

Economics Group

Special Commentary

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Credit, Interest Rates and Policy Inconsistency in the Post-Great Recession Era: Parte Um

“Gallia est omnis divisa in partes tres”

Interest rates represent the price of credit. The differences in interest rate levels on different financial instruments (U.S. Treasury and corporate debt) or similar instruments over time (the yield curve) are employed as indicators of relative risk. However, what can we say about the behavior of these interest rate differences during the current economic expansion and in an era of administered, not free market-setting, interest rates? Moreover, how can we employ these interest rate spreads as a measure of sentiment, and possibly, speculation or credit revulsion, over the business cycle when such interest rates are significantly impacted by public policy? For example, one puzzle to resolve is the current low level of sovereign interest rates given the perceived risk due to poor fiscal long-term outlooks for these countries. Could these low rates be a byproduct of administered rates along with an upsurge in financial regulation? A second puzzle is the recent weakness in the pace of housing and business investment in the United States, despite low nominal interest rates.

Traditionally, interest rate spreads vary over the business cycle. Spreads rise during periods of economic weakness and uncertainty, and decline during periods of economic prosperity. Therefore periods of optimism are represented by declines in interest rate spreads while pessimism is associated with increases in spreads. These patterns reflect the dominance of cyclical forces—not secular change, and yet, secular forces may indeed be the more important driving force since 2007. The challenge for analysts is to recognize, or at least question, on a cyclical basis, when interest rate spreads are at extremes and therefore provide a signal of a possible change in the economy or at least sentiment on the economy. Behind the utilization of any cyclical pattern as a guideline is an implicit assumption that spreads may vary, but they will vary about the same mean value over time. Finally, how might we assess changes in sentiment as represented by interest rates if, in fact, the average values and their volatility vary over time?

When can interest rate spreads provide a signal of a possible change in the economy?

I. Identifying Trend: The Anchoring Bias

What has been the trend in five-year and 10-year yields since 1968, the start of rising inflation and interest rates in an activist policy era, and are those trends reliable guides for the future? How permanent is permanent? How normal is normal? Figures 1 and 2 below highlight the problem of an anchoring bias for the period since 1968. For both the five-year and 10-year Treasury benchmark yields, there are two distinct patterns. First, there is a steady rise in interest rates from 1968 to 1979 and then a distinct downtrend thereafter. This highlights the issue that there have been two different economic regimes and indeed we know that since 1979 Paul Volker’s focus on inflation led to a new set of central bank operational goals were in place. Second, there is an equally-apparent steady decline in nominal interest rates since 1982. These two distinct patterns indicate that neither the five-year nor 10-year Treasury rate over this period is mean-reverting, and treating the five- and 10-year rates as a coherent series since 1968 is not the correct approach. Yet many analysts will employ the extended period since the 1960s as their sample set



when developing econometric models. In prior work we have found separately that the two-year Treasury rate is not mean-reverting.¹

Figure 1

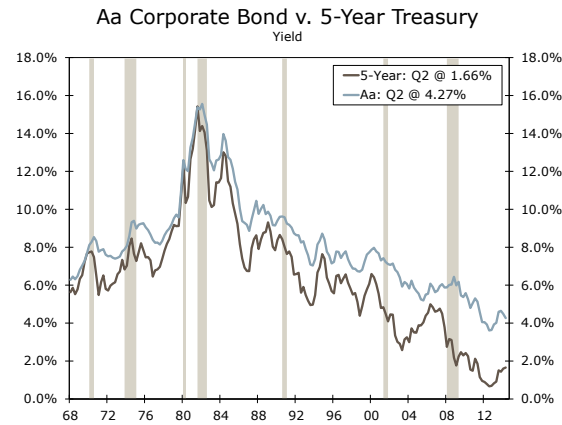
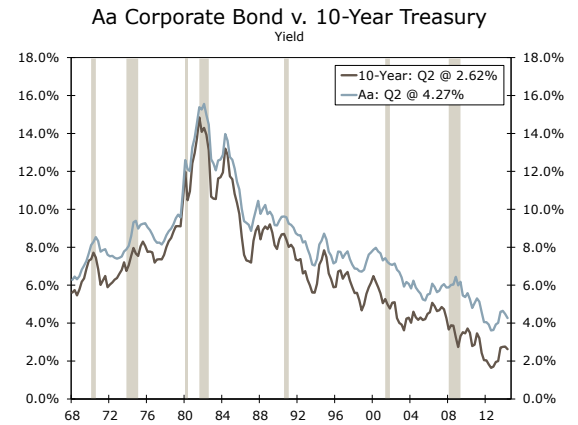


