Update - The FED Ends The $6 Trillion QE4 And Hikes Rates: How The Markets May React

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Summary

- This updated article looks at more detail on prior QT, rate hikes, three quantitative easing programs and their subsequent market effects.
- On March 16th the Fed announced an increase in rates by 0.25bps and plans to conduct 6 rate hikes for 2022. No schedule for QT was released.
- On March 9th, 2022 the Federal Reserve conducted their final open market purchase effectively ending the Covid QE program started in March 2020.
- A major focus is on the quantitative tightening period and how that may again impact markets in 2022.
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Introduction

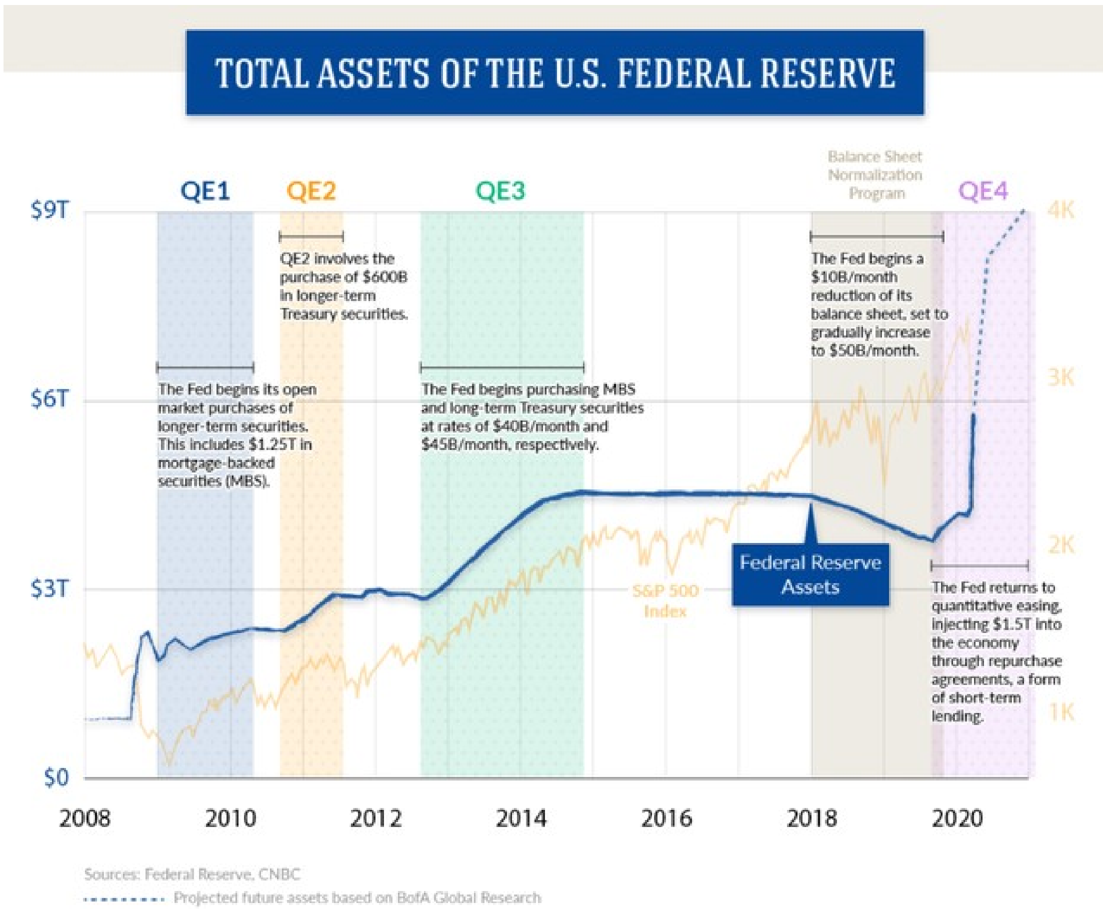
This updated article looks more closely at prior QT and the impact of prior rate hike periods as the Fed confirms six rate hikes into 2022. Each of the potential market impacts are considered following the end of the fourth and latest Quantitative Easing (QE) program by the Federal Reserve. We have three prior QE programs to review for analysis. In addition, several tapering periods and a two-part Quantitative Tightening (QT) period will also be reviewed for market impacts.

