# A Rebuttal to Roubini

In October 2018, Nouriel Roubini, an influential economist based in the US, testified before the US Senate Committee on Banking, Housing and Community Affairs on the topic of "Exploring the Cryptocurrency and Blockchain Ecosystem". His testimony was exceedingly negative.

At SEBA, our aim is to promote Blockchain and cryptocurrency towards mainstream adoption, and to that end, we have prepared and offer the following commentary on Roubini's crypto and blockchain views.

## Executive Summary

- *Misunderstood nature of Blockchain* – Roubini holds Blockchain as "the most over-hyped and least useful technology, in practice nothing better than a glorified spreadsheet or database". This opinion leads us to believe Roubini has little appreciation for what Blockchain enables for the first time in human history: The **permanent** recording of information in such a way that the data cannot be tampered with or manipulated. Accordingly, decentralization is not a (self-serving) ideology; it is an architectural feature that ensures data integrity. And the more decentralized a Blockchain is, the safer it is and the more integrity it has.

- *Backward-looking stance* – Roubini notes massive obstacles stand in the way of mainstream adoption of Blockchain, that Bitcoin's only real use is to facilitate illicit transactions and that ICOs serve little purpose other than to skirt securities laws. At SEBA, we believe the scalability concern is a result of where we are on the innovation curve. Blockchain is an embryonical technology the merit of which should be assessed anticipating how it will evolve (and not statically or backward-looking), and that the use of Bitcoin is evolving and today supports licit transactions. Market selection is at work to discriminate scam ICOs from worthy business propositions (a momentum backed up by the authorities via regulation), making ICOs a sustainable mechanism for raising funds and fueling a new asset class. Similarly, crypto is not the Internet, nor will it ever be. Crypto and digital assets are a result of the evolution of the Internet, where the ability to transfer value is built into the backbone or the core of the 'operating system' if you will. We believe this feature is the fundamental Killer App that crypto enables.

- *Surprisingly superficial analyses* – Throughout his testimony, Roubini's statements are more sensational than scientifically underpinned. Thus, a (financial) bubble is always defined in terms of a diverging relationship between the asset value and the asset's intrinsic value or its fundamental drivers, but Roubini does not provide any view about the notions of intrinsic value or fundamental value drivers for crypto assets. Instead, our perspective is that the ICO bubble and the crypto/Blockchain euphoria - the euphoria that something big is coming, the realization that it's going to take longer than hoped – are more of a bedding in and getting on with the evolution of this new technology. Similarly, while forks have produced other versions of cryptocurrencies that may or may not survive long term, the algorithm of the Bitcoin protocol remains set to produce no more than 21 million Bitcoin. Finally, statements around damaging energy consumption should be made with a net as opposed to gross view (elimination of central intermediaries, re-use of heat, etc.).

- *Evolution rather than Revolution* - Roubini observes that Bitcoin is partially decentralized and lacks security and that in "crypto land", there are none of these institutions that provide security in the traditional sense. We think the revolutionary design of the early visionary evangelists is unsurprisingly leading to a more realistic evolutionary approach in practice, where the old coexists with and evolves towards the new. At SEBA, our model proposes to perform the same job today that traditional banks have performed for centuries: The job of protecting assets. But our approach is slightly different in that we want to be the amplifiers of knowledge and wealth, rather than keeping our knowledge of wealth creation close to our chest. Roubini also notes that Bitcoin and other crypto assets have failed to service monetary functions. We prefer to think Bitcoin and other crypto assets have facilitated "digital barter" and, with it, real transactions denominated in real units of account. Furthermore, the reliability of Fiat money to function as a stable store of value is not always certain, as evidenced by historically and current hyperinflations or significantly prolonged inflations. Let's also not forget that in 1913, a person with UD$100 could buy the same amount of food, clothing, and other necessities as US$2,529 would buy today.

## Statement Analysis

Following is an analysis of Roubini's testimony, divided into statements with evidence and an assessment of each:

| Statement |
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| Bitcoin and other cryptocurrencies represent the mother of all bubbles |
| **Evidence** |
| • Roubini provides episodical evidence related to personal interaction ("every human being I met between Thanksgiving and Christmas of 2017 asked me first if they should buy them"), refers to the level of education of such people ("Folks with zero financial literacy", "charlatans"), and to the people marketing cryptocurrencies ("Scammers, swindlers, criminals, insider whales and carnival barkers (all conflicted insiders").<br>• Roubini also gives statistical hints - rudimentary in nature ("increase of Bitcoin and other crypto junk-coins was 2X or 3X bigger than previous bubbles" and to the fact that "Alt-coins have lost on average 95% of their value since the peak". |
| **Assessment** |
| • The statement is more sensational than scientifically underpinned. Bitcoin's and other crypto assets' prices have been significantly volatile. But this event alone is not sufficient to support a 'mother of all bubble' statement. A (financial) bubble is always defined in terms of a diverging relationship between the asset value and the asset's intrinsic value or its fundamental drivers. Roubini does not provide any view about the notions of intrinsic value or fundamental value drivers for crypto assets needed to assess the presence of a bubble.<br>• Instead, our perspective is that the ICO bubble and the crypto/Blockchain euphoria - the euphoria that something big is coming, the realization that it's going to take longer than hoped – are more of a bedding in and getting on with the evolution of this new technology. We agree that a number of alt-coins of dubious legal and business legitimacy were launched, and that this explains why their value has plummeted in most of the cases. |

