professional market makers.

The addendum to this article discusses how interbank settlement works in order to explain the business of banks that Libra and XRP are both vying to takeover.

Is XRP an Unregistered Security?

Source: Twitter

The first important clarification is that XRP coins do not convey ownership because Ripple Labs Inc., is a privately-owned company with a valuation of USD 410 million.[63] Unfortunately, many retail investors falsely believe that if Ripple the company makes profits, their XRP coins will go up in value because they think of XRP coins as equity shares of the company's balance sheet. XRP coins are not equity shares.

Despite the fact that XRP coins are not tokenized equity shares of Ripple Labs Inc., XRP coins can be considered investment contracts according to the Howey Test, which is a tool used

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59 See "The Cost-Cutting Case for Banks," *Ripple*, February 2016.
60 Ibid.
61 Ibid.
62 See "Bitcoin $11,000 Next? Stock Market Crash, Whale Dump Recovery, BITMEX Manipulation" [YouTube video, minute 21:30], Ivan on Tech, May 19, 2019.
63 See "Ripple's Chris Larsen: Meet the Richest Person in Cryptocurrency," Laura Shin, *Forbes*, February 7, 2018.

by US regulators at the Securities Exchange Commission to determine if a company falls under their jurisdiction or not. Former Chairman of the Commodities Future Trading Commission Gary Gensler explained that Ripple coin is a security according to the Howey Test[64], and **Ripple is facing their third security fraud court case in the United States.**

Why is this?

This is because Ripple's XRP coin sales are similar to an initial coin offering that never ends. Izabella Kaminska wrote that Ripple's issuance of XRP is like an exchange-traded fund:

"Since Ripple is not a public company—and XRP tokens are not shares—the owners of these digital tokens are not entitled to the company's potential profits. One can even think of XRP tokens as merely "demo" digital tokens to woo banks. That's it."

Allen Scott

*"It is entirely centrally controlled, operating more like an ETF unit than anything else since the issuer has the capacity to release or absorb (pre-mined) tokens in accordance with their valuation agenda. **More egregiously though, the token plays little part in Ripple's central business case**."*

Figure 3: XRP Price Did Not Respond to Coinbase Listing.

Source: Coinmarketcap.com, Incrementum AG.

According to the latest *Bloomberg Crypto Outlook*, Ripple is at risk of being classified as a security.

"Ripple's risk in suits by XRP buyers is a court ruling that XRP is a security, which would subject XRP to stricter SEC regulation that could curb transactions. Classification as a security could allow purchasers to rescind buys, would require Ripple to register or find exemptions for XRP sales, and would hinder XRP's ability to be listed on U.S. virtual

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64 See "Former CFTC Head Says Big Cryptocurrencies Could Be Classified as Securities," Camila Russo, *Bloomberg*, April 23, 2018.

marketplaces, which have reportedly been reluctant to list XRP due to the risk of facilitating the sale of a potentially unregistered security."

When Bloomberg's report came out in 2018, the two largest exchanges in the US, Coinbase and Gemini, did not list XRP, despite Ripple offering an interest-free loan of $100 million worth of XRP to Coinbase and a $1 million direct payment to Gemini.[65] However, Coinbase did decide to finally list XRP on Coinbase Pro, formerly known as GDAX, earlier this year in February. They reportedly did not receive any compensation from Ripple in order to list XRP.

"Look more closely, however, and most such companies are 'partners,' not customers – and to make matters worse, Ripple pays companies to become partners.

Ripple calls this arrangement the RippleNet Accelerator Program.

Where, then, does the money for these rewards come from? "The RippleNet Accelerator Program is funded by $300 million of XRP from Ripple's XRP holdings," the post continues.

In other words, Ripple is using its share of its free XRP tokens to build the illusion it has paying customers – when in fact Ripple is paying them, not the other way around."

Jason Bloomberg, Forbes.com

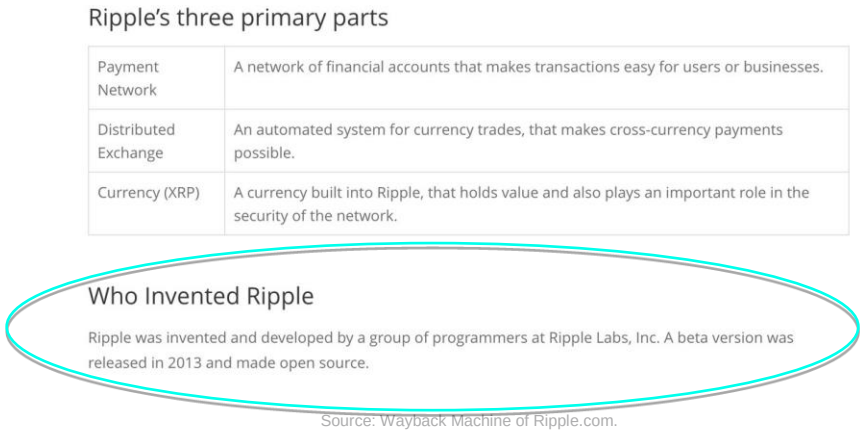
But Ripple Labs is now claiming that XRP does not belong to the company. During a hearing in front of the British Parliament regarding Ripple, Ripple's Director of Regulatory Relations claimed that Ripple Labs Inc. did not even create the coin XRP.

"XRP is open source and it was not created by our company, so that existed as an open source technology. We created a company that was interested in modernizing payments and then began using that open-source tech to do so ... We didn't create XRP ... What we do have is we do own a significant amount of XRP, it was gifted to us by some of the open-source developers that created it. But there's not a direct connection between Ripple the company and XRP."

Ryan Zagone,
Ripple director of regulatory relations

However, Zagone's claim is strange given Ripple used to state explicitly on their website that they created XRP. This image was found on an Internet archive explorer because Ripple has removed this statement from their website.

Figure 4: Ripple Originally Claimed That They Invented XRP.



Source: Wayback Machine of Ripple.com.

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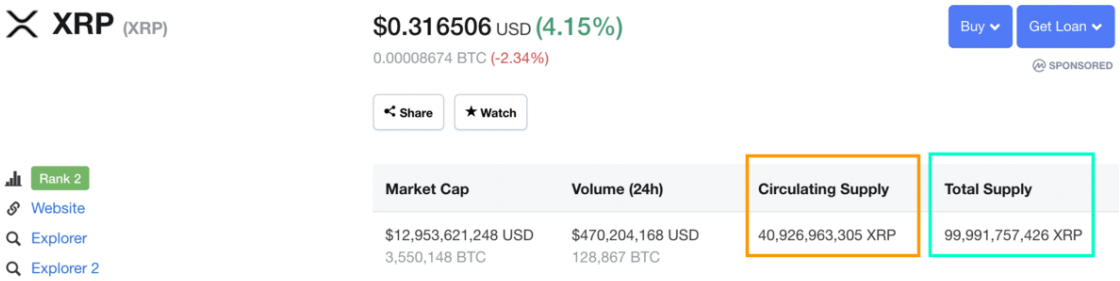
65 See "Ripple's XRP: Why Its Chances of Success Are Low" [Podcast], Laura Shin, *Unchained*, May 8, 2018.

Most XRP Coins Are Owned by Ripple Labs

XRP coins were created all at once in the genesis block in 2012. This was possible because the protocol does not use proof-of-work mining. The initial distribution of the coins was extremely centralized, and still is centralized today. The creators kept 20 billion XRP coins for themselves (20 %). **The remaining 80 % or 80 billion XRP were gifted to Ripple Labs Inc.**

If you look closely at the XRP listing on Cointmarketcap.com, you can see that the circulating supply and the total supply are very different. This is because the company Ripple is forcibly keeping coins off the market. Ceteris paribus, when the supply of a scarce good is restricted given a constant level of demand, the price can be kept artificially high. If you imagine that the coins locked away are also worth $0.31 each, then XRP's real market capitalization is closer to $30 billion. However, the price of XRP would most likely decline if Ripple sold more than 1 billion per month, which is their stated limit on monthly XRP sales. **Ripple the company was valued by investors as being worth $410 million, which begs the question: Why would investors value Ripple at $410 million when they own 60% of the outstanding XRP, worth approximately $8 billion in current prices?** Overall, the fact that Ripple Inc. effectively controls a large part of the XRP supply opens up non-systematic risks unique to Ripple.

Figure 5: XRP's Real Market Capitalization Would Be USD 31 Billion.



Source: Coinmarketcap.com.

In 2018, Ripple Labs decided to partly lock up 55 billion XRPs in an escrow-like account that releases 1 billion XRP per month to Ripple Labs Inc. to be used as they wish. The remaining XRP coins that Ripple owns are distributed "methodically" to incentivize market maker activity.[66] XRP's official supply metrics are tracked on their homepage; however, some data is missing.[67]

Ripple has sold on average 300 million XRP tokens per month since 2016. This money goes directly to Ripple Labs' revenues. In January of 2018, the creators of Ripple were billionaires.[68] Ripple's executive chairman, Chris Larsen, owns 17% of the private company and controls 5.19 billion XRP. Larsen was estimated to be

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[66] See "Market Performance," *Ripple*, 2018.
[67] See "Market Performance," *Ripple*, 2018.
[68] See "Who is the ripple founder?," Joshua Warner, *IG*, January 22, 2018.

one of the richest men in the world worth $60 billion when XRP hit an all-time high of $3.31 in early 2018. Ripple CEO, Brad Garlinghouse, is estimated to have $10 billion in personal wealth.

Several of the 2018 court cases regarding Ripple are because of the escrow account. The news of the escrow account made the price shoot up, and many investors are claiming that Ripple Labs profited financially by manipulating the price and investors. However, the Ripple founders are notorious for selling large amounts of their Ripple coins. Jed McCaleb wrote online in May of 2014 that he was selling 9 billion of his XRP coins.

"I plan to start selling all of my remaining XRP beginning in two weeks. Because I have immense respect for the community members and want to be transparent, I'm publicly announcing this before I start. So just fyi... xrp sales incoming."

The price dropped by 60 % following his post. He has now moved onto his third project, Stellar, which is like Ripple but with smart contracts. In 2015, McCaleb got into trouble for trying to sell more Ripple on Bitstamp than he was allowed to.

All of Ripple Labs Inc. shenanigans has led to 16 court cases in the United States and multiple encounters with regulators in other countries. Table 1 outlines the major cases that Ripple Labs has fought in the US.

Table 1: Court Cases and Fines Involving Ripple.

Year	Plaintiff	Defendant	Result
2014	Ripple	LaCore Enterprises	Trademark infringement lawsuit.
2015	Ripple	Kefi Labs	Trademark infringement lawsuit.
2015	Arthur Britto	Ripple Labs	NA
2015	**Financial Crimes Enforcement Network**	Ripple Labs and XRP II	**$700,000 Fine violating Bank Secrecy Act.**
2016	Bitstamp	Ripple, Jed McCaleb, Stellar	Violating a purchase clause in the contract.
2016	Ripple	Pixel Labs	Trademark infringement lawsuit.
2017	R3	Ripple	Violating a purchase clause in the contract.
2017	Ripple and XRP II	R3	Violating a purchase clause in the contract.
2017	R3	Ripple	Violating a purchase clause in the contract.
2017	Tony Petrucci	Ripple	Small Claims Court
2017	Ryan Coffey	Ripple, XRP II and Bradley Garlinghouse	Violation of state and federal securities laws.
2018	Ryan Coffey	Ripple, XRP II and Bradley Garlinghouse	Violation of state and federal securities laws.
2018	VladiZakinov	Ripple, XRP II and Bradley Garlinghouse	Violation of state and federal securities laws.
2018	David Oconer	XRP II, Bradley Garlinghouse, Christian Larsen, Ben Lawsky	Violation of state and federal securities laws.
2018	Avner Greenwald	XRP II, Bradley Garlinghouse, Christian Larsen	Violation of state and federal securities laws.
2018	Avner Greenwald	XRP II, Bradley Garlinghouse, Christian Larsen	Violation of state and federal securities laws.
2018	Rosen Law Firm	Ripple, XRP II	Violation of state and federal securities laws.

