THE FINANCIAL CRISIS: A STROLL DOWN MAIDEN LANE

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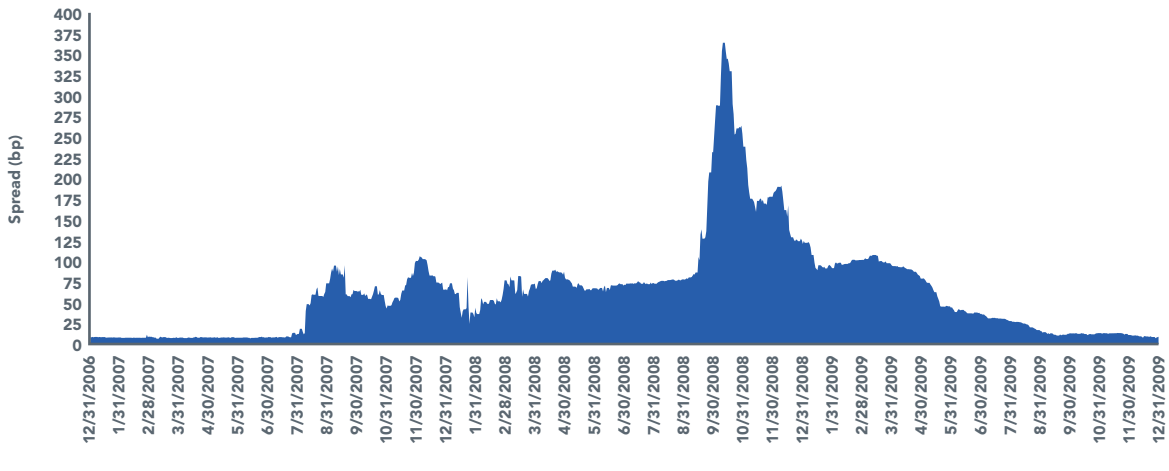
Can you believe it? Investors are about to experience the 10-year anniversary of the beginning of the financial crisis and the ensuing Great Recession. While many market participants frequently mention 2008 as "the year of the crisis," the genesis of events actually began in earnest during the summer of 2007, and as shown in the appendix time line, the first headline (virtually ignored at the time) that proved to be a harbinger of what was to come took place in February 2007; let's call it the tip of the iceberg. With that in mind, we thought it would be a useful exercise to review some of the key money and bond market takeaways from that period and compare them to where we stand today, 10 years later. So, for those who remember the integral role the Fed played during this 2007–2009 time frame, let's take a stroll down Maiden Lane.

THE FUNDING MARKETS: WHERE THE RUBBER MEETS THE ROAD

In my opinion, perhaps the most meaningful event transpired in the funding markets. This is the arena where stresses first became evident and stood at the heart of the financial crisis in general: the ability for firms to fund themselves on an overnight or short-term basis. Once this mechanism begins to break down, a domino effect occurs, as funding becomes too unwieldy from a price perspective, and another important part of the equation—confidence among financial institutions—dissipates. Put these two negative forces together, and you have the beginning of a potential system-wide collapse—precisely what transpired in August 2007.

FIGURE 1: 3 Month LIBOR–OIS Spread



Source: Bloomberg, as of 6/28/17.

The preferred gauge to measure potential risk on this front is the LIBOR–OIS spread. To better understand this spread, let's take a look at the two components. LIBOR is the average rate that major banks offer to lend to each other for short-term unsecured funds in a particular currency for a particular maturity in the wholesale money market in London. It can range from overnight to one year, and is utilized as a benchmark for various loans and in the capital markets. OIS (overnight indexed swap) is an interest rate swap that consists of both a fixed and floating rate component. The floating rate part uses an overnight rate index—in the case of the U.S. dollar, the Federal Funds Rate—while the fixed portion is set at an agreed-upon rate between the two parties. Thus, the OIS is considered a proxy for Fed Funds. The LIBOR–OIS spread itself represents the difference between these two instruments and measures one that could contain potential credit risk (LIBOR) versus one that essentially does not (Fed Funds). When this spread widens, it is considered to be a sign that there are stresses in the short-term bank funding markets.

The more closely watched gauge is the three-month LIBOR–OIS spread. Figure 1 clearly reveals that, prior to the financial crisis and subsequent Great Recession, this spread was a narrow one. In fact, between December 2001 and July 2007, the mean, or average, differential was a modest 11 basis points (bps)[1], and at one point in 2006 reached a low point of only about 2 bps. As mentioned, the first signs of stress in the funding markets became more evident in the summer of 2007, as the average during the July 2007–July 2009 period shot up to 89 bps. Underscoring the fears at that time, the spread built up to a crescendo in the fall of 2008, reaching an unbelievable peak of 364 bps in October (post-Lehman and AIG). The average spread ultimately returned to the 11–12 bps level by Q4 2009, and it currently resides at 14 bps.

