

PANTERA

BLOCKCHAIN LETTER

March 25, 2020

Dan Morehead

CEO & Co-Chief Investment Officer

Dear Limited Partners,

When I was sitting down to write – thinking of a way to convey my concerns about the fragility of supply chains and thence the economy as a whole – I was reminded of the pencil story in Milton Friedman’s classic economic text *Free To Choose*.

It seems to me the analogy is even more germane than I first thought. Freedom to choose itself is potentially a negative at this moment in time.

The Wikipedia entry for the book has a poignant summary:

“Free to Choose: A Personal Statement maintains that the free market works best for all members of a society, provides examples of how the free market engenders prosperity, and maintains that it can solve problems where other approaches have failed.”

The world might be experiencing an exception to that rule. Freedom for every person, every county, every state, or even, every nation – to choose might be suboptimal. This patchwork of choices is likely to have grave consequences.

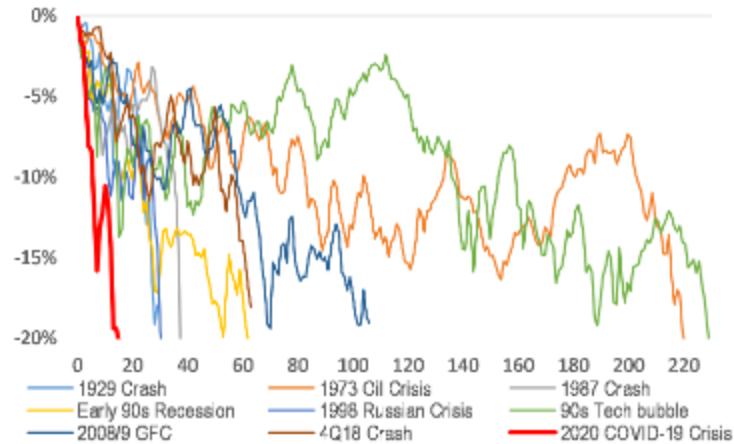
I’m not an epidemiologist, so I’ll leave that to others.

I have spent 35 years trading global macro disruptions. This is like no other. This will certainly end the longest global expansion on record. It is likely to have a larger global economic impact than any downturn in recent memory.

FINANCIAL MARKETS

The S&P 500 recorded its quickest bear market ever. The COVID-19 pandemic pushed the stock market down 20% in just 15 trading days, twice as fast as The Crash of 1929, which precipitated the Great Depression.

Figure 1: The COVID-19 pandemic sparked the fastest S&P 500 bear market ever, reaching a 20% sell-off from the market peak in just 15 trading sessions



Source: J.P. Morgan Equity Derivatives Strategy, Bloomberg.

After the longest, least-volatile bull market in history, this will probably expose a lot of bad risk – hidden under 10 years of bull market.

The contrast to recent times is striking. In 2017, the maximum drawdown from peak-to-trough was just -2.8%, one of the lowest intra-year losses in history. The S&P is doing that every few minutes now.

There was a prescient Op-Ed in the *New York Times* over a month ago entitled:

*To Take On the Coronavirus, Go Medieval on It
Quarantines and restrictive measures served a purpose in the old days. They can now, too.*

The unfortunate corollary – Medieval GDP was low and stagnant.

RECESSION

I screenshotted this Bloomberg economist survey in a note to colleagues less than two weeks ago.

U.S. Recession a Coin Toss as Chances Climb to 53% Within Year
By Reade Pickert, Yue Qiu and Alexander McIntyre
Updated: March 10, 2020, 1:00 PM

Saying “This is Krazy. It’s 100.0% chance of a recession.”

I now believe that the recession is likely to be larger than any post-War recession.

As many of you have already experienced in your towns, few people are doing business in the Bay Area and my colleagues report the same in other cities. It seems like everyone in my community is out hiking; in Manhattan, walking in Central Park. While that would max out Bhutan’s measure of Gross National Happiness, it does not add to GDP.



GDP is a flow measure. If those hikers were previously producing goods and services, GDP will plummet.

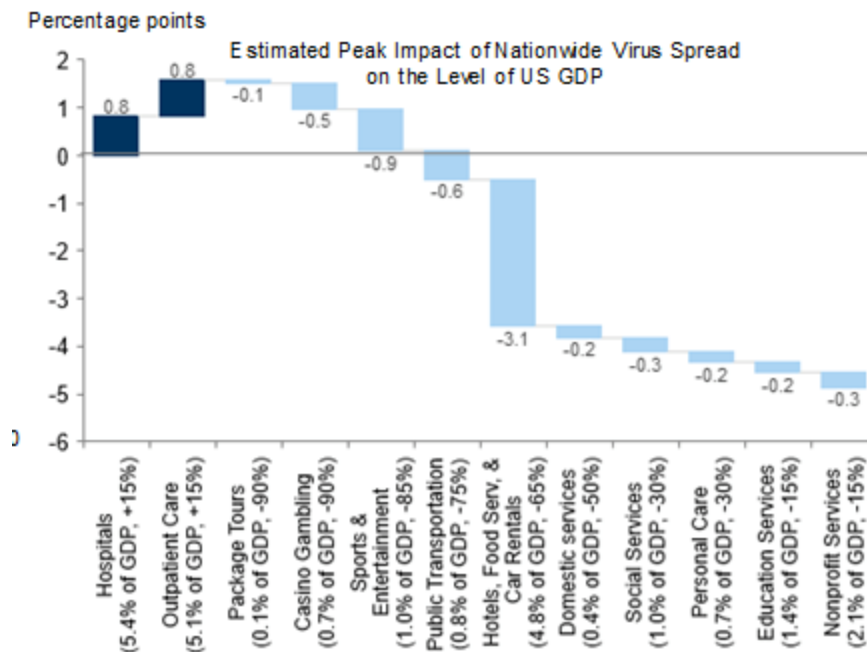
Before 2009, the IMF had defined a global recession as annual real GDP growth rate of 3% or less. There had not been a period of negative global growth. Emerging markets typically had high growth rates and recessions were contained within a country or a region.

Wall Street firms are now forecasting a real recession – negative global growth.

Goldman Sachs: “global real GDP to contract by about 1% in 2020”... “24% drop in the United States that would be 2½ times as large as the previous postwar record.”

JP Morgan: “full year 2020 at -1.1%”

This info graphic from JP Morgan on the U.S. GDP picture is very well-done:



NOT V-SHAPED

There’s already talk of the recession being V-shaped.

There is so much uncertainty today. However, the one thing that seems clear is that this recession won’t be V-shaped.

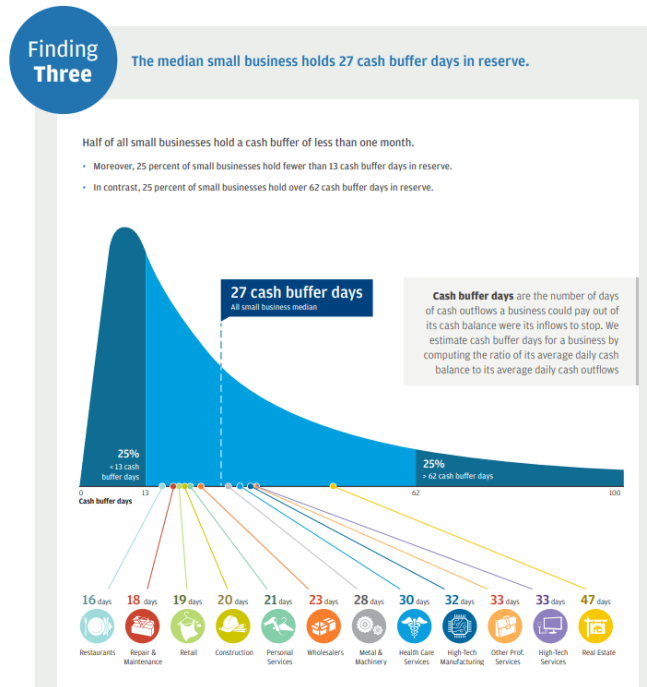
In the wake of the September 11th attacks, airlines were grounded for three days. After that, we were all sad but commerce restarted. That was a one-off shock which allowed a V-shaped return. We are just starting something that will take a long time to untangle.