Source: Legal databases, User brjXRP17 on xrpchat.com

Who Owns and Uses XRP?

The **100 most active XRP wallets own an estimated 97 % of the existing XRP.** Dogecoin creator, Jackson Palmer, created the website arewedecentralizedyet.com and showed XRP as being by far the most centralized coin. McCaleb's project after XRP, Stellar, is also very centralized.

Figure 6: Ripple is Considered to be Centralized.

are we decentralized yet?

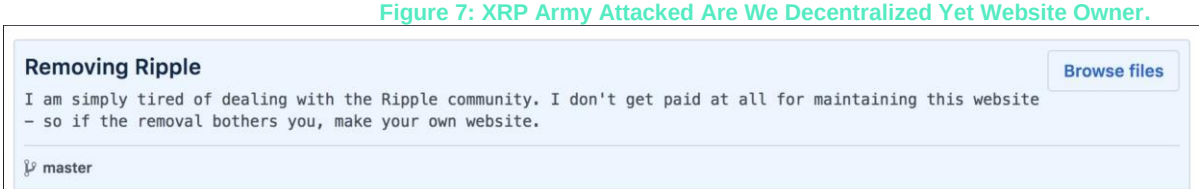
Contribute on Github

Name	Symbol	Consensus	Miners/voters Incentivized?	# of entities in control of >50% of voting/mining power	% of money supply held by top 100 accounts	# of client codebases that account for > 90% of nodes	# of public nodes	Notes
Bitcoin	BTC	PoW	Y	3	19%	1	9933	
Ethereum	ETH	PoW	Y	3	35%	2	18266	
Ripple	XRP	RPCA (voting system)	N	1	97%	?	?	i
Bitcoin Cash	BCH	PoW	Y	3	25%	2	1887	
Litecoin	LTC	PoW	Y	2	45%	?	?	
Cardano	ADA	PoS	N	1	33%	?	?	i
Stellar	XLM	FBA	N	1	95%	?	?	i
Neo	NEO	DBFT	N	1	70%	?	?	i
IOTA	MIOTA	Tangle (DAG)	N	1	62%	1	846	i
Monero	XMR	PoW	Y	?	?	1	2044	i
NEM	XEM	POI	Y	?	55%	?	?	

Source: Arewedecentralizedyet.com

However, Palmer received so many messages from XRP users that he removed XRP from the website entirely.

Figure 7: XRP Army Attacked Are We Decentralized Yet Website Owner.

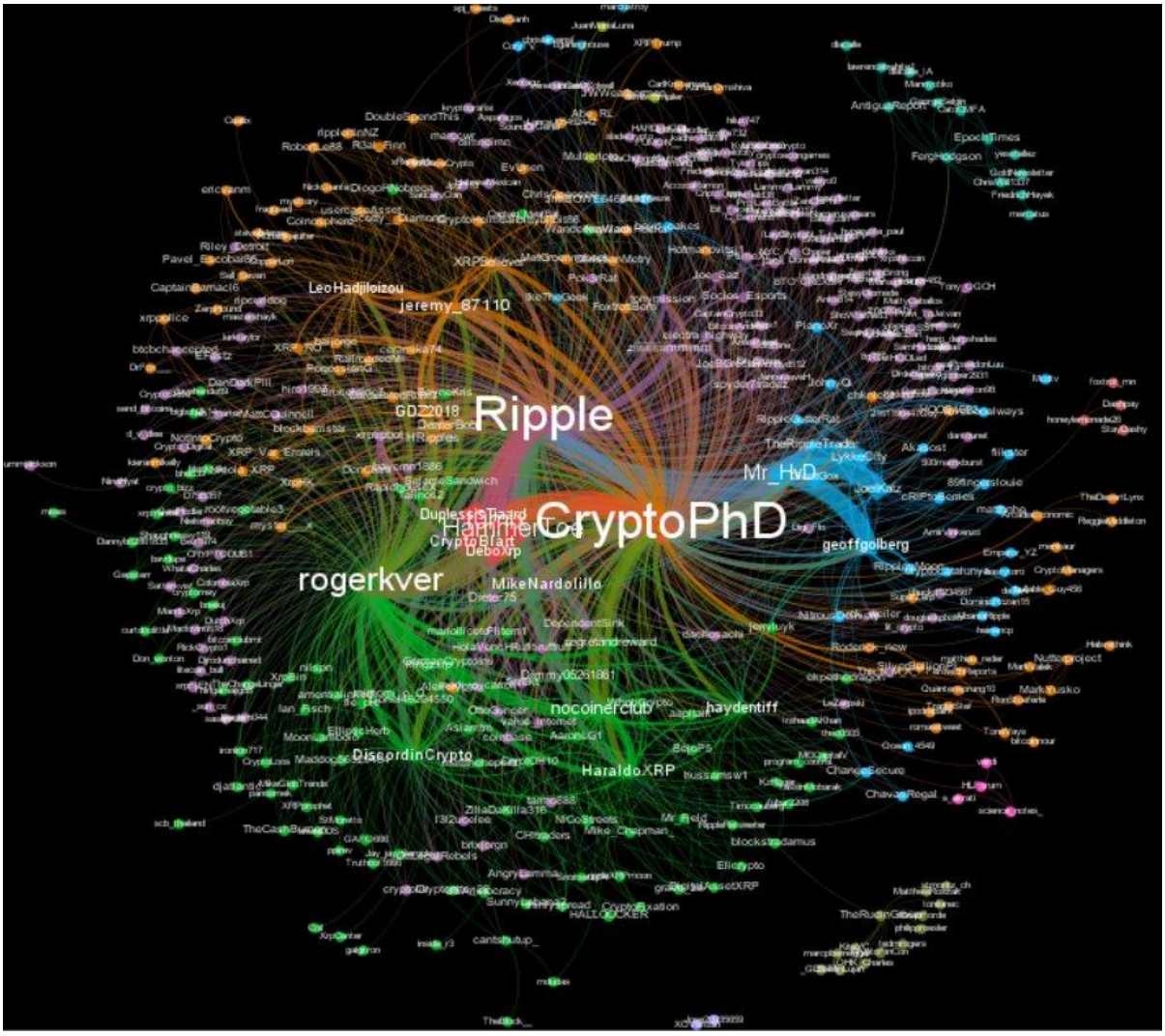


Source: Reddit.com

The XRP Army

After Demelza Hays expressed her disapproval of XRP on Twitter, she received nearly a thousand comments in favor of XRP, including several harassing comments that attacked Demelza personally. It is well known among crypto Twitter that the "XRP Army" is one of the most toxic communities. Although the community includes many real XRP supporting enthusiasts, **the XRP Army benefits from automation and thousands of inauthentic accounts**—that ultimately function **to create the illusion of a larger, more robust community than is reality.** Collectively, the XRP Army engages in "coordinated inauthentic behavior" (this activity violates Twitter Rules; more specifically, around platform manipulation).

Figure 8: Twitter Accounts that Commented on Demelza's Tweet.

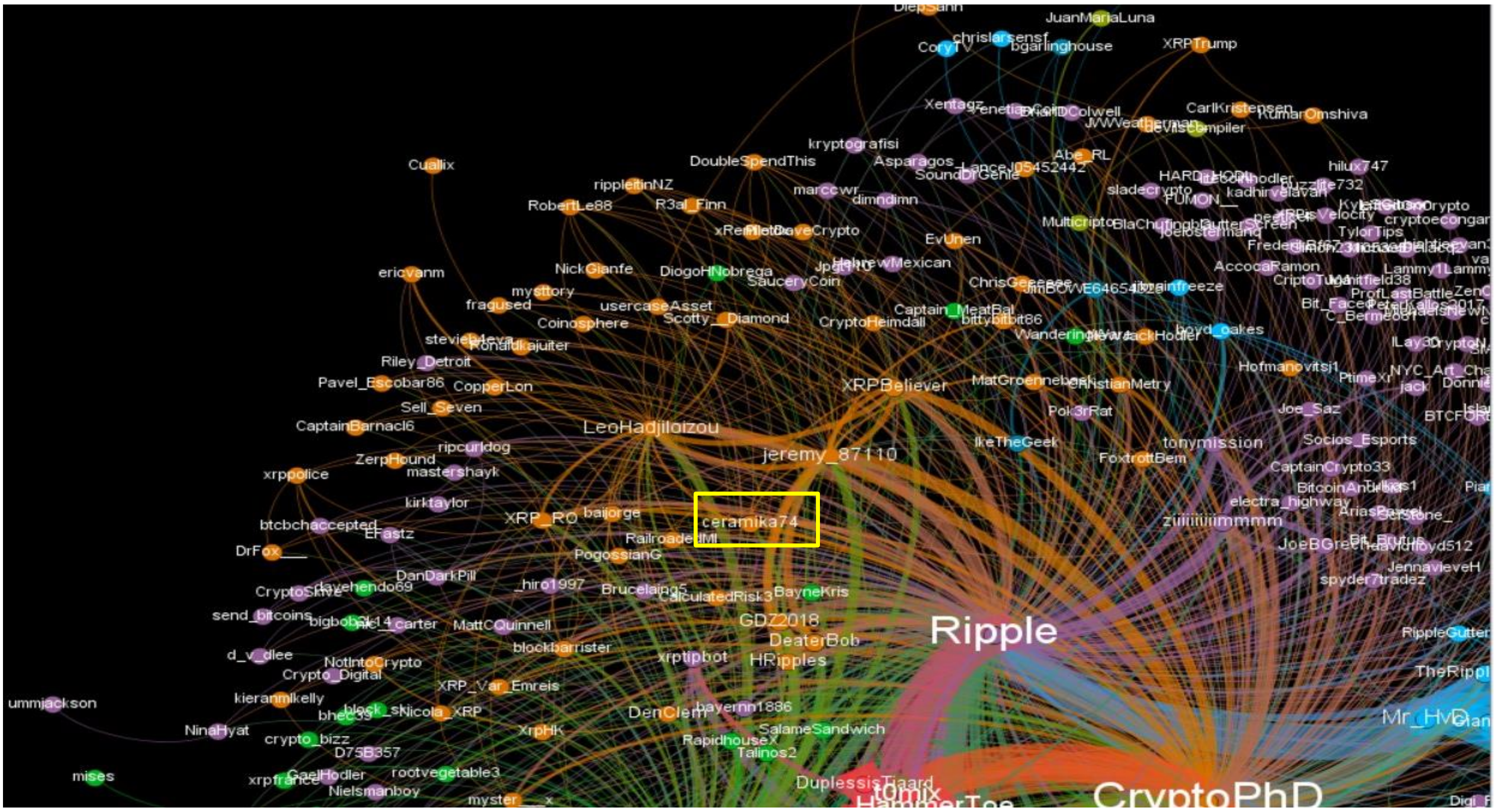


Source: @geoffgolberg

The XRP Army is notorious for attacking accounts which share anything that opposes the narrative they are pushing. One of the more frequent targets of their attacks has been Geoff Golberg, a social media manipulation researcher and founder of SocialCartograph, a social media mapping firm. Geoff dissected the XRP Army in great detail in this August 2018 post. His research has helped surface social media manipulation across the world, including that of India's Bharatiya Janata Party (BJP; link 1; link 2), and, more recently, People's Mujahedin of Iran (MEK; link), among others. More on his work may be found here.

Specific to the XRP Army, **Geoff has received death threats simply for posting data-driven analyses that highlight how the group violates Twitter Rules.** In the case of the MEK, Geoff's research has even resulted in him being doxed. Doxxing is the process of attacking someone online with private details of that person's life.

