

KEY TAKEAWAYS

With six months of economic and market data since the end of QE, we assess the latest round of the program that ended in October 2014.

We focus on QE's impact on the banking and financial sector, by examining the amount of financial stress in the system, which overall has decreased since the beginning of QE in November 2008.

We give the Fed a "pass" on QE as it relates to banking and financial system stress.

May 18 2015

GRADING THE FED'S QE PROGRAM:
A MULTI-WEEK GROUP PROJECTJohn J. Canally, Jr., CFA *Chief Economic Strategist, LPL Financial*

The end of the school year brings proms, graduations, and, of course, report cards. This year, college graduates are entering the best labor market since the start of the Great Recession in late 2007. Job openings are the highest since 2001, the unemployment rate for college graduates is 2.7%, and the private sector economy has created 12 million jobs over the past five years. We now have six months of economic and market data in hand since the end of the Federal Reserve's (Fed) quantitative easing (QE) program, and with the minutes of the April 28–29 Federal Open Market Committee (FOMC) meeting due out later this week (Wednesday, May 19, 2015), we thought now would be a good time to "grade" the Fed's latest QE program, QE3, which ran from September 2012 through the end of October 2014.

As part of our grading process, we'll compare the performance of key components of the banking and financial system, the economy, and financial markets, before, during, and notably six months after the end of Q3; as well as before, during, and after the Fed's first two forays into QE: QE1 (November 2008 through March 2010) and QE2 (November 2010 through June 2011). We'll complete the grading over the course of the next several *Weekly Economic Commentaries*. This week, we'll focus on the impact QE had on the banking and financial sector, as one of the initial aims of the Fed's QE program was to unfreeze a banking system that had all but frozen up during the fall 2008.

OUR SCORECARD: EVALUATING FINANCIAL STRESS

In this first round of grades on the impact of QE on the banking and financial systems, we'll grade the Fed, and by extension QE1, QE2, and QE3, on improvement in the amount of financial stress in the system using the Cleveland Federal Reserve Financial Stress Index (CFSI).

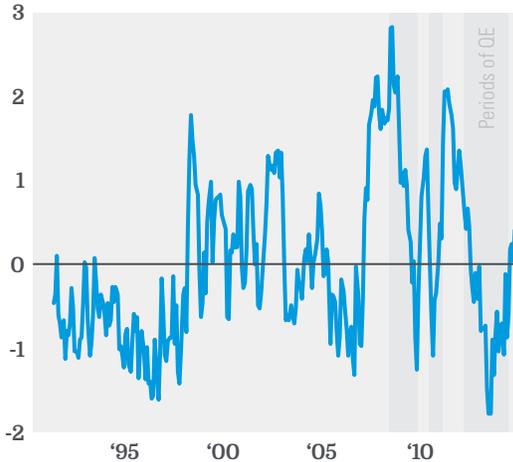
The CFSI measures stress in equity, interbank lending, credit markets, the foreign exchange market, real estate lending market, and in the asset-backed and mortgage-backed securities markets. **Figure 1** provides the monthly history of the CFSI back to 1991, with the shaded areas indicating the periods when QE was in effect.

QE1 PERFORMANCE: DETERIORATING CONDITIONS

When QE1 began in November 2008, all of these markets were experiencing extreme levels of stress in the aftermath of the collapse of Lehman Brothers in mid-September 2008. As noted in **Figure 2**, the CFSI improved dramatically over

1 FINANCIAL MARKET AND BANKING STRESS HAS COME WAY DOWN SINCE THE FED BEGAN QE IN LATE 2008

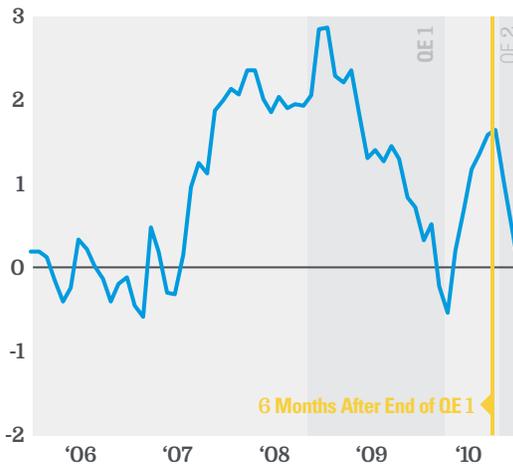
● Cleveland Fed Financial Stress Index
0=Average Financial Stress Level



Source: LPL Research, Federal Reserve Bank of Cleveland, Haver Analytics 05/18/15

2 BANKING STRESS LEVELS CAME WAY DOWN DURING QE1, BUT MOVED HIGHER WHEN IT ENDED IN EARLY 2010

● Cleveland Fed Financial Stress Index
0=Average Financial Stress Level



Source: LPL Research, Federal Reserve Bank of Cleveland, Haver Analytics 05/18/15

