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Macroeconomic Factors that Impact Crypto Market

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Research and Insights

Macro Repot

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Content

Executive Summary

Welcome to our “The Macroeconomy and Bitcoin” series. This article will guide you through the macroeconomic factors that impact crypto.

Key Takeaways

- Monetary policy is the action by which the central bank influences a nation’s total money supply. Typically, expansionary monetary policy has a positive impact on crypto market, while contractionary monetary policy is the opposite.
- Fiscal policy is the action by which the government influences a nation’s aggregate demand. Typically, expansionary fiscal policy has a positive impact on crypto market, while contractionary fiscal policy is the opposite.
- Covid-19 is positively correlated with crypto market. On the one hand, when the pandemic becomes more severe, people have a higher expectation for expansionary policies. On the other hand, the pandemic injects volatility into stock market, and crypto market is an imperfect substitute.
- Typically, the asset market is positively correlated with the crypto market, while interest rates and USD index are negatively correlated with the crypto market. The correlation of inflation rate and crypto market is not obvious, but a high inflation rate can cause crypto market to fall as the contractionary expectation increase.

Introduction

The crypto market is booming. Merchants like Microsoft, Starbucks, Whole Foods, Wikipedia, AT&T all started to accept crypto payments. What's more, payment giants Visa card, MasterCard, and PayPal all entered crypto market: they help pave the way for retail crypto adoption. According to our estimation, global crypto adoption crossed 100 million in January 2021 and surpassed 140 million in April 2021.

In addition to the retail side, institutional adoption is also surging. More and more traditional financial institutions started to provide crypto custody services to unlock institutional investors' interests. Some famous players are Standard Chartered, DBS Bank, U.S. Bank. Finance giants JPMorgan and Goldman Sachs are also finding opportunities to join the frenzy. In addition, as the crypto custody firm New York Digital Investment Group (NYDIG) mentioned, bitcoin is coming to hundreds of American banks this year. Institutional investors like MicroStrategy, Square, and Ruffer Investment Company keep adding crypto assets to their treasury holdings. A full list can be found here.

As the market becomes more mature and efficient, it's no longer a game within a small group of people, and speculation plays a less important role. The crypto market is now more sensitive to macro changes, and formal fundamental analyses are necessary.

Many people believe crypto to be an inflation hedge as some cryptocurrencies like bitcoin have fixed supply so that will never have inflation problem. However, the empirical evidence doesn't support this argument. For instance, the release of the 4.2% inflation rate caused crypto prices to decrease. To understand how macro factors influence crypto market, we need first to understand its underlying mechanism.

In the following sections, we will guide you through the impacts of various macro factors one by one. As the crypto market was gaining much more attention and gradually became mature during the pandemic, we use data from Jan 2020 to do analysis. During this period, policies and Covid are the main factors influencing the markets so that we will analyze these mechanisms in detail. While macro metrics like inflation, interest rates, etc., are quite endogenous in the sense that they are largely affected by the policies, we only briefly show their correlation with the crypto market.

In this report, we mainly use bitcoin as a proxy variable for the performance of crypto market because of its popularity and dominating position. However, as DeFi growth stronger, the dominance of bitcoin has fallen to 40% recently after Musk's twitter accusing bitcoin. We expect this trend to continue. The value of bitcoin largely relies on the gathering effects generated by its pioneering technology and brand recognition, which, however, not necessarily to last forever. In contrast, DeFi or other Dapps are backed by real businesses, which is less likely to be speculative and is a good choice for value investing. To some extent, they are similar to tech stocks and have huge potential. For further study, we can take a closer look at the behavior of altcoins.

Policies

Monetary Policy

Monetary policy is the actions undertaken by a nation's central bank to influence a nation's total **money supply**. It can be classified as expansionary monetary policy (increase money supply) and contractionary monetary policy (decrease money supply).