Figure 9: Many Twitter Bot Accounts Suspended Since Posting

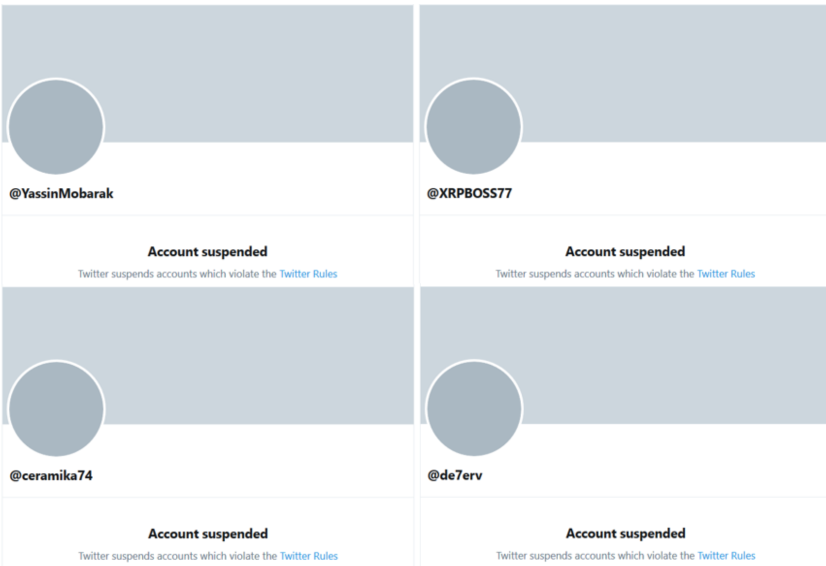


(Note @ceramika74, which has since been suspended).

Source: @geoffgolberg

In addition to @ceramika74, there are several other XRP-focused accounts from this dataset that have been suspended since the data was collected (December 2018). Here are a few examples:

Figure 10: Many Twitter Bot Accounts Suspended For Being Fake.



Source: @geoffgolberg

One common tactic employed by the XRP Army, according to Golberg, is to create XRP-focused sockpuppet accounts (personas) around locations (cities, states, countries). Their goal, effectively, is placing XRP-branded billboards all over Twitter to create the illusion that the XRP community is larger – and more geographically represented – than is reality. Examples include @XRP_Europe, @XRP_Norway, and @XRP_Spain_Army (to name a few). Then you have accounts on Twitter that do not even try to hide that they are a bot just retweeting XRP whale tweets like @XRPRetweeter.

Twitter's Platform Manipulation and Spam Policy states that "you may not use Twitter's services in a manner intended to artificially amplify or suppress information or engage in behavior that manipulates or disrupts people's experience on Twitter." One such tactic employed by the XRP Army, states Golberg, are inauthentic engagements—more specifically, engagements (follows, retweets, likes, replies) that "attempt to make accounts or content appear more popular or active than they are."

The first step to determining if the accounts are fake or not is to see if they were all created in and the around the same time period. The second step is to look at the patterns in the bio section. Many of the bots will contain the same words in their bio section, in the case of XRP, the main word to contain for a bot is XRP. This helps bots find which other bots they should follow and retweet from. The second step is to see how often they tweet. Some accounts tweet on average of 700 tweets a day, which is about once every two minutes. The next step is to look at the clustering of accounts. This means that all accounts are only following and retweeting posts from other accounts within their group, and they are not following or retweeting posts from other non-XRP related Twitter accounts. For example, a normal person that likes XRP should also be following a certain percentage of famous Bitcoiners accounts or regulators in their country. However, Twitter bots will only follow and retweet what they are programmed to follow and retweet. The final step is to go on to the Twitter profile and actually looking at their feed for signs that they are fake.

Platform manipulation and spam policy

Overview

March 2019

You may not use Twitter's services in a manner intended to artificially amplify or suppress information or engage in behavior that manipulates or disrupts people's experience on Twitter.

We want Twitter to be a place where people can make human connections, find reliable information, and express themselves freely and safely. To make that possible, we do not allow spam or other types of platform manipulation. We define platform manipulation as using Twitter to engage in bulk, aggressive, or deceptive activity that misleads others and/or disrupts their experience.

Platform manipulation can take many forms and our rules are intended to address a wide range of prohibited behavior, including:

- commercially-motivated spam, that typically aims to drive traffic or attention from a conversation on Twitter to accounts, websites, products, services, or initiatives;
- inauthentic engagements, that attempt to make accounts or content appear more popular or active than they are; and
- coordinated activity, that attempts to artificially influence conversations through the use of multiple accounts, fake accounts, automation and/or scripting.

Source: Twitter.

Conclusion

As the US dollar's reserve status becomes increasingly challenged, more and more banks will lose their USD correspondent bank for settlement, and there could be demand for an alternative reserve currency and global private bank. Many articles online claim that large banks will use XRP as a global bridge currency or reserve currency to settle international transactions. However, banks can create their own native assets to settle transactions on the network with as well. Although settlement times and fees for Ripple transactions are lower than Bitcoin or Ethereum's, banks will prefer to settle in whichever cryptocurrency establishes

itself as a global reserve currency. Lightning network on top of Bitcoin, proof-of-stake coins, directed acyclic graph coins such as Byteball and Iota, and masternode structures, like Dash, are all attempting to make fast, reliable, and cheap transactions in order to become global stores of value and medium of exchange. However, all of these are volatile and will not be used as units of account, which is a requirement of a global bridge currency.

"Little value in XRP ($0.01), and cryptoassets which are misleadingly marketed, not needed within their own network, and have centralized ownership/validation."

Satis Group Report August 2018

Bottomline, XRP will be competing with Apple Pay, Facebook's Libra, JP Morgan coin, and all of the other proof-of-authority ledger monies that will be directly competing with the US dollar. However, all of the other global reserve and bridge currencies have a stable value. There is absolutely no reason to use a medium of exchange that is volatile like XRP for interbank settlement. XRP's purchasing power is not backed by any reserves. When Facebook announced Libra, the stock price of Facebook went up, not the purchasing power of Libra. The purchasing power of Libra is expected to be stable because the Libra coin is not meant to be an investment. XRP will most likely not reach its stated goal of becoming a bridge currency, but that does not mean that XRP does not have any use case. XRP can be used as a digital store of wealth that is similar to a numbered 1980's Swiss-style bank account, although, there are probably better technologies out there for that application like Monero, Dash, and Bitcoin.

A lot of members of the crypto community have received large payments of XRP from Ripple Labs Inc. in order to test XRP; however, this also may incentivize these members of the community to be quiet regarding XRP's myriad of problems. Ripple Labs Inc. is also attempting to make inroads into Switzerland by inviting politicians and high-net-worth individuals to special events, such as the dinner at the Dolder Grand that occurred in early summer 2019. The strategy may even remind readers of the original formation of the US Federal Reserve on Jekyll Island in November 1910.[69]

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[69] The Creature of Jekyll Island, G. Edward Griffin

Addendum: How Financial Transaction Settlement Works

"Since Ripple is not a public company—and XRP tokens are not shares—the owners of these digital tokens are not entitled to the company's potential profits. One can even think of XRP tokens as merely "demo" digital tokens to woo banks. That's it."

Allen Scott

The cross-border payment market is estimated to settle USD 180 trillion every year in volume.[70] To put this huge number into perspective, the entire annual economic production of Switzerland, as measured by the GDP, is USD 0.705 trillion.[71] According to Ripple research, cross-border payments are estimated to cost senders and receivers of cross border payments USD 1.6 trillion per year.[72]. For example, PayPal charges a fee of 2.9 % for payments plus an additional transaction fee will be charged for international payments, which is the spread in exchange rates that accrues to market makers. These costs for consumers translate into to profit centers for banks and financial intermediaries. Recent entrants like TransferWise or Revolut offer international transfers to retail investors at substantially lower costs, but the field of traditional payments is still dominated by long-established banks with little transparency and close to no competition.

How a Domestic Transaction is Settled

If UBS has an account at the SNB, this is referred to as a nostro account because it means **"our"** account at **"their"** bank. Nostro is also referred to as "Due from Bank Account" in accounting terms. As shown in Figure 11, UBS has nostro accounts showing up as credits on their balance sheet because this is UBS's money held at other banks. In contrast, UBS's nostro accounts show up as vostro accounts on each of the other bank's balance sheets, and this why it is shown as debit or liability. In contrast, vostro means "our" or "Due to Bank Account" in accounting terms.

Imagine that Alice is a customer of Bitcoin Suisse (and Bitcoin Suisse's July 2019 application for a Swiss banking license is approved), and she has a bank account with a balance of 500 CHF. If Alice wants to send 100 CHF to Bob's bank account at Falcon Private Bank, then Bitcoin Suisse's balance sheet would show their nostro account with Falcon Bank being debited 100 CHF, which means their assets are being decreased. Falcon Bank's balance sheet would show Bitcoin Suisse's vostro account as debited 100 CHF as well because this is 100 less of a liability for Falcon Bank to Bitcoin Suisse. The complimentary transactions would appear on Falcon Bank's balance sheet in order to finalize the transaction.[73]

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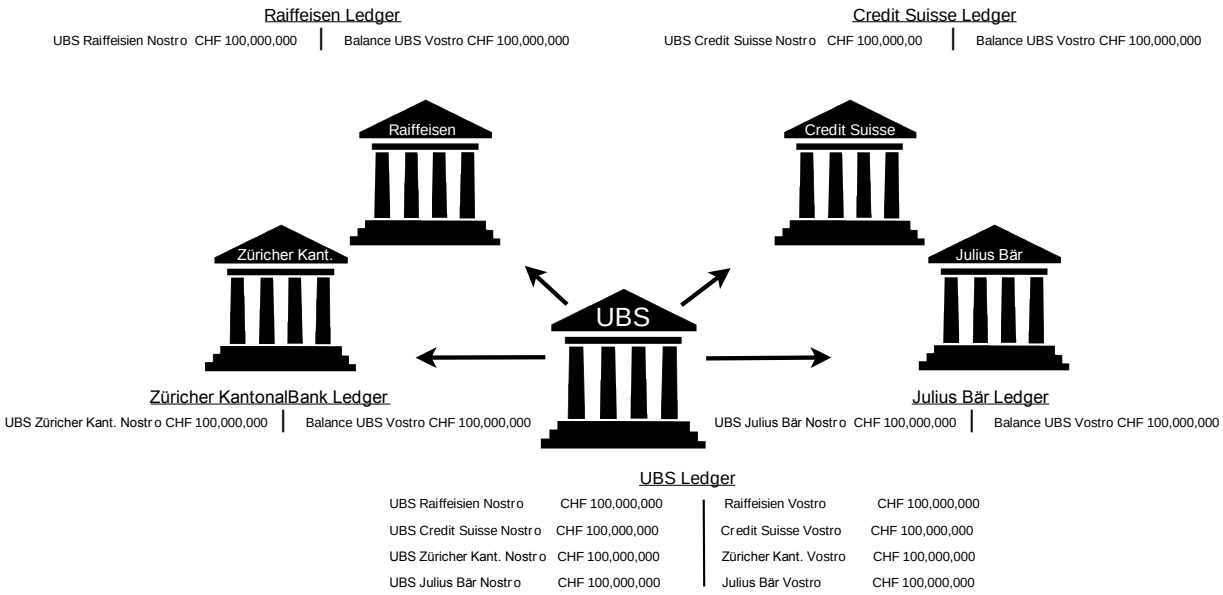
[70] See "Blockchain In Banking: 14 Possible Use Cases," Sam Mire, *Disruptor Daily*, October 17, 2018.

[71] See "Switzerland GDP," *Trading Economics*, 2019.

[72] See "The Cost-Cutting Case for Banks," *Ripple*, February 2016.

[73] For the best explanation of a domestic transaction see "Flow of Money – Payment System" [YouTube video], Wayne Vernon, October 1, 2015.

11: An Expensive Way to Settle a Domestic Transaction.



Source: Incrementum AG.

"Blockchain technology has such a wide range of transformational use cases, from recreating the plumbing of Wall Street to creating financial sovereignty in the farthest regions of the world."