In the 2007-2009 recession, real GDP fell \$650 billion (4.3%) and did not recover its \$15 trillion pre-recession level for three years.

UNEMPLOYMENT

As an example of how hard it is for fiscal policy to help – and to help fast enough: the median small business has enough cash to last 27 days with zero revenue.





<https://bit.ly/2vOYbzT>

Goldman Sachs:

"Using three approaches—the empirical relationship between GDP and unemployment, the experience of Hurricane Katrina, and a bottom-up analysis of likely job losses by sector and occupation—we estimate a 5.5pp increase in the U3 unemployment rate to a 9% peak in coming quarters."

"...we estimate that 2¼ million Americans filed an initial jobless claim last week, a number that exceeds the previous all-time high by a factor of three and equates to 1½% of the insured workforce. (In Canada, an even more staggering 2½% of the workforce filed a claim last week, according to PM Trudeau.)"

INTERDEPENDENT SUPPLY CHAINS/ECONOMIES

When I was in elementary school, we watched a fascinating documentary on Ford's massive River Rouge Complex in Dearborn. Iron ore, coal, sand, and few other basic ingredients went in one end – and cars drove out the other.

The world we live in is so different. Just-in-time inventory management with thousands of suppliers in dozens of countries feed a supply chain that will be very difficult to restart – especially with the asynchronous manner that the virus is ebbing and flowing around the world.

In 1980, Milton Friedman presented his vision of free market economics in a 10-hour PBS broadcast series called *Free to Choose*. Friedman distilled his argument into a parable about a common household object:

"Look at this lead pencil. There's not a single person in the world who could make this pencil. Remarkable statement? Not at all. The wood from which it is made, for all I know, comes from a tree that was cut down in the state of Washington. To cut down that tree, it took a saw. To make the saw, it took steel. To make steel, it took iron ore. This black center – we call it lead but it's really graphite, compressed graphite – I'm not sure where it comes from, but I think it comes from some mines in South America."



This red top up here, this eraser, a bit of rubber, probably comes from Malaya, where the rubber tree isn't even native! It was imported from South America by some businessmen with the help of the British government. This brass ferrule? I haven't the slightest idea where it came from. Or the yellow paint! Or the paint that made the black lines. Or the glue that holds it together. Literally thousands of people cooperated to make this pencil. People who don't speak the same language, who practice different religions, who might hate one another if they ever met! When you go down to the store and buy this pencil, you are in effect trading a few minutes of your time for a few seconds of the time of all those thousands of people.

"What brought them together and induced them to cooperate to make this pencil? There was no commissar sending...out orders from some central office. It was the magic of the price system: the impersonal operation of prices that brought them together and got them to cooperate, to make this pencil, so you could have it for a trifling sum."

It is ironic that command economies are likely to have far less damage from the virus.

THE VIRUS'S IMPACT ON THE ECONOMY

If everyone in a country were to self-isolate for two weeks and be tested, health officials would know who has the virus and who does not. Those citizens with the virus could be treated and the others back to work.

Two weeks divided by 52 is a 4% drag to trend GDP. That's the theoretical/least bad scenario.

Reality doesn't work that way. Each country is adopting different measures. The impact will be at least that large in the United States and many other countries.

China – which led the world into this and is hopefully now leading our way out – is likely to see a 40% seasonally-adjusted annual rate decline in GDP in Q1. It has not experienced that in at least 50 years. That's a 12% absolute drop.

China was slow to admit the problem. When China did address the situation, they were able to contain the virus. China shut down Wuhan and restricted movement in much of the rest of country on January 23rd – when the country had just 17 deaths.

China, South Korea, Singapore, and Taiwan have given hope that, with aggressive efforts, the contagion can be conquered.

LIKELY POLICY RESPONSE

Recessions are typically caused by a lack of income or access to credit. Fiscal and monetary authorities are accustomed to coordinating their policy response against that challenge.

The virus is a physical constraint on economic activity – an invisible one at that. It will be very difficult to counter-act with the standard economic policy tools.

Countries like South Korea are proving that the most effective tools are science and localization technologies.

MONETARY POLICY



Walter Bagehot set forth in *Lombard Street*¹ the following dictum:

"[T]o avert panic, central banks should lend early and freely (i.e. without limit), to solvent firms, against good collateral, and at high rates."

In the age of Zero Interest Rate Policy (ZIRP), monetary policy has already lost most of its efficacy. Rates have been near zero in most major economies for a long time. Japan – which invented ZIRP – named the new reality “the lost decade”. That was 25 years ago.

Monetary policy is impotent against the economic and psychological impacts of a pandemic.

"Hey, Honey, the Fed cut rates 100 basis points today. Let's go to the movies."

With last week's Fed cut, now almost 60% of the world's GDP is already at its effective lower bound of zero.

To put the previous monetary response in perspective, during the Global Financial Crisis in 2008-9, the U.S. cut rates 438 bps. The global cut was 297 bps.

This time, the U.S. only had 150bps of ammo left. Globally, rates are expected to be reduced by only 55bps – less than a fifth the policy support of the previous crisis.

Many investors have asked about negative interest rates. It seems to me that most central banks now believe that negative interest rates really aren't effective – that zero is essentially the lower bound. I'm not aware of any major central bank that believes they can take rates substantially below zero. The Fed has now come to zero a handful of times and each time they set their target to 0-25 basis points.

FISCAL POLICY

Fiscal stimulus of some sort is needed to support aggregate demand for the most vulnerable. Unfortunately, fiscal stimulus is very hard to surgically pinpoint against an invisible, physical adversary.

The U.S. is debating \$2 trillion of fiscal stimulus – almost 10% of GDP – much larger than any fiscal stimulus since World War II. (The American Recovery and Reinvestment Act of 2009 was \$850 billion, or about 6% of GDP.)

The United States is likely to exit the coming recession with more debt (as a percentage of GDP) than after fighting The Great Depression and World War II.

IMPACT ON CRYPTO

Bitcoin was born in a financial crisis. It will come of age in this one.

When I was a bond trader, I was conscious how the terminology sounded upside down. The “best” times for bonds were the worst times for everybody. Recessions and depressions are “great” for bonds.

Unfortunately, I believe that's what's happening in our market – cryptocurrency.

As governments increase the quantity of paper money, it takes more pieces of paper money to buy things that have fixed quantities, like stocks and real estate, above where they would settle absent an increase in the amount of money. I think they will do that. The corollary is they'll also inflate the price of other things, like gold, bitcoin, and other cryptocurrencies.

¹ Walter Bagehot ([1873] 1897), *Lombard Street: A Description of the Money Market* (New York: Charles Scribner's Sons).



The United States entered this crisis with an unprecedented structural deficit. Spending 31% more than it takes in. Prior to the emergence of the SARS-CoV-2 virus, the Congressional Budget Office expected a budget deficit of over a trillion dollars. It could now be triple that.

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

– Attributed to U.S. Senator Everett McKinley Dirksen

Now that we're in the trillions, the deficit just simply has to have a positive impact on the price of things not quantitatively-easable – stocks, real estate, cryptocurrency relative to the price of money. Said another way, the BTC/USD cross-currency rate will rise.

The price of bitcoin may set a new record in the next twelve months. It's not going to happen overnight. My best guess is that it will take institutional investors 2-3 months to triage their current portfolio issues. Another 3-6 months to research new opportunities like distressed debt, special situations, crypto, etc. Then, as they begin making allocations, those markets will really begin to rise.

I want to stress that nothing in this note is meant as a criticism of individuals or agencies. All are doing their very best under trying circumstances. I am glad that I am not required to make these choices. My only job is to manage your money in the cryptocurrency markets. I strongly believe that the policy set will ultimately be net positive for cryptocurrencies. That is how we are positioning.

