

Wealth Inequality

Background, Basis, & Bitcoin

Christopher Calicott

An Introduction

This is not for the academic or the pedant. It's for the curious and the thoughtful with skin in the game who recognize something is building in the macro environment. I hope this is for you.

I make no judgments for policy changes here or normative statements about what should be. My goal is to share observations tying together a series of events that shine light on the longer-term macro environment which in turn might inform investment strategies—a view to which we give credence and, in part, drives the TVP mission.

It isn't our task to criticise this system so much as recognize directionally what's happening, invest, benefit ourselves and our investors, and—critically—help in our small way to build a better future for humanity.

Christopher Calicott • July 2020



Bitcoin is a Technology of Philosophy

Bitcoin was born of philosophy. It was birthed in the midst of the largest systemic financial crisis since the Great Depression. Famously, reference was made in the Bitcoin genesis block to The Times' headline on January 3rd 2009: another banker bailout was on the way in England. But at what other truths does this hint?

While Bitcoin is not purely anonymous, it does retain much of a specific property sought by the cypherpunks in that one might selectively allow another to know his bitcoin address(-es)—or not.

When my identity is revealed by the underlying mechanism of the transaction, I have no privacy. I cannot here selectively reveal myself; I must always reveal myself.

...

Therefore, privacy in an open society requires anonymous transaction systems. Until now, cash has been the primary such system. An anonymous transaction system is not a secret transaction system. An anonymous system empowers individuals to reveal their identity when desired and only when desired; this is the essence of privacy.

From *A Cypherpunk's Manifesto* by Eric Hughes¹ • 1, March 1993

Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution.

From *the Bitcoin white paper* by Satoshi Nakamoto² • 2, October 2008

¹ <https://www.activism.net/cypherpunk/manifesto.html>

² <https://bitcoin.org/bitcoin.pdf>



Any such financial institution necessitates revealing one's identity and violates a key philosophical doctrine of this group. But what of it? It is not at all difficult to see today in a world marked by political crossfire and unimaginably large corporate-owned consumer preference and transactional data that the cypherpunks were prescient of technological development and anticipated today's reality and endgame. They recognized the increasing need for privacy broadly and in electronic cash transactions specifically before most had even been on the Internet for the first time. Hughes clearly articulated why this was important a full 15 years before Nakamoto brought Bitcoin into the world. Ideas without traction can fall by the wayside, but philosophies that resonate can have staying power.

Certainly, among the cypherpunk movement privacy has been and remains a pivotal concern, but the cypherpunks also shared some economic ideas. Many of these ideas were influenced by the Austrian economic school with its emphasis on free markets and sound monetary policy derived from market choices, which explains an Austrian emphasis on scarce monetary metals such as gold.

Similarly scarce, Bitcoin's hard monetary policy was set by Nakamoto in the reference implementation source code and has been reiterated daily through consensus rules as hashing power climbed over the years. Critically, this policy was proven out across inflation rate halvings, now for a third time on May 11, 2020. This evidence shows Bitcoin's uniquely *increasing* monetary hardness across time. Bitcoin's scarcity intersects with the cypherpunk principle of privacy via technology allowing for selectively revealing one's identity in an intermediary-free transaction—their very definition

of privacy. That headline in the genesis block along with its privacy principles design very clearly revealed the philosophical underpinnings of the technology.

There is a strong link between monetary privacy and state-issued currencies. In 2019 in Hong Kong, protestors met a clear danger to speech posed by the state as a key transit payment system was used to expose protestor identity and track movements.³ The HK scenario demonstrates how seemingly lifestyle-enhancing systems or good intentions, such as keeping funds out of terrorists' hands, can easily be co-opted, stifling free speech and violating human rights. Moreover, in any given crisis individual purchasing power is influenced by politicians facing career risk if they do not act and with no immediate downside, as their actions have ramifications that are felt years after they have left office. In this way, the cypherpunk principle of privacy in transactions that restores the cash function to a natively digital world is now a necessity. Without it, humanity will be less private and less democratic and its wealth accumulation and preservation subject to the vicissitudes of politicians and the powerful.

The cypherpunks had an email listserv where they shared ideas and information. This mailing list is where Satoshi Nakamoto chose to bring his innovation to light. It must be assumed that Nakamoto recognized that his Bitcoin project would find support there at the intersection of these philosophies... support he hoped would change some problems in the system that governments and intermediaries have no incentive to change.

³ <https://reason.com/2019/07/02/hong-kong-protests-show-dangers-of-a-cashless-society/>



Paper Framing

Over the past several years there has been an increasing amount of attention paid to wealth inequality. A close companion to this subject is that of social justice. Without delving into the latter, here I expand on the former and share a view that wealth inequality is expanding, but that there is not a conspiracy playing out—it is a direct function of the commonly accepted system of money and a policy of repeated monetary expansionist interventionism.

Credit & Risk Decisions

Regardless of the market or scale, where credit is involved the participants are assessing risk and making judgments for an appropriate return on their investment as a counterparty lender to a borrower. Similarly, a borrower is making his own determinations as to how much he can bear and what interest rate he feels appropriate. However, there always remains some level of informational asymmetry between those two parties as they are trying to make a determination of risk and reward and arrive at some set of terms, which might include risk-mitigating factors such as the hypothecation of collateral.⁴

Risk Assessment & Asymmetry

Since the Black Monday stock market crash of 1987, the U.S. Federal Reserve Bank has taken intervening measures in one crisis after another by either using liquidity to free up markets which have

stopped functioning normally or as a prophylactic for circumstances perceived to portend financial havoc. Market intervention involving credit in one way or another is the form this liquidity typically takes.

After the sharp single-day loss of 22.6% on the Dow Jones Industrial Average in October 1987 (still the largest ever for the DJIA, the 2nd largest being March 16, 2020), various emerging factors such as computerized trading, tensions in the Middle East, and large trade deficits (causing the U.S. Treasury Secretary to speak about potentially devaluing the dollar), led to a prevailing dark sentiment that the crash could lead to a severe, broad, and protracted financial downturn. Wall Street securities firms experienced immediate balance sheet troubles. To mitigate these short-term firm risks and continue operations, their credit needs shot up to unprecedented levels. With a new backdrop of global trade, the fear was that securities markets problems would spawn a contagion to the broader financial system throughout the U.S. and the world. With this fear in markets, an activist Fed armed with academic research suggesting that liquidity could have lessened the Great Depression made the decision to act.

The securities firms with the most pressing needs had their own relationships with banks, of course. The problem was that the unexpected and urgent need for additional credit from commercial banks was met with an environment where suddenly these securities firms' creditworthiness was unclear or in doubt. This was further exacerbated by posted securities collateral that now had an uncertain value, given the sharp market drop. And it was not clear what might follow in the coming days.

In this scenario, even those with pre-existing business relationships in good standing,

⁴ <https://www.investopedia.com/terms/h/hypothecation.asp>



their creditworthiness was in question. A lack of informational flow for true risk assessment was present, there were myriad factors to consider on a per-relationship basis, and the risk-mitigating value of collateral was diminished.

Imagine what the concerns might have been for borrowers on Main Street—or for those with new credit or less-than-stellar credit ratings.