Figure 2



Source: Federal Reserve Board and Wells Fargo Securities, LLC

In Table 1, we show the calculations which indicate that the average and standard deviations of interest rates are distinct between the two periods and that the average values of the five-year and 10-year rates are statistically different. For example, for the 1968-1981 period the average value of the Aa Corporate bond was 8.99 percent in the first period and 7.82 percent in the second period. Are these values statistically significantly different such that we can proceed on the assumption that they represent two different interest rate regimes?

One counterintuitive result is that once we compare the means and standard deviations between these two periods, we note that the stability ratio—a series' standard deviation as a percent of its mean—is actually higher in the second period than in the first period. Not only is this true for the levels of the four interest rates examined, but it is also true for the spreads shown in the bottom half of Table 1. The evidence from the stability ratios indicates that despite the low level of recent interest rates, the volatility of interest rates has actually risen in recent years.

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Table 1

Bond Yield Statistics						
	1968-1981 Average	1982-Present Average	1968-1981 Std. Dev.	1982-Present Std. Dev.	1968-1981 Stability Ratio	1982-Present Stability Ratio
Aa	9.0	7.8	2.15	2.56	23.89	32.73
Baa	9.8	8.6	2.36	2.67	23.99	30.98
5 Year	8.0	5.8	2.32	3.10	28.91	53.67
10 Year	8.0	6.3	2.20	2.84	27.31	45.16
Aa/5 Year Spread	0.9	1.5	0.38	0.52	40.07	33.69
Aa/10 Year Spread	1.8	2.3	0.56	0.73	31.61	31.52
Baa/5 Year Spread	1.0	2.0	0.56	0.85	56.42	41.73
Baa/10 Year Spread	1.8	2.8	0.71	1.02	39.07	36.34

Source: Federal Reserve Board and Wells Fargo Securities, LLC

¹ Tests for mean reversion on two-year rates in the spirit of this exercise were completed in Silvia, Iqbal, Bullard, Watt and Swankoski, *Economic and Business Forecasting*, Wiley, 2014, pp. 341-344.

The corporate bond/U.S. Treasury spreads are shown in Figures 3 and 4. The mean, standard deviation and stability ratio of these spreads are illustrated in the lower part of Table 1. Here again we note that the volatility of these spreads has actually risen in the most recent period. Where is the Great moderation?

Figure 3

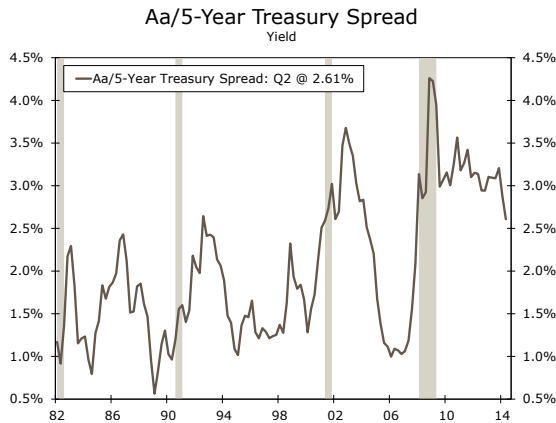
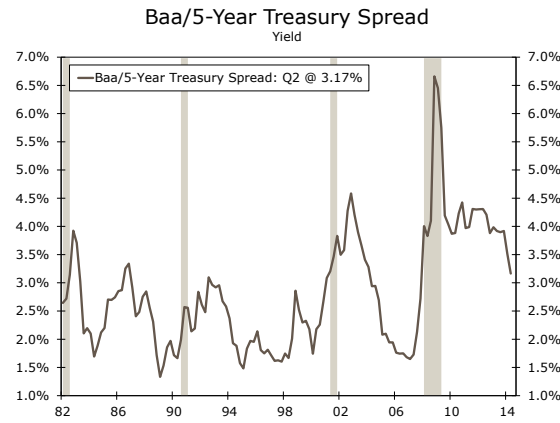