Perianne Boring

However, this is a very expensive way to settle a domestic transaction because this means that each bank has to have an account with cash deposits at every single other bank. This opens the bank to counterparty risk in the case that the bank where their account is can go bankrupt. The liquidity also has an opportunity cost. Instead of just leaving the cash deposits idle in a bank account at another bank, the bank could be using that money to earn interest from lending.

Instead of a bilateral model, all banks could just have one bank account at the central bank as shown in Figure 12.[74] This would reduce the counterparty risk and liquidity required each bank.

When a domestic bank has an account at the central bank, this is called a correspondent bank. When a domestic bank does not have an account at the central bank, then they are called a respondent bank. Settlement at the central bank between correspondent banks occurs in two main ways. The first is DNS systems, which settles transactions at the end of the day, for example, CHIPS in the US. The second is real-time gross settlement systems (RTGS), which have instantaneous settlement. An example of an RTGS system is Fedwire in the US. Banks that have an account at the domestic central bank (correspondent banks) can charge fees to lower status banks (respondent banks) that need to use a clearing bank to access RTGS/DNS systems. This introduces substantial fixed costs, transaction fees, and time delays, which is why payments are both costly and slow.

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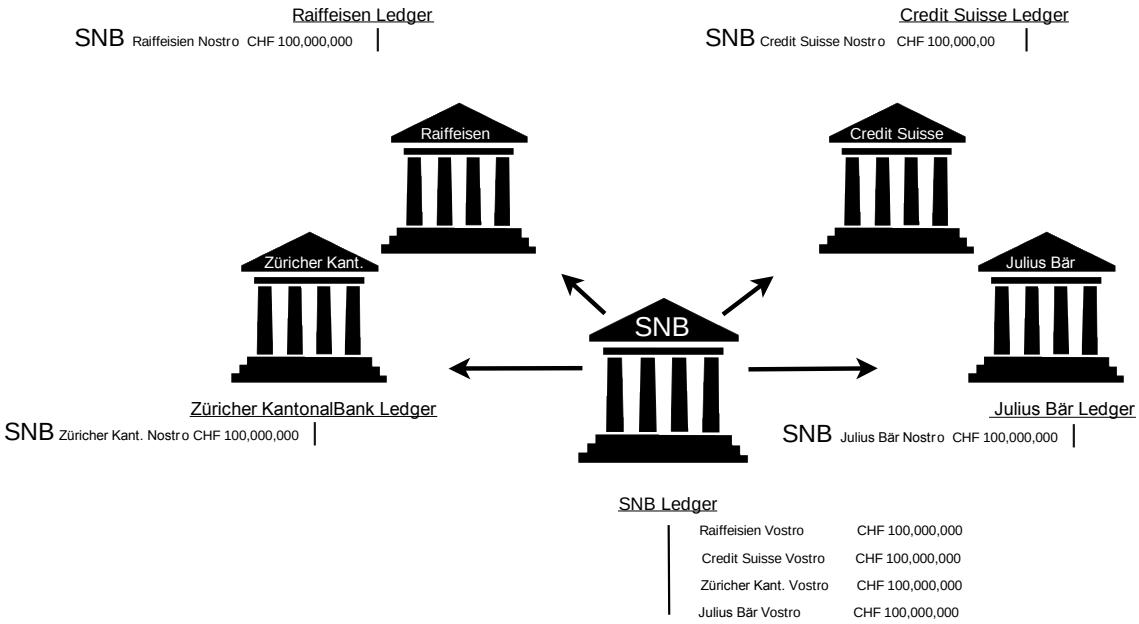
[74] For the best explanation of a foreign exchange transaction see "Flow of Money – Foreign Exchange" [YouTube video, Wayne Vernon, September 17, 2016.

Figure 12: A More Efficient Way to Settle a Domestic Transaction.



Source: Incrementum AG.

How an International Transaction is Settled

"Some of the Bitcoin community come from that kind of anarchistic, libertarian view. But, one reason why I think Ripple has been very successful is because we work with the system."

Brad Garlinghouse

Banks can open a branch in a foreign country by getting a banking license in that foreign country or if a bank does not want to deal with the cost associated with getting a banking license in a foreign country, then a bank can open an account with a bank in a foreign country or open an account domestically with a bank that has a branch in foreign country.

For example, UBS can have a nostro account denominated in Swiss francs at the SNB in Switzerland, but they can also have a nostro account at Citibank in the US denominated in dollars. Both are "our" accounts at other banks. UBS can also use SNB's nostro account at the Federal Reserve in the US to clear US dollar transactions.

There are several different ways that a foreign transaction can occur. **First, it is important to understand that dollars do not leave the US during a foreign exchange transactio**n. Instead, all that happens is basically accounting wizardry.

The most common way to settle a foreign exchange transaction is for an international bank to have branches in two different countries. When the international bank receives $100 in their US branch, they make a liability and show the $100 as an amount payable in the future to the home branch of the bank in Switzerland. In the Swiss branch of the international bank, they credit the

accounts receivable for the Swiss franc amount of the $100 at the spot rate, which, for example, could be 98 CHF.

Until the bank closes the accounts payable, the bank has exposure to currency risk from the spot price of the exchange rate changing. If the Swiss branch needs the Swiss francs right away, then the bank must settle the accounts payable in their American branch with the accounts receivable in their Swiss branch. In order to close the accounts payable, they must go to the foreign exchange market and sell their $100 and buy the CHF. When the Swiss branch buys CHF, this means that a counterparty bank is willing to sell them CHF. For example, if Citi Bank in Switzerland wants to sell 98 CHF Swiss francs to UBS for $100, then Citi reduces the asset side of their balance sheet by 98 CHF.

"Maintaining liquidity in XRP doesn't solve the core problem with money transfers from countries with more stable currencies to those with less stable ones, as such transfers generally go only one way. For example, for a financial services firm to handle payments from the US to Guatemala, it would need to have liquidity in Guatemalan Quetzals in order to disburse payments. Liquidity in XRP would be useless."

Jason Bloomberg, Forbes.com

The SNB reduces its liability to Citi by subtracting Citi's account at the SNB by 98 CHF. SNB shows UBS's bank account as having more CHF in it after the sale, and that represents a new liability for the SNB to UBS of 98 CHF. On UBS's own balance sheet, they use the recently purchased Swiss francs to clear out their accounts receivable on the asset side and simultaneously increase their reserves on the asset side. The New York branch of UBS clears out the Accounts Payable, since it has now been paid and they must reduce their asset side of $100 in reserves because they sold the reserves to Citi. This shows up on the Federal Reserves balance sheet as $100 less in liabilities to UBS and $100 more in liabilities to Citi. Citi show their asset side of their balance sheet increase by $100 in the capital account.

This is an example of a swap, and each bank is dealing with the central bank in their domestic country for final settlement. No Swiss francs or US dollars actually leave the country.

About 85 % of all global transactions are settled in US dollars through the Federal Reserve System in the US. Therefore, the Federal Reserve is not only a central bank for the US, **it is also a central bank for the whole world**. Citi Bank is able to charge foreign exchange fees to settle an international transaction even if they do incur any fees themselves because they have bank accounts in foreign currencies all around the world. However, the fees that Citi incur are somewhat justified from the fact that Citi has to keep liquidity tied up in foreign currencies available for settling transactions, which has an opportunity cost. This is the market that Ripple Labs Inc. argues that XRP can disrupt. However, XRP would need stable purchasing power, and Ripple would need to be a lender of last resort. In order for XRP to really gain adoption as a bridge currency, that would mean that we also need to trust XRP and Ripple Labs Inc. more than we trust the US dollar and the Federal Reserve.

Gold Stablecoins

"The only reason that cryptocurrencies exist is because of regulations that stop us from using gold as money."

Peter Schiff

Key Takeaways

- **Similar to gold-ETFs, all of the gold-backed cryptocurrencies on the market are centralized. This means they have counterparty risk. Unlike storing your own physical gold, gold-backed cryptocurrencies require you to trust a company for storage.**

- **There are three main types of centralized, collateralized stablecoins: fiat, commodity, and crypto. Gold-backed cryptocurrencies are considered to be centralized and "off-chain-backed coins." The most famous gold-backed cryptocurrency is the Digix Gold Token (DGX). DGX has a market capitalization of approximately USD 4mn and a daily trading volume of approximately USD 240,000 over the past year. Even though Digix is backed by gold, it often trades at a discount to gold, and Digix's return is extremely volatile compared to gold's return.**

- **Gold-backed cryptocurrencies have higher costs and risks than ETFs and managed gold funds. Investors can suffer loss of value due to faulty private key storage, double-spends from weak blockchain security, regulatory uncertainty, lack of liquidity, and non-transparent accounting of gold vaults.**

- **The first version of this article originally was published in the sister report of this publication, the In Gold We Trust report 2019. Interested readers can download the publication here: https://ingoldwetrust.report/**

"Again, it's an area where I will be sad if our rules stand in the way of people developing a stablecoin that has investor interest that people want. So if there are things that we need to do to adjust our rules, again, come talk to us."

Hester Pierce,
SEC Commissioner

Last year in the sister report of the *Crypto Research Report* called *In Gold we Trust*, we featured an article exploring the intersection between gold and Bitcoin.[75] The article focused on how gold impacts Bitcoin's application as a global store of value. **Now an even newer competitor to gold is emerging: stablecoins.** Stablecoins promise to improve on gold by being digital and to improve on Bitcoin by being stable. But can the companies behind these stablecoins deliver or are they just modern alchemists? This chapter gives a rundown of the stablecoin market with a focus on gold-backed stablecoins, which are in many ways similar to gold ETFs. **Bottom line: All of the gold-backed stablecoins on the market are centralized, which means they have counterparty risk. Unlike storing your own physical gold, trusting a company to store your gold is required.**

Gold and Bitcoin

Gold has fascinated mankind for thousands of years. So far, more than 190,000 tons of the precious metal have been mined.[76] How much is still underground remains unknown. One thing is clear, however: The extractable quantity is finite and subject to diminishing returns. Similarly, the number of bitcoins that can be mined is limited: The mysterious inventor of Bitcoin has set the maximum amount to 21 million coins.[77] **Unlike fiat money, gold and Bitcoin cannot be created by central banks at will in response to demand shocks**. While the average annual growth rate of the gold supply is around 1.7 % with a rather small standard deviation,[78] Bitcoin's inflation rate is currently 3.69 % and on a downward trajectory.[79] As mentioned in last year's *In Gold We Trust* report, the supply of newly mined bitcoins follows a preprogrammed, transparent, and predictable schedule, which remains unaffected by fluctuations in demand.[80] **Their inelastic supply makes the prices of gold and Bitcoin dependent on their demand.**

Overall, the supply trajectories of Bitcoin and gold show that Bitcoin is expected to have a lower inflation rate by 2021. **Every 210,000 blocks, the reward the miners receive per block is halved.** This roughly corresponds to a four-year "half-life." Observers pay very close attention to the schedule, because the so-called "halving" is regarded as an important indicator of price movement. There is only little experience so far, since there have been only two such "halvings." But they show that the price has always risen in the months before the actual event. Specifically, the Bitcoin price found its bottom in the first bear market that came 378 days before the first halving and again in the second bear market, 539 days before the second halving.[81]

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[75] *See* "Crypto: Friend or Foe?", *In Gold We Trust* report 2018

[76] *See* "Above Ground Stocks", Gold.org, January 31, 2019

[77] In this context, we should note that the edge length of the cube that could be cast from the total amount of gold already mined is roughly 21 meters, which may have been Satoshi Nakamoto's inspiration for the arbitrary 21 million hard cap.

