

Investor Letter 2020

The logo for Stone Ridge is a dark teal square. In the bottom right corner of the square, the words "STONE" and "RIDGE" are stacked vertically in a white, serif, all-caps font.

STONE
RIDGE

SHAREHOLDER LETTER

This is the shareholder letter included in the 2020 annual report for our mutual funds.

“There is an infinite amount of cash in the Federal Reserve.”

– Neel Kashkari, President of the Federal Reserve Bank of Minneapolis, March 22, 2020

“We’re not even thinking about thinking about raising rates.”

– Jerome Powell, Chairman of the Federal Reserve, June 10, 2020

“The network is robust in its unstructured simplicity.”

– Satoshi Nakamoto, “Bitcoin: A Peer-to-Peer Electronic Cash System”, October 31, 2008

“Life, uh, finds a way.”

– Dr. Ian Malcolm, Jurassic Park (1993)

“If the opponent does not move, then I do not move.

At the opponent’s slightest move, I move first.”

– Wu Yu-hsiang, 19th Century Chinese sage

“Nowhere will you find the statue of a critic or the biography of a committee.”

– Banksy

December 2020

Dear Fellow Shareholder,

Shortly before the genius David Foster Wallace died, he delivered a college commencement speech that opens with a beautiful critique of our “default setting.”

“There are these two young fish swimming along and they happen to meet an older fish swimming the other way, who nods at them and says ‘Morning, boys. How’s the water?’ And the two young fish swim on for a bit, and then eventually one of them looks over at the other and says, ‘What’s water?’”

Wallace goes on to teach us that sometimes **“the most obvious, most important realities are the ones that are hardest to see.”** For Americans alive today, one of our ‘What’s water?’ questions is ‘What’s money?’. While Wallace asked the graduating seniors that day to think about fish and their relationship with water, I’ll ask you to think with me about our own relationships with money and, as Wallace also asked, **“bracket for just a few minutes your skepticism of the totally obvious”** and reconsider **“what is real and essential, hidden in plain sight all around us all the time.”**

AMERICA AND SOUND MONEY

Our country is blessed with limitless natural resources, giant oceans protecting us on the left and right, and friendly neighbors to the north and south. We’ve got a military that any other country would trade for theirs, a political class constrained by an ingenious system of checks and balances, and a built-in, self-correcting mechanism of free elections. Almost 250 years later, it’s easy to forget how uniquely successful the American experiment has been.

Unsound money just isn’t us, and hyperinflation is something only “other people” sometimes have, right? Indeed, outside of our incredible country, the world has experienced an astonishing 56 hyperinflations in the last ~100 years. This means that in some country, somewhere “over there”, every other year, an innocent population lost their life savings, and certainly their dignity, simply because they stored it in the wrong vessel.

What will continue to make the U.S. different? What will keep our money secure? Our departure from the gold standard is a recent phenomenon, and the unprecedented money printing by developed nations even more so. Let's explore, together, whether the soundness of our money, or lack thereof, is one of those *"most obvious, most important realities...hardest to see...hidden in plain sight all around us."*

"The Most Significant Monetary Achievement in the History of the World"

President Nixon thundered these words on December 18, 1971, in a surprise weekend national address announcing the Smithsonian Agreement. The Agreement, following another surprise weekend address earlier that year – the "Nixon shock" of August 15th, which took the U.S. off the Gold Standard, replacing it with the Fiat Standard (i.e., U.S.-Government-Paper-Money, or USGPM) – coordinated the simultaneous anchoring of each G-10 currency to USGPM via fixed exchange rates.

Prior to the Nixon shock and the Smithsonian Agreement, and as motivation for them, Nobel Prize winners and politicians were convinced that gold gave no value to U.S. dollars, rather U.S. dollars gave value to gold. Thus, the U.S. could safely go off the Gold Standard and, correspondingly, the G-10 could safely peg their currencies to USGPM.

"Every expert knows that the popular conception that money has more value if it is exchangeable into gold exactly reverses the true relation. Were it not that gold has some monetary uses, its value would be much less than it is today (\$35/oz)."

– Paul Samuelson, Nobel Prize winner

"When the U.S. government stops wasting our resources by trying to maintain the price of gold, its price will sink to \$6/oz rather than the current \$35/oz."

– Congressman Henry Reuss

In a little over a year, this "most significant monetary achievement" smashed apart on the rocks of economic reality. Instead of gold crashing to \$6/oz, by early 1973 it was USGPM that crashed to \$125/oz, a level unthinkable to Samuelson's "every expert" and to U.S. Congressmen. As USGPM crashed, the G-10 began to see the "P" in USGPM for what it was and, one by one, quietly abandoned the Agreement. Far from a temporal fluke, in the ensuing 50 years, USGPM has depreciated versus gold ~8%/year. P is P.

WHAT IS MONEY?

Money is, and has always been, technology. Specifically, money is technology for making our wealth today available for consumption tomorrow. Modern Americans with a 'What's water?' mindset about money – virtually all of us – assume there is a sharp line of distinction between what is money and what is not. That's false. Instead, throughout history, various monies (note: plural) have always existed¹ – simultaneously – along a continuum of soundness, subject to competitive monetary network effects. Sound money – along with language – were the first, and have forever been the most important, human networks responsible for human flourishing. Imagine life without them.

Money is unique among all the goods we seek because we value money not for its own sake, but rather solely for its prospective exchange utility. That's a fancy way of saying we hope it keeps its value long enough to enable us to trade it in the future for stuff we actually want. The question of which money humans will choose, therefore, boils down to which good, or goods, any individual believes will best store the sum total of their lifetime of daily labor (i.e., their life force).