Figure 4



The volatility of interest rate spreads has actually risen in the most recent period.

Source: Federal Reserve Board and Wells Fargo Securities, LLC

We can also test for a structural break in these series by employing a state space approach.² The results listed in Table 2 confirm the structural break. In the left side of Table 2 that there is clear evidence of a structural break in the level of market interest rates in the fourth quarter of 1982. For example, a break occurred for the Aa corporate bond yield, five-year Treasury yield and 10-year Treasury yield, which are all statistically significant at the 0.01 level. The table also shows a second intriguing result; the structural break for the spread of Baa corporate to 10-Year Treasury debt occurs in Q4 2008, just after the collapse of Lehman Brothers.

² See Silvia, Iqbal, Bullard, Watt and Swankoski, (2014), *Economic and Business Forecasting*, Hoboken, N.J., Wiley, Chapter 7 and G.S. Maddala and In-Moo Kim, (1998), *Unit Root, Cointegration and Structural Change*, Cambridge, UK: Cambridge University Press.

Table 2

Identifying a Structural Break Using the State-Space Approach					
Aa Corporate Bond Rate			Aa/5 Year Spread		
Break Date	Type of Break	Coefficient	Break Date	Type of Break	Coefficient
Q4-82	Shift	-2.35*	Q2-80	Shift	1.47*
Q1-80	Additive	0.96*	Q4-08	Shift	1.26*
Q4-79	Shift	1.20*	Q4-81	Shift	1.18*
Q2-84	Shift	1.14*	Q1-08	Shift	1.02*
Q4-80	Shift	1.10*	Q3-09	Shift	-0.89*
Baa Corporate Bond Rate			Aa/10 Year Spread		
Break Date	Type of Break	Coefficient	Break Date	Type of Break	Coefficient
Q4-08	Shift	1.75*	Q2-80	Additive	0.79*
Q4-82	Shift	-1.53*	Q4-08	Shift	0.99*
Q4-80	Shift	1.36*	Q3-09	Shift	-0.86*
Q1-80	Shift	1.30*	Q3-81	Additive	-0.43*
Q4-79	Shift	1.32*	Q1-08	Shift	0.59*
5-Year Treasury Rate			Baa/5 Year Spread		
Break Date	Type of Break	Coefficient	Break Date	Type of Break	Coefficient
Q4-82	Shift	-2.51*	Q4-08	Shift	2.46*
Q1-80	Additive	1.37*	Q2-80	Shift	1.87*
Q3-81	Additive	1.05*	Q4-81	Shift	1.55*
Q4-80	Shift	1.80*	Q3-09	Shift	-1.37*
Q4-79	Shift	1.29*	Q4-74	Shift	1.30*
10-Year Treasury Rate			Baa/10 Year Spread		
Break Date	Type of Break	Coefficient	Break Date	Type of Break	Coefficient
Q4-82	Shift	-2.35*	Q4-08	Shift	2.22*
Q1-80	Additive	1.28*	Q3-09	Shift	-1.51*
Q3-81	Additive	0.83*	Q2-80	Additive	1.01*
Q4-80	Shift	1.26*	Q4-74	Shift	1.04*
Q4-79	Shift	1.20*	Q4-81	Shift	0.96*

*Significant at the 0.01 Level

Source: Federal Reserve Board and Wells Fargo Securities, LLC

Intellectual biases can play an important role in investing and economic forecasting.