[78] *See* "The Bitcoin Halving and Monetary Competition", Saifedean Ammous, July 9, 2016

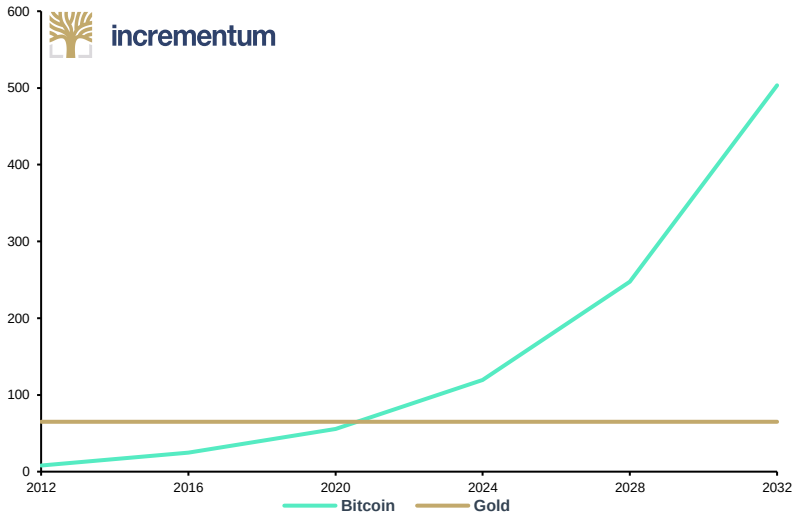
[79] *See* "Bitcoin Inflation", Woobull Charts, April 27, 2019

[80] *See* "Crypto: Friend or Foe?", *In Gold We Trust* report 2018

[81] *See* Bitcoin Block Reward Halving Countdown

This equals an average of 458 days, and we are currently approximately 350 days from the next halving, which will probably take place towards the end of May 2020. **If the pattern observed so far is confirmed, the bottom should have occurred somewhere between December 2018 and May 2019.**

Figure 13: Stock-to-Flow Ratio, Bitcoin and Gold, 2012-2032.



Source: bitcoinblockhalf.com, World Gold Council, Incrementum AG.

"Stablecoins promise an on-ramp into the crypto world that a retail user can easily trust and understand, paving the way for wider acceptance and adoption of programmable money and securities. A successful stablecoin may challenge the legitimacy of the current myth of money backed by weak governments around the world."

Tatiana Koffman

When we compare the supply of gold to the supply of Bitcoin, we notice that both are being mined, albeit in their own particular ways. Gold can be found in soil, rivers, and rocks all over the world, regardless of borders. Similarly, independently of their location, Bitcoin miners receive a reward for providing the network with computing power to verify and settle transactions. **The main difference when it comes to mining is that mining is what secures the Bitcoin network and the price of Bitcoin on the market. In contrast, gold mining does not secure the price of gold. Therefore, we would like to make the subtle distinction that Bitcoin is not a bearer instrument in the same sense that gold is.** Paying with gold requires absolutely no dependence on a network for settlement. However, Bitcoin transactions can take hours to settle; and trusting the software, hardware, and internet that support Bitcoin is a type of counterparty risk even though the "party" is not human.

To make Bitcoin and gold even more scarce, a certain amount of Bitcoin and gold becomes unusable every year. Previously, gold was used in quantities that made smelting and recovery cost-effective and common. For example, the gold in your mother's necklace may well have in it metal mined by the Romans, then used by the Tudors, etc. Now we see gold used in tiny amounts in high-tech goods, amounts that may not be cost-effective to salvage for a long time. **The British Geological Survey estimates that around 12% of current world gold production is being lost for this reason.**[82] This means gold is being consumed in an absolute sense for the first time in history. Again, this is similar to

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[82] *See* "How much gold is there in the world?", Ed Prior, April 1, 2013

Bitcoin's annual loss of coins that are unspendable due to lost private keys and fat-finger mistakes while typing cumbersome recipient addresses. Two different cryptocurrency researchers, Chainanalysis and Unchained Capital, **have created an upper bound of 3.8 million for the total number of Bitcoins lost.**[83] Overall, the supply trajectories of Bitcoin and gold show that Bitcoin is expected to have a lower inflation rate by 2021.[84]

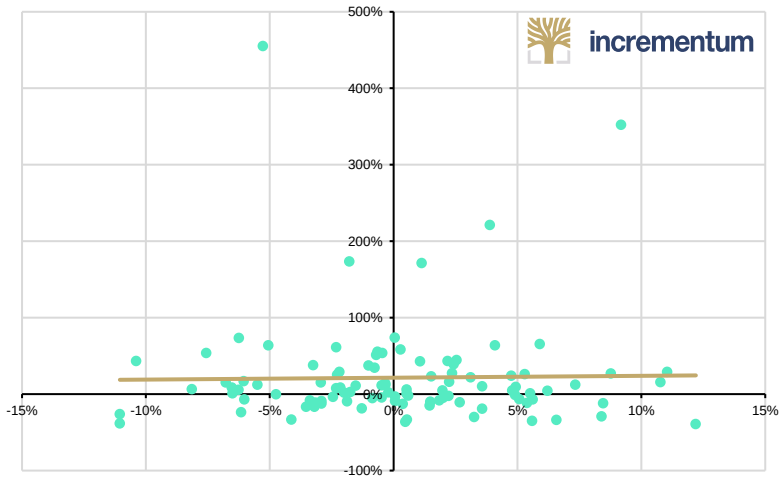
"Stablecoins are important in the same way that a bridge is important. You may not care much about the bridge, but without it, the beautiful land beyond is much harder to get to."

Erik Voorhees

Does Bitcoin Hurt Gold?

Since many young investors consider Bitcoin to be digital gold with a payment option, some may suspect that the demand for gold is adversely affected by the success of cryptocurrencies. **As of yet, the correlation between gold and Bitcoin returns is still low and slightly positive, indicating that the demand for gold is not adversely affected by cryptocurrencies.**

Figure 14: Correlation of Monthly Returns, Gold (x-Axis) and Bitcoin (y-Axis), 07/2009-02/2019.



Source: Coinmarketcap, Gold.org, Incrementum AG.

This secure demand strength of gold is due to the unique advantages it has over Bitcoin. First, gold is far less volatile than cryptocurrencies and will remain so for the time being. In 2017, Bitcoin was about 15 times more volatile than gold. In addition, gold is much more liquid. On average, USD 2.5bn in Bitcoin is traded daily.[85] This amounts to just 1% of the total gold market: The daily trading volume of gold is around USD 250bn. Furthermore, gold trades in regulated and well-established venues and has long been accepted by institutional investors as an investment alternative. This is not the case for cryptocurrencies.[86]

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[83] *See* "Bitcoin Data Science (Pt. 2): The Geology of Lost Coins", Dhruv Bansal, May 29, 2018

[84] *See* Bitcoin Block Reward Halving Countdown

[85] *See* Bitcoin Trading Volume, Bitcoinity.org, April 27, 2019

[86] This may change quickly, however, as more and more countries open their financial markets to blockchain-related investment vehicles. To give an example, the Liechtenstein Financial Market Authority (FMA) has recently approved three alternative investment funds (AIFs) for crypto-assets. *See* "Liechtenstein gives green light to crypto funds", Liechtenstein.li – official website of Liechtenstein Marketing, March 6, 2018

Leveraging Gold's Stability

The US dollar's hegemony is under increasing pressure from China and Russia, as US national debt reaches record highs. **Instead of returning to a gold standard in support of a fiat currency, the 21st century could witness the emergence of a gold standard involving a cryptocurrency.**

"The advocates of public control cannot do without inflation. They need it in order to finance their policy of reckless spending and of lavishly subsidizing and bribing the voters."

Saifedean Ammous

The notion of a monetary system based on a cryptocurrency may be surprising, given the fact that cryptocurrencies are the most volatile asset class. Many Bitcoin holders have experienced a ride from USD 1,000 right up to USD 20,000, and then steadily back down, culminating in a long, choppy sideways market followed by the recent rally to USD 8,000. **Enter stablecoins.** Stablecoins promise to offer all of Bitcoin's benefits while fixing the problem of volatility.

While the decentralized and independent nature of their supply makes gold and Bitcoin good stores of value, there are major differences with respect to other monetary features. Following Dobeck and Elliott[90] and Berentsen and Schär[91], the next table gives a quick overview.[92]

Table 2: Gold Versus Bitcoin.

Characteristic	Gold	Bitcoin
Low transaction costs[96]	✗	✓
Fast transfers[87]	✗	✓
Verifiability to prevent fraud	✓	✓
Non-Confiscable	✗	✓
Divisible	✓	✓
Fungible	✓	✓
Microtransactions	✗	✗
Global Acceptance	✓	✗
Institutional Acceptance	✓	✗
Anonymity	✓	Sometimes[88]
Counterparty Risk[89]	✗	✓
Excess Volatility	✗	✓

Source: Incrementum AG

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87 For non-face to face transactions

88 Transfers within the Bitcoin network can be tracked indirectly due to the transparent nature of account balances. Companies such as Chainanalysis offer to analyze the entire Bitcoin blockchain in order to forensically detect transfers between addresses and identify the owners of the accounts. The US tax authorities are already using this service to track cases of money laundering and tax evasion.

89 The counterparty of Bitcoin defined as functionality of the Network

90 Dobeck, Mark F.; Elliott, Euel: Money. Greenwood Press, 2008, pp. 2-3

91 Berentsen, Aleksander and Schär, Fabian: Bitcoin, Blockchain und Kryptoassets. 2017, pp. 16-17

92 This table was inspired by a presentation given by Frank Amato at the LBMA/LPPM Precious Metals Conference 2018 in Boston, Massachusetts.

Reasons People Use Stablecoins

1. Exchanges: Cryptocurrency traders can reduce their exposure to Bitcoin by selling their Bitcoin for stablecoins. This allows traders to keep their wealth on an exchange without converting back into fiat. This is useful for two reasons. First, many exchanges take days to convert fiat into crypto, which means investors must wait to trade. Second, converting back into fiat means a tax bill is coming soon, since most exchange on- and off-ramps now require KYC-AML.

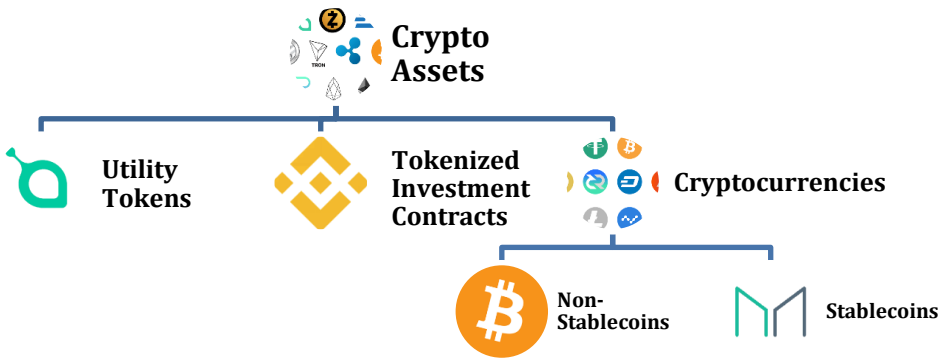
2. Inflation hedge: People in countries with high inflation and hyperinflation can hold on to stablecoins in order to preserve their savings. Bitcoin is too volatile for most people in Venezuela. Instead, they would prefer to hold onto cryptocurrencies backed by gold or Swiss francs.

3. Interbank settlement: Interbank settlement is a trillion-US dollar industry, as discussed in the chapter on Ripple in the June 2019 edition of the *Crypto Research Report* published by Incrementum. Instead of giving away billions in revenue to Ripple, companies such as J.P. Morgan are releasing their own centralized stablecoins backed by fiat in order to settle transactions globally on a permissioned blockchain instead of legacy banking software.

However, the promise is most likely to be optimistic, as promises often are in the cryptocurrency space. For several decades, countries around the world have tried to peg their exchange rates to other more stable currencies. Not a single fixed peg has lasted in the long run.