The Central Banker Toolkit

Central banks like the Fed have several categories of tools at their disposal, but they are all various ways to manipulate the supply of money in the banking system. These include:

- the federal funds rate, which is the rate set by the Fed and is charged for overnight borrowing one bank to another. In turn, this affects interest rates charged to commercial or retail customers where banks apply an additional margin based on a given credit risk and other factors
- open market operations, where buying securities (in exchange for cash into the system) or selling (which takes cash out of the system), directly impact the price of borrowing through interest rates since these purchases are from the market directly, typically involving commercial banks
- the repurchase agreement market, which are agreements to sell and repurchase on a short-term basis government-issued securities like Treasury bills, the difference of which expresses the implied interbank overnight rate demanded to provide short-term cash to counterparty banks,⁵ is another key activity that the Fed observes and sometimes involves itself in order to affect the supply of dollars
- reserve requirements⁶, which quantify the ratio of cash banks must maintain in their Federal Reserve Bank accounts relative to the amount they may lend out,

which means that the lower the reserve requirement the more cash can be lent.

These tools all touch on various processes and markets and are ways the Fed changes the amount of liquidity in the system. And sometimes they get creative.

Notice: these interest rates are invariably the lowest closest to where in the system that these various functions take place, which are commanded by Federal Reserve member banks. All other interest rates and margins demanded flow out from these control points.

Again, I prescribe nothing here about the system; I make no normative statements. That is left as an entirely different discussion in a different place, though we certainly have views. This entire fractional banking system relies on inter-entity credit to function and one balance sheet impacts another. When liquidity dries up in the system, it is a fact that a central bank can ease the problem by intervening. A clear example of central bank *inaction* is the case of the 1987 crash effects in New Zealand. Black Monday reverberated around the world and New Zealand's crash erased approximately 60% of its stock market value as the New Zealand central bank did not take these actions. The result was, as the Fed would have predicted, that many banks went out of business and a recession with accompanying relatively lower overall access to credit lasted well into the 1990s.

⁵ <https://www.bankrate.com/banking/federal-reserve/why-the-fed-pumps-billions-into-repo-market/>

⁶ <https://www.federalreserve.gov/monetarypolicy/reservereq.htm>



Acting on the 1987 Black Monday crash, Alan Greenspan said that they would pump all the liquidity the system needs.

Banks nearly doubled lending—credit—to securities firms.⁷

A Few Highlights of Federal Reserve Interventionism

The Federal Reserve, consistent with its responsibilities as the Nation's central bank, affirmed today its readiness to serve as a source of liquidity to support the economic and financial system.

Alan Greenspan, Fed Chairman • 1987

Below, I share a bit of background information and highlight a clear Federal Reserve interventionist pattern. The examples are not meant to be detailed explanations of the events, as each is worthy of a book unto itself, but to highlight the general circumstances of a given scenario.

1987 Stock Market Crash: The Dow lost 22.6% of its market capitalization in a single day. The Fed relied on a strong public statement married with open market operations to supply liquidity, orchestrating conversations to get banks to lend to securities firms, and other interventions.

1997, 1998 Asia, Russia, and a U.S. Hedge Fund: After years of regional growth based on exports in Asia, some countries, which often pegged their currencies to the U.S. dollar, experienced a financial crisis following a lowering of credit exposure in the region. This began with Thailand devaluing its currency relative to the U.S. dollar, followed by lowered investment in the region—less credit was available regionally due to perceived risks. After several years of stellar performance

since its inception, a massive U.S.-based hedge fund, Long-Term Capital Management, took its first major loss amidst the Asian financial crisis. However, while its Asian markets loss was not decimating in of itself to the hedge fund and its U.S. banking partners, its core business was bond arbitrage and it had a very large exposure to Russian bonds. The Asian financial crisis lowered demand for Russian oil and the knock-on effect was to become the Russian Ruble Crisis. LTCM lost over half a billion dollars in a day, but its actual total position was far larger, and due to its immense size, selling its total position was not an option.⁸ In our context this is important, as LTCM used credit in the form of trading leverage which was borrowed from a significant number of banks in order to make trades that it believed were very low risk. Suddenly, a total of around \$1 trillion dollars was in jeopardy of being lost on Wall Street by nearly 50 lender banks if LTCM went bankrupt. The Federal Reserve intervened to protect those total losses from being spread around Wall Street. It orchestrated a bailout of \$3.625

⁷ https://www.federalreservehistory.org/essays/stock_market_crash_of_1987

⁸ <https://www.businessinsider.com/the-fall-of-long-term-capital-management-2014-7>



billion with contributions from a host of banks which were exposed. If a recapitalization had not been done in this case, all of the banks would have taken huge losses on the risks they had accepted (using their depositors' and federal money) along with their counterparty LTCM, which was making these bets with massive leverage. Here, the Fed helped them avoid these losses on risks they'd essentially taken with others' capital, creating a precedent for moral hazard when the stakes are highest—a theme that recurs less than a decade later during the run-up to the 2008 financial crisis. As an aside, the borrowers at LTCM went on to start new hedge funds and many use similar strategies and rely on considerable leverage.

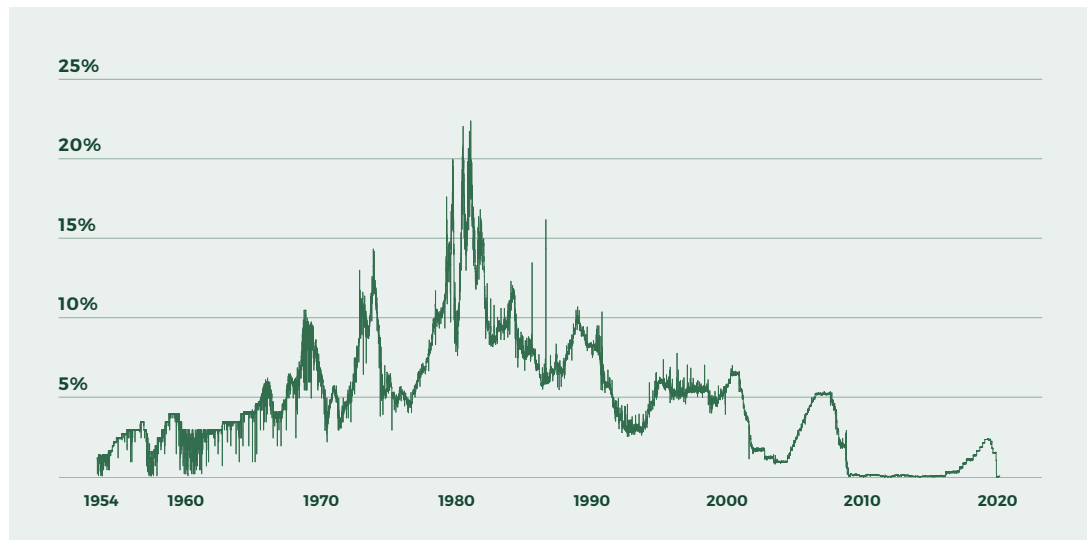
The Dotcom Bubble: Despite global financial crises, the 1990s was the decade that saw the birth of the World Wide Web and the build out and expansion of telecommunication infrastructure such as fiber optic cable, which would ultimately make possible widely-available broadband internet access. As is often the case, the perception of time needed for innovation to be realized is met with significantly longer actual technology adoption curves. Sometimes investment is a bit like an arms race, like in telecom. User behavioral norms evolve over time while developers are building on an underlying tech stack that is also evolving until eventually standard design patterns emerge. These development patterns ultimately enable rapid conception, development, and deployment cycles. These and other factors tend to make the realization of tech's promises somewhat slower and less perceptible to individuals than was originally anticipated. This is context to the investment cycle that led to the Dotcom Bubble: with the excitement around this huge wave of internet innovation and the natural investment and specu-

