

Measuring the Change in Bond Investor Confidence

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From 2008 to as recent as 2013, Bond spreads have reached unprecedented heights. From the early 1920's to 2000 the spread between the 10 year Treasury and AAA securities has averaged less than 100 Basis Points (BP). Yet, since January of 2008, the spread has lengthened to almost 200 BP. While a 200 BP spread perhaps is not unique, the four plus years of heightened spread is curious. This study examines this behavior to measure Bond Investor Confidence relative to rapid Global Monetary Policy changes as an explanation of this extraordinary deviation from the normal expectations.

Introduction

Given that routine stock volatility across firms is random and assuming diversification, only some of the individual stock volatility is measurable in a broad stock index. The bonds of a firm being compared to the stock of a firm should show even less volatility. Therefore bond market volatility, considerably attenuated when compared to stock volatility, attracts little attention. However, the economic turmoil and loss of confidence in 2008 directly affected the bond markets presenting a unique opportunity for study.

Given that bonds are more commonly classified by ratings classes than by indexes, the study of ratings classes and in particular the spread between bond rating classes may help illuminate some of the unique period from 2008 to 2010.

Discussion

Since 2008, Treasury yields apparently have had a reduced influence on AAA and BAA securities. Since 2008, Treasury yields have fallen appreciably with little effect on the overall yield for AAA/BBB securities. (FIGURE) While quantitative easing coupled with low expectations of inflation as well as global uncertainty have resulted in a significant lowering of the risk free rate, investment grade securities are far above levels that for generations have maintained a predictable spread above Treasuries.

The nominal or quoted pre-tax cost of debt is determined by several components. The generally accepted formula is:

$$R = R_f + LP + MRP + DRP$$

Where R_f is the risk free rate generally defined as the 10 year Treasury Bond yield, LP is the liquidity premium, MRP is the maturity risk premium, and DRP is the default risk premium.

The LP and DRP are highly correlated. When the chance of default increases, a similar change in liquidity occurs which impacts the number of buyers and consequently affects the price investors will pay. The MRP is influenced by the length of time to maturity and the change in interest impact of that term to maturity. In essence, the cost of debt is determined first by the T-Bond rate and second by the bond rating assigned in light of the above parameters.

Since default risk premiums vary systematically over the business cycle, the expected behavior can be examined for deviation from the norm. Default risk premiums tend to widen during economic declines and narrow during periods of economic expansion. Economists generally believe in the idea of a "flight- to-quality". During economic stress, bond investors emphasize safety and thus tend to reduce holdings in BBB and increase purchases of AAA securities and in extreme cases, a concerted move to Treasuries even from holding AAA debt.

Investor flight was significant during the loss of confidence stemming from the 2008 mortgage meltdown. Confidence lost and confidence restored were the primary concerns of the Global Monetary Agencies during that immediate period. The period underwent massive swings in Liquidity and Default Risk Premiums. The flight to quality may have also affected the maturity risk premium if investors preferred shorter maturities while selling longer maturities. This potential for change in Maturity Risk Premium is reserved for later study and is not considered in the present discussion. So, assuming the main market driver is related to the change in default and/or liquidity concerns of investors, a study of this period may shed light on investor confidence.

Justly so, many bonds were sold in 2008 during the flight to quality. But a sustained length of time for selling followed by a reversal with a sustained length of buying may teach us something about investor confidence and the value of monetary actions on the investor psyche during those periods. A carefully constructed time line of the publicly announced monetary decisions is needed to show the turmoil and subsequent steps taken to restore confidence. The moves both domestically and globally by the monetary authorities may also shed some light on what steps were instrumental in changing investor sentiment. The appendices contain a dual time line of the two periods examined in this study. (See Appendix 1 and 2).

A common argument of this period is the loss of confidence resulted in a tremendous jump in yield. However, it is equally possible to have a severe overreaction followed by a restoration of confidence returning nominal rates to more realistic levels. That corporate yields since 2008 remain higher than the previous 10 years belies the argument that confidence as measured by yield has been completely restored.

Recall that an increased demand for AAA bonds results in an increase in price and a lowering of yield. Contrastingly, a decreased demand for lower quality BBB securities should drive up yields as prices fall. To summarize a “flight to quality” event, we expect the yield curves for AAA and BBB securities to diverge or separate during periods of stress. Conversely, if the yield curves move closer following an unstable economic environment, restored confidence is assumed.