SPECIFIC ACTIONS IN CRYPTO

We believe that tokens will out-perform venture for a several-month period. Tokens reprice instantaneously, and so they have much more volatility, on both the upside and the downside. Venture pricing is typically lagged. The number of deals dries up quickly. Many months later, when both sides finally agree where the supply and demand curves meet, you'll see the number of deals pick back up, but at lower prices.

We reduced our token risk about 15% for about a week. We now believe that the short-term high correlation with general markets is over and that crypto will trade independently. Joey Krug discusses this in greater detail below.

We believe bitcoin will probably out-perform other tokens for a while. It's a project that's already built, it works, it has an 11-year track record. Many newer blockchain and smart contract projects are still in development and might be stressed to raise funding to complete their development.

There's typically a flight-to-quality where people want to put money in the mega-caps, the safest asset, "the Treasuries" of the industry. When markets are stressed and people are trying to sell all crypto assets, bitcoin's much more liquid than everything else. We have increased our bitcoin exposure and taken down risk in other assets.

In the five major S&P downdrafts since 2012, bitcoin's correlation with stocks spiked sharply positive for 32 days in the initial movement, but tapered off to neutrality over an average of 71 days.

While assets such as gold tended to uniformly gain an average of 8.2% during these periods, bitcoin has historically experienced some of its greatest volatility during these times.

Bitcoin's relative market-share (known as "bitcoin dominance") among all digital assets has increased in each of the five major S&P downdrafts since 2012. The increase in dominance historically lasted an average of approximately 4 months and an average gain of 7.8%. We believe that is likely to happen again. It has moved several percentage points already.

[Graphs of these correlations, dominance, prices are below in Joey's piece.]

Lastly, these very volatile and potentially panicked markets are well-suited to algorithmic trading. We have increased the share of Digital Asset Fund in our algorithmic strategy to 30% of the fund.





“CRYPTO MARKET THOUGHTS” CONFERENCE CALL

Pantera's investment team hosted a conference call to share perspectives on the global macro situation and how we believe it will impact the cryptocurrency markets. You can watch the presentation by clicking the button below.

Crypto Market Thoughts

Given the interest in this call, we will host an update in two weeks:

https://zoom.us/webinar/register/WN_6v0i3SvRTQ6k2hsl_4ui-Q



My best wishes for the physical and mental health of those in your family and community.

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JOEY KRUG'S THOUGHTS ON THE VIRUS AND THE CRYPTO MARKETS

Given the recent activity in both cryptocurrency and broader markets following COVID-19's outbreak, we'd like to address the state of the markets, factors contributing to cryptocurrency drawdowns, and the actions being taken as they relate to our fund strategies and firm operations.

We've been in an extraordinary 11-year bull market – the longest in American history. A correctional period was imminent and COVID-19 emerged as the catalyst for this economic downturn. Almost all asset classes are taking a hit.



A massive pandemic is a black swan of black swans. This one is especially unique in that it is causing supply shocks, demand shocks, and healthcare system shocks. What initially began rippling through cruises and airlines is now starting to ripple everywhere. We believe markets are bound to reach levels of “max pain” in a matter of weeks of constant quarantine, but this could be delayed if China (which is ahead of the rest of the world on the curve) is unable to successfully reopen stores and factories.

Over the past few weeks, it’s become clear that crypto, while uncorrelated in trending or range bound markets, is not uncorrelated in sharply down equities markets. In this crisis and ones of the past, it seems that all asset correlations seem to go to one. Even Treasuries last week saw a sell-off on some days (there was one notable day when both equities, gold, and Treasuries went down a sizable amount). In these sorts of environments, people (and businesses) want cash when they’re panicking to cover their financial needs.

We believe this market has two aspects to it like any other market: **fundamentals** and **technicals**, and we believe this one is mostly fundamentally driven. There’s likely no amount of cash the government can give people to make them go see a movie right now – they simply don’t want to get sick and so they aren’t spending. So, we’ll explore the fundamentals, the technicals, what has transpired in the markets, and what we are doing to ensure our fund strategies remain healthy.

Market Fundamentals :: Understanding the Virus

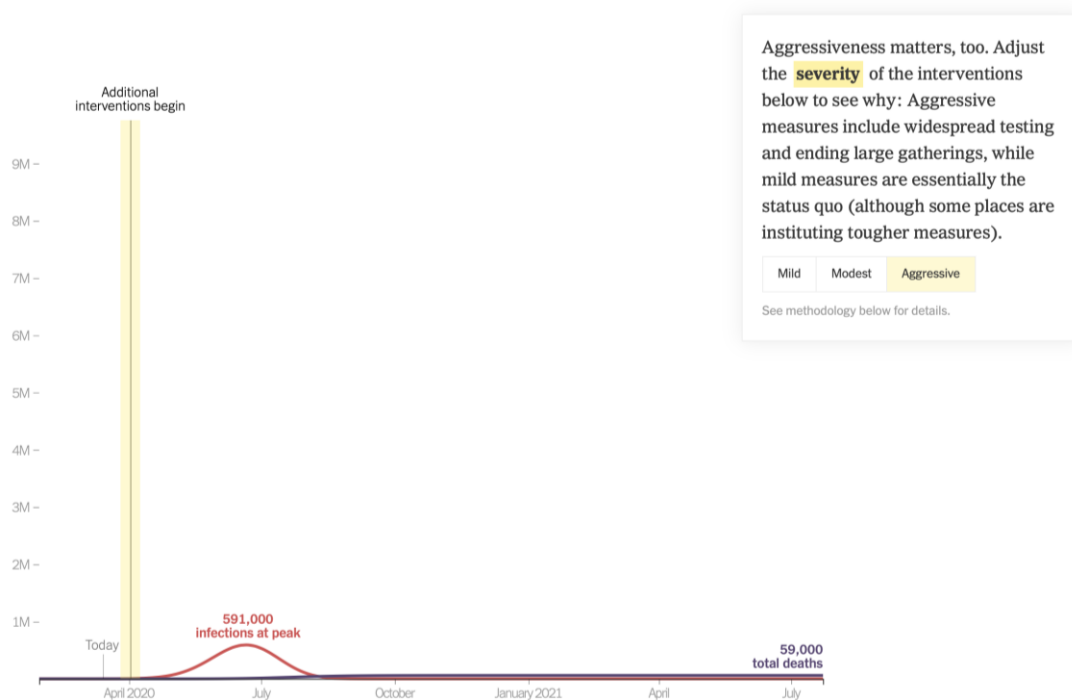
The following is a summary of our beliefs on the fundamentals. And since this crisis is driven by a virus, it’s imperative to understand how it might play out, as this dictates how we formulate our response.

The virus has a high RO or, in plain English, every person who has it will infect roughly two other people over the course of their contagious period. This is a bit more contagious than the [Spanish flu](#) (which half the world’s population got), and 40-50% more contagious than the [Swine flu](#), which infected about 15%. The big difference is what’s known as the CFR, or fatality rate – it’s about 3% right now. For comparison, seasonal flu is about 0.05%, so COVID-19 is 9-60x more deadly, depending on how you count it. That said, there may be a lot of undiagnosed cases, which could lower the CFR.

The latest epidemiology numbers show that if we do widespread testing and implement social distancing and school and workplace closings, we’ll see about 6-10m cases and 60-100k deaths through July. If we go full China/SK-style measures, cases could stall out in a month in the optimistic setting and we will only see ~1m cases and roughly 30,000 deaths. For reference, the 2017-2018 flu season had about 30m cases and 80k deaths.

Below is an epidemiological outcomes model from the *New York Times* assuming aggressive social distancing and widespread testing are implemented nationwide by April:





Flights are down over 50%, and restaurant traffic is off nearly 100%. This is good for halting the virus, but bad for the economy overall.

Due to a shortage of tests, people with mild symptoms are still running into problems getting tested. China had visual exponential growth for three weeks after implementing social distancing, then a sharp leveling off. Western countries implemented these measures much later on the case curve than China. We will eventually see a similar sort of levelling off and are paying close attention over the next two weeks to begin to see it happen on a log scale, and probably a couple of weeks after that in the absolute number of cases.