Executive Summary

There have been four QE programs conducted by the Federal Reserve since the Global Financial Crisis through March 9th, 2022. A new QT removal time period has been added and the following average returns have been observed in each of the different periods:

- S&P 500 (NYSEARCA:SPY) returns during all 4 QE periods totaled +118.2% averaging +1.55% per month.
- S&P 500 returns after the conclusion of the 3 prior QE periods total +52.14% averaging +0.58% per month.
- S&P 500 returns during the 2018 QT ramp up period totaled -6.24% averaging -0.52% per month.
- S&P 500 returns during the 2019 QT removal period totaled +17.82% averaging +2.22% per month.

We can estimate that the Federal Reserve's quantitative easing has provided market benefits that exceed both the periods without quantitative easing as well as returns in the quantitative tightening period. These strong results confirm that Fed intervention in the markets since the Global Financial Crisis has provided significant benefit and shows why they have returned to this monetary policy four times in the past 13 years. It seems likely the Fed will use QE again in future economic concerns.



VisualCapitalist.com

Many other factors have certainly contributed to market performance since 2008, but for simplicity of analysis this review paints a broad stroke on Fed intervention and does not consider all possible factors that have impacted the markets during these periods.

Analysis

There have been four QE programs conducted by the Federal Reserve from the Global Financial Crisis in 2008 through March 2022. The Fed operates QE by purchasing treasuries, mortgage backed securities and agency debt. By far the largest QE program was the most recent from March 2020 consisting of nearly $6 trillion in MBS and treasury purchases.

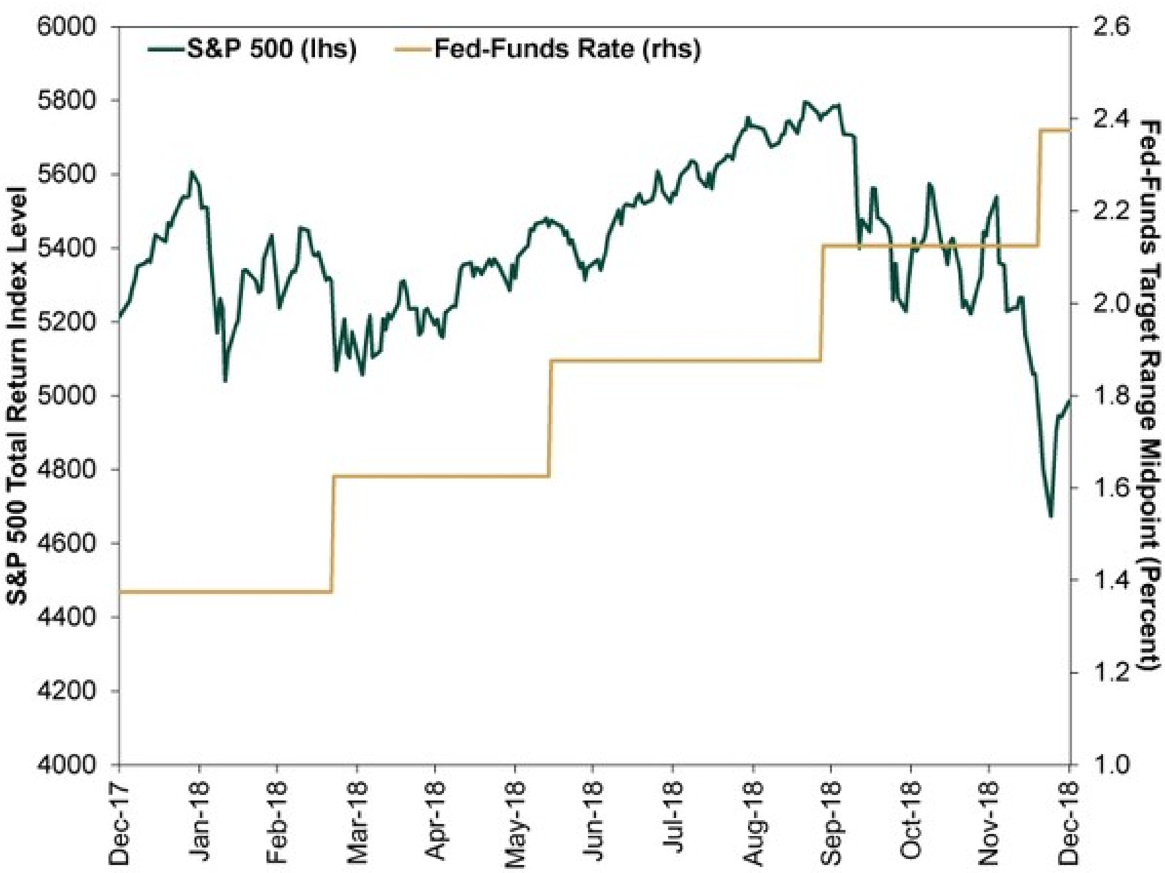
START	END	TREASURIES	AGENCIES	AGENCY MBS
March 2020	March 2022	$2,916		$2,926
September 2012	October 2014	$790		$823
November 2010	June 2011	$600		
November 2008	March 2010	$300	$175	$1,250