lation in the sector, equities markets price levels became highly elevated. At the time many made comments about the "new economy" where growth rate with little regard for fundamentals was commonly accepted. The pace of IPOs at the time is still talked about today. However, many of these companies' financial fundamentals—particularly revenues—were not remotely approaching what would be expected of a public company more recently. The advent of the internet and all it meant for the future was momentous. It inevitably drove a generational peak of excitement. However, on December 5, 1996—relatively early in this process—Alan Greenspan made his famous comment regarding "irrational exuberance." The DJIA was at 6,400. The market peak would not occur for another 3+ years on January 14, 2000, with the DJIA at 11,722. There were many factors involved and I don't want to oversimplify a complex period. Nevertheless, the Fed did see fit to intervene. In fact, after making the irrational exuberance speech, the Fed actually lowered rates in response to what was happening in Asia and the subsequent Russian Ruble Crisis, which both took place after his speech. These federal funds rate decreases from around August until December 1998 amounted to as much as 25%. From the interest rate low, the Fed began incrementally raising rates and did not relent until it was clear that equities market sentiment had materially turned—prices were declining. People were no longer exuberant. Hardly. When the long bull run was clearly over investors had more than \$5 trillion in value erased with at least 70% of investors losing 20% or more of their 401k value.⁹ As is typically the case, individual investors were the last to the party.

⁹ <https://ideas.ted.com/an-eye-opening-look-at-the-dot-com-bubble-of-2000-and-how-it-shapes-our-lives-today/>



HISTORICAL FEDERAL FUNDS RATE



Source: <https://www.macrotrends.net/2015/fed-funds-rate-historical-chart>

Some assert that it's unfair to say that Greenspan "popped" the Dotcom bubble. If you look at the chart of the federal funds rate during this time it's clear that at a minimum the Fed is trying to influence what is happening in markets. He had deemed the markets "irrational" 3 years before the peak. If you know the general public has a great deal of its capital in public markets, you know public market companies are carrying high amounts of debt, and you want to make that debt cost these companies even more which could jeopardize their ability to continue, and you nevertheless pull the trigger to raise rates, are you not saying you directly control the personal net worth outcomes of individuals in the US and around the world? When Greenspan made an announcement to aggressively raise rates in February 2000 the concern that these companies could be in jeopardy had a psychological impact even before the higher rates had really hit cash flows and companies' ability to borrow further. Markets, of course, reacted. This interventionism and planning of the economy by controlling credit markets was now

normalized under Greenspan.

And just like that—having seen the desired effect with markets in decline—the Fed started to decrease rates again by January 2001—as though it realized it overshot and had to compensate. And then September 11th happened.

September 11th, 2001: The terrorist attacks on the United States cast a very dark shadow over a market that was already in decline. In addition to stock markets being closed for four days, many consumers and businesses moved to cash or near cash, checks could not be cleared easily, and there was a great deal of uncertainty. The Fed's response was multifaceted including various open market operations, lending funds to banks, expanding the float between interbank check clearing, and, of course, lowering interest rates multiple times during the intervening period.¹⁰ Rates were more or less flat until the fall of 2002. And then the Fed lowered them two more times, in November 2002, citing a "current soft spot."¹¹ They would move them lower still in 2003.¹²

¹⁰ <https://www.stlouisfed.org/publications/regional-economist/january-2002/the-federal-reserves-response-to-the-sept-11-attacks>

¹¹ <https://www.federalreserve.gov/BoardDocs/Press/monetary/2002/20021106/default.htm>

¹² <https://www.macrotrends.net/2015/fed-funds-rate-historical-chart>



Of note, this period recorded the lowest interest rates seen in the United States since completely disconnecting the U.S. dollar from gold in 1971.¹³

2007-2008 and the Great Recession:

After the Dotcom fallout and the tragedy of September 11th, America was at war in the Middle East. This major factor meant that as of May of 2004, the federal funds rate was still kept below 1%. For context, following the Dotcom bust, many individuals shied away from equities investments. Real estate was an attractive alternative proposition for many, given growth in the sector based on low interest rates incentivizing home purchases and a broad, long-term perception that residential real estate generally holds its value and does not experience significant price declines. With credit easily accessible, banks leaned into using financial risk management tools like swapping arrangements. It appeared that even subprime borrowers could now afford to own a home and lenders could mitigate their risk through sophisticated securitization of assets and derivatives. In light of rising home prices—somewhat counterintuitively—there was a sharp increase in demand, particularly with interest rates very low and a looming perception that homes would be even more expensive in the future, buyers would face a higher interest rate at that time. The ensuing boom led to massive housing supply expansion coupled with initiatives from banks to sign up new borrowers of mortgages, which were often originated on little more than a signature. In fact, in very many cases income was not verified for these loans. To make matters worse, an unusual percentage of these mortgages had interest rates that were adjustable¹⁴ based on the mortgage agreement to banks' own terms after the loan's origination, which are influenced by the federal

funds rate. After loan origination, in the process of the originator selling these loans they were typically pooled with many other loans and bundled by tiers of risk to be sold to investors who are seeking cash flows based on their appetite for that level of risk. The diversification of many loans bundled in a given risk tier means that while some defaults are expected, it is statistically very low probability that many would default above a given percentage threshold of the total tier. This allows the collateral (the underlying home) for individual defaults to be reclaimed and sold, addressing the individual defaults while the overall basket of mortgages continues to generate a target threshold of cash flows. However, a conflict of interest arose with credit ratings agencies in many cases—a situation where they needed to maintain their own business relationships with banks who were bundling these tiers and expected certain ratings per credit risk tier. Too little scrutiny was given to these tranches of risk and the credit rating agencies put favorable ratings on tranches of loans that simply were higher risk in nature—sometimes far higher—than the given rating implied. With the ability for a mortgage lender to originate a loan and quickly sell it—in other words not carry the risk directly on their own books—it was incentivized to originate as many loans as possible. In the fast pace around this process from origination to purchase for bundling into a derivative security with lax standards by raters, the counterparty investor buying these securities in reality did not fully grasp the risk they were purchasing and in many cases the representations made to them were simply wrong or even misrepresented. What is certain is that there was plenty of cheap capital all around and that was driving more activity for profit from the credit coupled with a system where one person profits effective-

¹³ <https://wtfhappenedin1971.com/>

¹⁴ <https://www.cbsnews.com/news/adjustable-rate-mortgages-make-a-comeback/>



ly without taking personal risk, as the loan was sold to another bank which created these bundles, incorrectly marked for risk, and then sold on to another investor. These factors were so intertwined and so pervasive throughout banking that the risk was systemic. And every step along the way cheap credit was enabling the process. These risks levered by cheap money throughout the system led to a housing bubble. In fact, at the end of May 2004, the federal funds rate was still at just 0.99%, but the Fed began raising rates incrementally over the next 2½ years—approximately 500%. Ironically, the rising rates caused many to focus on what was perceived to likely be the cheapest mortgage rates of a lifetime, despite the incremental rise, as they were so very low to begin with. Many “teaser rate” adjustable rate mortgages were very attractive for the first period before adjustment to the new interest rate. Once adjustments began to kick in, many subprime borrowers found themselves facing the Fed’s now-rising rates and their costs—just to cover monthly payments—were either suffocating or outright impossible for them. When this bubble popped there was far too much housing supply which was met by a stark drop in demand. Many borrowers, unable to pay, simply decided to “walk away” from a house that was now so far below their paid price that it would take a very long time—if ever—to recover to break-even. A glut of now-vacant homes and even whole neighborhoods were risks on balance sheets throughout banking.