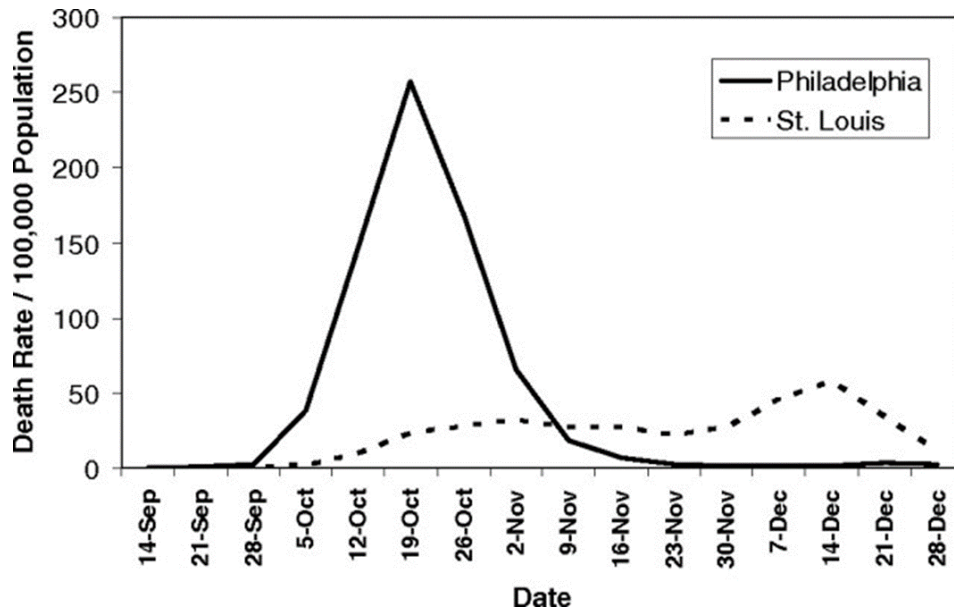
An important metric to pay attention to is number of cases in China as they start reopening businesses and people begin resuming their normal lives. If this goes well, it bodes well for the U.S. and Europe. If it doesn't, it means a lot more pain over the next few months. So far, it's too early to tell and there are mixed signs coming out of China: one town opened and reclosed in 30 minutes; other places seem to be doing fine. But the government just banned western media, which seems like a weird decision to make right now and leads to even less accurate visibility and information into the situation there.

Looking to the Past

In a time like this, it's important to look to the past to see what happened and how it could play out. Generally, the main things people want to know are how long this is going to last, when will the market bottom, and how long will it take to recover.

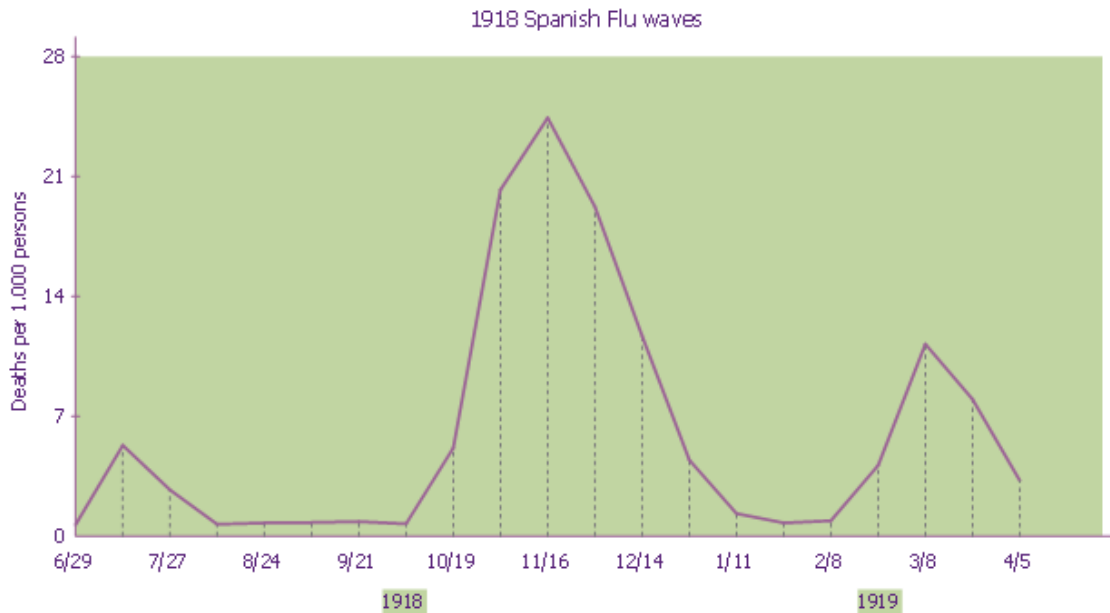
To know how long this is going to last, we need to understand what is happening next in terms of the virus itself. We've already established that it's going to be another couple of weeks until the curve starts to taper off on a log scale. After that, we'll see new cases each day begin to taper off like how they do in other pandemics with social distancing. If we look at the Spanish Flu in 1918-1919, we can see the difference in two cities where one implemented social distancing and the other didn't until later; it's clear that St. Louis moved quickly:





So, it seems like these measures will work to dampen the spread of the virus, and based off data from China, Italy, and Korea, log growth rates of the spread tend to taper off two weeks after implementing widespread testing and social distancing. It could be another few weeks after that before absolute numbers of case growth tapers off, and cases are going to continue to peak a lot in the next two weeks as the U.S. finally begins widespread testing. That said, it remains to be seen if China can successfully reopen without a huge resurgence in cases. In 1918, the flu had three waves, and a huge second wave with most cases lasted about three months. But this was before many places knew about mitigation methods or social distancing – people didn't even know what viruses really were back then. We may also be able to get a lot more data with serological tests that enable doctors to detect people who had coronavirus and got better, which could give a lot more insight into how many people have already had it. So, it's likely we can do a far better job this time with modern medicine and modern containment techniques.





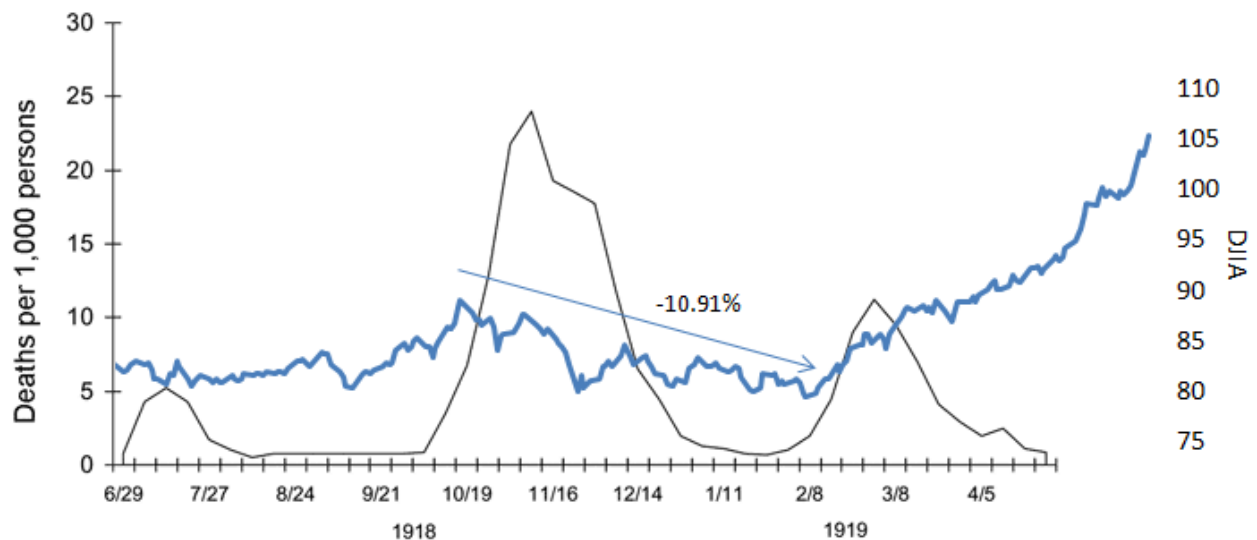
There's one other big open question in the fight against COVID-19 (Trump calls it a war, and it's not a bad term, there is a war going on against this virus), and that is whether there are any drug treatments that will work for the infection. Currently it appears that there are a few main candidates: Remdesivir, Hydroxychloroquine, and Azithromycin. There's a large quantity of in vitro data showing that the last two drugs do work well and very preliminary data which shows that Remdesivir works, but it's mostly anecdotal or case studies: there are many clinical trials in progress by China, the CDC, and Gilead (the manufacturer) and we will know more in April.