Zerohedge.com

In this updated article I have separated the QT period into a new two-part analysis and added a rate hike comparison. The first part of the tightening period covers from January to December 2018 when the Fed continued to ramp at the highest asset reduction levels simultaneously while increasing rate hikes. The second part of the QT periods covers from January to August 2019 after the Fed abruptly halted rate hikes in December 2018 at market lows. The 2nd QT period also marked the start of reduction and removal of the balance sheet tightening phase that had been ramping up throughout 2018.

Fed Fund Rate Hikes

In the last rate hike regime the Federal Reserve hiked rates nine consecutive times from 2015 before halting at the market lows on December 19th, 2018. On March 16 the Fed announced six rate hikes for 2022 raising the number from the previously mentioned possible three rate hikes. This 2022 proposal appears to be the most aggressive rate hike schedule in decades. 2017 and 2018 saw at most four out of the nine prior rate hikes as partially illustrated below:



Source: FactSet and St. Louis Fed, as of 12/15/2021. Fed-Funds Target Range Midpoint and S&P 500 Total Return Index, 12/31/2017 – 12/31/2018.

FactSet and STL Fed

The correlation between rate hikes and S&P 500 returns indicates that it is not the number of hikes that impacts the market as much as it is the level of interest rates that suddenly trigger outflows from the market to other securities like bonds. As you can see on the chart above, there was no adverse market reaction until the Fed funds rate was hike above 2%. This is only one sample to consider, but it may give us a reliable benchmark to judge the risk levels in the coming months. With six proposed rate hikes in the remaining 9 months of the year a similar adverse market reaction could be triggered by the end of the year. The key missing factor is any details from the Fed on when the quantitative tightening will begin and the schedule of monthly asset reductions.

Next we will look at the S&P 500 performance during each these periods as well as the time in between each of these accommodative periods of easing. The purpose is to provide a general forecast of what we might expect now that QE4 has ended and what may occur whenever the next quantitative tightening period begins.

Federal Reserve Program	S&P 500 Return	Duration/Mo	Avg/Mo
QE1 (Nov 2008 - Mar 2010)	+20.72%	17 months	+1.22%
After QE1	+6.89%	9 months	+0.76%
QE2 (Nov 2010 - Jun 2011)	+9.21%	9 months	+1.02%
After QE2	+7.10%	15 months	+0.47%
QE3 (Sep 2012 - Oct 2014)	+43.47%	26 months	+1.67%
After QE3	+43.17%	39 months	+1.10%
QT ramp (Jan 2018 - Dec 2018)	-6.24%	12 months	-0.52%
QT removal (Jan 2019 - Aug 2019)	+17.82%	8 months	+2.22%

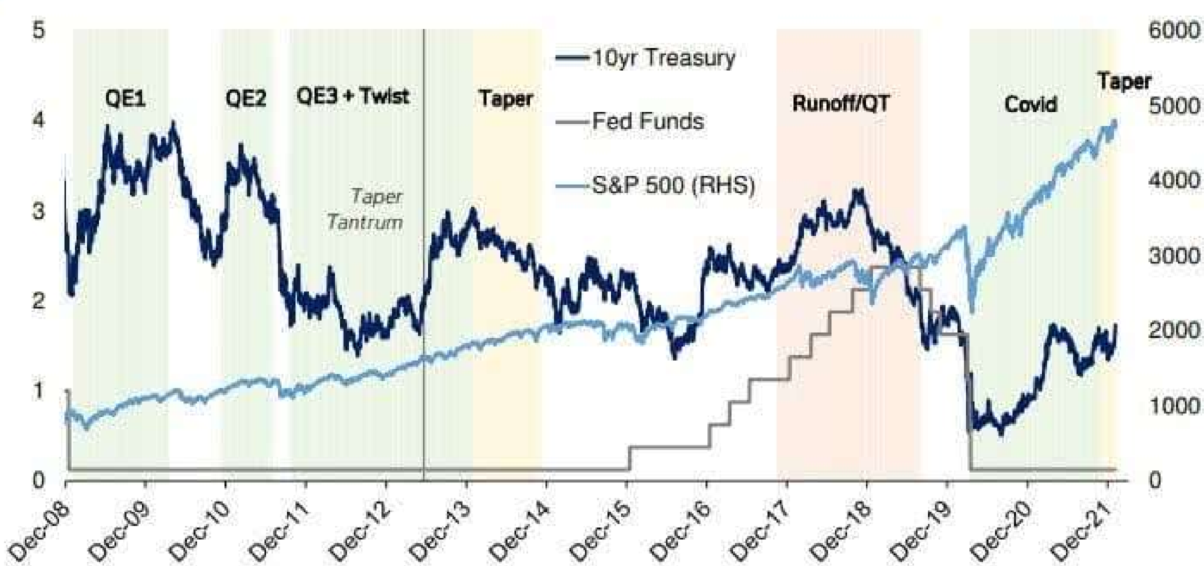
QE4 (Mar 2020 - Mar 2022)	+44.81%	24 months	+1.87%