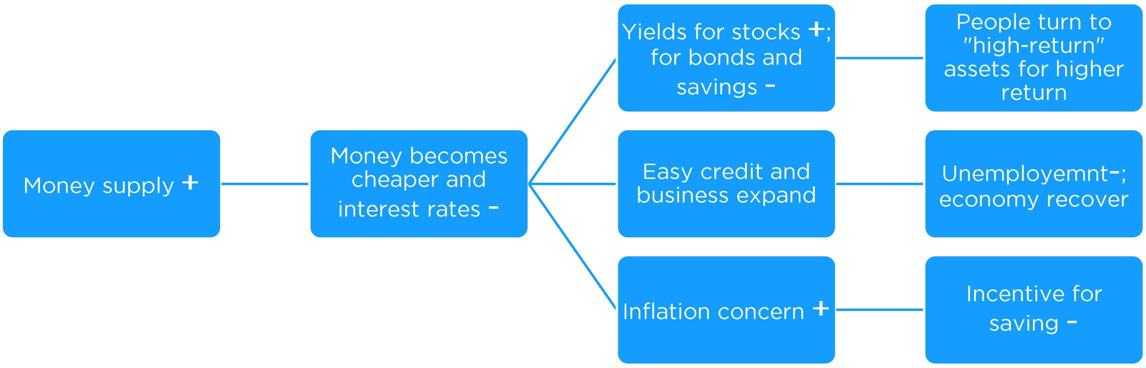
Typically, there are conventional approaches for Central banks to implement expansionary monetary policy (contractionary policy is the opposite action):

- Purchase short-term bonds on the open market
- Increase direct lending to banks
- Decrease bank reserve requirements

Conventional approaches have their limits. So, in addition to them, we have unconventional monetary policies like quantitative easing (QE), which is introduced in our private report: The Effect of Quantitative Easing on Cryptocurrency.

Usually, a country will adopt expansionary monetary policies when facing a high unemployment rate during an economic slowdown or a recession. The goal of expansionary monetary policy is to lower interest rates, stimulate investment, and increase employment to accelerate economic growth. At the same time, the price to pay is a possibly overheated economy, inflation, and market volatility.

Next, let us look at the impact of monetary policy on crypto market. Use expansionary policy as an example. The influence of expansionary policy on crypto market is typically positive, which can be categorized into three channels:



- “High-return assets” become attractive: On the one hand, the yields for saving in the bank or purchasing bonds decrease. On the other hand, the prices of stocks increase as the discount rate/interest rates decrease (Details for calculating price/Net Present Value can be found here). As a result, bank savings and bonds depreciated against stocks. So people holding bonds tend to change their portfolio to have a higher exposure of “risky” assets (like stocks, real estate, gold, crypto etc.) for higher returns. This is a positive impact on crypto market and always be a dominating channel.

- Economic recovery: Low interest rates bring easy credit for businesses, which encourages them to expand and hire more employees. This creates opportunities for the economy to recover gradually. Furthermore, the economic recovery allows consumers to have more disposable income, which can flow into various asset markets. This channel has a positive impact on crypto market as well. However, in reality, there are many challenges. For instance, if the increasing money supply makes the raw materials overheated, PPI may increase more sharply than CPI, then producers won’t have incentives to expand.

- Inflation hedge: Inflation means the purchasing power of fiat currency decreases. People seek ways to keep the value of their assets from depreciation. When inflation is high, on the one hand, cryptocurrency as an inflation hedge can experience a demand increase. On the other hand, inflation can decrease the public trust in the central bank. Both of them have positive impacts on decentralized cryptocurrencies. This channel can be the reason for some retailors to enter crypto market, however, it may not play a primary role as Fed will face the pressure to increase interest rate when inflation becomes severe, which will drag the inflation to a normal level again. For instance, when announcing the unusually high (4.2%) inflation rate of the US in April 2021, the market drop immediately as many investors expect the loose policy will come to an end. (Note that this expectation can be wrong as the high inflation rate was driven mainly by decreasing supply because of shutdown and the low basement.)