THE FED RESPONDS

The Fed was very well aware of the importance of these developments and offered its first responses in August 2007, first issuing a statement that it "will provide reserves as necessary" and following up with a 50-bps cut in the discount rate. Interestingly, these responses came after the August 2007 FOMC[2] meeting where the voting members kept the Fed Funds target unchanged while acknowledging that "financial markets have been volatile in recent weeks." In other words, it appeared the policy makers realized their mistake and took subsequent action only days after the FOMC meeting, unusual developments to say the least.

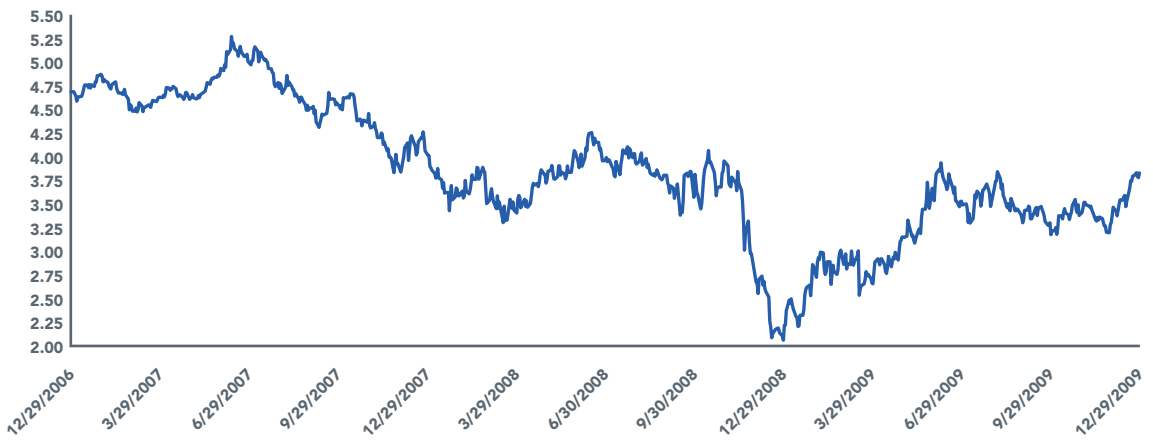
The Fed became more aggressive in the wake of these first actions and implemented a 50-bps cut in the Fed Funds Rate at the September 2007 FOMC meeting. In December, it announced the first of its many facilities to combat funding and financial market pressures, the Term Auction Facility (TAF)[3], as well as the central bank liquidity swap arrangement with the European Central Bank and the Swiss National Bank. The next move was from a more traditional monetary policy perspective, but the timing and magnitudes involved underscored the Fed's heightening concerns. Indeed, the Fed cut the Fed Funds Rate and the discount rate by 75 bps each, a week before the FOMC's regularly scheduled policy meeting in January 2008. Certainly, Fed Chairman Ben Bernanke and company were not anywhere near done yet, as the Bear Stearns, Lehman and AIG issues were all lying in wait, and in March 2008, the limited liability company Maiden Lane was formed to control Bear Stearns' assets. (For those who are not aware, the New York Fed resides between Liberty Street and Maiden Lane in New York City.) In June 2008, when Maiden Lane first showed up on the balance sheet, net portfolio holdings were reported as roughly $29 billion, while as of this writing, the figure was down to $1.7 billion. For the record, the "Maiden Lane" category is essentially the last remaining line item from the financial crisis on the Fed's balance sheet other than "central bank liquidity swaps" (not including quantitative ease).

[1] Basis point: 1/100th of 1 percent.
[2] Federal Open Market Committee (FOMC): The branch of the Federal Reserve that determines the direction of monetary policy.
[3] TAF: A temporary program managed by the United States Federal Reserve designed to "address elevated pressures in short-term funding markets."