Take for example the European Exchange Rate Mechanism (ERM), which attempted to keep the plethora of European currencies within a narrow band of each other during the '80s and '90s. Since the UK could not keep their print presses turned off, George Soros and other speculators were able to mount a speculative attack and profit from breaking the peg. **This is because whenever a currency holds fractional reserves, arbitrage opportunities arise between it and other currencies.** Therefore, stablecoins that are not fully backed are trading off between stability in the short run and blow-up risk in the long run, because keeping a fixed peg without investing in the underlying asset makes the peg fragile to black swan events.

Figure 15: Topology of Cryptoassets.



Source: Incrementum AG

However, Bitcoin is volatile, and many cryptocurrency users are now demanding stability. **To meet this demand, the new stablecoins are combining the advantages of gold and Bitcoin**. Gold-backed stablecoins are similar to gold ETFs. For example, the most famous gold ETF, SPDR Gold Shares (GLD), is a fund that buys physical gold and divides the ownership of it into shares.

In theory, gold-backed cryptocurrencies are supposed to work the same way. **However, there are currently no cryptocurrency exchanges that are licensed to trade tokenized ETFs.** Even if regulators eventually approve an application for such an exchange, they will require KYC/AML on each

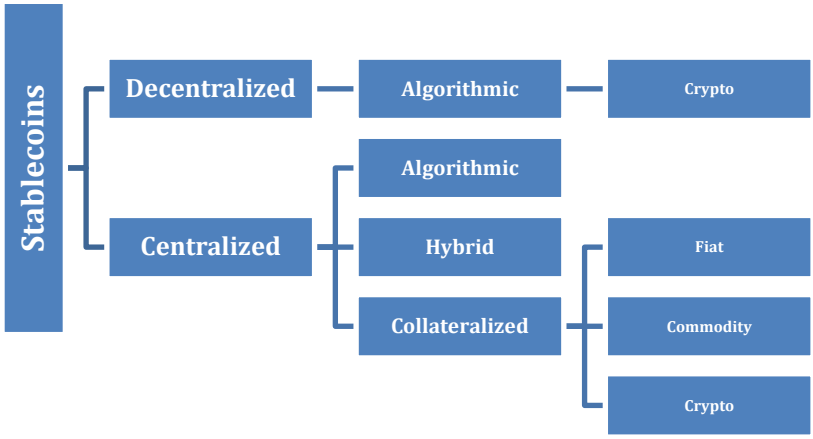
transaction.[93] This begs the question: **How is a centralized gold-backed stablecoin any better than a gold ETF? We have still not found a suitable answer to this question.** In fact, the solution seems inferior at first glance, because investors still have to safely protect the private keys that control the gold-backed stablecoins, and if the tokens are traded on a public blockchain like Ethereum, then the coins will be subject to volatile and increasing transaction fees when they send and receive the gold tokens. Then there are all of the problems associated with public blockchains, such as latency, lack of scalability, and security.

"Gold backed crypto eliminates most of the trust minimization properties that come from holding directly either gold or crypto. It disempowers users from validating either."

Nick Szabo

As shown on the next figure, there are three main types of collateralized stablecoins: fiat, commodity, and crypto. **Gold-backed cryptocurrencies are considered to be centralized "off-chain-backed coins" because they generate value by a counterparty's depositing gold, gold certificates, or other gold-related securities into a vault.** Similar to fiat-collateralized coins like the infamous Tether, gold-backed cryptocurrencies are supposed to be listed on cryptocurrency exchanges so that gold positions can be opened and closed within seconds by retail and professional investors alike.

Figure 16: Topology of Stablecoins.



Source: Incrementum AG

Gold-Backed Stablecoins

Over 50 cryptocurrencies are somehow backed to gold. The next section summarizes just a handful of the gold-backed projects. The projects selected were drawn from responses to an official @CryptoManagers tweet on Twitter. We asked our followers what coins they wanted to learn more about. We also selected a few coins from the German-speaking countries, including Vaultoro, Novem, and

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[93] Know your customer (KYC) and anti-money laundering (AML) are standard protocols that require a customer to verify their identity in order to use specific services, such as bank accounts and cryptocurrency exchanges.

AgAu. Finally, we have included an update on the gold-backed tokens that we covered last year.[94]

Table 3: Gold-backed Cryptocurrencies.*

Coin Name	Convertible into Physical Gold	Blockchain	Exchange-Traded	Fees	ICO/TGE	Stable to Gold's Price	Audited
Digix Gold Tokens (DGX)	✓	Ethereum	✓	0.13% on each trade, daily deductible demurrage fee 0.60% per annum[1]	✓	✗	✓
Novem	✓	NEO	✗	0.05% transaction fee[1]	✓	Not yet traded	✓
AgAu	✓	Ethereum	✗	Up to 4% on each trade plus 2% annually	✓	Not yet traded	In the future by E&Y, but not yet
AnthemGold	✓	Private Blockchain	✗	0.40% storage cost per year 3% fee for conversion to physical gold	✗	Not yet traded	✓[1]
Vaultoro	✓	N/A	✗	From 0.2% to 0.5% per trade and 0.4% per year to pay for insurance, auditing and vaulting costs[1]	✗	N/A	BDO
Ozcoin	Information not available	Information not available	Information not available	Information not available	Information not available	Information not available	Information not available
KAU/KAG	Information not available	Information not available	Information not available	Information not available	Information not available	Information not available	Information not available
Xaurum (XAUR)	✗	Ethereum	✓	Each transaction of xaurum pays a fee of 0.5 XAUR[1]	✓	✗	✓
Zengold	✓	Metaverse blockchain	✗	0.1% per transaction, cap 1 ZNG[1]	✗	Information not available	✓
Flashmoni	✗	Private blockchain	✗	Information not available	✓[1]	✗	✓
AurusGold	✓	Ethereum	✗	Fee for tokenizing gold 0.5%, transactions 0.15%, annual fee 2%[1]	✗	✗	✓
PureGold	✓	Ethereum	✓	1% transaction fee, 5% subscription fee 50% of the prevailing fees when PGT is used[1]	✓	✓	✓
OneGram (OGC)	✓	Private blockchain	✗	1% transaction fee[1]	✗	✓	Information not available
Gold Sip	Information not available	Information not available	✗	Information not available	Information not available	Information not available	Information not available
HelloGold (HGT); GBT GoldX	✓	Private blockchain	✗	2% on each trade plus 2% annually	✓	✓[1]	✓

Source: Incrementum AG.

*Please be advised that the table includes fees such as transfer fees, custody fees, subscription fees, and redemption fees. We included all information which was provided to us by the companies. However, a substantial cost that investors will have to bear may be the spread between the price of gold on the market and the price of gold that each company charges investors. **This markup on the price of gold is often not stated clearly in the whitepaper.** The table is not complete because the information was unavailable. Readers are responsible for their own due diligence on each firm, and this is not investment advice.

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94 *See* "Crypto: Friend or Foe?", *In Gold We Trust* report 2018

"Gold is not an easily accessible option for most people, given high transaction costs involved in moving it around and the fact that the enormous central bank reserves can act as an emergency excess supply that can be used to flood the gold market to prevent the price of gold from rising during periods of increased demand, to protect the monopoly role of government money."

Saifedean Ammous

Digix Gold Tokens (DGX)

There are two tokens associated with this company: DGD and DGX. The DGD crowdsale in March 2016 was the first crowdsale and major DAO hosted on the Ethereum network. A decentralized autonomous organization (DAO) is a type of decentralized application (dApp) that allows owners to make business decisions by voting electronically, and execution of the business decisions is performed using smart contracts.[95] The second is the DGX token, which equals one gram of standard gold.[96] The company reportedly procures its gold from LBMA-approved refiners. The tokens are issued by Pte. Ltd. in Singapore, and the gold is stored at The Safe House in Singapore. As you can see in the next chart, the daily trading volume is approximately USD 243,000 over the past year, and USD over the past month. The next chart shows that the Digix Gold Token is not correlated with the price of gold. The token is more volatile and often trades at a discount to gold.

AnthemGold

What makes AnthemGold unique is that it is the first insured, fully gold-backed stablecoin based in the US. The token is open to citizens of 174 countries, and the vault where the gold is stored can be viewed on video, on the AnthemGold homepage.[97] Currently, there are 20kg of gold there. The gold is insured through Lloyd's; there is zero FACTA reporting required for investors; and according to the founder of AnthemGold, Anthem Blanchard, the gold has zero risk of bank deposit freeze or closure. There is a 0.40 % storage cost per year, extracted from metal (which is the same as the GLD gold ETF fee structure).[98]

AgAu

AgAu is a gold-backed token that is being developed by Thierry Arys Ruiz and Nicolas Chikhani, the former CEO of Arab Bank in Geneva. Their offices are located at the Zug-based blockchain incubator, Crypto Valley Venture Capital (CV VC). Their coin will be audited by E&Y and built as an ERC-1400 smart contract on the Ethereum blockchain. The gold is 1 kg LBMA bars stored at Trisuna in Liechtenstein. AgAu will be engaging in a token generation event (TGE) to raise the initial round of capital that will be used to buy the gold required for backing the tokens. The storage fees are 0.2 % per annum, and each transaction has a maximum total cost of 0.4 %.

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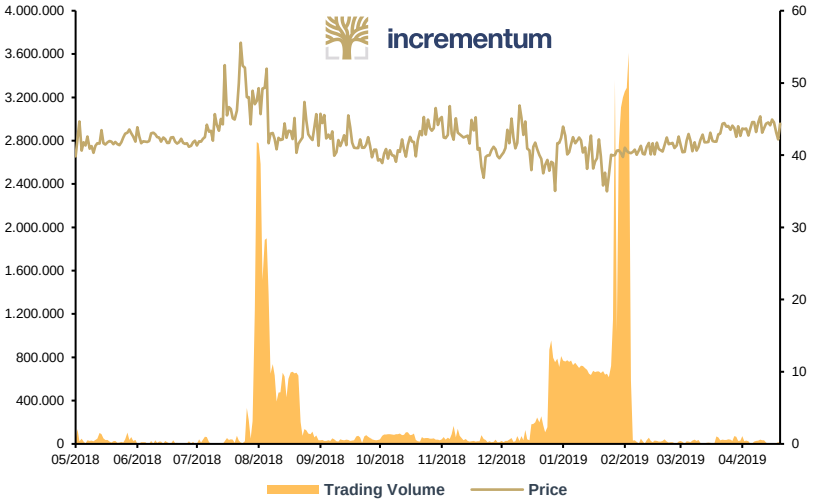
95 For more on smart contracts, dApps, and DAOs, please *see Crypto Research Report,* Edition IV., October 2018

96 See "Whitepaper", Digix Global, no date

97 See Anthem Gold

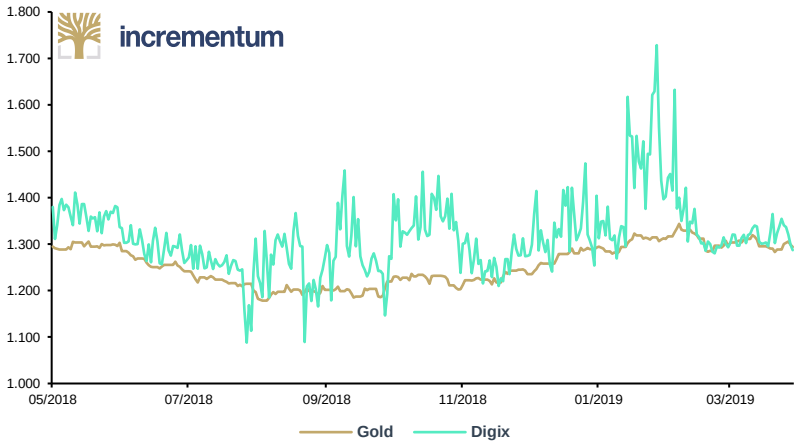
98 Demelza Hays' interview with Anthem Blanchard about AnthemGold can be found here.

Figure 17: Digix Gold Token (DGX), Trading Volume in USD (left scale), and Price, in USD (right scale), 05/2018-05/2019.