Spanish Flu vs. Dow Jones

Below is a chart of Spanish Flu cases and the DJIA over 1918 and 1919. We can see that the peak to trough of the Dow was about 11%. This is misleading, though, because the market peaked in December 1915 at levels 50% higher than the troughs seen during the influenza epidemic in February 1919. The market ended up going down 60% total by December 1920, although this portion was unrelated to the epidemic. So, from 1915-1917 we saw a bunch of various declines due to WW I that caused valuations to be much lower. The market only fell an additional 11% from its high in October 1918 to February 1919, which can be attributable to the pandemic (it was down 24.7% for the year in 1918). And then in 1920 we saw more declines due to the post-war recession. Part of the reason the market probably didn't decline that much in 1918 was because valuations had already come off so much in 1917 and 1918 prior to the epidemic.



1918 Spanish Flu and the Dow Jones Industrial Average



Since the pandemic is a true systemic shock, the stock market will likely bounce back faster than people think. After 1920, the market started a massive bull rally, for instance. For COVID-19, the global supply chain is tied up, there's a huge global demand shock, and people literally cannot go outside. As soon as these conditions get better and lifted, it should only be up from there.

Timing the Market

Trying to time a bottom in the markets is always hard, but we think it will coincide with levels of "max pain" – when people begin to panic sell due to immense fear. This is likely to coincide with cases peaking. So, we're continuing to monitor if cases peak in terms of daily percentage growth and in terms of absolute numbers of new cases per day. We think this will happen over the next two to three weeks. We can look to Italy, which is about a week ahead of the United States, to see a glimpse into the future. If they don't begin to see their curve taper off like South Korea, we could see U.S. cases peak in May or June instead of sooner.

We're about to see a massive stimulus plan unlike anything the world's seen before (at a larger scale than even 2008) involving, definitionally, Friedman-style helicopter money. The first plan likely won't be enough. In the words of the movie *Jaws*, "You're gonna need a bigger boat!"

In summary, catalysts to pay attention to for a bottom are:

- Max pain in 2-4 weeks when growth in cases begin to peak. If Italy doesn't peak in 1-3 weeks, then it's more likely we peak in May or June instead of April
- Successful drugs exist that lower CFR > 10x
- People are so fearful that they shop online even for staples like groceries
- > \$1T in stimulus plans and > \$250B in bailouts [note: written March 20th]
- When the S&P is below support at 2000
- Bad Q1 numbers
- Bitcoin staying above \$5k despite continued declines in the SPY

When many of these things happen, it's time to consider getting more heavily back into the market.



Looking into how long this will take to recover, the St. Louis Fed wrote a great [report](#) on pandemic flus a few years ago. While the coronavirus isn't an influenza, this report is still a good resource on pandemics.

The St. Louis Fed said, "Most of the evidence indicates that the economic effects of the 1918 influenza pandemic were short-term. If cases increase 10x over the next three weeks, we probably still have a lot more pain, at least in equities. Fear will be dialed way up, even more so on the retail side. And for this to work, there really needs a solid quarter of a 50%+ drop in hotel, cruise, and flight traffic, otherwise cases will shoot back up.

Closing Thoughts

Throughout the quarantine period and downturn, there will be many corporate bankruptcies, restructurings, and hardships due to how overheated the economy and stock market was and how little cash many companies kept on hand (they instead funded lots of buybacks).

It'll take years to recover fully to the highs and to also eventually unwind all the monetary policy that was enacted for this event. But much of the decline we believe will recover quickly, like in 2009 and 2010 post-recession.

For crypto, it's quite apparent that it is only an uncorrelated asset when there aren't severe systemic shocks where people go fully to cash, just as gold didn't rally until near the end of 2008. We believe that in the recovery, crypto will recover faster and stronger than equities due to disillusionment with a massive expansion of the monetary supply that the Fed is currently undergoing and because it's currently perceived as a risk-on asset. So once people are convinced the coast is clear, they'll begin to load up on riskier assets to get more exposure to upside volatility, like they did after the last recession.

For the private side, we see the same things happening. During the downturn, valuations will drop, terms will become more beneficial for investors, and companies will raise lower rounds with more reasonable milestones. Early stage investing in dollar terms declined in 2009, but only by about 20%; valuations fell by similar amounts. There'll also be a renewed focus on companies that can get revenues quickly to survive the downturn as well as VCs focusing on their existing portfolio companies over the next couple of months as the market evolves before resurfacing to do lots of deals. That said, some VCs are still actively investing cautiously, us included!

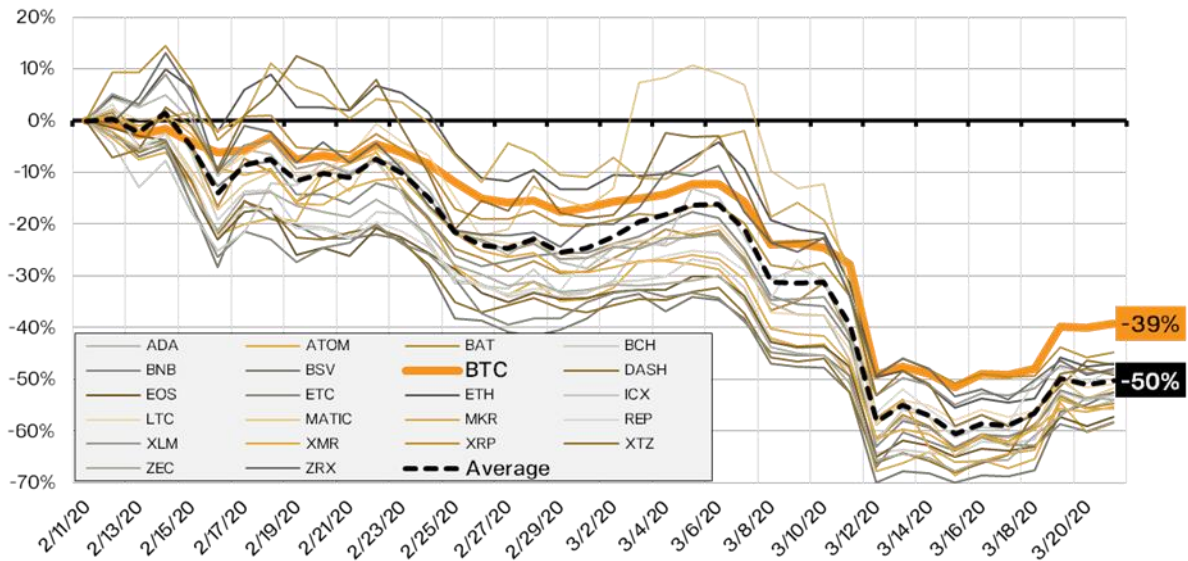
Going forward, we intend to continue monitoring the market within the framework above and look for the catalysts signaling that it's time to be more aggressive in putting more risk on in our portfolio. Though for now, the pandemic will take weeks, at best, for cases to peak, and we'll continue to monitor the virus, the fundamentals, and technical levels to make the best decision with the visibility we have.

CRYPTO-ASSET MOVEMENT

The main thing we do see is a flight to quality, where Bitcoin will increase on a relative basis until market conditions begin to normalize. Below is a chart of cryptocurrency movements since Bitcoin's high on February 11th. All assets are down an avg. of -50% relative to bitcoin's -39%.