Because the most important trades we make are the ones we make with our future selves, humanity's Darwinian propulsion towards holding the soundest money possible is based on our intuitive understanding that the longer our choice of money can hold its value, the greater the potential compounding benefits of our life-to-date-production. Our timeless search for ever-sounder money is an individual, intuition-based optimization – as unstoppable as evolution – because we instinctively know that our survival is at stake. Will our life force be durably storable in a particularly well-chosen money, and therefore potentially accumulate, enhancing our potential longevity? Or will it dissipate, no matter how hard we work, because we chose the wrong storage vessel, threatening our very lives and those of our progeny?

¹ For example, beads, shells, cattle, salt, silver, gold, cigarettes in all prisons, tampons in women's prisons, gift cards, and airline miles, just to name a few. The key point is that monies are a) always plural, and b) ever changing, ideally slowly, to facilitate the development of civilization.

“LIFE, UH, FINDS A WAY”

Since its founding in 1913, the Federal Reserve (“Fed”) has upended our Darwinian propulsion.

Temporarily.

The entire edifice of modern central banking – unbacked helicopter money² – is like one gigantic helicopter parent, never letting their child suffer “the blessing of a skinned knee.”³ When the Fed doles out billions, or trillions, of USGPM, it has the immediate effect of helping the favored few who first receive it, directly or indirectly, plus *all* pre-existing financial asset owners, at the expense of everyone else. When Chairman Powell says, “Inequality is... not related to monetary policy,” I believe he would pass a lie detector test. That doesn’t mean it’s true.

Beyond the fundamental unfairness of both its temporal and, ultimately, uneven distribution, GPM leaves the fidelity of an economy’s relative price signals in tatters. Prices matter. In a Waze-like manner, prices guide billions of economic turns a day – constantly updating based on new, real-time information – made individually by billions of humans around the world, 99.999%+ of whom don’t know each other, will never meet each other, and almost certainly don’t realize that price signals – distorted or not – coordinate their actions, for better or worse.

Then-Fed Chairman Bernanke in 2009 succinctly and honestly, if shockingly, referred to the Fed’s money creation process via commercial bank intermediation by saying, “we simply use the computer to mark up the size of the account they have with the Fed.” The money so a) “created” is then b) multiplied – because only fractional bank reserves are required – and then c) lent out by banks:

First, as discussed, impairs the fidelity of economy-wide price signals, thereby,

Second, inefficiently draws human and capital resources into activities that cannot be lastingly maintained, thereby,

Third, drives temporary illusions of relative prosperity in certain economic segments, and despair in others, and therefore,

Fourth, leads inevitably, and repeatedly, to booms and busts.

Modern central banking is the cause of severe economic downdrafts, not the cure. By giving in to the clamor for ever more abundant and ever cheaper money, central banks cripple the role of the wisest regulator, the market, of the most important mechanism for efficient, economy-wide allocation of capital: relative prices of sound money.

In the same way a stock certificate is title to company capital, money is title to human time. People sacrifice their time for money, which enables them to trade for commensurate sacrifices from others. When prices are distorted, we are each inhumanely robbed of making fully informed personal choices with our time.

If you give anyone the power to print money, they will print money. A tool that can command human time is an object of great temptation. Too great. I don’t question that central bankers are well-intentioned – I strongly believe they are – but I also know what Lord Acton said about absolute power. It’s human nature, not finance or politics.

Just like certain offspring of helicopter parents – those underemployed, glassy-eyed 25-year-olds living in their parents’ basements – who have neither the will, nor ability, nor, in some cases, even permission to leave, the offspring of central bank helicopter money – certain over-levered, glassy-eyed companies in certain segments of over-money-supplied industries – cannot survive without ongoing access to the essentially free USGPM they indirectly borrow. Like the smooth-kneed 25-year-olds, those over-moneyed zombie firms have neither the will (“when USGPM is free, why bother with financial discipline?”), nor ability (“our business model doesn’t work at higher interest rates”), nor, in some cases, even permission to leave (“you bail us out because we employ so many voters, or because we intermediate and credit-multiply your monetary policy”).

USGPM facilitates political concession after concession, stimulating ever new expectations of further bounty, making the process itself self-accelerating. Even those in government who genuinely want to avoid printing paper money and handing it out, find it impossible to stop the system. The bottom line: without the rigid barrier of strictly limited funds – that is, with non-scarce money – nothing will stop indefinite growth of government expenditure,

² Following Ben Bernanke’s famous November 2002 speech referring to “helicopter (drop of) money”, dozens of central bankers, public and private economists, and government officials have subsequently used this term or an equivalent, including “QE for the people.”

³ The Blessing of a Skinned Knee: Raising Self-Reliant Children, Wendy Mogel (2008).

untethered to the future generational tax burden it is simultaneously exploding and expropriating. No wonder millennials feel the game is rigged against them.

It is.

We now exit 2020, with government money printers around the world going “brrrrr”, cranking out insert-country-name-here-GPM by the ton, flying downhill like a Nikola truck with no brakes.⁴

Temporarily.

Any central bank can control the supply of their money. They can't make their people value it.

Enter Bitcoin, because “life, uh, finds a way.”

