MILLIMAN WHITE PAPER

Crisis and prices: Inflation and policy since the global financial crisis

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Not since the 1930s has the economy experienced such a major drawback as it did after the global financial crisis of 2007-2010. Although not as extensive as the Great Depression, the crisis brought about a recession that was more severe than those in the normal course of the business cycle.

Since bottoming out at the end of 2009, the economy has made consistent gains. Unemployment has steadily been dropping as workers have found jobs in burgeoning service sectors, while recent gross domestic product (GDP) figures have been positive, albeit below average for recovery periods immediately following a downturn. The stock market has also rallied over the past eight years, with the Dow Jones Industrial Average recently breaking record highs.

One factor that has not followed this trend is inflation. A heightened level of business activity will cause prices to gradually tick up over time. Since the recession, however, inflation figures have remained consistently below 2%. A 2% year-over-year increase in prices is taken as a sign of normal and sustainable economic growth, so it is perplexing why inflation remains low while other market indicators point to a recovering economy.

This inflation question is relevant for investors because unanticipated inflation can eat away at capital gains and fixed incomes. It is important for investors to evaluate the prospect for future changes in the price level. Because of this, in terms of the potential for inflation going forward, there is much uncertainty surrounding the top-down policy measures that directly affect the price level.

This paper will outline recent monetary policies that were tasked with creating inflation and will attempt to explain why these measures were not effective. Additionally, it will outline the proposed fiscal policies of the new administration and its prospect for increasing prices.

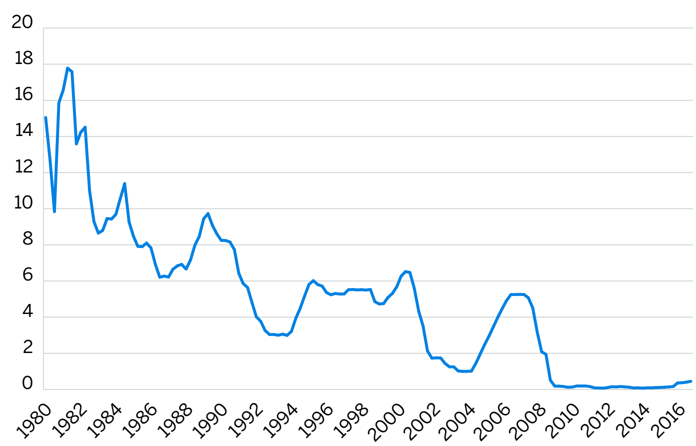
The Federal Reserve

Following the onset of the financial crisis, the Federal Reserve initiated a bold monetary program to foster economic growth and stave off depression. Because prices were assumed to be a strong indicator of economic growth, Fed policymakers established the 2% year-over-year inflation figure in setting the parameters of their policies. In this sense, the Federal Reserve would pursue these policies until prices remained above the 2% level for an extended period of time.

Apart from lowering short-term interest rates, which is the primary vehicle through which the Federal Reserve operates, policymakers employed a wide-ranging bond-buying program to promote financial stability. This program, referred to as quantitative easing (QE), was intended to ensure that banks and other financial institutions had robust cash balances available to lend out to the general marketplace. Increasing lenders' reserves was thought to provide a more conducive environment for economic growth, as businesses could access cheap credit for capital investment.

The Federal Reserve's monetary policy since the financial crisis is noteworthy because of its extent. Originally intended as temporary, QE was expanded and short-term rates were held at near-zero levels by policymakers over the years in response to lackluster economic growth figures. Figure 1 and Figure 2 demonstrate the scope of these two main policies unrolled since the financial crisis.

FIGURE 1: FEDERAL FUNDS RATE (%)

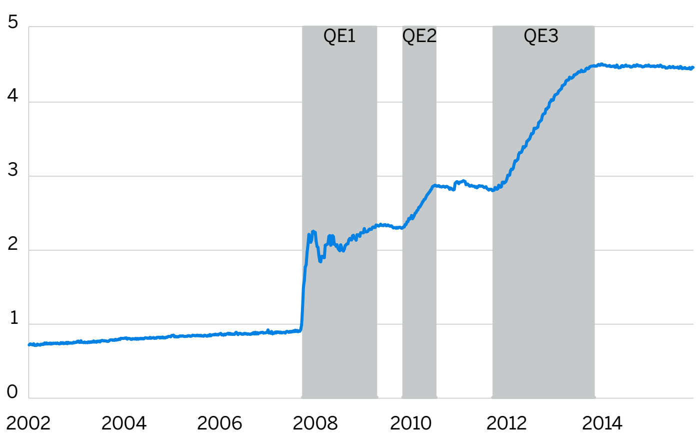


Source: Federal Reserve Bank of St. Louis. Data as of December 2016

Figure 1 tracks the federal funds rate, which is the rate that banks with deposits at the Fed charge one another for short-term loans. The federal funds rate serves as a short-term benchmark rate in the general marketplace. The Federal Reserve quickly lowering this rate at the onset of the recession is predictable, given that the Fed uses this rate dynamically in responding to crisis. What is noteworthy, however, is that policymakers have left the federal funds rate near zero since 2009, which is unprecedented given its typical fluctuations over time as business conditions change.