The total U.S. response to the 2007-2008 crisis was highly complex. In fact, just the Federal Reserve’s response was multipronged and complicated. Since the banking sector was deeply impacted, the Federal Deposit Insurance Corporation made unlimited guarantees on non-inter-

est-bearing bank accounts to avoid runs on banks. After all, they could work with the Fed and the Treasury to create more cash. However, in an unprecedented move, the U.S. Treasury crossed what many believed to be a philosophical Rubicon: they “invest[ed] up to \$250 billion in banks.”¹⁵ While those in the system—certainly banking—all played a role in taking risks with others’ money under a system fraught with moral hazard, at the highest stakes when it mattered most and many believed banks were too big to allow to fail, the Fed not only pumped liquidity in various ways, but Treasury bought their stock. Naturally, with more money going into the system price levels would eventually return; defenders of the plan claim that the government and the Fed made money for taxpayers. Apart from this remarkable Rubicon-crossing during the wake of the 2008 financing crisis peak, the main components of interventions were the usual suspects of market signaling via guidance on interest rates, massive asset purchases, and, of course, lower interest rates. From the summer of 2007 to the summer of 2008 the Fed lowered rates by about 60%. After the fall of 2008 when the breadth of the problem was clearly in view and markets broadly fearful, the Fed lowered them lower than ever before—0.09% in December of 2008. This was unprecedented as a U.S. interest rate, but also far and away unprecedented in duration. In fact, the federal funds rate remained below 1% all the way through June of 2017—nearly a decade of cheap money put into the system via the fractional reserve banking system. In the middle of a Fed-influenced crisis involving moral hazard and artificially cheap money, Bitcoin was born.

2019 Repo Operations: Beginning in September, the Fed responded to signals and intervened in overnight lending

¹⁵ <https://www.nytimes.com/2008/10/14/business/economy/14treasury.html>



markets, which are about \$2.2 trillion annually in size in the U.S. They began to see overnight lending rates shoot up to around 10%, which is roughly four times the normal rates, as the need for overnight agreements outpaced available loans. Apart from long-term low federal funds rates since the beginning of the Great Recession, this was the first major intervention by the Fed. Major in the sense that most other Fed action had been limited to an attempt to raise rates above its unnaturally low level, beginning relatively recently in January 2016, stair-stepping up toward a “high” of 2.43% in March of 2019. They had to ease off the gas. With only about six months with the federal funds rate above 2.2%, markets started to behave unexpectedly. When bank participants in repo markets are having their own cash concerns or if there is concern

about a looming crisis or recession, the markets can become thinner in volume and expensive in price. Anecdotally, in my circles there was a sense that something ominous might be at play, given the size and nature of Fed’s interventions in the repo markets in the fall of 2019. It is still relatively unclear if market participants’ pricing information was signaling a coming recession, other macro concerns, or what the drivers for the repo markets’ stress from September 2019 were. But it is clear that as the Fed had tried to ease off the super easy post-2008 credit by raising interest rates very minimally, major market players reduced the amount of reserves they had on hand in their Federal Reserve accounts. Typically this money in banks’ Fed accounts can be used for overnight lending, and so in the fall of 2019 there was less of it available for this purpose.¹⁶

Over the past several decades, the Fed has responded to economic slowdowns, recessions and financial crises by reducing interest rates, a monetary policy tool designed to promote an expansion of the credit system as a means to stem or reverse a contracting business cycle. With each passing cycle, normalized interest rates have never reached the levels of prior cycles. The policy tool is designed to expand the credit system, but with a larger credit system, a higher maintenance burden can never be sustained, which is why interest rates never rise to past cycle levels. As a highly levered financial system becomes more levered, rising interest rates cause the economy to slow and the credit system to contract which is the very economic trend the Fed intends to prevent or course correct through its monetary policy objectives of lowering interest rates.

Parker Lewis, Head of Business Development • Unchained Capital

¹⁶ <https://www.reuters.com/article/us-usa-fed-repo-tools-explainer/repo-is-wall-streets-big-year-end-worry-why-idUSKBN1YR0F2>



2020: Now There's This. The novel coronavirus pandemic and uncertainty around case mortality rates, true infection rates, and a very concerning situation in Western Europe led the United States to effectively suspend its economy. With businesses shuttered, the unemployment rate naturally went up to very high, if artificial, levels, as we opted for these economic choices given the risks being particularly dire for those most vulnerable among us. With the decision made, a variety of programs were quickly proposed to bridge individuals' and businesses' obligations until we had the curve flattened and the equipment we needed was available. We have seen a wide range of liquidity-oriented programs from the government including expanded unemployment benefits, stimulus checks of up to \$1,200 for an individual (accompanied by an uptick in same-size Coinbase purchases of bitcoin)¹⁷, loan programs for businesses able to navigate the system and qualify for one (one program was meant to keep employees on the payrolls and can be simply forgiven by the backing of the U.S. government), and extensive expansion of the Fed's ability to facilitate liquidity into markets.

Along with the novel coronavirus appeared a novel Federal Reserve open market operation type: the buying of new municipal bonds that represent up to 20% of each municipality's 2017 revenues, now crippled by stay-at-home orders and subsequently lowered tax revenue. The bonds must have maturities of 2 or less years. Apart from any of these programs, though, the Fed lowered the federal funds rate to a never-before-seen level: 0.05%. The situation in 2020 has evolved several times, each with a new layer of never-before-seen Fed activity. In addition to the municipal bond purchases by the Fed, over a couple of days in mid-June, the Fed made major an-

nouncements. One reinstated a system used after 2008 to provide support for lending markets both to businesses and to households. This system makes special liquidity available to "primary dealers," which are "trading counterparties of the New York Fed" that collaborate with the NY Fed "in its implementation of monetary policy,"¹⁸ in order to achieve this goal to support households and businesses during the wake of the COVID-19 shutdown. The list of interventions that have been taken (as of early July) by the government and by the Federal Reserve is not nearly complete here and seems certain to make this brief already out of date by its publication.

One extraordinary set of measures was extended just 2 days prior the reimplementation of the household-and-business program and deserves special mention. On June 15, 2020, the U.S. Federal Reserve Board announced what it described as "updates to" a program it had established on March 22nd—the day the DJIA closed lowest in light of COVID-19 market uncertainty. For needed context, I add here some information on secondary markets. Secondary markets are simply the purchase of a given security after its initial—or primary—offering. By way of a private markets example, sometimes early employees of a venture-backed company, after years of vesting, need some personal liquidity and it can arise that a late-stage investment round (which is a private markets sale of new shares in the company) establishes a carveout from the total consideration paid during the new offering to purchase some shares of the company from earlier employees and investors in the company's life. This portion of the transaction is a secondary sale. Alternatively, employees who have left the firm and exercised their options sometimes

¹⁷ <https://www.forbes.com/sites/ktorpey/2020/04/20/americans-are-using-their-stimulus-checks-to-buy-bitcoin/#417337b9798f>