DARWINIAN PROPULSION

At first glance, geography might seem the least dynamic of sciences, rooted in the glacial-paced realities of geology. Today's global data linkages, however, lie blanket-like atop that slower moving geological layer, their high-velocity networks a new kind of geography. Mathematicians and data architects call the landscape they represent a topology; that is, any kind of map that can be re-arranged due to connection. Unlike geographies, topologies in this context represent “places” with distance **and speed** determining how “far apart” they are. Geographies are constant. Topologies can change in an instant. New York and Tokyo are always 6,731 miles apart – that's geography. New York and Tokyo are **also** about 176 milliseconds apart, **and getting closer** – that's topology.

Every new piece of a network, every new platform or protocol, has the potential to fundamentally alter how we connect. Something far away – including across national borders – can suddenly be, with one innovation, right on top of you. Location can become as changeable as the power of, for example, a new network protocol.

“Locational utility” refers to the knotting together of distance and speed such that something becomes more useful, or powerful, as it's drawn closer by increased connection, even if it remains the same “distance” away. Just as the early architects of steamships, rail, highways, airlines, and networked computers each wildly underguessed how popular their space-time compression inventions would be, Satoshi Nakamoto could not have possibly imagined how popular – and therefore how powerful – his new protocol-powered monetary topology could be.

“The network is robust in its unstructured simplicity”

In many countries, it is illegal for women to have a bank account, or even work, while the men learn, earn, and create independence for themselves. Trapped in a restrictive, oppressive, domestic cage, these women have historically been forced to do as they're told, with no freedom to make a living, develop professional skills, or cultivate a sense of self, let alone create financial independence. Bitcoin is fixing this. Leveraging Bitcoin's growing network, and their smartphones, these women can, and do, find jobs online – secretly for now – and get paid. In Bitcoin. They become copy editors and transcriptionists. They proofread, do data entry, and take surveys. Remotely, and quietly, they do anything that's doable online. Bitcoin offers them an exit option, an off-ramp. Bitcoin demolishes their cage. Today, gradually. Tomorrow, suddenly.

In the hundred-plus countries where our ‘What's water?’ money analogy is as patently obvious to its citizens as it has been utterly invisible to us, primordial forces are being unleashed in a one-way torrent of increasing human liberty, one impoverished, caged human at a time. While lurching in fits and starts for now, the power of the movement – because it rides upon, and accelerates, our Darwinian propulsion towards sound money, and therefore towards survival – is unstoppable.

Fate-changing topological shifts – the Arab Spring, Brexit, Bitcoin – can quickly render the powerful weak, and the powerless strong. Institutions and ideologies that can deliver space-time compression will grow, thrive, and accelerate. Those that cannot, slowed perhaps by their obsession with control over speed, or perhaps by their ***“skepticism of the totally obvious”***, will miss the turn.

Acknowledging, with profound humility, that we are only one firm, a major goal of our Bitcoin-focused affiliate is to help America avoid missing the Bitcoin turn.

⁴ <https://hindenburghresearch.com/nikola/>

MY “BIG FOUR” BITCOIN AHA-MOMENTS

Bitcoin is a journey, not a destination, and everyone is on their own path. Every morning when I study Bitcoin, I find myself deeper in awe, humbled by the power, and potential, of its unstructured simplicity. The more I learn about Bitcoin, the more I realize how much there is to know, and how much I want to know. There's beauty in Bitcoin.

I study Bitcoin standing on the shoulders of giants, pioneers who have come before me and blazed the trail. There have been dozens of moments in my past eight years of morning study when I had to put the book down, or pause the podcast, sitting in stunned silence for a while, after reading or hearing something that I knew immediately would change my worldview forever. If you study Bitcoin intensely, with humility, and are mindful of Wallace's deep wisdom that sometimes *“the most obvious, most important realities are the ones that are hardest to see”*, you will end up seeing a lot you can't un-see. I certainly did. The biggest Bitcoin aha-moments from the past eight years of my early morning ritual, quite a long list difficult for me to curate to just four, are below.

1) Salability across time

Gold has been a reliable store of value because of its scarcity and historically low annual supply growth of only 1-2%/year. There has never been a “gold hyperinflation.” Indeed, gold has held its value over the centuries, while hundreds of other monies have come and gone. However, gold's supply is not impervious to its demand. If, hypothetically, gold went to \$100,000/oz tomorrow (up more than 50x overnight), we can be sure enormous resources would immediately shift to gold mining, and the miners would find some way, somehow, to accelerate its supply growth, driving its value down.

In contrast, there will only ever be 21 million Bitcoin. Bitcoin's annual supply growth, which asymptotically approaches zero over time, is now down to about 1%, on par with the historical annual growth in the supply of gold. While far from perfect, gold is Bitcoin's closest real-world analogy. However, the ultimate supply of Bitcoin is fundamentally limited by the design of the protocol itself and cannot be increased regardless of its value or the level of demand. **Bitcoin is the first store of value in history for which its supply is entirely unaffected by increased demand.** From this perspective, Bitcoin is better at being gold than gold – it's even more salable across time.

2) Salability across space

As we moved beyond traveling by foot and horse, beyond the development of affordable commercial air travel, and then, especially, beyond the internet's Cambrian-like explosion of network power, gold's low spatial salability became an acute flaw even the most ardent “goldbugs” miss. Gold is simply hard to transport. This is where USGPM, or the Fiat Standard in general, shines. Though fiat's periodic, human-nature-induced hyperinflations made it a huge step backward in terms of salability across time, it was a substantial leap forward in terms of salability across space.