Crypto-Asset Movement



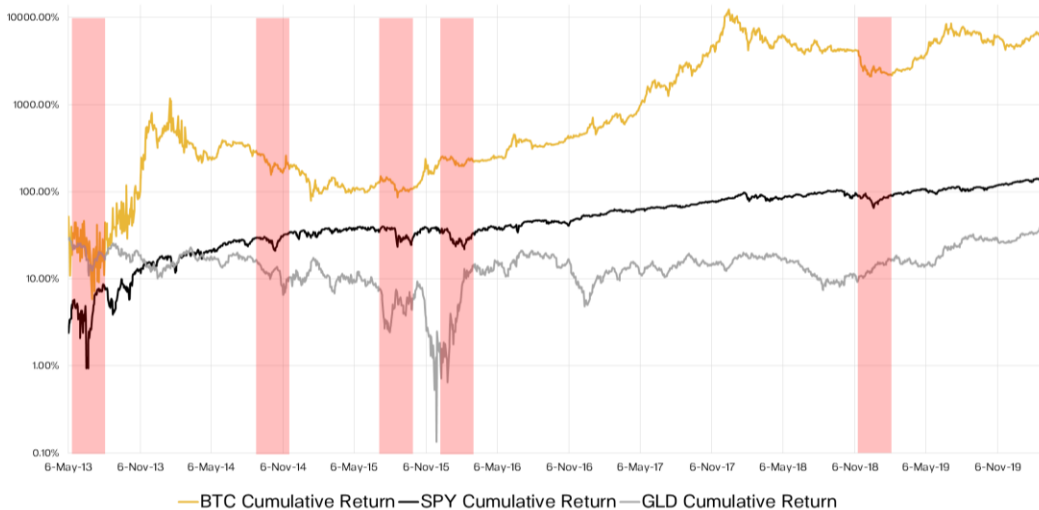
Is Crypto a Risk-On or Risk-Off Asset Class?

A common misconception people have is that Bitcoin serves as a risk-off safe-haven asset in the short-term. It's actually a misconception people have about gold to some degree as well. During huge spikes in volatility and steep downturns, it isn't uncorrelated. People sell everything during these times. Even gold had a sell-off the other week - it's starting to rally now. But basically everyone is selling everything for cash, and crypto is no exception to that.

The chart below shows bitcoin uncorrelated in trending or range bound markets. But during crisis moments, for a period of weeks or a couple of months, there's a pretty high correlation between bitcoin and the S&P 500 [highlighted in red].

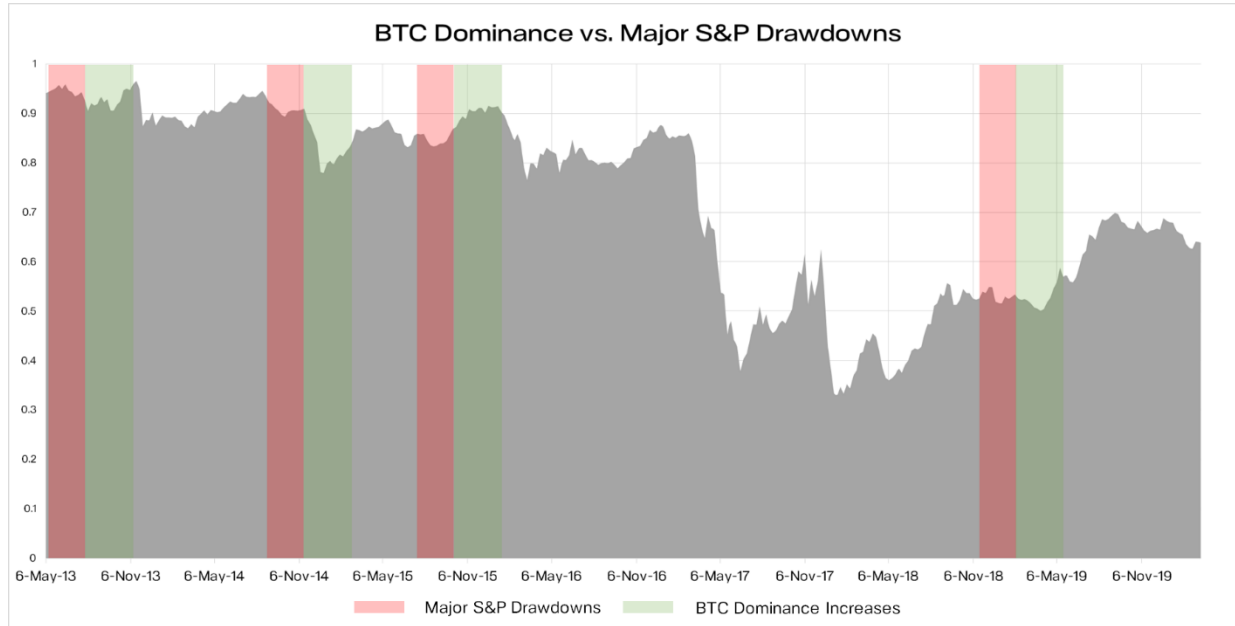
The punchline is that bitcoin remains uncorrelated over the long-run, but that doesn't mean it's going to have correlation over short-term cycles.

Logarithmic Performance of BTC, S&P 500 (SPY), and Gold (GLD)



BTC Dominance vs. Major S&P Drawdowns

Looking at the historical trend between bitcoin dominance and major S&P 500 drawdowns, bitcoin dominance has risen by about 8% on average over the ensuing 4-month period. The chart below depicts S&P drawdowns highlighted in red, followed by bitcoin dominance increases in green.



COVID-19 INFORMATION SOURCES

Economic Impacts

<https://www.nytimes.com/2020/03/22/opinion/coronavirus-economy.html>

Informational

https://www.nytimes.com/interactive/2020/03/21/us/coronavirus-us-cases-spread.html?nl=todayshadlines&emc-edit_th_200322&campaign_id-2&instance_id-16974&segment_id-22534&user_id-a6c7e2ebb314241e403db1ee65c0a995®i_id-186174710322

<https://www.nytimes.com/interactive/2020/world/coronavirus-maps.html>

<https://coronavirus.jhu.edu/>

<https://medium.com/@tomaspueyo/coronavirus-the-hammer-and-the-dance-be9337092b56>

<https://www.japantimes.co.jp/opinion/2020/03/21/commentary/japan-commentary/japan-still-coronavirus-outlier/#.XnZH06FRUIQ>

<https://www.wsj.com/articles/is-the-coronavirus-as-deadly-as-they-say-11585088464>

PORTFOLIO COMPANY HIGHLIGHTS

Amber Raises \$28mm Series A Led by Pantera

Pantera and Paradigm led the \$28mm series A round in [Amber](#), a diversified crypto finance firm.



Amber helps clients buy and sell cryptocurrency products, earn yield, manage risk and access liquidity. Amber services the world's largest exchanges, miners and mining pools, token issuers, wallets and hedge funds, and has traded over \$100bn since inception. They operate around the clock and around the globe, with a presence in Hong Kong, Shenzhen, Seoul, and Vancouver.

For additional information on Amber, check out this [article](#) written by Pantera Partner Paul Veradittakit.

AMBER

Transparent Systems Raises \$14mm Series A Led by Pantera

Pantera led the \$14mm Series A round in [Transparent Systems](#), a Seattle-based startup building a “real-time” decentralized payment settlement network. Other investors included Jack Dorsey’s Square, IDEO CoLab Ventures, Future\Perfect Ventures, and CMT Digital.

Transparent Systems builds seamless on-demand 24/7 settlement solutions. Leveraging cryptographically-secured distributed networks, they reduce the friction in making and receiving payments. They also remove conventional costs per transaction, transforming the way businesses pay to get paid.

For more information about the company, checkout their website [here](#).