¹⁸ <https://www.newyorkfed.org/markets/primarydealers>



sell their shares to other investors. This is similarly a secondary sale (of the shares, which are a security of equity ownership). There are secondary markets of both private and public securities that many individual investors are not aware of, but these markets do exist. For public company securities, the stock market itself is quite simply large volumes of trades and in fact represents secondary sales—purchases of stocks or bonds that are already issued and owned. Taken a step further, exchange traded funds are pooled vehicles that build up (or wind down) positions of securities, often from the open market (but could be for initial offerings) according to a given ETF's investment mandate. ETFs are portfolios of securities which are in turn also tradable securities. On March 22nd, when the Fed under the U.S. Federal Reserve Act voted to approve the initial measure (also approved by the U.S. Secretary of the Treasury), the process was to lend to a special purpose vehicle (SPV). An SPV is effectively a fund vehicle that will in turn purchase "investment grade corporate bonds" and "U.S.-listed exchange-traded funds," which in this case were ETFs with corporate debt mandates. The original terms of its highly unusual "initial \$10 billion" investment in the SPV was stated to end by "September 30, 2020, unless it is extended by the Board." In the update to this SPV facility that happened June 15th, along with the Fed activity in the SPV, the U.S. Treasury is purchasing an initial \$75 billion equity stake in the SPV, \$50 billion of which is not for secondary market purchases but for primary corporate debt offerings: new issuances of debt by public companies where the lender is the United States itself. The size of the expanded SPV will be \$750 billion. For now.

The United States' debt is projected to exceed its gross domestic product this

year. Traditionally in the U.S., fiscal conservatism led this to happen only during the most dire of circumstances—circumstances existential in nature, such as World War II. There is a bit of murkiness around the actual totals of new money created as part of the full government response to the coronavirus and frankly the various governmental programs, Fed activities both standard and novel, and the Treasury's interventions and outright direct national purchases of corporate debt issuances. Many naturally assume stocks are likely also to be purchased this year.

In the financial crisis of 2008, when there was discussion about the government "investing" in banking stocks, I personally thought that there was no way they would *not* let these banks fail after such irresponsible behavior and systemic moral hazard, but then also go on to buy their stocks to prop them up—regardless of the rationalization du jour. I was spectacularly wrong and perhaps naïve to the process that had already been playing itself out for decades. The United States had always had a capitalist economy—one where individuals and organizations take personal risk based with their own accumulated capital and invested—and the reward for having taken sometimes great personal risks was the potential for great asymmetrical upside for having invested in the economy, created jobs, and improved life for society along the way. But after such bad behavior in 2008, here we had not only bailouts, but stock purchases. It would not have seemed permissible that the government, the controllers of money and, thus, inflation, and the banks could be more closely intertwined until the first became invested in the last with cash created by the one in the middle. I do recall considerable concern about these stock purchases in 2008 limited to *only a quarter trillion dollars*.



In 2020? They are purchasing corporate debt through asset managers and now directly from new issuances in addition to other programs too varied for most Americans to keep track of, or really grasp. And there has been hardly more than a murmur.

We must be perfectly clear about what is happening with the current system in the United States: This is definitionally not capitalism.

This set of highlights from one set of interventions and loose monetary policy to avoid pain is not that old. In fact, since finally decoupling the U.S. monetary system from monetary metals in 1971, there has been a series of experiments and myriad course corrections on the fly, if we are honest. What is important to note is that the great successes of traditional U.S. capitalism were drawn from personal risk and reward taken on one's own assets, with the downside being total loss of capital,

and—critically—a monetary system that is not deeply intertwined with the freedoms to innovate and to invest freely; the critical logical error we see daily in the media and on Twitter is that economic systems are synonymous with monetary systems. They are not. The lines get blurred when politicians and central planners manipulate the supply of the unit of account in the system, which invariably creates non-uniform and unintended consequences. If those consequences of the newly created game are such that they benefit players who are already succeeding, it should come as no surprise at all that some will recognize that the system is not set up to benefit them as much. Because meddling in the monetary system is necessarily going to impact participants in the economic system, it is easy to see how many in the United States today have come to assume that it is capitalism which is to blame.

Wealth Inequality Synthesis

In the historical Fed interventionist context, the operating principle is that a lower federal funds rate will create broadly lower interest rates which will spread throughout the economy leading to more investment, purchases of homes, and robust consumption. However, people do not and cannot have equivalent interest rates due to their wide variation in creditworthiness and the need for lenders to manage their risk and reward. And in fact, everyone does not get the same rate in practice. Currently in the United States we have an interest rate distribution from some of the lowest ever known for the very creditworthy to shockingly high payday loans, which have effective rates in the 300-500% range¹⁹ for

those who are very high credit risks. Apart from the extremes, middling credit folks still pay more for personal bank loans or credit cards than their low-risk counterparts, and this is an environment where all the banking intermediaries are paying very little—nearly nothing by historical standards.

It is clear: artificially low interest rates benefit those with already good credit more, at least in the sense that they can afford more borrowed cash and pay a lower price for it. In the financial game of life they are skilled players. In this environment they can increase their leverage and drive even more returns on cheap borrowed money. And they do.

¹⁹ <https://www.debt.org/credit/payday-lenders/>



No one wants pain. In times of financial crisis, political pressure on central bankers to act must now be immense. Indeed, we have now seen political pressure to lower rates even in 2019 when there was no crisis and rates were well below long-term historical averages. But manipulating interest rates means that when artificially low, people with the best access to credit benefit more. They get more credit and at a cheaper price. When credit dries up, it's hard for everyone. With these central banking tools, post-crisis, as things normalize, lenders naturally take a circumspect approach and the best credit risks are taken first. Meanwhile, others who were treading water with easy credit are now in deep financial trouble and more likely to fall behind. In 1987, it was to a degree academic that in the face of massive fear liquidity would soothe the pain, calm nerves, and return markets to a reasonable level of functioning. In some sense it was an experiment on the largest scale. The DJIA had reached new highs about 24 months after the crash, but investors and Wall Street participants are obviously not the only folks that use the U.S. dollar. While some in the middle and upper wealth tiers can weather the storm, not everyone can. Currently, the reality is that many who already had good jobs and probably good credit continue to draw a salary working from home, as most office and tech jobs can easily be done remotely if need be. But people who work in the service and retail industries don't have that benefit and resuming work for many, it turns out, means being faced with a perverse incentive, as their actual jobs—particularly around the restaurant and bar industry—will pay them less if they return than the quickly-put-together program that increased unemployment benefits in the interim. They will be taking additional personal risk to make less money than they

are on unemployment.

Once a proven solution to a perceived crisis—given politicians' involvement and appointment of the Fed chair and Alan Greenspan looking like a genius, and given politicians' concern for approval ratings and career risk—it should come as no surprise that from 1987 on, an increasing number of problems were found to be fitting applications of this centrally-orchestrated liquidity solution set. Ironically, Fed central bankers themselves have pointed to research that suggests 1987 was a turning point and not in a good way: Donald Bernhardt and Marshall Eckblad of the Federal Reserve Bank of Chicago cited Cecchetti and Disyatat's research in 2010 that argued "the Fed's response set a precedent that had the potential to exacerbate moral hazard."²⁰ Sometimes immediately seeing the bad outcome of an action is instructive, because it's clear what the future outcome could be. In 1987, unlike many expected, there was no run on banks or deep recession. It looked like Greenspan was right and the consequences were nowhere to be found. But some consequences build slowly and insidiously over time. With no evidence to the contrary, why wouldn't you run a new similar experiment in the next crisis?

If you have a financial crisis solution, there will be no end to crisis contenders for that solution: bailouts for moral hazard; leverage for smart people making bets with other people's money.