However, contrary to common misconception, Bitcoin moves *much faster* across space than fiat, increasing our capacity for long-distance international settlement by about 500,000 transactions a day, and completing that settlement in about an hour, rather than the current state-of-the-art 3-5 days, or longer, for final international fiat settlement. Bitcoin's protocol and network topology renders national borders irrelevant, which is especially empowering to the world's most vulnerable and unprepared for fiat hyperinflations (think: Venezuela, Turkey, Lebanon today).

Even within a country like ours, do not confuse the speed of your Visa payment with its final settlement. No settlement occurs when you buy your coffee at Starbucks. Rather, your bank and Starbucks' bank generally settle 2-3 days later, with each bank taking credit risk to the other along the way, with rare, but occasionally disastrous results. Bitcoin safely settles about every hour and, as a bearer instrument, credit risk is not a concept. From this perspective, Bitcoin is better at being fiat than fiat – it's even more salable across space and, because it's not debt like fiat, has no credit risk.

3) The Difficulty Adjustment

Everything Satoshi did in inventing Bitcoin was non-original – his genius was in seeing how combining a specific set of previously solved problems could, together, solve certain unsolved problems – except the Difficulty Adjustment.

The Difficulty Adjustment, entirely original, is, in my opinion, Satoshi's most underappreciated breakthrough, a truly genius application of game theory, and the fundamental reason why Bitcoin's network has always been secure.

So what is it?

Suppose Bitcoin's price rises, creating an incentive for more Bitcoin miners to mine (remember, successful mining results in Bitcoin rewards, thus the continuous link between Bitcoin's price and the total worldwide mining incentive). In this case, the Bitcoin protocol will automatically raise the difficulty of mining, such that the creation of new Bitcoin, and the timing of transaction verification, does not accelerate beyond its preset schedule (about every 10 minutes). Instead, suppose Bitcoin's price falls, and subsequently higher marginal cost Bitcoin miners rationally turn off their machines. The Bitcoin protocol will automatically reduce the difficulty of mining, such that the creation of new Bitcoin, and the timing of transaction verification, does not decelerate below its preset schedule.

How does the protocol do this? Imagine that I tell you that the product of two prime numbers is a certain three-digit number and I ask you to guess the two primes (and I also remind you that a property of prime numbers is that the product of two primes is uniquely the product of those specific two primes). There is no closed-form solution to my question, which is a fancy way of saying you have to randomly guess until you figure it out. Since I told you the product of the primes is only three digits, you'd probably be able to guess the two primes fairly quickly. However, suppose I told you the product was five digits? How about ten digits? How about twenty digits? You can quickly see how much harder and harder, and then way, way, way harder the random guessing can become.

The Difficulty Adjustment is akin to adjusting the number of digits of the product of the primes as a function of how much mining power is on-line at any given time. The more miners, the greater the number of digits of the product of the primes. The fewer miners, the smaller the number of digits such that, even if all commercial Bitcoin miners, and their combined super-computing power, suddenly went off-line overnight, hobbyists mining on laptops at Starbucks would keep the entire global Bitcoin network **just as secure**. Bottom line: the Difficulty Adjustment was the "missing piece" of decades of previous attempts at decentralized electronic money. It ensures that every 10 minutes a new Bitcoin block is rewarded and all transactions in the interim are accurately and immutably verified. It is what drives Bitcoin's salability across time discussed above: even amidst periods of surging demand for Bitcoin, Bitcoin miners have no ability to mine Bitcoin faster, making unexpected inflation impossible. Forever.

Typical of Satoshi's understated style, the Difficulty Adjustment was described in just two sentences in his original Bitcoin whitepaper: "Mining difficulty is determined by a moving average targeting an average number of blocks per hour. If they are generated too fast, the difficulty increases." As an aside, the Difficulty Adjustment also serves to limit wasted mining energy, further incentivizing miners to mine, but that benefit pales in comparison to its impact making Bitcoin inflation-proof.

The Difficulty Adjustment has now been continuously tested for twelve years, at total global network power levels ranging from just a few laptops, all the way up to enough energy to power New York City, and with lots of total network power volatility along the way. The total network power volatility is what requires the Bitcoin protocol to continually adjust the mining difficulty, akin to continually adjusting the number of digits of the product of the two primes. And, astonishingly, just as Satoshi designed, no matter the global mining capacity, or its variability, a new block is verified every 10 minutes...every 10 minutes...every 10 minutes.

Speaking of energy...

4) Bitcoin's Use of Energy

The amount of energy Bitcoin consumes is the sum total of the energy consumption of all the mining machines that secure the network. While hard to know exactly, a good estimate of the global total consumption is about 8-10 million people worth of energy. Absolutely enormous. In a warming world, how can this be good?

First, the principle: Bitcoin is a better technology for performing central banking than the current government monopolies on central banking. In the same way that cars consume far more energy than the bikes and horses they replaced, and electric lights replaced candles, and central heating replaced chimneys, and computers replaced typewriters, Bitcoin's better monetary system consumes far more energy than the current central

banking system. Throughout history, energy use has grown whenever free people making free choices have decided for themselves that the price of the extra energy for the new technology they wanted was worth it. Today, every day, 24/7, Bitcoiners around the world make the decision that the price of Bitcoin's energy use is worth it because Bitcoin is better technology for money.

Second, the practice: **Bitcoin mining is the only profitable use of energy in human history that does not need to be located near human settlement to operate.** The long-term implications of this are world changing and hiding in plain sight.