Figure 2 shows the total assets listed on the Federal Reserve's balance sheet. The growth of the Fed's balance sheet reflects the asset purchases done within the quantitative easing program. Through three separate rounds of asset purchases, the Federal Reserve expanded its balance sheet extensively. Despite asset purchases formally ending in 2013, assets remain at historic levels. In total, the growth of the Fed's balance sheet demonstrates the unconventional nature of the QE program.

FIGURE 2: FEDERAL RESERVE BANKS, TOTAL ASSETS, WEEKLY ($T)



Source: Federal Reserve Bank of St. Louis. Data as of December 2016

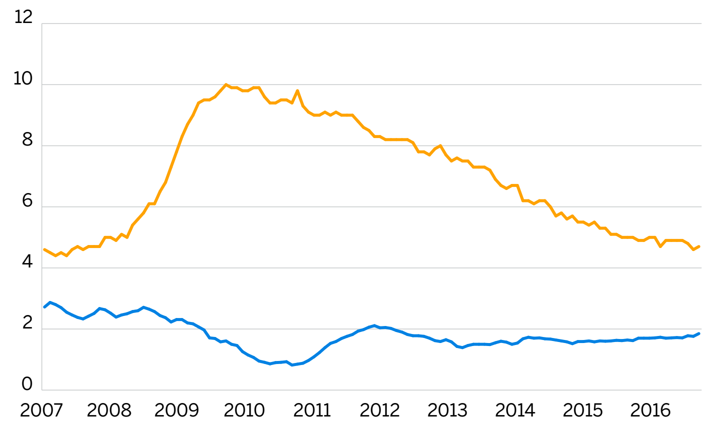
Noting the scale of recent monetary policy, investors should be aware of how such inflationary forces have actually influenced prices. The following section will discuss recent movements (or lack thereof) in the price level and attempt to account for it.

You can lead a horse to water

In its founding charter, the Federal Reserve is tasked with promoting full employment and price stability. Because of this, Fed officials evaluate their policies through the lens of the unemployment and inflation rates. Figure 3 tracks both through time. Since initiating the easy monetary policies after the financial crisis, the unemployment rate has steadily declined, signaling some success in monetary policy promoting economic growth.

Inflation figures, however, do not tell such a consistent story. After a brief uptick at the beginning of the QE program, prices have remained below the 2% benchmark. This is surprising, given that low interest rates and bond buying operations are inherently inflationary. In terms of the price level, monetary policy has not produced its intended effect.

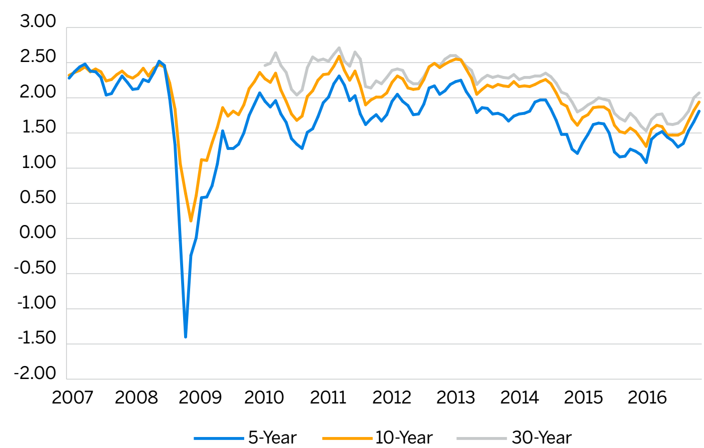
FIGURE 3: DOMESTIC UNEMPLOYMENT AND INFLATION (%)



Source: Federal Reserve Bank of St. Louis. U.S. Bureau of Labor Statistics. Data as of December 2016

Indeed, the lack of inflation appears systemic in the economy. Figure 4 tracks the difference between regular Treasury securities and Treasury Inflation-Protected Securities (TIPS). This difference is used as a proxy for inflation expectations. The fact that these inflation expectations have only recently pointed above 2% over longer maturities signals that market participants do not think that inflation will be much of a factor going forward.

FIGURE 4: INFLATION EXPECTATIONS (BREAKEVEN INFLATION RATES, %)

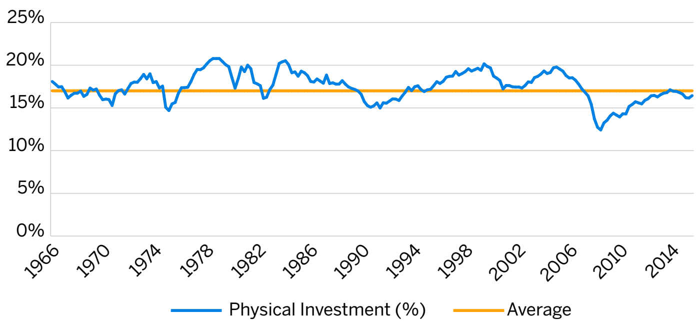


Source: Federal Reserve Bank of St. Louis. Data as of December 2016

This poses the central question surrounding recent monetary policy: If low interest rates and quantitative easing are inflationary by nature, where is the inflation?