Wealth inequality is often used as a political tool, but it need not be. In the U.S. we all use the same money and as we live in a growing, thriving economy, one might expect that to benefit most everyone, everything being equal. But as we have shown, there are factors in the monetary system impacting it and likely causing unintended-

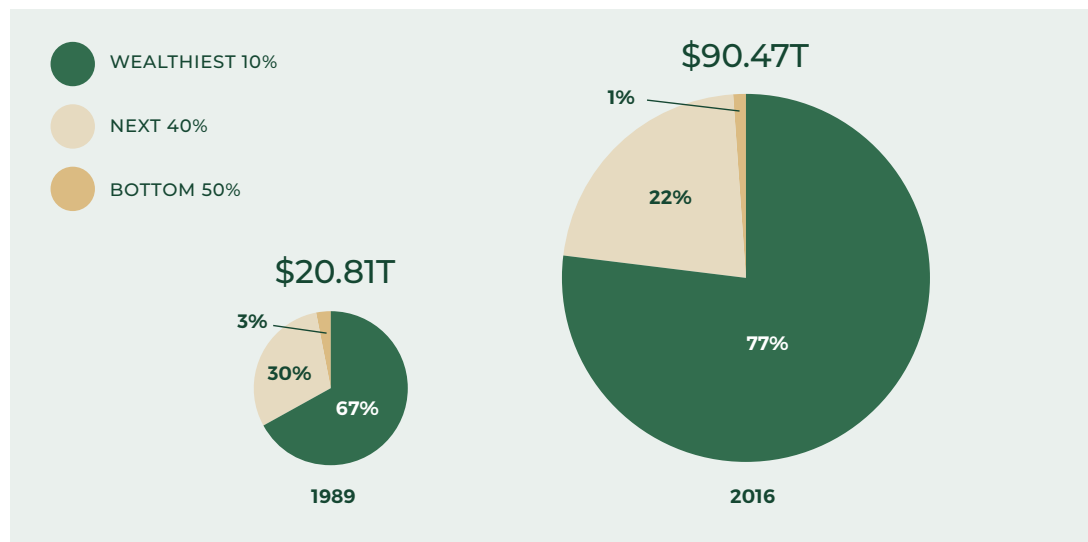
²⁰ https://www.federalreservehistory.org/essays/stock_market_crash_of_1987



ed consequences. In fact, the wealthiest 10% of Americans in 2016 controlled an additional 10% of all the wealth in America versus what they controlled in 1989 (67% in '89 vs 77% in '16). Those in the middle 40% of Americans had 8% less before and the bottom 50% of Americans had only 1% (down from 3% in '89).²¹ Some would read the data and assert, “the extra 10% at the top came from the middle and the bottom

tiers of wealth.” In fact, the economy was clearly much bigger in 2016 than 1989. As the economy grew and new, additional wealth was created through low-cost access to and the skillful use of an expanded money supply and cheap credit, the top tier captured more new wealth. As the U.S. economy grew, the pie grew in absolute terms for everyone, but the top tier’s slice got bigger over time.

WEALTH INEQUALITY



Sources: <https://www.stlouisfed.org/open-vault/2019/august/wealth-inequality-in-america-facts-figures>
<https://www.federalreserve.gov/releases/z1/dataviz/dfa/distribute/chart/#range:1989.3,2020.1>

Some people are naturally talented and skillful with credit. This is a good thing. Where it becomes problematic for our society is when those with access are catalyzed to make even more money more quickly because of the monetary system and interventions, not simply their natural talent and effort. In this case, if I am the beneficiary, the unit of account in which we all keep score benefits me more than my fellow citizens. I didn’t ask for a finger on the scale and in fact might not even realize it’s slightly tilted in my favor over time. But it is. Very rarely would I anticipate someone who is at a disadvantage could articulate what might be going on,

but smart people of all wealth levels certainly have the instinct that something’s rotten in proverbial Denmark. To them, it might easily be confused with capitalism. My view is that what’s wrong is very clearly not our economic system, but the monetary system of intervention and artificially cheap interest rates we’ve accepted.

²¹ <https://www.stlouisfed.org/open-vault/2019/august/wealth-inequality-in-america-facts-figures>



The Cantillon Effect, Layman's Edition

In a market, the people closest to the point at which liquidity is injected will benefit as the new money flows into that market.

It's broadly understood that increasing the money supply will increase the price levels in an economy. Some economists make the case that money is "neutral," meaning not harmful, all things being equal. However, not everyone accepts this view. And they haven't for a very long time now. This neutral money view is in contrast to Richard Cantillon's observation on which he expounded in 1755—that money is not neutral. The key reason is that it takes time for that new money supply to be evenly distributed through an economy and for the price levels throughout the economy to adjust, the effects of which are long-

term. In the short-term, though, if you have easy access to more of the new money as it is injected into the economy, the price levels for all sorts of goods and services elsewhere are not yet affected, as the new money has yet to be broadly distributed for price levels to adjust. This gives those near the source of new money an advantage because many goods and services are still priced at former levels. If I am levered up, I can buy more at current prices before they go up. A clear advantage. As you might intuit, the goods and services near to the injection point will usually be repriced upward to the new long-term price level first. With this in mind, consider the stock market action after March 2020, while most remain quarantined.

The Macro View

Our view is that the coming global macro environment is one for which Bitcoin was created. Additionally, the continued adoption of Bitcoin may well provide, for those whom the current monetary system does not benefit, a great ladder on which to climb up to newfound wealth. However, this hypothesis implies traversing a period of uncertainty, which now appears inevitable.

By this portion of the essay it is probably clear that, without naming it in the Fed intervention highlights section: monetary expansion through credit is at least one way that the Cantillon Effect has likely increased wealth inequality in the United States. Moreover, 2020 expansionary policies and actions are not yet completed, so based on these activities and historical trend it is clear to us that we are currently on a path for continued wealth capture by the wealthiest 10% of the population. Aca-

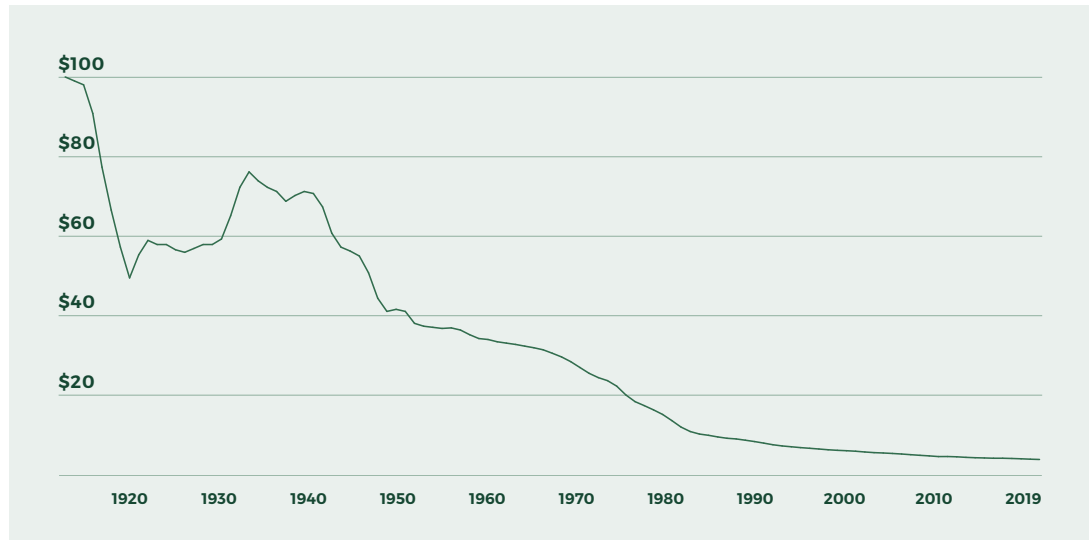
demics and many economists who insist on a neutral view of money deny that this is the case. Our view is that it is directionally correct regardless of the academics' and Fed's dismissals and we prefer to be directionally correct rather than precisely wrong.