Before Bitcoin, the problem of energy has never been its scarcity, but only our ability to channel it geographically where it is needed most. Before Bitcoin, that was exclusively where humans lived. In contrast, Bitcoin's mining energy is solving a different problem. Because of satellites and wireless internet connections, Bitcoin mining can be located anywhere.

For example, remote, destitute areas blessed with moving water can monetize their natural resource good fortune by creating clean, hydro energy and using it to mine Bitcoin. Thus, Bitcoin can make monetizable isolated energy sources all over the world – like waterfalls, running rivers, or creatable dams – now entirely untapped because they would be cost prohibitive to connect to electric grids close enough to residential or industrial areas.

In doing so, Bitcoin can fundamentally change the economics of energy by introducing a highly profitable use of electricity that's location independent. **The world has never had a profitable use of energy that's location independent.** Now it does. And since fossil fuels are already too expensive to be a profitable source of Bitcoin mining energy, I believe the only long-term, profitable Bitcoin mining will be powered by hydro.

Imagine a future with Bitcoin mining firms, unsubsidized, in extraordinarily isolated locations – visualize a waterfall in a largely population-free part of an African country suffering from abject poverty – easily connected to the Bitcoin network, building serious energy infrastructure to monetize the local clean energy source for mining. However, once the industrial-strength, profitable infrastructure is in place, let's extend it. Let's build roads. And housing. And schools. And hospitals. Ultimately leading to human settlement.

The net result can be people locating around new, Bitcoin-driven hydroelectric energy infrastructure, with more and more of humanity clustering around cheap, clean energy sources. **Historically, our energy challenge has been to move the power to the people. With Bitcoin, we can move the people to the power.**

Consider that the world's major population centers – think New York, London, Paris, Tokyo – each developed where they are geographically because of natural seaports, waterways, and trade routes. Energy was a non-factor because placement of these cities was all pre-energy (i.e., pre-fossil fuels).

As Bitcoin finances the for-profit development of cheap, clean energy infrastructure on a massive scale, it can lead to a future in which more and more of the world's population lives near abundant energy with an extraordinarily low marginal cost of production. This matters because cheap energy equals human flourishing. That's an equation. Cheap energy = human flourishing.

Beyond the revolution in monetary policy that Bitcoin already represents, Bitcoin may also represent the biggest catalyst the world has ever known for developing abundant, clean, cheap energy. And, therefore, one of the biggest catalysts in the world for human flourishing.

Can you tell why I'm all-in?

THE MYSTERY OF THE MISSING AMZN MILLIONAIRES & IS IT TOO LATE TO BUY BITCOIN?

Investing in Bitcoin, now exiting its 12th year and especially after a 200%+ return in 2020, is extremely uncomfortable for most everyone, just as investing in Amazon stock (AMZN) was for most everyone following its 12th year as a public company. Even for investors who see the long-term potential of Bitcoin's monetary properties, they may wonder if they are just too late to invest. Did they miss it? Has all the future value been priced in?

I believe our evolutionary biology makes us hardwired to consistently underguess the power of modern, technological network effects, since nothing in our history resembles them. For the vast, vast, vast majority of human time, we

lived in small tribes, entirely unconnected to other humans around the world. Combine this observation with prospect theory, and regret aversion, and we can solve the mystery of the missing AMZN millionaires.⁵ Why do so few Americans today own more than \$1 million of AMZN?

In AMZN's early years, most investors were hesitant to buy it even as they loved using the service, believing each year that they "missed it again," that the price had run away from them. Why? Because in each of those first 12 years, AMZN's high price that year was, on average, 175% higher than AMZN's open price of that year. Whoa. With that kind of price action, it is understandable why, year after year, investors thought they "missed it again." Yet, though understandable, year after year investors were, with high consequence, very wrong: in the ensuing 12 years – years 13 through 24 – AMZN increased 62x.

Bitcoin is now 12 years old. What will one Bitcoin be worth 12 years from now? \$100,000? \$500,000? \$1,000,000? \$100? I have absolutely no idea whatsoever about Bitcoin's future price. However, I strongly believe that the centralized class will continue to significantly underguess the appeal, and therefore likely the price, of a decentralized monetary network to the rapidly emerging decentralized class – us Bitcoiners – just as they significantly underguessed the power of Google and Facebook and Netflix and Amazon every year for decades, and even as they loved those services and used them daily.

From a valuation framework perspective, I believe Bitcoin should be viewed identically to those network business models – the value of the network growing with the number of users⁶ – except for two major differences. First, money is primordially more important, in a way, than even the most hilarious on-demand cat videos, or same-day delivery of any product we want, will ever be – there is no comparison. Second, Bitcoin lacks the possibility of antitrust enforcement. Ever. No matter how big and no matter how valuable it gets.

Nor can Bitcoin ever be globally confiscated. Yes, individual countries can attempt to confiscate Bitcoin and, over time, some may try, just like gold was confiscated by the Gold Reserve Act in the U.S. in January 1934, nine months after FDR's April 1933 Executive Order made it a criminal offense for U.S. citizens to own it or trade it.⁷

However, just like the internet can be *censored* in certain countries, but cannot be *turned off*, Bitcoin can be (attempted to be) confiscated in a country, but cannot be turned off. And just as no global "off switch" exists for the internet, for the same reasons and others, no such switch exists for Bitcoin. With regard to confiscation, and putting aside property rights for a moment, Bitcoin is really nothing more than a password to a private key that can be easily stored in anyone's memory via simple phrase memorization which, to me, makes it more salable across space than gold and fiat in more ways than one. If anything, in my view, it is more likely that we see a country peg their currency to Bitcoin, perhaps a developing country escaping a hyperinflation in the coming decade, before we see one that tries to (unsuccessfully) confiscate it. Remember, unlike gold, with Bitcoin there's no vault. And good luck confiscating my memory.