Fiscal Policy

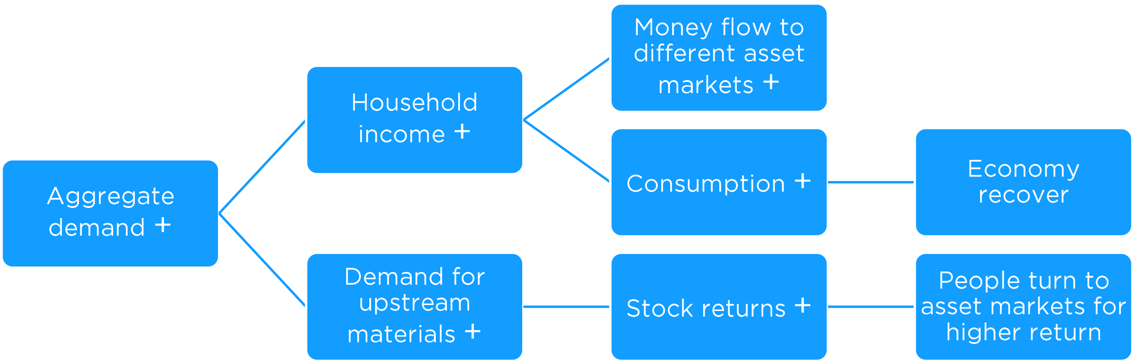
Fiscal policy is the means by which a government influences a nation's aggregate demand. In other words, it affects consumers' willingness to purchase. It can be classified as expansionary policy (increase aggregate demand) and contractionary policy (decrease aggregate demand).

Typically, there are two ways for government to implement expansionary fiscal policy (contractionary policy is the opposite action):

- Cut tax rates
- Increase government spending on public welfare (e.g., giving cash handout, building infrastructures)

During a recession, the government may employ expansionary fiscal policies to increase aggregate demand and fuel economic growth. At the same time, the price to pay is government deficit, the possibly over-heated economy, and inflation. To avoid too much deficit, sometimes the government can choose to vastly increase government spending while slightly increasing tax rates for rich people at the same time, like what the Biden administration did.

Next, let us look at the impact of fiscal policy on crypto market using expansionary fiscal policy as an example. The effect of expansionary fiscal policy is typically positive, and the channels are shown below:



Firstly, expansionary fiscal policies can provide more income to households directly through cash handouts, job plans, subsidies, or tax cuts.

- Income effect: Consumers have more disposable income, then more money will flow to various asset markets (like stocks, real estate, gold, crypto etc.), Ceteris paribus. This is a short-term effect and plays a dominating role here.

- Economic recovery: More disposable income pushes consumers to purchase more, supporting economic recovery on the demand side. Remember that expansionary monetary policies give producers cheaper credit and encourage them to expand. Then expansionary fiscal policy assists by encouraging consumers to purchase. The whole cycle completes, and the economy can hopefully recover, which keep households' income level higher in the long run.

Secondly, government programs like infrastructure plans can increase demand for raw materials and equipment, which drive the corresponding stock prices higher. The boom in stock market makes cash and bonds less attractive, and people will seek alternative assets for high-yield opportunities.

Two recent influential stimulus packages from the U.S. government during the pandemic are:

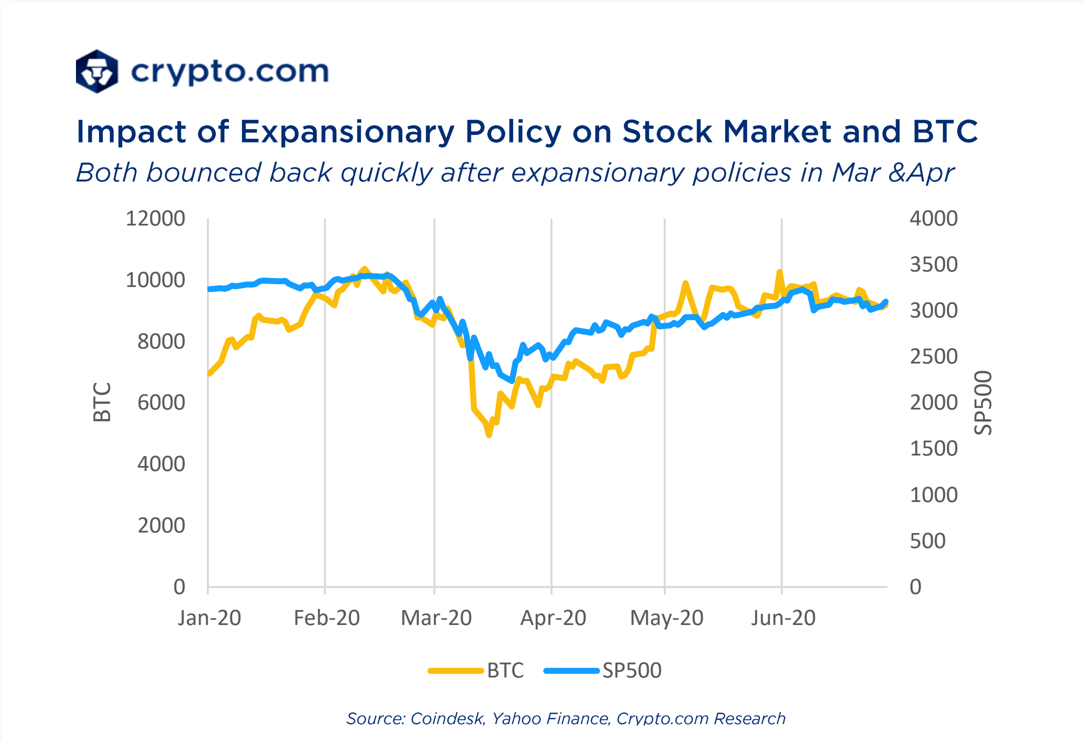
- Families First Coronavirus Response Act (FFCRA): It was signed by President Trump on Mar 18, 2020. It provides expanded nutrition assistance, paid sick leave, enhanced unemployment insurance coverage, free covid testing, and increased federal medical funding (ref). Roughly

$2.3 trillion was appropriated, and it is so far the largest relief package from Fed.

- The American Rescue Plan: It was signed by President Joe Biden on Mar 11, 2021. It provides a $1.9 trillion rescue package to extend unemployment compensation, money for schools to reopen, subsidize Covid testing and vaccination program, etc. (ref).

As a result, these expansionary policies increase the demand for crypto market. The following graph shows the market feedback.

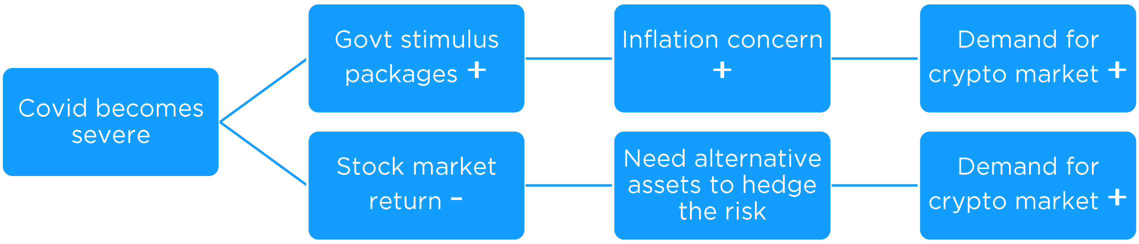
Since March 2020, many countries have issued a series of expansionary monetary and fiscal policies that help both the stock market and crypto market recover quickly. The following chart shows the impact of expansionary policies on stock market and BTC.