These results illustrate the important role that intellectual biases can play in investing and economic forecasting. Here the problem of the anchoring bias appears in two ways with respect to the level of rates.³ Based upon the experience of the early post-WWII period, investors were accustomed to low inflation and were surprised by the blowout of inflation in late 1970s. Meanwhile, the next generation of bond investors anchored their expectations of inflation on the experience of the late 1970s and failed to anticipate the drop in inflation and interest rates in the 1980s.

As noted earlier, the structural break in the corporate bond yields follows the Lehman Brothers collapse. This represents a challenge to interest rate modelers since we must now recognize that since 2008, we are in a different sampling period with a new interest rate regime. This may help explain the problems for many forecasters in accounting for the continued low level of interest rates compared to the historical lineage.

III. The Dramatic Shift in Real Interest Rates

Real interest rates were consistently below zero during the 1970s and yet above zero throughout the post-1970 period until the early post-2001 recession (Figures 5 and 6). These patterns corroborate the view that investors in Treasury debt were consistently surprised by the rise in inflation during the 1970s. Then during the 1980s, inflation fears persisted and nominal rates did not completely adjust to the rapid drop in actual inflation from 1982 to 1992. These behaviors suggest that investors exhibit a dynamic adjustment process where they gradually learn about the path of policy and policy's implications for inflation. Therefore, real interest rates partially adjust to lower actual inflation.

³ See Silvia, John E., "Dynamic Economic Decision Making", Hoboken, N. J., Wiley, pp. 71-73.

Figure 5

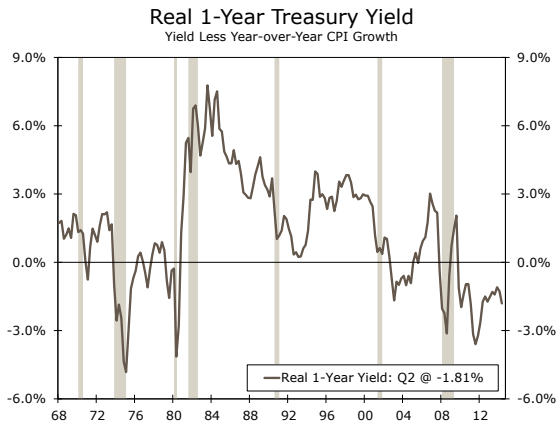
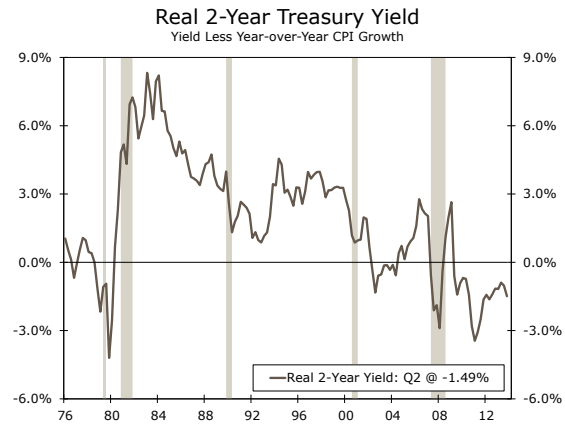


Figure 6



Source: Federal Reserve Board, U.S. Department of Labor and Wells Fargo Securities, LLC

The current period is also unusual since the conduct of monetary policy is aimed at keeping nominal interest rates very low while promoting a rise in inflation. The net result is that real interest rates remain negative throughout this period. Lowered expectations for economic growth and inflation may reflect, in part, the experience of this recovery but also the impact of higher taxes and underlying changes in labor force growth and productivity. We will explore these issues further in our next two issues.

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