THE FIXED INCOME ARENA—TREASURIES

Needless to say, we could go on for quite awhile highlighting all the event dates that are listed in our "Financial Crisis Time Line" appendix, but for the sake of brevity, we want to keep the focus on the money and bond markets and, later, the U.S. economy. With that in mind, let's turn now to the U.S. Treasury (UST) market, specifically the 10-Year yield. Here's a teaser: Do you know where the UST 10-Year yield was in June 2007, right before the crisis began to take hold? Answer: 5.29%. The descent to lower levels then commenced, and by September 2007, the yield level was almost 100 bps lower than the June peak, ultimately breaking through the 4% threshold, an area that wouldn't be revisited again until May of the following year. As you can see in figure 2, there was a period of "sawtooth" trading for the next six months before the next leg to the downside, where the UST 10-Year yield finished 2008 at its financial crisis/Great Recession low point of 2.05%. It is interesting to note that this sawtooth trading period included a flurry of activity, such as Fannie Mae and Freddie Mac being placed in government conservatorship, Lehman filing for bankruptcy, the net asset value of the Reserve Primary Money Fund "breaking the buck" and Congress at first rejecting, then passing, the $700 billion Troubled Asset Relief Program, or TARP. As a result of these events, the Fed, Treasury and FDIC were all extremely active, implementing programs/guarantees, etc., to combat these negative developments and once and for all turn the tide on the crisis. Looking back, the flurry of government activity in the fall of 2008 did represent a turning point.

FIGURE 2: U.S 10-Year Treasury Yield



Source: Bloomberg, as of 6/28/17.

As a final act of sorts, the Fed cut the Fed Funds Rate to 0–0.25% in December, and then-President Obama signed into law the $787 billion American Recovery and Reinvestment Act in early 2009. The Fed wasn't finished though, as QE1[4] was announced at the March 2009 FOMC meeting. The Treasury market certainly responded as if Q4 2008 represented the

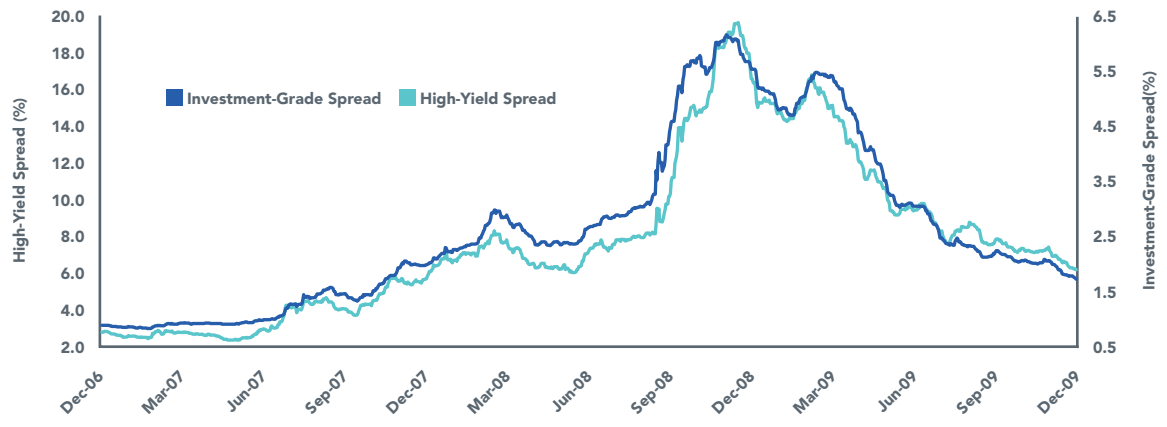
[4] Quantitative easing (QE): A central bank monetary policy occasionally used to increase the money supply by buying government securities or other securities from the market. Quantitative easing increases the money supply by flooding financial institutions with capital in an effort to promote increased lending and liquidity.

height of the crisis and the depths of the recession, with the UST 10-Year yield rising roughly 180 bps to finish 2009 at 3.84%. It is interesting to note that the 10-year yield actually made its all-time lows—first in July 2012 (1.39%) due to the eurozone crisis and, of course, the post-Brexit[5] mark of 1.36% last summer—after the financial meltdown. As far as the Fed is concerned, there are now four rate hikes in the books, and the policy makers' plan is to begin normalizing the balance sheet later this year. The UST 10-Year yield? It stood at 2.22% as of this writing, or not too far removed from the financial crisis/Great Recession low.

THE FIXED INCOME ARENA—U.S. CORPORATE BONDS

As we have seen thus far, the months leading up to July 2007 represented the calm before the storm, and this trend was definitely evident in the U.S. corporate bond market as well. Taking out the time horizon from a pre-financial crisis perspective, credit spreads were well behaved and posted some historically narrow readings. To illustrate, in the investment-grade (IG) sector (Bloomberg Barclays U.S. Aggregate Index), the average spread between December 2003 and July 2007 was 91 bps, at one point reaching a bottom of 76 bps. In high yield (HY), the Bloomberg Barclays U.S. Corporate High Yield Index registered an average spread level of 330 bps during this same time frame. Emphasizing how quickly, and dramatically, investors' attitudes were about to change, the nadir for HY got as low as 233 bps in May 2007.