However, we see little or no positive impact from both crypto and stock market for the American Rescue Plan in March 2021. Two possible explanations here: Firstly, After lots of pandemic relief packages, investors start to doubt whether the market is too hot and whether inflation's going too high. If that's the case, Fed will encounter high pressure to cool down the market, and the easy money policies may end. The markets are efficient and forward-looking, so no evident impact appeared. Secondly, a more nuanced argument is that although we do not observe an increase in market price, the effect of stimulus packages may still be positive because, counterfactually, these markets might dive further without these packages.

Covid-19

From the beginning of 2020, the whole world started to suffer from the covid pandemic, and the global economy was seriously damaged. However, it may not necessarily be bad news for crypto market. The following chart shows the channels through which Covid-19 can promote the market.



- **Expansionary policies**: The more severe the covid becomes, the more likely government will propose expansionary policies. As we've mentioned, these policies increase demand for crypto market.

- **Asset market risk**: Covid injects volatility into the stock market. In addition, shutdowns cause businesses to suffer, which creates huge negative impacts on their stocks. Investors need to adjust their portfolios accordingly to mitigate the potential loss. As one of the alternative assets, the crypto market is expected to boom each time a new pandemic wave emerged.

The following table uses daily data to show the correlation coefficient between Covid and crypto price from Jan 2020:

	BTC	ETH
New Cases (world)	0.71	0.71
New Deaths (world)	0.68	0.69

Source: World Health Organization, Crypto.com Research

The correlation is highly positive, which means crypto price tends to increase when Covid pandemic becomes severer. The correlation analysis is preliminary as it doesn't control other variables and cannot be a solid evidence for a causality relationship. However, this phenomenon is also supported by more rigorous data analysis. For instance, Hadar and Roee (2020) add control variables to the model and still found a positive correlation between the number of new cases (as well as deaths) and the market cap (as well as trading volume) of top 100 cryptocurrencies. Ender, et al. (2020) applies Wavelet coherence analysis and find a causal relationship between Covid cases and crypto prices, and it is significantly positive after February 2020.

Macro Metrics

Important macro metrics like Inflation, asset markets indices, etc., can have predictive power for crypto market. However, these variables are more or less endogenous and primarily affected by macro policies and exogenous shocks like pandemic. As we already mentioned many of them in the previous sections, in this part, we'll make it brief and show you an overview of their correlation with crypto market.

Metrics	+/-	Explanation
Inflation	+/-	The correlation is not obvious typically. However, extremely high inflation will cause central banks to stop expansionary policies/start contractionary policies, which may hurt crypto market.
Interest Rate	-	Lower interest rates cause stock markets to boom, bond and cash depreciated against stocks. Investors go to alternative asset markets (e.g., crypto) for high return.
USD Index	-	1. Interest rate is negatively correlated with crypto market, but positively correlated with the USD index. 2. Cryptocurrencies is the potential substitutes for USD
Asset markets	+	Stocks and alternative assets like crypto, gold, real estate all tend to benefit from expansionary policies, so they tend to be positively correlated.

Other Factors

We should always bear in mind that a market is very complicated and determined by many factors simultaneously. We cannot predict the market trend by simply observing one aspect. The key point to predict the market is to tell the dominating factors for a specific period and analyze all potential mechanisms.

Except for macroeconomics, analysts also use on-chain data to make predictions. Both of them use logical reasoning to analyze the market and belong to fundamental analysis. Another tool is technical analysis (TA), which doesn't care about fundamentals but focuses on the time series pattern and historical trend. With the development of statistical tools like machine learning, TA becomes more and more popular nowadays.

Even when you are familiar with all these analyzing tools, please still bear in mind that the market is made up of human beings and will never be 100% rational. Sometimes irrational behavior can play a critical role for the market. This is called behavioral finance. We have produced an introductory article here, and welcome to check.

All in all, the real-world data can be very different from the result predicted by a single mechanism. A comprehensive analysis concerning different channels, different markets, and their interactions is important, and that's what we called "general equilibrium" in academics.

Summary

Key Takeaways

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