FINAL THOUGHTS ON BITCOIN

The trillions of dollars of central bank-driven low or negatively yielding financial instruments demolish the dreams of savers and retirees, prohibiting an enormously large and growing group of individuals from meeting their retirement wants, wishes, and – tragically – even needs. Free money has consequences. Because it is not free. No matter how well-intentioned, runaway global money printing, and the resulting financial repression, is society's largest global challenge.

⁵ This example is inspired by Victor Haghani's "Where are all the Billionaires & Why Should We Care" Ted Talk, which I highly recommend.

⁶ See *The Power of Bitcoin's Network Effect*, Greg Cipolaro and Ross Stevens, New York Digital Investment Group (2020)

⁷ FDR's 1933 order, and contemporaneous statements by the Secretary of the Treasury, led Americans to believe they were turning their gold in temporarily, and for patriotic reasons, to support the nation's credit. Nine months later, while, instead, informing the citizens that they would never get their gold back, FDR also devalued the dollar, which would have been impossible without the government's physical possession of all the nation's gold at that time. It was clear to Washington insiders, but certainly not the broader citizenry, that FDR's plan all along was to trick the country with his "make them turn it in first, then confiscate it second" plan, perhaps most clearly expressed by Senator Carter Glass, former Secretary of the Treasury, who, in the midst of FDR's obfuscation, rose from a sick bed to deliver a historic speech on the Senate floor which included: "I wrote with my own hand the provision of the national Democratic platform which declared for a sound money to be maintained at all hazards...the suggestion that we may devalue the gold dollar 59 percent means national repudiation. To me it means dishonor. In my conception of it, it is immoral...there was never any necessity for a gold embargo. There is no necessity for making statutory criminals of citizens of the United States who may please to take their property in the shape of gold or currency out of the banks and use it for their own purposes as they may please. We have gone beyond the cruel extremities of the French, and they made it a capital crime, punishable by the guillotine, for any tradesman or individual of the realm to discriminate in favor of gold and against their printing press currency. We have gone beyond that. We have said that no man may have gold, under penalty of ten years in the penitentiary or \$10,000 fine" (NB: worth more than \$500,000 today)

Regardless of Bitcoin's future ascent, or descent, the long-dated monetary liabilities of individual Americans are denominated in U.S. dollars. Tackling our collective, fiat-based societal retirement challenge head-on leads to an interesting and important question: "what do you have to believe to be true for Bitcoin to be your vessel for savings?" The answer: point to point – meaning, from today until your long-dated liabilities (e.g., your retirement spending) start coming due – **and regardless of USGPM volatility along the way** – you only have to believe one thing; that USGPM will depreciate relative to Bitcoin over that time period, as it has ~80% in the last two years alone.

Remember that the most important trades are the ones we make with our future selves, that our search for ever-sounder money is an individual, intuition-based optimization, and that, instinctively, we know our survival depends on durably storing our life force. In this context, is it any surprise that millennials voting with their dollars, and with more distrust for traditional institutions than their forebears, have already made Bitcoin "the millennial savings account"? And in this context, it is any surprise that two highly rated Life & Annuity insurers, and two highly rated Property & Casualty (re)insurers – among the most brilliant, forward-thinking investors I know, and each, by virtue of their business models, with extraordinarily long-dated U.S. dollar-denominated liabilities – have direct or indirect exposure today to more than \$350 million of Bitcoin, all purchased and held through our Bitcoin-focused affiliate? One thing I know for sure: they, and insurers in general, are just getting started.

The power of the insight – that only point-to-point USGPM depreciation matters, not volatility – will lead, I believe, to an explosion in Bitcoin-driven financial innovation, including Bitcoin-denominated life insurance for the 30-50-year-old crowd, and Bitcoin-denominated annuities for the 50-70-year-old-crowd. Having a non-zero allocation to Bitcoin-denominated life insurance, and annuities, may represent our most potent defense against the malevolent consequences of benevolent, well-intentioned past, current, and future central bank activity. Given the potentially revolutionary impact of these products on our great country's retirement crisis, I will be working tirelessly on them. Stay tuned.

* * * * *

When the Fed creates \$3 trillion in a matter of weeks by pushing a button, it consolidates the power to price and value human time. In our country, humans are not supposed to have that kind of power over other humans.

"There are two ways to enslave a country. One is by the sword. The other is by debt."

– John Adams (1826)

When a regional Fed President brags in March about having "an infinite amount of cash," he toxically undermines the American virtue of thrift, dangerously decouples risk-taking from the consequences of risk-taking, and epitomizes the influence of absolute, centralized power. When Chairman Powell, no matter how well-intentioned, says in June, "We're not even thinking about thinking of raising rates," at Stone Ridge we respond, "We're not even thinking about thinking of not buying more Bitcoin," and we did. Bitcoin is our peaceful weapon of choice against central bank-driven time theft.