Source: Coinmarketcap, Gold.org, Incrementum AG.

Figure 18: Digix Gold Token and Gold Price in USD, 05/2018-05/2019.



Quelle: Coinmarketcap, Gold.org, Incrementum AG.

"As the biggest Gold bug in #Bitcoin BY FAR I believe I was the first to point out back in 2013 (or sooner) that a Gold backed crypto makes no sense. It doesn't make the crypto more valuable and it doesn't obviate the need to verify the Gold. It's an oxymoron."

Max Keiser

HelloGold

HelloGold, a Malaysian-based company founded in 2015, offers a token backed by 1 gram of 99.99 % investment-grade gold. The tokens can be converted into physical PAMP Suisse gold, and the shipping is insured. The total GBT supply is limited to 3,800,000 (representing 3.8 tons of gold). Users also have the opportunity to convert their gold into a digital gold token (GBT) if they have a "pro" account, which requires standard AML/KYC. This enables them to use the stored gold as a value outside the HelloGold system.

In addition, people may use their gold as collateral for loans made available by Aeon Credit Services, giving them access to personal finance. Finally, HelloGold offers a Smartphone app with which users can trade their tokens and exchange them for their corresponding shares of investment-grade gold. When they redeem

Due Diligence on Gold-Backed Stablecoins

- Can the cryptocurrency be converted into physical gold on demand? How easy is the process?
- Does the company disclose how it stores the gold?
- Who is storing the gold that backs the cryptocurrency? Is that company trustworthy?
- Is the gold insured?
- Does the company have a well-known and reputable auditor? If the company is not audited, then it can easily issue more tokens than gold, thereby creating fractional reserves.
- What happens if the company goes bankrupt? Is it a limited liability company that could leave investors empty-handed?
- What blockchain are the gold tokens built on? Is that blockchain secure?
- Do you know how to store the private key to the wallet that controls the gold tokens? What happens if you lose the key? What happens if the key is stolen?
- Gold-backed cryptocurrencies are similar to ETFs, which may make them subject to securities laws in Europe and the US. Is the company selling the cryptocurrency regulated? Does it store the gold in a country that has approved their token?
- Where can the gold-backed token be traded? Gold ETFs are traded on exchanges, but there are currently no cryptocurrency exchanges that are licensed to trade tokenized ETFs.
- How much liquidity does the gold-backed cryptocurrency have? Can you really close a position in case of a liquidity trap? The largest gold-backed cryptocurrency, Digix Gold Token, has a small daily trading volume of USD 243,000 over the past year, and USD 27,000 over the past month.
- What is the total expense ratio for the tokenized shares of the gold fund? The most famous gold ETF, SPDR Gold Shares, has a management expense ratio (total fund costs / total fund assets) of only 0.40 %.
- What is the business model of the coin? How do the people who created the coin make money? If there is not a clear way that they are profiting, then be suspicious of indirect costs or high risk.

their GBTs for physical gold, they receive the corresponding amount in bullion, coins, or jewelry via recorded mail.

GBT accounts are charged an annual fee of 2 %. Interestingly, the HelloGold blockchain operates on a private network to reduce fees and transaction latency and avoid the risk of independent developers adding their own contracts to the blockchain. This means that HelloGold and its nodes control block times as well as the execution of the gold transactions.

Conclusion

A gold-backed cryptocurrency promises to be digital gold: no weight and stable. However, no one has figured out yet how to make a decentralized gold-backed stablecoin. All gold-backed stablecoins are centralized in the sense that you have to trust someone to store the gold for you. Similar to an exchange-traded gold fund, gold-backed stablecoins have counterparty risk. In the cryptocurrency world they say, "**Not your keys, not your crypto**." Well, the parallel for gold would be something like, "**Not your vault, not your gold.**"

Backing a cryptocurrency in a way that an intermediary is required – a custodian or a bank for instance – actually conflicts with one of Bitcoin's central tenets, namely, that users do not have to trust any intermediary. The security of Bitcoin and other cryptocurrencies is based on cryptographic technology. In contrast, the gold-token projects we have presented above are managed by real companies. They are responsible for the safekeeping of the gold. Therefore, the user has to trust that no state or private actor will be able to steal or confiscate the gold from the vaults.

Furthermore, the coins are often traded on a public blockchain structure such as Ethereum, which means the coins also suffer from all of Ethereum's problems, such as scalability and security. **Finally, there are over fifty gold-backed coins currently, and most likely, many of them will fail.** It will take a few years for the market leaders to emerge, gain widespread exposure, and thus secure the standing of gold-backed tokens as a store of value. This year will be pivotal in identifying which projects are going to take the lead in this endeavor.

Cryptocurrencies.
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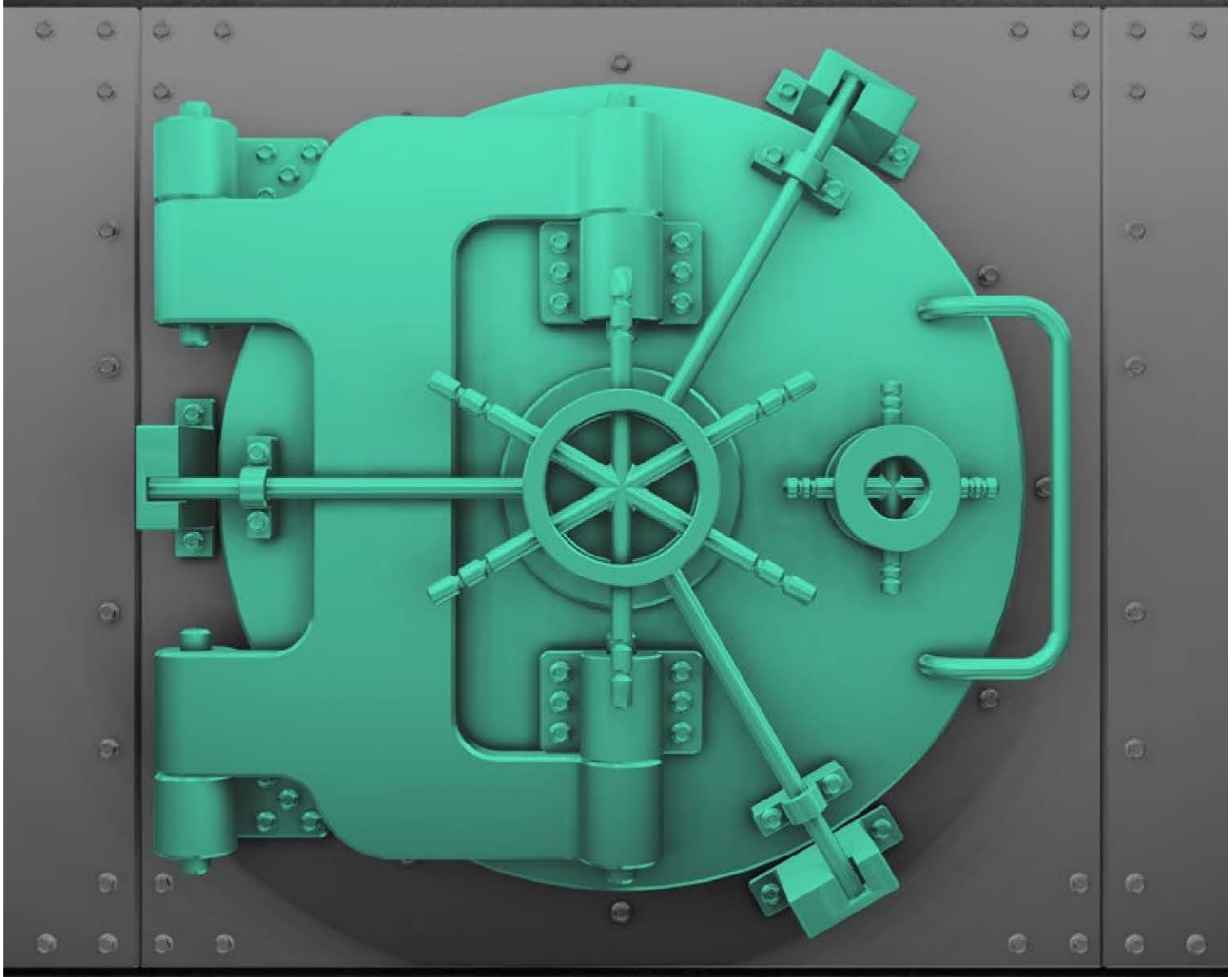

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Information about the fund strategy for professional investors (according to MiFID) only.
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Partner Insights:Lucas Ereth on Transforming Finance

"With a commitment in a structured product, specifically a tracker certificate, one does not invest directly in the cryptocurrency but follows the price movements like a shadow. Investment risk depends on price losses and creditworthiness of the issuer (default risk). However, the investor must remain vigilant. Just because he has purchased a tracker certificate from a bank, it doesn't mean that it's iron-clad. Should the price of his cryptocurrency crash or even disappear from the market, there is, of course, a total default risk here as well."

Jürgen Kob and Paweł Sobotkowski

Lucas Ereth

We want to sincerely thank Lucas Ereth and GenTwo Digital for contributing this chapter. Lucas is a managing member of GenTwo Digital (https://www.g2d.io). Our readers can sign up for a free newsletter at https://www.g2d.io/blog. Please note, that GenTwo is a premium partner of the Crypto Research Report.

This chapter features a sneak peek into the life of the Managing Partner of GENTWO Digital and Forbes DACH 30 Under 30, Lucas A. Ereth.

"The convergence of digital assets and the traditional market is inevitable. The real question is what role one wants to play within that digital financial future."

- **What does your business do?**

To put it simply, we're securitization experts working to bridge the gap between traditional finance and the emerging crypto market. While our parent company GENTWO creates securities for all asset classes, GENTWO Digital specializes in the securitization of digital assets. In other words, we convert digital assets, like cryptocurrencies, into structured products. These products are then outfitted with an International Securities Identification Number (or ISIN, for short) – the de facto standard for securities trading internationally – which ensures that the product is "infrastructure compatible" with every bank and large scale/institutional investor.

In doing so, we turn a digital asset into something that is bankable and manageable within traditional investment portfolios inside the global banking system. Why would we do that? Well, large private and institutional investors were having quite a bit of trouble accessing the market for digital assets due to different aspects of the traditional functional framework. So, we set out to provide a service that would make crypto assets accessible for qualified investors from around the world via GENTWO and GENTWO Digital.

- **How are tokens different from structured products?**

Structured products are flexible investment instruments that offer an attractive alternative to direct financial investments (such as stocks, bonds, currencies, etc.). Thanks to their flexibility, structured products allow for the creation of investment solutions that are suitable for different risk profiles and market expectations, even in demanding market environments. New, next-generation structured products can now be utilized to give access to a myriad of digital assets.

Tokens, on the other hand, are digital assets themselves, and are not necessarily considered financial instruments. Both structured products and tokens can be used for similar purposes, but the two are not the same thing. Tokens also live on the blockchain, while structured products are financial products that live in the banking system, and asset managers, banks, and professional investors use them in their daily lives to get access to assets and markets.

- **What are advantages of securitization vs. tokenization?**

I think that within today's investment landscape, one could make use of both, as they are each tailored to different purposes and clientele.

"The potential for institutional inflows is monumental once large-scale/institutional investors gain access to an infrastructure-compatible gateway into the crypto world."

A token offering, for instance, is limited to investors that can handle the complexity of crypto wallets. At this stage, most crypto wallets are best suited for retail investors that usually invest in small ticket sizes. With the help of securitization services (this is where we come into the picture), you can now take a crypto portfolio or a portion of any token and convert it into a traditional financial structured product. This "real" security is now suddenly made available to banks, family offices, pension funds, high-net-worth individuals etc. So, big investors who generally do not make use of digital wallets are, thus, granted the opportunity to actively participate within the crypto market.