The largest average monthly returns for the S&P 500 occurred during accommodative Fed programs of QE and during the QT removal period. The QT removal period saw the largest interest rate reductions by the Fed and also much less tightening each month until no liquidity was being drained by the Fed.

It is also noteworthy among the easing programs that QE4 was by far the largest program and corresponds with the highest monthly S&P 500 average returns. Similarly, QE1 and QE3 were of near equal levels of Fed intervention and both larger than QE2 and both also reflected higher S&P 500 returns than those during QE2. In all cases after each QE program ended the S&P 500 returns remained positive. However the average returns became substantially lower monthly averages than during the active QE periods. Most notably, the only negative period for the S&P 500 returns was during the 2018 QT program when the Federal Reserve began their "asset normalization policy" to reduce liquidity in the market and lower the Fed balance sheet.

The chart below shows each of the different easing, tightening, and intervening periods along with the 10 year treasury price, Fed funds rate, and the S&P 500 index. In the period from December 2015 to 2018 the Fed was also increasing the Fed funds rate in nine additional tightening measures. Similar to today, the Fed fund rate has been increased by 0.25 bps for the first time since 2015 and may contribute additional impact on the markets.

Figure 2: Post-GFC Fed Balance Sheet Phases, Fed Funds, UST 10yr and the S&P 500



Source : FRB, Bloomberg Finance LP, Deutsche Bank,Shaded regions reflect implementation, announcements took place just prior.

Bloomberg Finance

Forecasting the Market Impact

Now that we have just entered the period after the largest QE program since 2008 has ended, what should we expect?

1. Based on all the prior intervening periods, I would expect the S&P 500 monthly average returns to become less positive from April onward.
2. I would anticipate that a Fed asset normalization policy (QT) will be announced soon and would schedule the reduction of their balance sheet.
3. It appears that in periods after a QE program ended the returns of the S&P 500 though lower, remained higher after the larger QE programs than the smaller programs like QE2.
4. We have had only one quantitative tightening period to evaluate and it corresponded to negative S&P 500 returns and very high market volatility.

The guidance I will be looking for at the next FOMC meeting on March 16th, in addition to the Fed fund rate hikes, is how much time until quantitative tightening begins. Back in January we learned that the Fed discussed reducing their balance sheet "sooner than expected."

Minutes from the Fed's December meeting released on Wednesday showed that officials had discussed shrinking the U.S. central bank's overall asset holdings as well as raising interest rates sooner than expected to fight inflation, with "many" judging the appropriate pace of the Fed's balance sheet reduction would be faster this time. ~ Reuters

Next, I will be looking at the schedule for asset unwind as was published in advance back in 2018 to allow the markets to try to absorb the reduced market liquidity. This schedule of Fed tightening in 2018 correlated strongly with the CBOE VIX volatility index as I wrote about frequently in those years.

VIX Trading Patterns To Watch Closely Through The Fed's Asset Unwind Into 2019 | Seeking Alpha Marketplace

VMBreakouts.com

As the VIX volatility chart shows above, the reaction to the start of QT in 2018 resulted in a very strong shock event that was called Volmaggedon by many at the time. This very high volatility shock even led to the termination of VIX volatility funds and many VIX spikes over 20% that year: [What Is The VIX Telling Us From 3 Prior Events?]

The initial tightening schedule by the Fed in the first part of 2018 of $30 billion in assets per month shows a very large VIX spike followed by dampening volatility through September. It was the subsequent hike in October to $50 billion in asset reduction per month that appeared to trigger more high volatility and the market correction that followed into December 2018. It was not until after the Fed halted tightening actions at the end of December that the market finally recovered. The Momentum Gauges® had just begun [weekly testing] in 2018 and forecasted a downturn in Week 39 (the last week of September). From that point on the gauges have become a [major indicator for market forecasts] and my investing activity.