However, buying Bitcoin this year wasn't new for us. Bitcoin has been the principal component of our firm's treasury reserve strategy since 2017 and many of us have been personally involved since 2013. Like everything we do at Stone Ridge, we have skin in the game. The owners of Stone Ridge Holdings Group, together, collectively own more than 40,000 Bitcoin. All purchased and held through our Bitcoin-focused affiliate. Actions speak louder than words. Larry Fink may call Bitcoin "an index of money laundering", but I call it "an index of money ~~laundering~~ printing." Bitcoin definitely does not care what Larry Fink thinks. And P is P. As long as "money printer go brrrr", I'll keep buying.

Perhaps just in time, each U.S. citizen now has a choice. You can stay on the Fiat Standard, in which some people get to produce unlimited new units of money for free, just not you. Or opt in to the Bitcoin Standard, in which no one gets to do that, including you. With the option, now, of a monetary system governed by rules instead of rulers, on behalf of myself, my family, and the firms I'm responsible for leading, I've made my choice.

At the most superficial level, buying Bitcoin as a portfolio diversifier, or as a hedge against inflation, makes good sense, and I, obviously, strongly believe that a 0% allocation is the wrong number for every investor.

However, Bitcoin is anything but superficial. In a world replete with monetary unfairness, injustice, the institutionalization of moral hazard, and the State's increasing domestication of our individuality, Bitcoin's incorruptible fairness, justice, truth, and beauty represent a beacon for all optimists who seek personal sovereignty, personal improvement, and peace.

As the Founder of one of the largest Bitcoin-focused firms in the world, I don't mind if you come to Bitcoin for the price. I just hope you stay for the principles. Bitcoin is far more important than a non-zero portfolio allocation.

* * * * *

AT THE OPPONENT'S SLIGHTEST MOVE, I MOVE FIRST

At Stone Ridge, our most important job is risk management – the safety of our clients' wealth and our own. We each work in risk management. Whether we choose it or not, it chooses us.

Our risk management philosophy can be expressed as an equation:

$$\text{Risk Management} = \text{Diversification} + \text{Humility}$$

Notice the harmony between the two elements on the right-hand side of the equation. The smaller the first, the smaller the second. The greater the first, the greater the second.

Since 2012, we have been building our portfolio of business arks ahead of the no-yield flood, now in the early innings of submerging the world. While Stone Ridge is just one small firm and we can only do so much, it is, and has always been, our mission to help the vulnerable and unprepared. All along, we knew the fiat flood was coming, we just did not know when or from what, but we did know that the vast majority would simply not know how to prepare, or even that they should. So – with humility, kindness, focus, and antifragility – we did, and are doing it, for them.

At Stone Ridge, the embodiment of our risk management philosophy, and flood preparation, is the 10/10 ("Ten Ten") portfolio. In its purest, unobtainable form, the 10/10 is 10 long-term allocations, each 10% weight, each with a persistent, pervasive, and intuitive risk premium, each uncorrelated with traditional markets, each uncorrelated with each other, each anti-fad.

Our 10/10 concept leaped closer to reality in 2020 with two new additions. It now includes both catastrophe reinsurance and non-catastrophe reinsurance (new), alternative lending, market insurance, SFR (single family rentals), drug royalty, private investments, Bitcoin, and collectibles (new). In the last year, we went from seven elements to nine. We're getting there.

At our "opponent's slightest move" – a market crash, a sovereign default, a pandemic, the Fed's forward annihilation of 60/40 – the 10/10 allows us to move first, a portfolio of business arks already in place. Its extraordinary diversification harmonizes with its quiet humility, structurally anticipating the un-anticipatable, delivering peace of mind.

If 2020 taught us anything, though, it's that the peace we seek isn't really peace of mind, it's peace *from* mind. From the silent ruminations. "Do I have enough? Am I financially secure?" In the decades ahead, Stone Ridge will help as many people as possible answer those questions decisively and affirmatively. In this year of historic trials and tribulations, the 10/10 was tested, and was spectacular.

As yield shrinks, clarity sharpens. Now entering our 10th year as a firm, we find ourselves just beginning.

* * * * *

PEOPLE ARE AWESOME

Given our fundamental, bedrock view at Stone Ridge that our people are everything, perhaps it's not surprising that since the firm's inception we've had a purposeful philosophy about our culture.

Before getting into the specifics of our approach, some context is important. First, we have never had, and never will have, an HR department. Second, we have off-market policies. For example, we don't meter vacation, and we encourage a lot of it. We offer unlimited maternity and paternity leave, and strongly encourage people to take lots of time off to enjoy that magical time with their family.

Stone Ridge also pays for any self-improvement program any employee wants to enroll in. This has included the firm paying for everything from meditation classes to executive MBAs, with no commitment to stay at Stone Ridge after completing the chosen program.⁸ And, annually, we do a detailed competitive analysis to make sure we have what we believe to be industry-best Travel & Expense (T&E) policies. We simply expect our team to respect the firm's generosity when they travel (remember those days?). They do.

However, my personal favorite HR policy is our bereavement policy. If a family member of any employee passes, our team of administrative assistants collectively spring into action to help with the travel logistics, if any, for the employee, and anyone in their immediate family, to attend the funeral. The firm also insists on paying for all travel and lodging expenses for all family attendees. Consider a non-executive Stone Ridge employee that grew up in a faraway war-torn country with a large immediate family, raised solely by his grandmother, who had just passed. Our policy could be (and has been) the difference between he and his entire family being able to pay their final respects in person, or having to pick and choose who gets to go. While, of course, not the reason for the policy, the private letters I've received from impacted family members afterwards are among my most treasured possessions.