The Venerable Dollar

The U.S. dollar is very important around the world, but many countries, among them a number adversarial to the United States, would like to see the end of the primacy of USD as the global reserve currency. Despite their efforts, thus far the dollar's reserve status persists. One factor that might inadvertently hand them what they want is the eroding of the dollar's reputation, however slight it might be in the beginning and barely perceptible it might be over time.

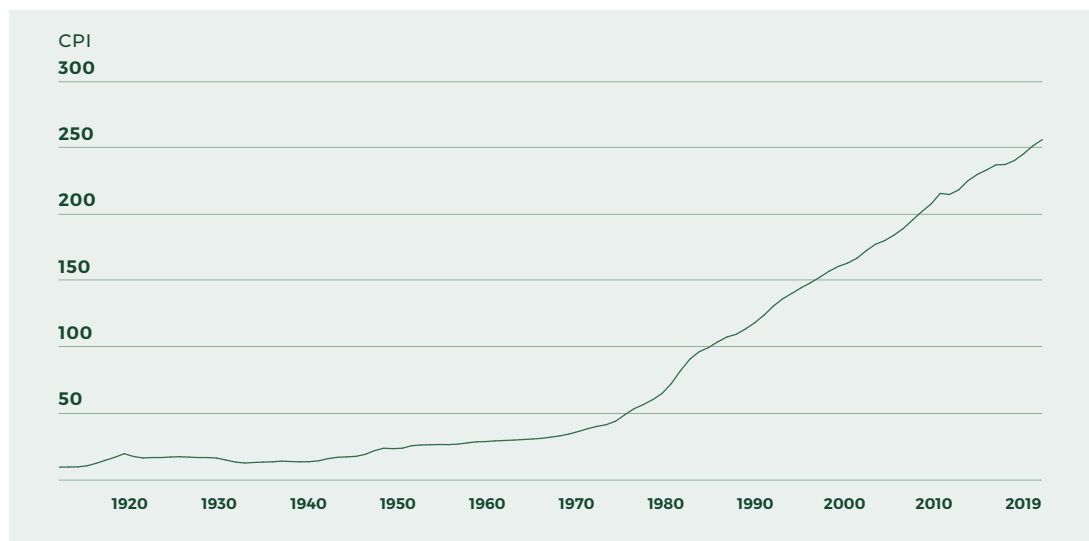


PURCHASING POWER OF \$100



Source: <https://www.buyupside.com/calculators/purchasepowerjan08.htm>

CONSUMER PRICE INDEX



Source: <https://www.usinflationcalculator.com/inflation/consumer-price-indexand-annual-percent-changes-from-1913-to-2008/>

In 2020, due to the shutdown, the U.S. government intervened on a scale and in ways that many would have considered forbidden 20 years ago. It was always recognized that in the fiat dollar system, the Fed and the Treasury had the power over citizens' wealth or its diminution by money printing. They have this power by way of our trust in the intelligent folks

in charge, which was meant to be aided by a kind of Fed appointment political shield, that would safeguard the money supply. For decades, most of those who referenced "money printing" were critics outside of the Federal Reserve system and internal hints to the Fed's ability there only appeared in times like the Crash of 1987 for "reassurance". For the most part, it was



not widely spoken of by those who have actually had that money printing ability. 2020 has been a watershed moment in this regard for a few reasons. On the one hand, U.S. citizens have famously laughed at the irony of the way government officials think by way of quotes like the famous one by former U.S. Senator Everett Dirksen:

A billion here, a billion there, and pretty soon you're talking real money.

On the other hand, programs such as TARP in the wake of 2008 were shocking in size at the time—\$800 billion dollars—an amount the late senator would never have believed. In 2020, with a relatively solid financial system apart from the economic shocks from COVID-19, programs in the trillions of dollars are bandied about with little debate from elected officials, so perhaps we should fix Dirksen's quote as it relates to the solemnity of USD:

A trillion here, a trillion there, and pretty soon you're talking about fake money.

Politics aside, it is difficult to see where the voices of fiscal conservatism are in Washington, and since we all share the same money, it is ultimately important to us all. Apart from legislator recusal from fiscal concerns, the quiet taboo nature of money printing at the Fed itself is now a historical artifact:

...and there is an infinite amount of cash in the Federal Reserve. We will do whatever we need to do to make sure there's enough cash in the banking system," said Neel Kashkari, President of the Federal Reserve Bank of Minneapolis on CBS's "60 Minutes."^{22 23}

Infinite money printing? Reasonable people recognize that whatever circumspection there might have been around USD in the past has now been compromised, at best. Further, this leaning into government programs over time and now with little discussion of the fiscal impacts—the real cost—has caused many to think of other new creative uses for this costless cash. After all, if there is a problem that can be solved by the creation of cash without cost, why would we not do that? Of course that is not the reality—there will be significant short-, mid-, and long-term costs—but the approach is now being discussed around various other political initiatives. Meanwhile, we have not yet put COVID-19 in our rearview. In short, the historically venerable nature of the dollar is now diminished to a degree. And it could well be diminished further.

Another immediate outcome of this new untethered approach to the trust and responsibility of the money supply is the sudden questioning surrounding taxation. For an individual it's pretty easy to see how we are being asked to play a game that we know we can't win with regards to taxes. Every year when I send in my income tax check it stings a little, but historically it was easy to rationalize because it's making a dent in my fair share. Except that it's not—not if I'm going to be making more money due to inflation but with relatively similar purchasing power while I'm shifted to a higher tax bracket, which I'm required to pay. For a reasonable person this quickly begins to look like a hamster wheel and a race to nowhere. Many dozens of times this year I've heard people ask the question:

If they can just print more money, why do I have to pay taxes at all?"

²² <https://www.bloomberg.com/opinion/articles/2020-03-23/coronavirus-fed-s-infinite-cash-tested-in-world-of-leverage>

²³ https://www.reddit.com/r/Bitcoin/comments/fnchzr/dont_worry_guys_there_is_an_infinite_amount_of/

(Linked to Reddit due to CBSNews.com paywall)