- **What makes securitization attractive to traditional market participants?**

Institutional investors can invest in new assets with their proven and compatible form of investment. Structured products are investment instruments that are very familiar to traditional market participants. So, institutional investors can finance a crypto venture, and serve as a strong, key member of the project supporters' community, all while using the same daily financial instruments that they are already used to. This is a wonderful example of how structured products and tokens complement each other. At GENTWO, we firmly believe that this setup will not only grant access to but actively attract investors of the highest caliber. We're essentially allowing the investor to choose which format he or she prefers: a fully digital asset that lives on the blockchain and in a digital wallet or a traditional investment certificate (structured product) that lives in your bank account and represents a digital asset. Securities are issued through a tailor-made and segregated issuance vehicle that is unique and stays off of a client's balance sheet. With this design, the so-called issuer risk is (by default) eliminated.

- **As someone who works with many structured products on a daily basis, what would you personally invest in?**

I personally currently hold 27 different coins and tokens in my crypto portfolio. If I were to create my own structured product, I would most probably turn my portfolio into a so-called Actively Managed Certificate (a structured product with an actively managed strategy behind it) and make it available for qualified investors. This is actually one of our most common use cases at GENTWO Digital – traditional or crypto asset managers who utilize us to turn their strategy into an investable asset. Our platform provides the tools to facilitate the process from start to finish, from converting the AMC into a Swiss-compliant security to getting a Swiss ISIN. All within 5 to 15 business days.

Just to be clear, this is my personal view; cryptocurrencies are highly volatile, and it's important to remember that while there are attractive return opportunities, you have to be willing to expose yourself to high risk and the chance of losing your principal if you choose to embrace crypto investments.

- **What is the biggest opportunity for entrepreneurs who want to make a successful business in the crypto space?**

"All market participants from asset managers to crypto start-ups can now easily convert digital assets into bankable financial products."

Today's digital world is quite literally at our fingertips. I would encourage entrepreneurs to try to look into the future and play around with connecting the dots between what is present and what is possible. Making use of and/or sometimes just breaking up and reshuffling certain dots can make all the difference.

I also think that making crypto-based services or applications so accessible that an individual user does not even realize that he or she is interacting with a blockchain-powered product or service still remains the biggest challenge for mass adoption, and therein lies the biggest potential for entrepreneurs within the crypto space.

- **What should entrepreneurs be aware of?**

As always, everything starts with a good business case, a business plan, and a good execution strategy – I'd say that applies regardless of whether or not you throw blockchain into the mix. Once you've laid that foundation, you now need to evaluate how to use and leverage blockchain technology for your specific case. Also, and I can't stress this enough, ask yourself if it even makes sense, because in most cases blockchain alone probably won't be the sole, magic ingredient that will ensure your business' success.

- **What is the biggest threat to the crypto space?**

I would say a lack of understanding and public disinterest. If people fail to recognize or acknowledge the benefits, value and possibilities of cryptocurrencies, Bitcoin and the like will eventually die out as the hype and fanfare of even the starkest supporters begins to wane.

- **Where do you expect the sector to be at the end of 2020?**

It looks as though 2020 is set to be the year where blockchain technology may (for the first time) reach billions of people at once, as big tech firms like Facebook become active participants within the space. I think this will mark the real start of the Internet 2.0, with the potential to usher in an era of trust and digitized value. Decentralized services will definitely help shape the future development of this planet.

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Fireside with Nick Szabo on Scaling Bitcoin

"There's going to be some situations where a central bank can't trust a foreign central bank or government with their bonds for example. One solution that's been developed is to have the Swiss government hold it for you – that's not a trust minimised solution. The Swiss government itself is subject to political pressures and so a more trust minimised solution is cryptocurrency."

Nick Szabo

Key Takeaways

- **Just for the record, Nick Szabo thinks that Bitcoin is digital gold, not digital cash.**
- **According to Szabo, Bitcoin is more secure that Ethereum.**
- **The currency coins that Nick Szabo is interested in are Mimblewimble-based coins and some of the of the privacy coins including Monero, ZCash, and Dash.**

Demelza Hays. Do you think Bitcoin is Turing-complete? What can Ethereum do that Bitcoin can't?

Nick Szabo: *No, the Bitcoin main chain is not Turing complete. It does have a Turing-complete sidechain called RSK. Ethereum's programming language can do open-ended loops for example (up to gas limits) and Bitcoin main chain (layer 1) can't. Programming Ethereum or RSK gives you the full expressive power of programming whereas programming on the Bitcoin main chain does not. This makes Bitcoin safer and is more appropriate where the main functionalities are store of value and medium of wealth transfer but makes Ethereum and RSK better for smart contracts.*

"If Bitcoin is a hedge against the legacy financial system, Monero/Grin/privacy coins is a hedge against state crackdown on Bitcoin. This is even more important in countries where you risk physical harm for engaging in free speech."

Willian Casarin

Nick Szabo speaking with Richard Olsen at Money Museum in Zurich, 2016, Source: Google Images.

Demelza Hays: Do you think Bitcoin is digital cash or digital gold? In ten years from now do you think that we will be paying for our coffees with Bitcoin or some derivative of Bitcoin? I think Bitcoin and gold are too inelastic to be used as a unit of account. As the coinbase reward tapers, to you think the Bitcoin main chain will have many transactions with a small fee or do you think there will be few transactions with large fees?

In my opinion, setting an artificial data size limit for each block is similar to the government setting a price ceiling or floor on a good or service. I would allow the block size to be determined each block by the miners. This would be more similar to the free market. If the miners make the size too small in an attempt to earn more from fees, then users will switch to other blockchains that are a substitute service. If the miners make the size too large and certain miners gain an advantage because they can propagate blocks faster then users will switch to a substitute service.

Nick Szabo: *Layer 1 is digital gold and Layer 2 is digital cash (among other*

things it can be — RSK is an example of Layer 2 for smart contracts).

"The gold standard (along with silver) existed for thousands of years, until 1971, is considered a "fringe fantasy" only by ivory tower whack-jobs and their media parrots."

Nick Szabo

Demelza Hays: Over the past decade, the correlation between Bitcoin and gold has been between positive 0.2 and negative 0.2 and has a slightly positive uptrend at the moment. Since some of gold's demand comes from non-monetary purposes such as jewelry and industry, we argue that gold will always be less volatile than Bitcoin in terms of purchasing power of real goods and services over time. We have an investment strategy which intends to arbitrage between Bitcoin and gold. As Bitcoin becomes relatively expensive to gold, we sell Bitcoin and buy gold, and vice versa. Do you think the correlation in returns between gold and Bitcoin will go up in the future?

Nick Szabo: *Very probably yes.*

Demelza Hays: Are there any blockchain projects that piqued your interest recently?

Nick Szabo: *The various Mimblewimble-based coins, some of the other privacy coins (Monero, ZCash, Dash), RSK (an Ethereum-like sidechain for Bitcoin).*

Resources To Learn More

In the October 2018 edition of *The Crypto Research Report*, we discuss smart contracts and Ethereum's Turing-complete script.

In the *April 2019 edition of The Crypto Research Report*, we discuss Mimblewimble protocol, and privacy coins that use Mimblewimble.

Demelza Hays: Where do you see the US in ten years from now? Do you see Libra and Bitcoin competing or do you see a David Crowley-style Gray State?

Nick Szabo: *I suspect Libra will get buried under a political blizzard and doesn't stand much of a chance. It would compete far more with payment systems like PayPal, and is more akin to things like Tether, than it would compete with or is akin to Bitcoin.*

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The Report

As a sister report to the internationally acclaimed In Gold We Trust report, the Crypto Research Report brings the same quality and rigor to understanding the cryptocurrency market. The Crypto Research Report is a report produced by Incrementum AG.

The Company

Incrementum AG is an owner-managed and fully licensed asset manager & wealth manager based in the Principality of Liechtenstein.

What makes us stand out in the asset management space? We evaluate all our investments not only from a global economic perspective but also by taking into account global monetary dynamics. This analysis produces what we consider a truly holistic view of the state of financial markets. We believe our profound understanding of monetary history, out-of-the-box reasoning and prudent research allows our clients to prosper in this challenging market environment.

Advisors

In order to provide accurate information on the most important and recent updates in the crypto space, a diverse team of thought-leaders, academics, and finance experts form our board of advisors. The mission of our board is to stimulate discussion on the most pressing risks and opportunities in the cryptocurrency market. Our advisors come from different countries, different education paths, and different careers. However, they all have one trait in common: their avid interest in the blockchain technology and cryptocurrencies. To stay up to date, the advisory board meets on a regular basis to discuss current affairs and the next quarter's outlook. All meeting minutes are posted as a transcript and released for free on our website at www.CryptoResearch.Report. Our board members include:

Max Tertinegg

Max Tertinegg is the CEO and co-founder of Coinfinity in Graz. Since 2014, Mr. Tertinegg has worked with merchants, investors, and regulators in Austria to build a cryptocurrency community. Currently, he is working on cryptocurrency storage solutions that are affordable and easy to use. In cooperation with the State Printing House of Austria, Coinfinity has designed a "Card Wallet" that is a bearer paper wallet for Bitcoin.

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Based in Vienna, Oliver Völkel is a partner at Stadler Völkel Attorneys at Law. He assists corporations and banks in all stages of capital market issuings and private placements (national and international). His focus is on new means of financing vehicles (initial coin offerings, initial token offerings) and drafting and negotiation of cross-border facility agreements and security-documentation, also in connection with cryptocurrencies and tokens. Mr. Völkel also advises on other cryptocurrency related banking matters, regulatory matters, capital markets regulation, general corporate, and corporate criminal matters.

In case you have missed our last Crypto Research Report and you would like to have a pleasant reading please follow the links below.

Crypto Research Report – December 2017 Edition

- Introduction to the Blockchain Technology and Cryptocurrencies
- U.S. Regulated Bitcoin Derivatives: Blessing or Curse?
- Constructing a Cryptocurrency Index
- Taxation of Cryptocurrencies in Europe
- Farewell 2017: Year of ICOs, Hard Forks, and Upward Trends

Crypto Research Report – March 2018 Edition

- In Case You Were Sleeping: Ikarus Edition
- Bubble or Hyperdeflation?
- Coin Corner: War Within Bitcoin
- Technical Analysis: Is a Crypto Winter About to Start?
- Crypto Concept: Fork
- 10 Facts About Max Tertinegg, the CEO of Coinfinity
- Incrementum Insights: How Will Cryptocurrencies Change Finance

Crypto Research Report – June 2018 Edition

- In Case You Were Sleeping: Wall Street Is Getting Ready
- Crypto Concept: Consensus Mechanisms
- Competing Currencies and Digital Money: How Hayekian are Cryptocurrencies?
- Coin Corner – Blockchain 3.0 The Future of DLT?

Crypto Research Report – October 2018 Edition

- In Case You Were Sleeping: Cell Phone Theft Edition
- Crypto Concept: Smart Contracts
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- Coin Corner: ETH, NEO, ADA, & EOS
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- In Case You Were Sleeping: Crypto Winter Edition
- Crypto Concepts: Custody Solutions for Crypto Currencies
- A Bitcoin Standard? Saifedean Ammous Musing with the Crypto Research Report
- Institutional Requirements for an Investible Crypto Index
- Equity Tokens
- Legal Challenges for Blockchain-Based Capital Markets

Crypto Research Report – April 2019 Edition

- In Case You Were Sleeping: When the Tide Goes Out...
- Gold & Bitcoin: A Crypto Strategy, also for Institutional Investors
- Technical Analysis: Spring Awakening?
- Crypto Concepts: Cryptocurrency Mining in Theory and Practice
- John Tromp: Making Computer Science Great Again

Crypto Research Report – July 2019 Edition

- In Case You Were Sleeping: The Facebook Edition
- Libra: The End of the State Money Monopoly?
- Coin Corner: Ripple Labs Inc. and XRP
- Fireside Chat with Nick Szabo on Scaling Bitcoin

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