INTRODUCING :: PANTERA BLOCKCHAIN BLOG

We launched our new Pantera Blockchain Blog on March 6th! Every month, we’ll release a new blog post on our [Medium Page](#) sharing portfolio company news, career opportunities, a special thought-piece, and materials we’ve been reading.

If you are a portfolio company and would like us to feature a specific news event or company milestone, please contact our Director of Platform Franklin Bi.

Should you be interested in joining any of our portfolio companies that are currently hiring, check out the opportunities posted in the “Job Highlights” section.

You can read our first Pantera Blockchain Blog post [here](#).





Pantera Capital
Mar 6 · 4 min read



Pantera Blockchain Blog, March 2020

Welcome to the Pantera Blockchain Blog!



PORTFOLIO COMPANIES AND PROTOCOL TOKENS





PRODUCTS YOU CAN USE TODAY

Many Pantera portfolio companies/protocols are currently live and running today. Try them out below!

- [Abra](#) All-in-one cryptocurrency wallet and exchange app
- [Alchemy](#) Blockchain node infrastructure and developer tooling
- [Amber](#) Institutional crypto finance services
- [Audius](#) Music streaming and sharing platform



- [Bakkt](#) Physical bitcoin futures and custody for institutions
- [BitOasis](#) Middle East-based cryptocurrency exchange
- [BitPesa](#) Africa-based cryptocurrency exchange
- [Bitstamp](#) World's longest-standing crypto exchange
- [Blockfolio](#) Cryptocurrency portfolio and price tracking mobile app
- [The Block](#) Cryptocurrency and blockchain news
- [Brave](#) Speed and privacy focused browser with BAT token integration
- [Chronicled](#) Blockchain-enabled enterprise supply chain solutions
- [Circle](#) Peer-to-peer payments technology company
- [Civic](#) Secure, blockchain-enabled identity ecosystem
- [Coinsuper](#) Hong Kong-based cryptocurrency trading platform
- [Earn](#) Earn crypto by learning about crypto
- [ErisX](#) Spot market trading for cryptocurrency and physical bitcoin futures
- [Flexa](#) Spend crypto at 30,000 stores using the SPEDN mobile app
- [Harbor](#) Digital platform for streamlining alternative investment processes
- [InstaDApp](#) Manage, optimize, and deploy assets across DeFi protocols
- [Kinesis](#) Platform for exchanging physical gold, silver, fiat, and cryptocurrency
- [Merkle Data](#) Risk management and analytics software for crypto institutions
- [OpenToken](#) Software to help run token offerings
- [Origin](#) Build decentralized marketplaces on Origin platform
- [Ripio](#) Global credit network
- [ShapeShift](#) Non-custodial marketplace for trading between digital assets
- [Staked](#) Staking and lending service for compounding crypto holdings
- [Tagomi](#) Electronic brokerage offering prime services for digital asset investors
- [TruStory](#) Platform for open debate
- [Veem](#) Global payments network merging traditional payment rails and crypto
- [Xapo](#) Bitcoin wallet for ease of access and security

FUND DOCUMENTS

If you would like to receive additional information on Pantera's funds, including the Private Placement Memorandum, Limited Partnership Agreement, or Subscription Documents, please fill out the form on [this page](#) to begin the subscription process.

BLOCKCHAIN FUNDS



PROGRAM	PASSIVE	HEDGE			VENTURE		
Fund	Bitcoin Fund	Digital Asset Fund	ICO Fund	Long-Term ICO Fund	Venture Fund I	Venture Fund II	Venture Fund III
Launch	July 2013	November 2017	July 2017	December 2017	August 2013	August 2014	June 2018
Assets	Bitcoin Bitcoin Cash	Assets tradable on blockchains: • Cryptocurrencies • ERC20 tokens • Augur contracts (soon) • Other Digital Assets (in the future)	Pre-auction SAFTs ICO tokens only at auction	Pre-auction SAFTs ICO tokens only at auction	Equity in blockchain-enabled startups	Equity in blockchain-enabled startups	Equity in blockchain-enabled and adjacent technology startups
Return Profile	Bitcoin Market Returns	Potentially Highest Risk-Adjusted Return	Very Speculative, Potentially Highest Absolute Return	Very Speculative, Potentially Highest Absolute Return	Venture Returns	Venture Returns	Venture Returns
Edge	Low cost Mid-market execution No Premium to NAV	Technical Knowledge	Early Access with Discounts / Technical Knowledge	Early Access with Deeper Discounts / Technical Knowledge and Long-Term Tax Treatment	Brand + Knowledge of the Space	Brand + Knowledge of the Space	Brand + Knowledge of the Space
Holding Period	Indefinitely	Days to Years	Months to Years	All positions held at least one year	3-10 Years	3-10 Years	3-10 Years
Long-Only	Yes	Long/Short	Yes	Yes	Yes	Yes	Yes
Risk Management	Passive Tracker	Discretionary	Discretionary	Discretionary	Buy & Hold	Buy & Hold	Buy & Hold
Secondary Liquidity for Assets	Yes	Yes	Yes	Yes	No	No	No
Subscriptions	Daily	Monthly	Monthly	Monthly	Closed	Closed	June 30
Redemptions	Daily	Quarterly, 65 days' notice	Quarterly, 12 months' notice	Quarterly, 12 months' notice	End of Fund	End of Fund	End of Fund
Investors	Global	U.S. Investors	U.S. Investors	Non U.S. Investors	Global	Global	Global

*The Digital Asset Fund's first full month was December 2017

CONFERENCE CALLS :: ICO, DIGITAL ASSET, AND VENTURE FUNDS

Venture Fund III LP Performance Call

Tuesday, March 31, 2020 9:00am PDT / 18:00 CEST / 12:00am CST (Apr 1st)
Open only to LPs of the fund.

Portfolio Company Call: Crypto Market Thoughts and Open Q&A

Tuesday, March 31, 2020 2:30pm PDT / 23:30 CEST / 5:30am CST (Apr 1st)
Open only to portfolio company founders / executives.

Crypto Market Thoughts

Tuesday, April 7, 2020 9:00am PDT / 18:00 CEST / 12:00am CST (Apr 8th)
Please register (in advance) via this link:

<http://info.panteracapital.com/general-information-conference-calls>

Meeting ID: 165-958-667

Long-Term ICO Fund LP Performance Call

Tuesday, April 14, 2020 7:00am PDT / 16:00 CEST / 10:00pm CST
Open only to LPs of the fund.

Digital Asset Fund LP Performance Call

Tuesday, April 14, 2020 9:00am PDT / 18:00 CEST / 12:00am CST (Apr 15th)
Open only to LPs of the fund.

ICO Fund LP Performance Call

Tuesday, April 14, 2020 10:00am PDT / 19:00 CEST / 1:00am CST (Apr 15th)
Open only to LPs of the fund.



Pantera Blockchain Funds Conference Call

Tuesday, May 5, 2020 9:00am PDT / 18:00 CEST / 12:00am CST (May 6th)

Open only to LPs of the fund. Please register (in advance) via this link:

<http://info.panteracapital.com/general-information-conference-calls>

Meeting ID: 411-135-267

PAST ICO, DIGITAL ASSET, AND VENTURE FUND CONFERENCE CALL RECORDINGS

Recordings of recent ICO, Digital Asset, and Venture Fund III conference calls are available on [this page](#).