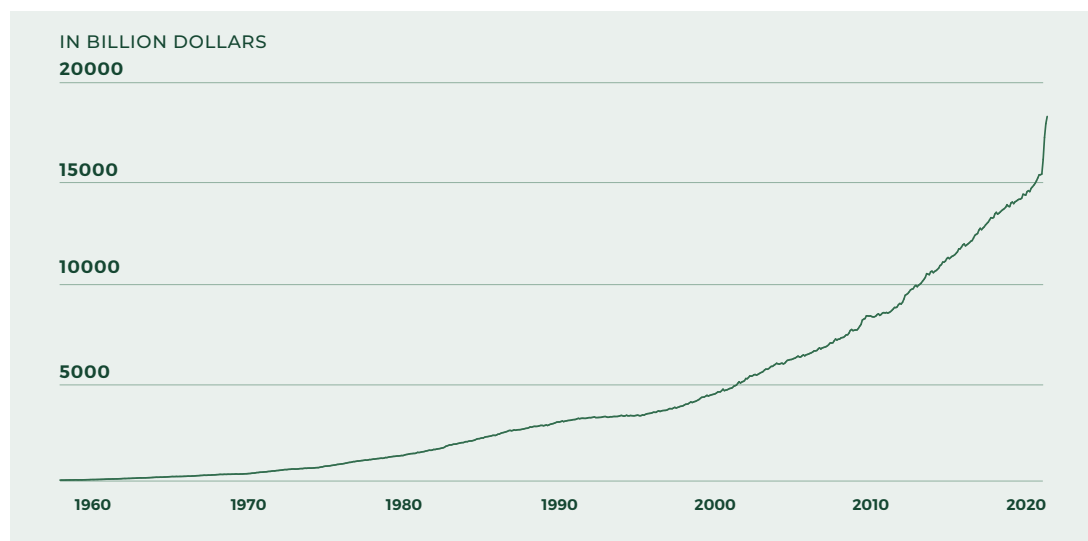


It is a logical and reasonable question. The subtext is that the validity and the value of our current money is now in question in a way it has not been before.

It gives me no pleasure to discuss the undermining of the U.S. dollar's venerable nature, but it is important to recognize the way the wind is blowing and what that means to us and our investors. Moreover, it is very likely that the ripples of these effects are only in the earliest stages of aggregating into more powerful waves. Things are even more precarious broadly. These will likely impact emerging markets far faster and far sooner than in the U.S., yet the world relies on the dollar. As such,

one would do well to look at emerging markets for early effects and would be wise to be proactive in their portfolios for exposures that might be impacted due to blowback, be it macroeconomic or political due to that dollar reliance. Keynes famously said, "In the long run we're all dead." Maybe, but if that's true it means we're all currently living out somebody else's long run and the current monetary system was put into place not so long ago by a group who felt they needed it. The U.S. dollar has historically, from one day to the next, continued to look the same, but the remainder of its intrinsically-tied value was removed.²⁴

M2 MONEY SUPPLY



Source: <https://fred.stlouisfed.org/series/M2>

On March 19th, 2020, Barry Bannister of Stifel remarked, "I think that 2021-2022 will mark the end of a [long] disinflationary era." The implication is the period could well mark the beginning of a new inflationary era. Our view is that the immediate situation will largely resolve itself in relatively short order, but that the midterm period is

less clear. Yet, the probability that a fundamental shift has happened is higher than ever before in my lifetime. When reflecting on these cyclical periods of monetary expansion, it appears that we must come to a point of recognition at some time—a point that is unclear in the mid-term or the long-term—but a point to which we must

²⁴ <https://wtfhappenedin1971.com/>



now certainly be closer.

Happily, the current environment is giving rise to discussions that have not been broad-based in the past—conversations that can lend themselves toward real positives over the mid- and long-term. As examples, many are beginning to rethink their approach to their own money. Others are questioning the validity of the basic assumption of state control of currency, as this is a relatively new phenomenon. Moreover, in a 21st Century technological context, state control of money is sometimes used as a means of population control and for tracking dissenters from statist in non-democratic systems. Still others are exploring the way inflation impacts them: while a stable and expected inflation rate is easier to plan for across the business cycle, it does erode value long term. Many are asking smart questions, perhaps more than ever before. And this is a great thing because unlike a hard science, economics is rooted in interpretive observation and is philosophical in nature. Money itself is philosophical in nature.

We see many positives that are taking place as a result of the volatility of this

cycle. Questioning the fundamental: What *is* money? What makes it worth more or worth less? What is our system? What are alternatives to the shortcomings in our monetary system? In the 21st Century this naturally and inevitably leads people to hard monetary metals and to Bitcoin with its programmatically-codified monetary hardness as a store of value and medium of exchange, but with internet-native capability.

We see some embracing a return to a saving nature and a lower time preference rather than a focus on instant gratification and consumption. Still others are leaning into the principles with which TVP aligns—principles of sound money, investment, and innovation. In short, while some might blame wealth inequality on the economic system, others are leaning into the reality that these problems are products of the monetary system. We hope the outcome of this volatility is a great resetting—diminished moral hazard, sound monetary and fiscal policy, and a purer form of capitalism separated from the unintended negative impacts created by monetary interventions.

Economic vs Monetary Systems

The current monetary system's issues which are given to exacerbating wealth inequality are rising to prominence in the online discourse. Our system has been the best because of risk taking with the promise of asymmetrical reward for those personal risks. But "heads I win; tails you lose" is not capitalism. Nor is a monetary system that effectively subsidizes leverage costs via artificially low interest rates for the already successful. These things strike at the very legitimacy of capitalism.

Worse still, bailouts for those who use this loose monetary policy for risk taking with other people's money only amplifies the outrage—and rightly so—as this kind of moral hazard offends any reasonable person's sense of fairness. With each of these crisis periods come monetary expansions and the situation repeats, but with ever-higher levels of Fed and government interventions.

There is a sentiment of injustice out there in some circles that the system is rigged



and that rich people are somehow manipulating the rest to further their own schemes of greed. This is one of the key drivers of the sudden rise in discussions around the supposed merits of Marxism in the United States. While the difference between an economic system and a monetary system might seem like hairsplitting to some, it is not. In fact, economic systems have widely been conflated with monetary systems in the public discourse. And it is the monetary system in the

United States driving these disparities in wealth capture as the overall economy and productivity grows. It is our view that a key component to a more sustainable monetary order in a 21st Century technological context hinges on restoring sound monetary policy broadly and that the inherently sound monetary policy and cash properties of private transactions via Bitcoin will necessarily give challenge to the existing global monetary system.

Bitcoin Was Created For This Environment

Encapsulated in the white paper of Bitcoin was a startlingly elegant solution to these and other problems. It provides an electronic form of cash, which we believe is necessary for the proper functioning of a democratic society with respect to the right to privacy and free speech in a technologically advanced society. It provides an internet-native money at a time when Web3 technologies are emerging and the way we consume services online and purchase goods fundamentally shifts from existing systems to new forms, yet runs counter to the creeping dystopian tendencies of some tech applications. It provides to investors a strong hedge against inflation while being instantly and globally salable, as opposed to monetary metals. Finally, in an environment of increasing global monetary uncertainty, Bitcoin's monetary policy is simple, enforced programmatically, and unchangeable. In an expansionary monetary environment, all of these features are very bullish for bitcoin.

Without making a recommendation, we only point out to the reader that some consideration of inflationary pressures and a consideration of some allocation to bitcoin specifically will be prudent going

forward. I would challenge an investor to clearly articulate one's rationale for no bitcoin allocation, and if that is the decision, to write it down or discuss the decision with the investment committee. For whatever perception of risk has historically been associated with bitcoin, given current and possible future global monetary conditions, no allocation at all might carry with it disproportionate risk.

Apart from bitcoin the asset itself, a wave of bitcoin-native companies building on Bitcoin is growing. We are seeing a significant uptick in dealflow. We have been and anticipate acceleration of our venture investment in founders building companies with a Bitcoin hard monetary thesis as a first principle. In a future publication I'll share some highlights in that regard. We're going to continue to invest in those prescient entrepreneurs founding companies from that first principle: bitcoin is the hard monetary asset of the future.