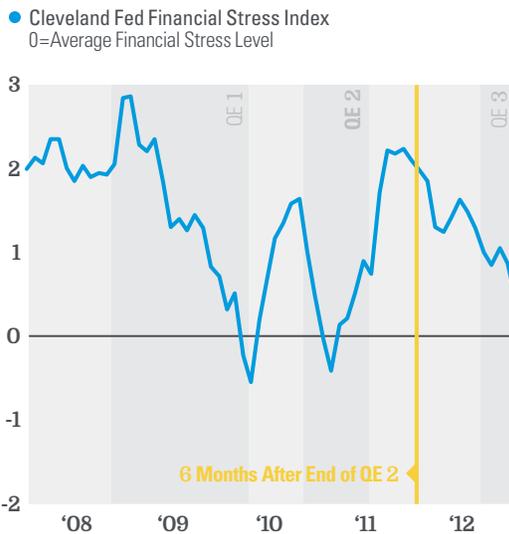
the course of QE1 (November 2008 to March 2011), as financial markets regained their footing after teetering on the edge in the fall of 2008 through early 2009. However, once QE1 ended in March 2010, the CFSI shot higher, indicating an increase in financial stress. Six months after the end of QE, the CFSI had reversed more than half the gains it made during QE1.

As we decide the grade, we ask: Was QE, and only QE, responsible for the improvement in financial stress levels in 2009 and early 2010? Probably not, as other factors were at play, including the Fed's bank stress tests, the \$787 billion fiscal stimulus package passed by Congress in February 2009, along with stimulus (both fiscal and monetary) from various countries and central banks around the globe during that time. Was the deterioration in the CFSI in the six months after QE1 ended in March 2010 due to the end of Fed stimulus? Again, probably not. Notably, the early months of 2010 marked the start of the Greek financial crisis, which quickly spread to other peripheral Eurozone nations, driving financial stress levels higher.

QE2 PERFORMANCE: INITIAL IMPROVEMENT, BUT RETURN TO HIGHER STRESS LEVELS

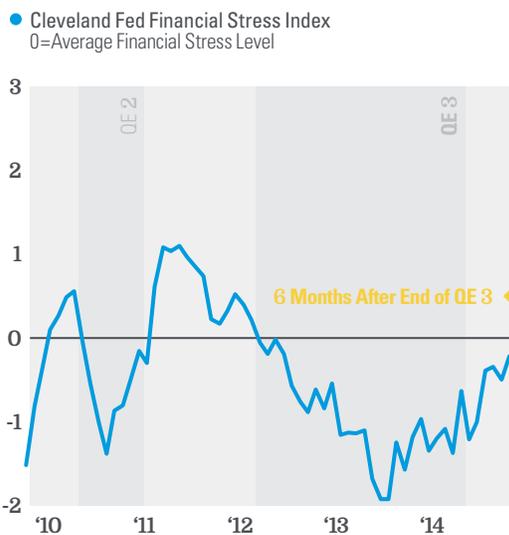
The deterioration in financial conditions was likely a deciding factor in the Fed starting QE2 [Figure 3] in November 2010, as financial conditions deteriorated sharply when financial markets began pricing in a possible breakup of the Eurozone. QE2 began in November 2010 and by early 2011—less than six months later—financial stress had eased back to the levels seen when QE1 ended in 2010. However, a major earthquake and resulting nuclear disaster in Japan; a spike in oil prices as a result of the “Arab Spring”; renewed financial woes in the Eurozone that spread from Greece to Portugal, Ireland, and Spain; and rate hikes in China all led to a reversal in the initial improvement in financial stress levels seen when QE2 was launched, and by the end of the program in June 2011, financial stress was rising again. By December 2011, six months after

3 BANKING STRESS LEVELS FIRST MOVED LOWER, THEN HIGHER, DURING AND SIX MONTHS AFTER QE2



Source: LPL Research, Federal Reserve Bank of Cleveland, Haver Analytics 05/18/15

4 FINANCIAL SYSTEM STRESS MOVED STEADILY LOWER DURING THE FIRST 15 MONTHS OF QE3, BUT HAS MOVED HIGHER SINCE EARLY '14



Source: LPL Research, Federal Reserve Bank of Cleveland, Haver Analytics 05/18/15

the end of QE2, financial stress was nearly as high as it was in late 2008, thanks, in part, to the U.S. debt downgrade and debt ceiling debacle in August 2011 and ongoing turmoil in the Eurozone, which temporarily abated in late October 2011 as Eurozone leaders agreed on a series of measures aimed at calming markets. Several days later, current European Central Bank (ECB) President Mario Draghi took over for Jean Claude Trichet.

Thus, as was the case with QE1, it's very difficult to parse out what the drivers of financial stress were during 2010 and 2011 as QE2 unfolded. Did it help? Probably. Did the end of QE2 in June 2011 come at the wrong time and add to the already unstable financial and political backdrop? Almost certainly, yes. Did U.S. financial conditions worsen in the six months after QE2 ended in June 2011? They absolutely did, but even in hindsight it's very difficult to judge what role, if any, the absence of Fed buying had on the situation in Japan, Europe, and China.