| Statement |
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| Blockchain is the most over-hyped – and least useful - technology in human history: In practice it is nothing better than a glorified spreadsheet or database |
| **Evidence** |
| • The only applications of Blockchain have nothing to do with blockchain. They are private not public, they are centralized not decentralized, they are not distributed. Centralized private permissioned databases are no improvement over using an Excel spreadsheet.<br><br>• Roubini lists the massive obstacles standing in the way of mass adoption: Lack of common and universal protocols and the very significant inefficiency compared to existing databases (storage space, computational power). |
| **Assessment** |
| • We believe that Blockchain is an embryonical technology the merit of which should be assessed anticipating how it will evolve (and not statistically or backward-looking). Secondly, there are features that make Blockchain-based databases fundamentally distinct from Excel, for example the fact that once recorded, the information cannot be modified) which Roubini seems to completely ignore.<br><br>• We agree that Blockchain applications today are hardly competitive with traditional information-handling applications. The first mobile phones were equally not competitive compared to traditional landlines and the first electric cars were equally not competitive compared to traditionally propelled cars, and so on.<br><br>• Roubini does not seem to appreciate what Blockchain enables for the first time in human history: The **permanent** recording of information in such a way that the data cannot be tampered with or manipulated. And he doesn't appreciate that Blockchain is a new model of globally serving up technology, not constrained by private enterprise and business services being created and delivered to the marketplace via companies. |

| Statement |
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| Crypto is not money |
| **Evidence** |
| • Roubini notes that a currency should be a serviceable unit of account, means of payments, and a stable store of value, that crypto is none of those things and that the idea that hundreds of cryptocurrencies could viably operate together contradicts the very concept of money with a single numeraire. |
| **Assessment** |
| • We agree that Bitcoin and other crypto assets cannot today be considered money because they are not backed by a state (not legal tender) and it is true that their ability to serve the functions normally attributed to and serviced by Fiat money is poor.<br>• However, we note that Bitcoin and other crypto assets have allowed "digital barter" and, with it, real transactions and a real unit of account, and the reliability of Fiat money to function as a stable store of value is also not certain. The people of Argentina have recently suffered significantly with high inflation and there have been many episodes of hyperinflation over the last century. And then there is significantly prolonged inflation: In 1913, a person with $100 could buy the same amount of food, clothing, and other necessities as $2,529 would buy today.<br>• At SEBA, we believe Bitcoin (BTC) has properties that allow it to perform well as a store of value: The supply cannot be manipulated in the same way that the supply of Fiat currencies can, the supply is limited to 21 million, and it has a stock to supply ratio that is more favorable than that of Gold. |

| Statement |
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| Until now, Bitcoin's only real use has been to facilitate illegal activities such as drug transactions, tax evasion, avoidance of capital controls, or money laundering |
| **Evidence** |
| • Roubini emphasizes that G20 member states are now working together to regulate cryptocurrencies and eliminate the anonymity they supposedly afford. |
| **Assessment** |
| • Bitcoin, in its infancy, almost exclusively supported illegal activities. Its first application to a market place was the infamous Silk Road. However, the use of Bitcoin has since evolved and supports today completely legit transactions in legit marketplaces. We fully support efforts to regulate and supervise crypto transactions with the goal to marginalize and eventually identify and stop illicit crypto transactions |

| Statement |
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| The supply of crypto is massive |
| **Evidence** |
| • Roubini notes that Bitcoin has a steady-state supply of 21 million units, but also that such claim is clearly fraudulent, considering that it has already forked off into several branches and spin-offs. Moreover, hundreds of other cryptocurrencies are invented every day, alongside scams known as "initial coin offerings," which are mostly designed to skirt securities laws.<br><br>• He goes on to say that at least in the case of Bitcoin, the increase in supply is controlled by a rigorous mining process and the supply is capped – at the limit – to 21 million bitcoins. Instead, most other alt-coins starting with the leading ETH, have an arbitrary supply that was created via pre-mining and pre-sale. |
| **Assessment** |
| • If, under 'crypto', Bitcoin and alt coins are subsumed, including all crypto assets yet to come, then the supply of crypto is truly and potentially massive and dynamic in nature.<br><br>• While forks have produced other versions of cryptocurrencies that may or may not survive long term, the algorithm of the Bitcoin protocol remains set to produce no more than 21 million Bitcoins and so Bitcoin itself is a mathematically scarce digital asset. |