Some would argue that the observed behavior is no more than a reaction to economic forces by informed investors. Thus it is necessary to consider both the length of the reaction and the rate of change in bond yields. Ideally, we have two opposing time periods; one with rapid rise in yields and one period with a rapid fall in yield. For more validity, the two selected time periods should be close together. As in this study with back to back changes; yields rising then subsequently falling, both over sustained periods of time, evidence of consumer confidence during the retraction and expansion may be evident.

With a cursory examination of corporate yields, several periods of study are selected. The AAA and BBB securities showed a determined movement upward beginning on Sept-5-08. The BBB-AAA spread also began to widen steadily from that point in time. The AAA peak is seen by Oct-17-08, while the BBB peak is not reached until Oct-31-08. The BBB-AAA spread doesn't peak until Dec-5-08 since AAA securities are falling faster than BBB. The approximately normal 100 Basis Point spread is not fully restored until past August 2009. These periods are selected for closer examination.

Data and Methodology

Weekly data for the study is provided by the Federal Reserve Economic Database; or FRED compilation of Moody's Seasoned BAA and AAA Corporate Bond Yields relative to the 10-Year Treasury. A constant Maturity adjustment is used to insure stability of comparison. The weekly data is then transferred to a spread sheet for study graphically. A graph of the data is seen in Figure 1.

The weekly data collected is from January 2000 through November 2011. An extreme swing in the rates graphed in Figure 1 is seen in the 2008-2009 region of the graph.

Using these visual clues, more detailed graphs of this time period are constructed. The data revealed that the most consistent and sharpest rise in rates occurs from August 2008 to December of 2008. Subsequently, bond yields dropped precipitously from late December to August 2009.

The overall slope of the line can be used to determine the rate of the change in yields. The rate of change is the first derivative of the yield with respect to time. The time period varies with

the interval selected. The rate fall or rise over the selected periods is easily calculated. Dividing by the passage of time or number of days, a rate of change is computed.

Additionally, the steep slopes of the two data sets can be interpreted for information related to investor behavior, specifically confidence. If the rate of change in yield from one period to the next are essentially equivalent, then we are not able to separate investor behavior from aggregate economic forces (recession and recovery).

The null hypothesis says if market reaction and restoration are essentially equal, then investor confidence is weak relative to economic pressures.

Results

Using data from the spreadsheet of weekly bond yields provided by FRED, for the BBB-AAA Spread, from August 22, 2008 to November 21, 2008, (92 days) the rise in rates due to a protracted sell-off (see Figure 2) resulted in a Rate of change = $(3.5 - 1.5) / 92 = + 0.0217$ change in yield per day.

The decline in rates for the BBB-AAA Spread occur over a 252 day period starting December 12th 2008 and ends August 21, 2009. The calculation of the rate of yield change is $(1.35 - 3.4) / 252 = (- 0.0082)$.

The results indicate that the drop in rate was almost one third the rise in yields caused by investor reaction to the mortgage debacle. The two rates are not directly comparable even though they are on adjacent time periods.

Additional evidence is found in (Table XX). Table x contains Monthly calculations of both yield change and the rate of change per day for the period.

The months of September and October exhibited the greatest rise in yield. November and December mark the reversal of yields. However, the spread continues to climb indicating that a preference for AAA over BBB persisted even as rates fell.

Many months later , by August 2009, the spread had returned to a pre August 2008 gap, indicating that market confidence had been restored to previous levels. Consistent throughout this period of turmoil is the Federal Reserve stance to hold Fed Fund rates near zero. Several instance of the Fed reconfirming its low rate stance are announced during this period.

Conclusions

It can be argued that the collective actions of the monetary authorities leading up the reversal of the rise in rates caused the fall in rates that occurred starting at the end of December 2008.

Further actions since that time should have accelerated the decline in yields if confidence was fully restored. It is likely that confidence returned but timidly.

The extreme difference in the rate of rise and fall is not close enough to accept the null hypothesis. Investor confidence has a strong and measurable influence in bond yields.

Confidence is the slope of the line.

Confidence is being restored when line is falling.

Confidence is lost when line is rising.

Rates are rising for AAA and for BBB while BBB-AAA is also rising

Rates for all are falling and the difference is falling as well.

Is confidence related to Default??