FIGURE 3: Investment-Grade Spread (RS) vs. High-Yield Spread (LS)



Source: Bloomberg, as of 6/28/17.

The first signs of trouble brewing in the corporate bond market surfaced in late July and August and only built from there, with the first peak in spreads along the ascending ladder occurring in March 2008. By that time, differentials had risen by 200 bps and 600 bps, respectively, for IG and HY from their spring 2007 lows. After a momentary reprieve, the elevator went only one way: up. To be sure, corporate spreads surged to historical high-water marks, hitting their zenith in December: 618 bps for IG and an incredible 1,971 bps for HY.

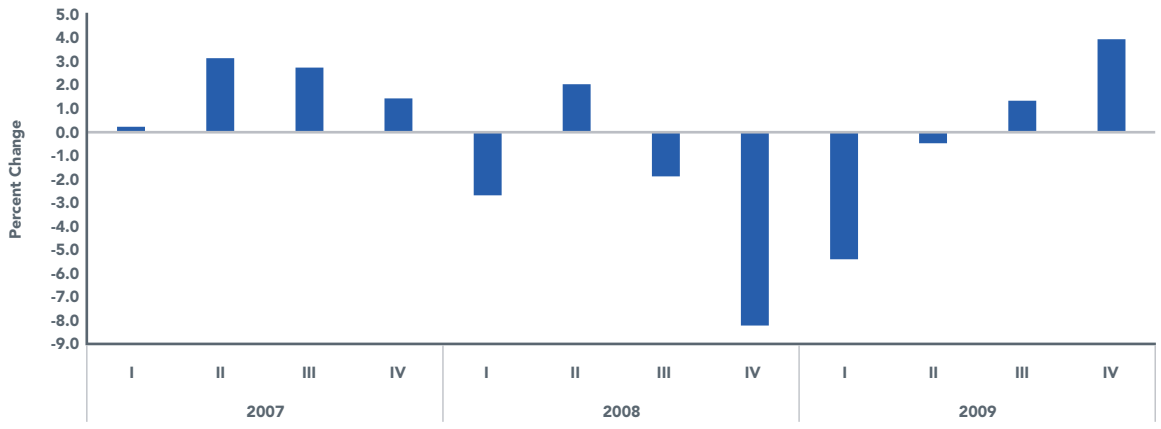
[5] Brexit: An abbreviation of "British exit" that mirrors the term Grexit. It refers to Britain's withdrawal from membership in the European Union.

A key event that helped reverse the extreme negativity in the credit markets was the FDIC's creation of the Temporary Liquidity Guarantee Program (TLGP) in October 2008. Although spreads kept widening after this announcement to their all-time highs, the Debt Guarantee Program (DGP) aspect of the TLGP enabled financial institutions to finally meet their financing needs in the open market, and helped the credit markets in general broadly improve. DGP allowed banks and their holding companies to issue debt guaranteed by the FDIC over a three-year period, finally breaking the risk aversion and paralysis that had gripped the credit arena. By the end of 2009, IG and HY spreads had narrowed roughly 450 bps and 1,355 bps, respectively, from their peaks. According to the FDIC, during the DGP's existence, a total of 122 entities issued TLGP debt, with a peak of $345.8 billion outstanding debt being guaranteed. By the end of 2012, "no debt guaranteed by the DGP remained." For the record, as of this writing, U.S. corporate spreads have moved to readings that are marginally above their December 2003 and July 2007 averages.

WHAT ABOUT THE ECONOMY?

While market participants were certainly laser-focused on the aforementioned developments in the money and bond markets, it all comes back to this: What about the economy? Looking at the real GDP[6] in figure 4, it is interesting to observe that the economy appeared to be losing momentum even before the depths of the financial crisis were being realized. After posting growth of 3.1% in Q2 2007, real GDP was more than cut in half (1.4%) to finish the year, and actually turned negative in Q1 2008 for the first time since 2001. After a brief move to the plus column during the subsequent quarter, the U.S. economy then went into negative territory for four straight quarters: the Great Recession. At its worst, the economy contracted by 8.2% in the final three months of 2008, the largest quarterly decline since 1958.

FIGURE 4: U.S. Real GDP



Source: Bureau of Economic Analysis, as of 6/28/17.

[6] Gross domestic product (GDP): The sum total of all goods and services produced across an economy.