RECENT PRESS

- [Dan Morehead on Real Vision, "On the Cutting Edge of Macro and Bitcoin"](#)
- [Paul Veradittakit on How Origin Enables Freedom](#)
- [Dan Morehead on CNBC, 'Crypto Trader Show' :: Live In Los Angeles](#)
- [Dan Morehead on CNBC, 'Crypto Trader Show' :: Live In Los Angeles](#)
- [CNBC, 'Crypto Hedge Fund Pantera On Track to Raise \\$175 Million'](#)
- [Dan Morehead on CNBC, Fast Money](#)
- [Joey Krug on the June 8 Episode of the "Unconfirmed: Insight and Analysis from the Top Minds in Crypto" podcast, episode entitled "How to Create Regular Cryptocurrency"](#)
- [Dan Morehead on CNBC, Fast Money](#)
- [Dan Morehead on Fox Business, Mornings with Maria](#)
- [Dan Morehead on Bloomberg Panel, Bitcoin: The Past, Present and Future](#)
- [Dan Morehead on Bloomberg, Pantera's Morehead Says Bitcoin 'Is a Screaming Buy'](#)
- [Dan Morehead on CNBC, Hedge Fund CEO Says Bitcoin's Flashing a Rare Buy Signal](#)
- [Dan Morehead on CNBC, Early Innings for Cryptocurrency Craze: Pantera Capital CEO](#)
- [Dan Morehead on CNN, Bitcoin: Digital gold or Ponzi scheme?](#)
- [Dan Morehead on Fox Business, Morning with Maria](#)
- [New York Times, A Bitcoin Hedge Fund's Return: 25,004% \(That Wasn't a Typo\)](#)
- [Dan Morehead on Fox Business, Mornings with Maria](#)
- [Dan Morehead speaks at Money2020 Conference with Kik's Ted Livingston](#)
- [Dan Morehead speaks at Sohn Conference CNBC](#)
- [TechCrunch, While Investment Firms Ponder ICOs, This Team is Barreling Ahead With a \\$100 Million ICO Fund](#)
- [TechCrunch, ICOs, How Do They Work? | Disrupt SF 2017](#)

OPEN POSITIONS

Pantera is actively hiring for the following roles:

- Quantitative Researcher
- Systems Engineer
- Administrative Assistant

If you have a passion for blockchain and want to work in Menlo Park, San Francisco, or New York, please follow this [link](#) to apply.

Interested in joining one of our portfolio companies? The Pantera Jobs Board features 400+ openings across product, engineering, finance, marketing, and other functions. Visit the Jobs Board [here](#) and



apply directly or submit an application for our Talent Network [here](#) to join our resume database.

FURTHER READING

Some good material to start with on the development of blockchain technology and cryptocurrencies as speculative instruments:

- [Bitcoin: A Peer-to-Peer Electronic Cash System](#) - white paper by Satoshi Nakamoto
- [12 Graphs that Show Just How Early the Cryptocurrency Market Is](#) by Chris McCann
- [Blockchain Investments and the New Problem Asset for Conventional VCs](#) by Jake Brukhman
- [Cryptoeconomics 101](#) by Nick Tomaino, and his [Tokens, Tokens and More Tokens](#)
- [Fat Protocols](#) by Joel Monegro
- [What Does \\$300 Ether Mean?](#) by Vinay Gupta
- [Token Economy](#) by Stefano Bernardi and Yannick Roux
- [Traditional Asset Tokenization](#)
- [The Rise of the Token Sale](#) by Max Mersch
- [Making Sense of Cryptoeconomics](#) by Max Mersch
- [Why Amazon's Margin Is Filecoin's Opportunity](#) Forbes, Aug 28, 2017
- [Joey Krug RealVision Interview Excerpts: ICOs, Future of Digital Currency, Ethereum Flash Crash](#) RealVision, Aug 10, 2017
- [Pantera Capital to Raise \\$100 Million in Investment for ICO Hedge Fund](#) Coindesk, Jun 28, 2017
- [While Investment Firms Ponder ICOs, This Team is Barreling Ahead with a \\$100 million ICO Fund](#) TechCrunch, Jun 28, 2017
- [Balaji CNBC Interview](#) CNBC
- [US Fed Hints at Blockchain Integration](#) Coindesk
- [Coindesk State of Blockchain Q2 Report](#) Coindesk
- [The Isle of Man Welcomes ICOs](#) Coindesk
- [Ethereum Metropolis Release Testnet To Launch](#) Coindesk
- [Closure Steps for Chinese Exchanges](#) Coindesk
- [China Shmyrna, Bitcoin Trading is Way More Distributed Now Anyway](#) Coindesk
- [Lawmakers Seek Tax Exemption on BTC Transactions Under \\$600](#) Coindesk
- [ICO "Rounds" Are Coming](#) TechCrunch
- [Crypto Regulation? Not Anytime Soon, Says White House Official](#) Coindesk
- [Why Decentralization Matters](#) by Chris Dixon. Outstanding perspective on how we went the open Internet 1.0 to a closed Internet 2.0—and the promises of a new Internet ecosystem powered by Blockchain.
- [Beyond the Bitcoin Bubble](#) The longest read on this list from NY Times Magazine. A great ten-thousand foot view. A must-read.
- [Fat Protocols](#) Written over two years ago, an image in this article is one of the most frequently referenced in the industry
- [A Letter to Jamie Dimon](#) Famous retort to Mr. Dimon's flippant remark about bitcoin being a fraud. Concise, even-tempered, a brilliant article.
- [Interview with David Sacks](#) Former Pay Pal COO Sacks lists ten use-cases where he anticipates blockchain can disruptive in the not-too-distant future.
- [Mapping the Blockchain Project Ecosystem](#) Attempt to categorize the protocol tokens based on use -helpful for newbies.



- Two of the best books are *Digital Gold* by Nathaniel Popper for a fun high-level history and an in-depth technically-minded look *Mastering Bitcoin* and *Mastering Ethereum* by Andreas Antonopoulos.

And some additional information on the ICO model specifically:

- Recommended Primer: [Token Mania](#)
- [Kin Whitepaper](#)
- [Kin Webpage](#)
- [AVC Venture Capital on Kin](#)
- [Tech Crunch Article on Kin](#)
- [Reuters Article on Kin](#)
- [Video on Kin by AVC](#)
- [USV on Protocol Value](#)
- [Tokenomics – A Business Guide to Token Usage, Utility, and Value by William Mougayar](#)
- [Earn's CEO on Token Economies](#)
- [Basic Attention Token Whitepaper](#)
- [Basic Attention Token Webpage](#)
- [Nick Szabo and Naval Ravikant on Tokens](#)

Additional information on blockchain regulation:

- [SEC's Office of Investor Education and Advocacy Investor Bulletin on ICOs](#)
- [SEC Issued Statement on ICOs and the DAO](#)
- [China Banned ICOs](#)
- [FINMA Issues Stricter ICO / AML Regulatory Compliance Requirements](#)
- [SEC Puts Task-Force on ICOs](#)
- [SEC Shuts Down Protostarr](#)
- [South Korea Bans ICOs](#)

PANTERA PUBLICATIONS

You can subscribe our publications, including the ones listed below, by visiting Pantera's website or by e-mailing ir@panteracapital.com.

Blockchain Letter

A monthly letter with our thoughts on significant market and ecosystem-related developments. Also, includes our thoughts on blockchain venture capital and news on our portfolio companies for accredited investors.

Blockchain Investor Letter

Public Letter plus exclusive information for accredited investors.

White Papers

Periodic, original blockchain research and academic papers.

- ["A Crypto Thesis"](#) by Pantera Co-CIO Joey Krug [2019.01.08]. Joey's insights on crypto and blockchain innovations what is still needed for user and institutional adoption. Informative and detailed primer for anyone considering investing in the space.

Follow us on [Twitter](#) and [Medium](#) for the latest blockchain news and insights. [@PanteraCapital](#), [@Dan_Pantera](#), [@JoeyKrug](#), and [@Veradittakit](#).



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This letter aims to summarize certain developments, articles, and/or media mentions with respect to bitcoin and other cryptocurrencies that Pantera believes may be of interest. The views expressed in this letter are the subjective views of Pantera personnel, based on information which is believed to be reliable and has been obtained from sources believed to be reliable, but no representation or warranty is made, expressed or implied, with respect to the fairness, correctness, accuracy, reasonableness, or completeness of the information and opinions. The information contained in this letter is current as of the date indicated at the front of the letter. Pantera does not undertake to update the information contained herein.

This document is not intended to provide, and should not be relied on for, accounting, legal, or tax advice, or investment recommendations. Pantera and its principals have made investments in some of the instruments discussed in this communication and may in the future make additional investments, including taking both long and short positions, in connection with such instruments without further notice.

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