It is important to consider that monetary policy is used to create an environment *conducive* to economic growth and, by extension, moderate inflation. Just because firms have access to cheap credit and banks have excess reserves to lend out does not necessarily mean that business activity will increase. In fact, fundamental economic statistics point to the fact that investment has been lacking despite these easy monetary conditions.

FIGURE 5: % GDP AS PRIVATE PHYSICAL INVESTMENT

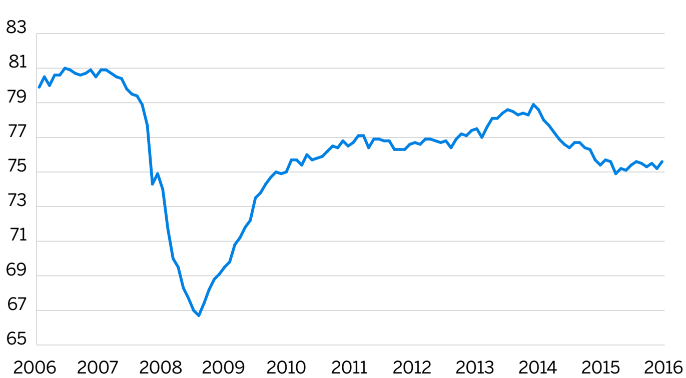


Source: Federal Reserve Bank of St. Louis. Data as of December 2016

In terms of business activity, recent monetary policy has not bolstered any substantial increases in investment. Figure 5 tracks the level of private physical investment as a percentage of GDP. Private physical investment includes the total expenditure by firms in capital (machines, tools, factories, etc.), housing, and inventories. The chart in Figure 5 suggests that investment as a percentage of the overall economy has remained suppressed since the financial crisis, fluctuating below the long-term average of investment.

Another dimension to this issue is capacity utilization. Whereas Figure 5 charts the extent that businesses are investing in new capital, Figure 6 charts the extent to which businesses are utilizing existing capital. The capacity utilization rate measures the percentage of the total potential output of the economy that is actually being produced. In a similar vein to the lack of business investment, capacity utilization has remained flat after an initial rebound following the financial crisis.

FIGURE 6: CAPACITY UTILIZATION, % OF TOTAL INDUSTRY CAPACITY



Source: Federal Reserve Bank of St. Louis. Data as of December 2016

Taken together, Figures 5 and 6 suggest that businesses are not using the cheap credit made available through monetary policy. This runs counter to a fundamental assumption of the QE program, suggesting a reason why recent monetary policy has not produced the robust economic growth typically seen following a recession. In this sense, the absence of any real uptick in inflation since the onset of unconventional monetary policy has been a symptom of this general lack of business activity.

Passing the baton

A major focus in last year's presidential election was the state of the economy. Despite the economy's headway since the financial crisis, Republicans capitalized on the unease surrounding the current trajectory of the economy by proposing a fiscal spending program. In this sense, one can argue that voters rejected the top-down economic program of former administrations that relied too heavily on monetary policy. Indeed, the prospect of massive infrastructure investment was one tenet of the Republicans' agenda that found fertile ground through much of the country.

Such a transition from atypical monetary policy to more conventional fiscal stimulus would certainly shift the dynamics of the economy. For investors, this shift from a monetary focus to a fiscal focus is significant in terms risk, i.e., if this transition will bring about the inflation that has eluded monetary policy to this point. In fact, since Republicans won the election and markets began anticipating fiscal stimulus, inflation expectations have risen. Because of this dramatic change in the market landscape, it is vital for investors to be aware of inflationary pressures and the indicators that could point to inflation in the near term.

For one thing, it is important to consider how any fiscal stimulus would interact with recent monetary policy, namely low short-term interest rates and the quantitative easing program. Any substantial increase in fiscal stimulus would increase interest rates across all maturities, but the Federal Reserve would need to raise its benchmark rate anyway, given that short-term rates have been so low for so long. The Federal Reserve has recently given strong signals that it will begin raising rates, so any risk that it would hold rates down with the backdrop of stimulus spending is low.

More concerning is how the Federal Reserve will unwind its balance sheet if fiscal measures are implemented. The assets on its books stemming from QE would need to be sold off to absorb the excess liquidity created by the program. Too much liquidity could drive prices too high too quickly, should fiscal measures be undertaken. Although policymakers at the Federal Reserve are aware of this, they have not publicly discussed any detailed plan on how the balance sheet could be unwound on a compressed schedule, given the vastness of the program.

Investors should also monitor economic indicators to anticipate inflation. Because fiscal stimulus has a more direct effect on business activity than monetary policy, even the prospect of stimulus spending could encourage businesses to invest. Because of this, investors could prepare for inflation should private investment or capacity utilization increase. Either would signal that businesses are producing more and the prospect is improving for increasing prices.

Whether or not inflation will occur is uncertain, however. It is difficult to forecast what will happen in the economy and how market participants will respond. What is known is that investors should be prepared for even unforeseen events. Because of this, your Milliman consultant will work with you to provide insight and suggest strategies for all market developments, inflation, and beyond.

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