FinViz.com

Related to this period of tightening in 2018, I conducted a study comparing the VIX volatility to the size of the reduction in treasury securities held by the Federal Reserve. The analysis detailed in articles linked above basically illustrates that the more the Fed reduced asset holdings, the higher the market volatility became:

Another way I found to test the likelihood that these VIX spikes and large S&P 500 moves could be directly related to the Federal Reserve tightening was to overlay three years of data on the FRED database related to these variables.

(Federal Reserve)The seismographic looking chart above compares the daily percentage changes of the S&P 500 (red) overlaid with the percentage change of treasury securities held by the Federal Reserve (BLUE). In the 3-year chart above you can clearly see that when there were no changes in the Fed holdings of treasuries there was also very little change in the S&P 500. However, when the changes in the Fed balance sheet began to increase in January of 2018 the percentage changes of the S&P 500 correspondingly increased in magnitude.

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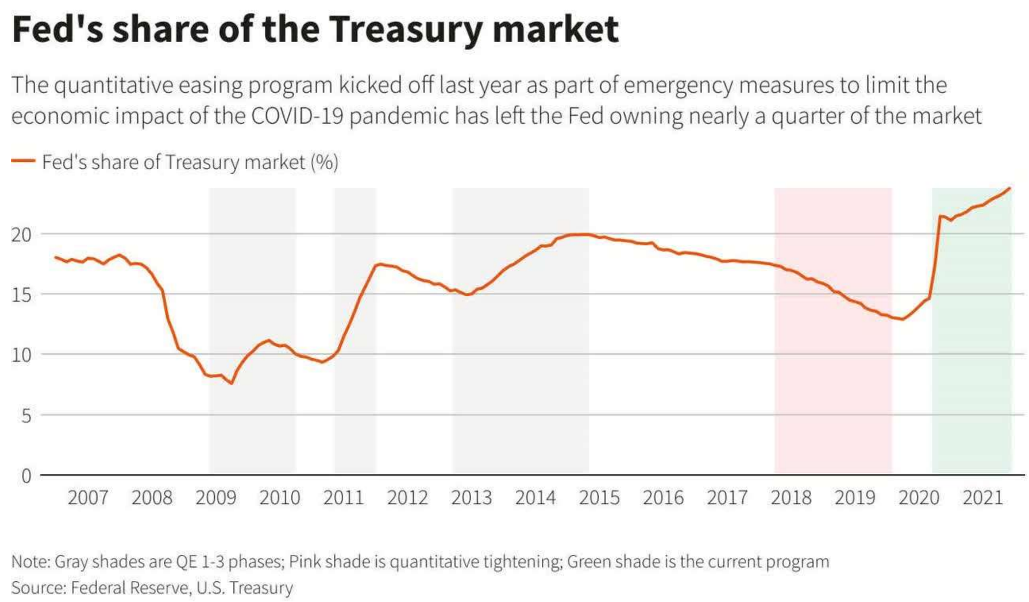
Currently the Fed holds a large percentage of the treasury market now estimated at over 25% into 2022. This high balance shown below from record amounts of QE4 purchases increases the risk that future tightening events may be longer and more severe than we experienced in 2018.



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Conclusion

The next most important set of data from the Federal Reserve, promised at a future meeting, will be the detailed schedule of the QT asset reduction program. How the Fed decides to drain liquidity from the market at the same time as they are raising interest rates will be a key discussion for another article update. There is no shortage of major economic factors that will continue to impact the market performance for 2022 and beyond. As I write this article, the Russian war in Ukraine continues and there is no certainty about when Russia will end their invasion or how much destruction will unfold in the coming weeks or months. Global sanctions ranging from oil, gas, grains, credit, shipping, and many basic materials have been put in place against Russia and the full economic impact is unknown. Inflation measures are at the highest levels in 40 years. The US GDP outlook is being revised lower and economic conditions are strained.

Many factors may affect the analysis shared here today. The purpose of this article is to provide some guidance about what the end of the largest QE program in U.S. history may mean to investors. It is my expectation that market returns will remain positive but lower on average in the coming months. I am most concerned about the timing and size of the coming asset normalization policy from the Federal Reserve. The information above is intended to provide readers with additional insight into the potential market reactions in the coming year.

Thanks for reading and all the best in your investing decisions!

JD Henning, PhD, MBA, CFE, CAMS