| Statement |
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| The real revolution is in FinTech and has nothing to do with Blockchain |
| **Evidence** |
| • Roubini argues that the financial-services industry has been undergoing a revolution and the driving force is not overhyped Blockchain applications such as Bitcoin, but instead AI, Big Data, and the Internet of Things.<br>• This real and ongoing FinTech revolution has nothing to do with Blockchain or cryptocurrencies. |
| **Assessment** |
| • We agree that FinTech is a far broader remit than Blockchain and crypto assets, which is at best a small subset of FinTech, and that the broader FinTech revolution or digital transformation is currently having a much bigger impact than Blockchain and crypto assets.<br>• However, we note a fundamental difference between Blockchain and the rest of FinTech technologies and applications. The difference is in the properties of the underlying technology, which, as described above, distinguish Blockchain from Excel and other database programs, and is not reducible to non-Blockchain based digitalization.<br>• There is also innovation outside of the silo of Financial Services/FinTech and that is the innovation that is crypto & Blockchain. |

| Statement |
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| Blockchain cannot have at the same time scalability, decentralization and security |
| **Evidence** |
| • Roubini observes that Bitcoin is partially decentralized – even if its mining is now massively centralized – but it is not scalable given its proof of work (PoW) authentication mechanism. And it is secure – so far – but at the cost of no scalability. And since its mining is now massively centralized – as an oligopoly of miners now control its mining – its security is at risk. PoS and other authentication mechanisms that are scalable are much worse, leading to bigger concentrated oligopolistic cartels and thus lack of security.<br><br>• In crypto land there are none of these institutions that provide security: no deposit insurance, no lender of last resort backstop, no insurance of hacked and stolen funds. And the breaches of security are massive and escalating. Centralized exchanges that hold the cryptocurrencies of millions of depositors can be and have been hacked on a regular basis. |
| **Assessment** |
| • We think the revolutionary design of the visionary crypto evangelists is unsurprisingly evolving rapidly to a more realistic evolutionary approach, where the old coexists with and evolves into the new.<br><br>• At SEBA we're doing the same job today that banks have performed for centuries, in that we are safeguarding assets. You once took your coins to a depository to have them stored and you were given a note stating your wealth. SEBA is providing the same service within a modern context, by providing crypto custody storage.<br><br>• We do not believe that scalability is a long-term issue. While it is a problem today, over time scalability becomes less and less of an issue because a multitude of new innovations will enter the market to solve this issue. The scalability concern of today is more a result of where we are on the innovation curve.<br><br>• We do view the centralization affecting the governance of decentralized protocols as a potential issue. But we also believe that authentication protocols will evolve and allow more contributors to actively authenticate, delivering on the promise of true decentralization. |

| Statement |
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| Crypto is not the Internet nor will ever be |
| **Evidence** |
| • Roubini observes that the WWW went live in 1991 and by 2000 – nine years later - it already had 738 million users; and by 2015 the number of users was 3.5 billion. He further notes that Crypto has been around for over a decade now and in 2018 the number of crypto wallets was only 22 million and out of this figure, the number of active Bitcoin users is only between 2.9 and 5.9 million and falling.<br>• Successful new technologies have a few key features: Exponential increase in the number of users, exponential increase of the number of transactions, sharp and persistent fall of transaction costs. Crypto land is just the opposite. And after over a decade, crypto land has not a single killer app. |
| **Assessment** |
| • We do not disagree with this account, but we believe it is entirely backward looking.<br>• Our forward-looking point of view is that crypto and digital assets are *the next evolution of the Internet,* an enhanced Internet where the ability to transfer value is built into the backbone, or the operating system, if you will.<br>• We believe this feature is the fundamental killer app: The ability provided by Blockchain for humans to transfer value instantly, without borders and limits to divisibility. |

| Statement |
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| ICOs are not compliant securities when they aren't outright scams |
| **Evidence** |
| • ICOs serve little purpose other than to skirt securities laws that exist to protect investors from being cheated. And are characterized by massive manipulation: pump and dump, spoofing, wash trading, front running, exchanges' conflicts of interest, the tether scam, etc. |
| **Assessment** |
| • We do not disagree fundamentally with this account of what has happened.<br>• We note that market selection is already at work, discriminating scams from worthy business propositions and that this momentum is fully backed and significantly influenced by the authorities via regulation and by the industry via self-regulation.<br>• We believe that ICOs serve a real purpose in the new economy and will become a viable mechanism for raising funds filling a gap between VC and IPOs, and will represent a new asset class, and so we look forward to participating in the maturing of the market. |

| Statement |
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| The energy consumption of crypto is an environmental disaster |
| **Evidence** |
| • None |
| **Assessment** |
| • The consumption balance should be netted and not examined from a gross perspective. For example, while crypto mining does consume significant energy, the heat produced as a byproduct is recycled and reused.<br>• The generation of other asset classes is at least equally if not far more energy consuming than mining cryptos, for example Gold.<br>• There is a cost to validation regardless of what form of money humanity may decide to put its faith in. Literally hundreds of financial institutions employing tens of thousands of people currently perform the function of intermediary authentication, and so an 'apples to apples' comparison would need to factor in all of the energy these companies consume in order to provide these services today. |