We also expect each employee be the best in the industry at what they do, regardless of their role at the firm, no matter how senior or junior they are, whether they help the front of the house or the back of the house. The bargain we have with each employee when they are recruited, and when they show up, is this: you get to work here, but you must be the best in the industry at what you do. And if you're not – yet – that's ok. Very few of us are – I'm certainly not – but you must want to be, and actually be, on the path, with concrete plans for personal improvement.

Our high standards also challenge each employee to embody, and add in their own way to, our Firm Principles – Focus. Be Humble. Be Kind. Antifragile. – and we compensate accordingly.

Yet, apart from the commonality across our firm of sharing these core values, and of supporting each other as we set high standards for ourselves, each one of us at Stone Ridge is radically unique. If we have a secret weapon at the firm, it is how we honor that individuality.

Everyone at Stone Ridge has a rich history that led them to be who they are today. Mine starts with my many relatives who were forced to escape the Nazis, tragically not all successfully, but enough that I'm here. They were so poor my dad had to work two full-time jobs starting at 8 years old: pumping gas at his uncle's gas station and stocking shelves at a local grocery store.

As a result, when my dad went in to register for Social Security at a New York field office some years ago, he showed the clerk all of his documentation, and my mom and I got to witness something beautiful: after evaluating all of my dad's documentation, the clerk gathered his colleagues around his desk to show them something that at least no one in that particular office had ever seen, or heard of, before: a U.S. citizen who had taxable income in part of seven decades – the 1930s through the 1990s. Impromptu, they gave my dad a standing ovation, leading, impromptu, to uncontrollable tears in my mom's eyes, and my own. As a little kid, my dad was destitute, at times starving, and with virulent anti-Semitism occasionally thrown in for good measure. The anti-Semitism continued so strongly into adulthood that he ultimately decided to change his last name from Birnbaum to Stevens.

Everyone has a story. Nothing in life is easy, obvious, or a straight line, none of us will get out alive. However, in the interim, we each get to choose the work on which we focus our attention – in that beautiful commencement speech, Wallace also said *“our most significant education isn't really about the capacity to think, but rather about the choice of what to think about”* – and the people with whom we seek to accomplish that work.

Because I truly believe that people are awesome, one of the things we teach at Stone Ridge is that no one can compete with you on being you. Thus, we have another policy, less objectively enforceable, but perhaps our most important, about fitting in: don't try. Fitting in requires you to contort yourself to be someone you think others want you to be. In the process, you give up your biggest competitive advantage: being yourself.

⁸ After announcing this policy at a Firmwide meeting, I was immediately asked by an employee why we were willing to pay more than \$150,000 if someone could potentially just leave the firm after the MBA program and not have to pay us back. At first, I didn't understand the question, so I paused for a bit to think about it. Then I said, “If someone takes our \$150,000 and leaves the firm immediately after finishing their MBA program, they have to live with themselves for the rest of their lives knowing they did that to us. That's on them. We'll be fine. I'd certainly rather be us than them in that situation. So we don't need a policy prohibiting it. How about we just trust each other's common decency and see what happens?” So far, so good. (NB: we temporarily suspended this program amidst the uncertainties of COVID but have fully restored it).

When we recruit, we recruit for **uncorrelated weirdness**. We first accept the fact that we are all quite weird in our own idiosyncratic ways (I can comfortably say that, as a dating-challenged, former high school varsity bowler and athlete, I lead from the front in this department; in high school, I more accurately *aspired* to be dating-challenged, reality was worse). We then seek others who are weird in concretely different ways than the folks already working at the firm. When a recruit finally makes it through and shows up, we tell them, **“no matter what you do, do not try to fit in. Because the opposite of fitting in is belonging, and to really contribute, we need you to belong.”**

Belonging does not require you to change who you are, it requires you to be who you are. Our Management Committee is intentional in helping everyone feel like they belong at the firm, because if they work here, they do. To make a truly original contribution, you have to be irrationally obsessed with something for an extended period of time. And staying irrationally obsessed, especially because we never know if success is on the other side, requires a feeling of deep safety that only comes from feeling true belonging.

Imagine an entire firm feeling like they truly belong? That's powerful. I'm not sure we're batting 1.000, but that's our goal, and I think we're at least awfully close. Especially after all of us locked arms together this year – while the snow in the Stone Ridge snow globe was, at times, mercilessly shaken – and held each other in place. The snow, mercifully, has settled down. For now. However, our arms remain locked together, ready for the next time the snow stirs, which it will. And the next time, and the next time, and the next time.

Indeed, the Stone Ridge culture itself is what powers the firm's Antifragility, so that we may, together, unleash our collective creativity in the service of our investors. We innovate to prepare for an uncertain future, focused on our mission: Financial Security for All.

OUR PARTNERSHIP

In 2020, we confronted, too often, the shortness of life. However, we end the year, and begin anew, overflowing with gratitude for our health, our families, and for you – our investors. You contribute the capital necessary to sustain and propel groundbreaking product development. We contribute our collective careers' worth of experience in sourcing, structuring, execution, and risk management. Together, it works. On behalf of everyone at Stone Ridge, we look forward to another year of sharing responsibility for your wealth, and navigating our journey, together.

See you, **in person**, in 2021.

Sincerely,

Ross L. Stevens
Founder, CEO

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Endnotes

ⁱ G-10 currencies are ten of the most used and heavily traded, and thus liquid, currencies in the world. In 1971, at the time of the Smithsonian Agreement, they included the currencies of the United States, Britain, Canada, Japan, Sweden, Belgium, France, West Germany, Italy, and the Netherlands.

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