TABLE Total Monthly % Change in Yields and Average Daily Rate of Change in Basis Points							
	AAA Chg.	BBB Chg.	Spread Chg.		ROC AAA	ROC BBB	ROC SPREAD
Aug 08	-0.24	-0.17	0.07		-0.69	-0.49	0.2
Sept-08	0.47	0.82	0.35		1.62	2.83	1.21
Oct-08	0.41	1.47	1.06		1.17	4.2	3.03
Nov-08	-1.06	-0.55	0.51		-3.79	-1.96	1.82
Dec-08	-0.58	-0.71	-0.13		-2.0	-2.44	-0.44
Jan-09	0.56	0.11	-0.45		1.6	0.31	-1.29
Feb-09	0.11	0.05	-0.06		0.37	0.17	-0.2

Mar-09	0.01	0.24	0.23		0.04	0.86	0.82
Apr-09	0.05	-0.21	-0.26		0.18	-0.75	-0.93
May-09	0.22	-0.46	-0.68		0.61	-1.28	-1.89
Jun-09	-0.28	-0.62	-0.34		-1.0	-2.21	-1.21
Jul-09	-0.06	-0.47	-0.41		-0.17	-1.34	-1.17
Aug-09	-0.22	-0.34	-0.12		-0.79	-1.21	-0.43

APPENDIX 1

Monetary event time line for Rates Rising from August 2008 to December 2008

August 5 – Fed Holds Rates at 2%.

Sept. 15 – A Busy Day: Lehman Faces Liquidation; Merrill Lynch is Sold; AIG Seeks to Raise Cash.

Sept. 16 – U.S. Government Takes Over AIG With Fed Help in \$85 Billion Bailout.

Sept. 16 – Fed Holds Rates at 2%.

Sept. 29 – Fed Holds Unscheduled Conference Call on Swaps.

Oct. 7 – Fed Holds Unscheduled Conference Call on Severe Impairment of Commercial Paper Market. The topic was a deepening credit crunch threatening money market mutual funds and commercial paper, an important vehicle for short-term funding used by corporations.

Oct. 8 – Coordinated Global Central Bank Interest Rate Cut. In an unprecedented step, the Federal Reserve, along with its counterparts in the euro zone, Japan, England, Switzerland and Sweden, announced a coordinated cut in interest rates. The Fed cut its benchmark rate by half a percentage point to 1.5%.

Oct. 14 – A TARP Over Wall Street: The Bank Bailout. The U.S. government came to the banking sector's rescue, buying preferred equity stakes in nine major financial institutions including Bank of America Corp., JP Morgan Chase & Co., Goldman Sachs Group Inc. and others.

Oct. 22 – Fed Announces Fresh Aid To Money Market Funds. The central bank offered to lend as much as \$540 billion to the industry.

Oct. 27– Fed Launches Commercial Paper Funding Facility. The program was aimed at addressing cash shortages in the commercial paper market. The facility began operating on Oct. 27 and closed Feb. 1, 2010.

Oct. 29 – Fed Cuts Interest Rates By Half a Percentage Point to 1%.

Nov. 24 – U.S. Government Bails Out Struggling Citigroup. This was the first of three eventual bailouts for the Wall Street giant, this one amounting to \$20 billion in fresh capital injections as well as guarantees for \$306 billion in toxic assets.

Nov. 25 –Fed Starts Buying Mortgage Bonds. The Fed launched the Term Asset-Backed Securities Loan Facility, or TALF, aimed at supporting another troubled corner of the credit markets – securitized assets backed by increasingly sour loans.

Dec. 16 – Fed Cuts Rates Near Zero to Battle Slump.

Appendix 2:

Monetary event time line for Rates Falling from Late December 2008 to August 2009.

Jan. 16 – Fed Aid to BOA

Jan 24 – Citigroup sell \$12 B Government Guaranteed Bonds

Jan 28 – **FOMC maintains near zero rate.**

Feb 10 – Financial Stability Plan Launched.

Feb 18th – Announced plan to Aid homeowner mortgages

Feb 23 – Stress Test Capital Injections.

Mar. 18 – **Announce program to buy \$300 B Treasuries and Agency debt.**

April 2 – FASB relaxes mark-to-market rules.

Apr. 6 – Fed creates Foreign currency Swap agreements with major global banks.

Apr. 9 – Wells Fargo reports record profit

Apr. 13 – Goldman Sachs to pay back Tarp Loan.

Apr. 29 **FOMC confirms near zero target rate.**

May 7 – Stress Test results released

May 11 – Banks raise new capital based on Stress Test.

Jun 24 – **FOMC maintains target rates.**

Jul 20 – CIT \$ 3 B bond deal and restructuring.

August 12 – **FOMC again confirms near zero target rate.**