Some other notable negative developments were witnessed in the labor force setting. From February 2008 through the end of 2009, total non-farm payrolls registered 23 consecutive monthly declines. During this period, the total amount of jobs lost was 8.7 million, and the average monthly shortfall was posted at 376,000. In addition, the unemployment rate hit 10%, the first double-digit figure since 1983. Let's compare these statistics to where we are now: The jobless rate is 4.4%, while the average monthly increase for payrolls thus far in 2017 is 180,000. In terms of the overall economy, since the Great Recession ended in mid-2009, real GDP has produced an average expansion rate of 2.1%. On a quarterly basis, growth has certainly been more of an up-and-down proposition, as we seem to be witnessing yet again this year.

CONCLUSION

Here we are a decade later, and the fallout from the financial crisis and Great Recession is still around us. Admittedly, economic and financial conditions are light-years ahead of those twin events, but remnants remain. Indeed, the lackluster growth backdrop, federal government budget deficits, central bank balance sheet positions and, of course, stubbornly low interest rates are certainly byproducts of the era. Perhaps the most important outcome was that policy makers now have a playbook of sorts and possess the tools to help combat such calamities should they ever rise again. Along these lines, in a recent appearance by Fed Chair Janet Yellen, these thoughts were essentially echoed, and she went on to say, "Will I say there will never, ever be another financial crisis? No, probably that would be going too far. But I do think we're much safer, and I hope that it will not [happen] in our lifetimes, and I don't believe it will." I'll copy that.

FINANCIAL CRISIS TIME LINE

2007

2/27/2007
Federal Home Loan Mortgage Corp. (Freddie Mac) will no longer buy most risky subprime mortgages and MBS.

7/11/2007
S&P places 612 securities backed by subprime residential mortgages on credit watch.

7/24/2007
Countrywide Financial Corp. warns of "difficult conditions."

8/06/2007
American Home Mortgage Investment Corp. files for Chapter 11 bankruptcy protection.

8/10/2007
Fed announces it "will provide reserves as necessary" in response to dislocations in money and credit markets.

8/17/2007
Fed reduces discount rate by 50 bps to 5.75% and releases intermeeting statement noting "downside risks to growth have increased appreciably".

9/18/2007
Fed implements first cut in the Fed Funds Rate by 50 bps to 4.75%.

12/12/2007
Fed announces the first of its many facilities to combat funding and financial market pressures, the Term Auction Facility (TAF).

2008

1/22/2008
Fed reduces both the Fed Funds and discount rates by 75 bps each following an intermeeting conference call.

3/14/2008
Fed approves financing arrangement by JPMorgan Chase and Bear Stearns.

3/24/2008
JPMorgan Chase acquires Bear Stearns, and a limited liability company (Maiden Lane) is formed to control Bear Stearns' assets.

6/05/2008
Bank of America acquires Countrywide.

6/05/2008
S&P downgrades monoline bond insurers Ambac and MBIA.

9/07/2008
Federal Housing Finance Agency (FHFA) places Fannie Mae and Freddie Mac in government conservatorship.

9/15/2008
Lehman Brothers Holdings Inc. files for Chapter 11 bankruptcy protection.

9/16/2008
Net asset value of shares in the Reserve Primary Money Fund falls below $1.00.

9/16/2008
The Federal Reserve Board authorizes the N.Y. Fed to lend up to $85 billion to the American International Group (AIG).

9/29/2008
Treasury opens its temporary Guarantee Program for Money Market Funds.

9/29/2008
House of Representatives rejects legislation to buy troubled assets.

10/03/2008
Congress passes and President Bush signs into law the Emergency Economic Stabilization Act of 2008, which establishes the $700 billion Troubled Asset Relief Program (TARP).

10/07/2008
FDIC announces increase in deposit insurance coverage to $250,000 per depositor.

10/08/2008
N.Y. Fed is authorized to borrow up to $37.8 billion in investment-grade fixed income securities from the American International Group (AIG).

10/14/2008
Nine large U.S. financial institutions announce their intention to subscribe to a TARP facility in an aggregate amount of $125 billion.

10/14/2008
FDIC creates the Temporary Liquidity Guarantee Program (TLGP) to guarantee senior debt of all FDIC-insured institutions and their holding companies.

11/25/2008
Fed announces program to buy direct obligations of Fannie Mae, Freddie Mac and Federal Home Loan Banks and MBS backed by the GSEs.

12/16/2008
Fed cuts the target range for Fed Funds Rate to 0–0.25%.

2009

2/17/2009
President Obama signs into law $787 billion American Recovery and Reinvestment Act (ARRA) of 2009.

3/18/2009
Fed announces "quantitative ease 1" by purchasing Treasuries, MBS and agency securities.

9/18/2009
FDIC announces expiration of Guarantee Program for Money Market Funds.