QE3 PERFORMANCE: OUTSIDE HELP

Now let's look at QE3 [Figure 4] that began in September 2012, as Operation Twist wrapped up, a program that started in September 2011, months after QE2 ended in the midst of the worst of the European financial crisis. As a reminder, Operation Twist came between QE2 and QE3, making it much more difficult to grade either of them on their own merits. Operation Twist was aimed at putting downward pressure on long-term Treasury yields without the Fed buying any additional Treasuries. It sold existing holdings of short-term Treasuries (less than 3-year maturity) and bought longer-term Treasuries (6–30 years in maturity).

During the first 15 months of QE3 (September 2012 through December 2013), the CFSI fell dramatically—in fact, it fell to the lowest level in the 25 year history of the series. Was QE finally working as intended to lower financial stress, or was something else at work? As was the case with QE1 and QE2, probably a little of both. Yes, the Fed

“learned its lesson” and made QE3 open ended, promising to continue QE until it worked. Both QE1 and QE2 had expiration dates (March 2010 and June 2011, respectively), and the open-ended nature of QE3 was beneficial. However, as was the case in QE1 and QE2, the Fed got some outside help with its QE homework.

In July 2012, just before QE3 started, ECB President Mario Draghi promised to “do whatever it takes” to keep the Eurozone together, ushering in a period of relative calm in the Eurozone. Meanwhile, in the fall of 2012, the Bank of Japan strongly hinted that it was preparing another round of QE, and by spring 2013 had acted. China, which had been raising rates since 2011, paused and began to consider stimulus. In the U.S., even during the “taper tantrum” in mid-2013 and the political wrangling over the “fiscal cliff” and debt ceiling in 2012 and 2013 didn’t get in the way. But in late 2013 and early 2014—as Fed Chairman Ben Bernanke gave way to Fed Chair Janet Yellen in February 2014—financial stress began to rise again.

TODAY’S GRADE: PASS

Here in May 2015, six months after the last purchase of QE3, financial conditions are nearly as tight as they were at the start of QE3 in September 2012. Once again, many factors combined to mute the efficacy of QE3. Poor weather in the United

States in the first quarters of both 2014 and 2015 led to market uncertainty around the sustainability of the recovery. In Europe, fear of deflation and yet another round of political drama in Greece added to global risk. Over the course of QE3, China’s long simmering property bubble burst, prompting Chinese authorities to switch from tightening to easing policy. Finally, back in the United States, oil prices collapsed over the second half of 2014 and into early 2015, raising concerns in financial markets that another recession was at hand. Thus, as was the case with QE1 and QE2, it is very difficult to grade QE3 on its own. Would financial conditions have worsened more rapidly in 2014 had the Fed not been doing QE3? It’s difficult to say. Did the prospect of the end of QE3 help to push oil prices lower and hasten the property price decline in China? Not sure.

Dozens, and perhaps hundreds, of academic papers have been written on this topic to date, and more are likely in the years ahead, and the grades given by these scholarly papers are mixed as well. The bottom line is that the global economy is not a closed classroom, and the successive rounds of QE were not done in isolation. Returning to [Figure 1](#), we can clearly see, however, that financial stress has moved down dramatically since QE1 began in November 2008, and for that alone, we’ll give the Fed a “pass” on QE as it relates to banking and financial system stress. ■

IMPORTANT DISCLOSURES

The opinions voiced in this material are for general information only and are not intended to provide or be construed as providing specific investment advice or recommendations for your clients. Any economic forecasts set forth in the presentation may not develop as predicted and there can be no guarantee that strategies promoted will be successful.

DEFINITIONS

The **Cleveland Federal Reserve Financial Stress Index (CFSI)** is a coincident indicator of systemic stress where a high value of CFSI indicates high systemic banking stress. Units of CFSI are expressed as standardized differences from the mean (z-scores). The CFSI provides a continuous measure of stress. To interpret the continuum, the index is divided into four levels or grades. Each grade represents a different level of stress, and each ought to be associated with a different set of supervisory responses. The four grades are:

Grade 1: Low stress period CFSI < -0.733

Grade 2: Normal stress period $-0.733 \geq \text{CFSI} < 0.544$

Grade 3: Moderate stress period $0.544 \geq \text{CFSI} < 1.82$

Grade 4: Significant stress period CFSI ≥ 1.82

The CFSI combines 16 measures of conditions in 6 major financial sectors: credit, equity, foreign exchange, funding, real estate, and securitization markets.

Quantitative easing (QE) refers to the Federal Reserve's (Fed) current and/or past programs whereby the Fed purchases a set amount of Treasury and/or mortgage-backed securities each month from banks. This inserts more money in the economy (known as easing), which is intended to encourage economic growth.

This research material has been prepared by LPL Financial.

To the extent you are receiving investment advice from a separately registered independent investment advisor, please note that LPL Financial is not an affiliate of and makes no representation with respect to such entity.

Not FDIC or NCUA/NCUSIF Insured | No Bank or Credit Union Guarantee | May Lose Value | Not Guaranteed by Any Government Agency | Not a Bank/Credit Union Deposit

RES 5089 0515 | Tracking #1-383429 (Exp. 05/16)