

# INVESTMENT UPDATE

In last month's *Investment Update*, we managed to trash non-investment grade bonds by pointing out that, despite their higher yields, junk bonds are inferior to stocks when matched up with high-grade bonds. We showed that the positive correlation between junk bonds and stocks makes high yield bonds a poor diversifier of risk when added to a "core bond" portfolio.

But could we have been too quick to dismiss the entire asset class of junk bonds? This month we'll take a closer look at some of the components of both the high yield and high grade bond markets to see which categories of bonds are most likely to be the best performers over different periods of time. We're going to examine these subsidiary asset classes not just for their return characteristics, but also their level of volatility and their ability to diversify some of the risk of equities, which we assume are always a part of a well-constructed portfolio.

The first step is to disaggregate the bond market into its subcomponents. Fortunately, Lehman Brothers makes this fairly easy, as they maintain data going back at least twenty years on most of the components of their domestic bond indexes.

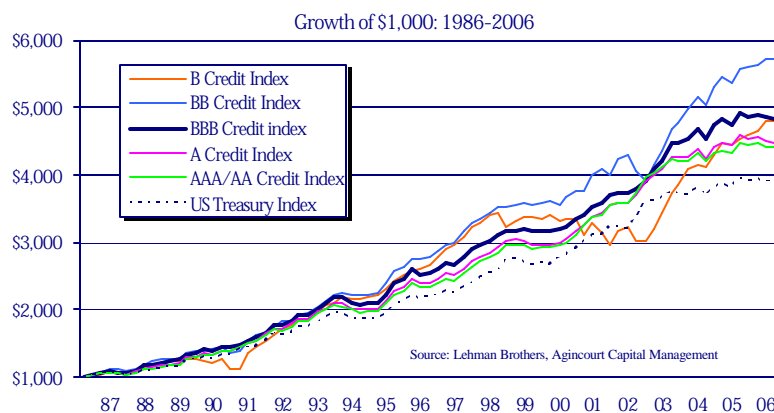
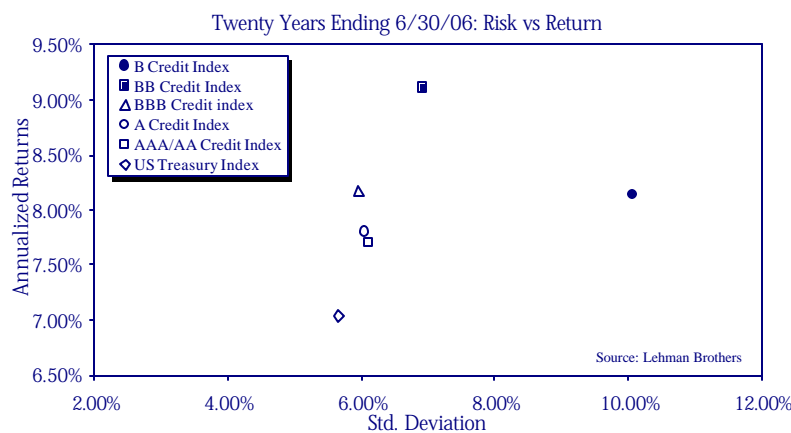
Accordingly, we've obtained quarterly total return data for various quality grades of the US bond market—everything from US Treasuries to single-B rated bonds, to points in-between. The top chart on this page shows how these subcomponents of the Lehman Indexes performed in a risk/return framework for the twenty years ending June 30, 2006. The chart looks pretty normal—up to a point—with lower quality securities producing higher returns and higher degrees of volatility. Thus we see US Treasuries, at the very top end of

quality, having returned approximately 7% annually since mid-1986, with a standard deviation of returns less than 6% over this time. BBB-rated corporate bonds returned in excess of 1% more per year, with only slightly more volatility (and, surprisingly, less volatility than the highest quality corporates). Below-investment grade BB-rated corporates added another 1% in annual returns on top of that, but with measurably more risk. This is the general pattern we would expect to see: as we move down in quality, both returns and risk should move up, with data points plotted in a progressively northeast-to eastern direction.

The big outlier over this period has to be single-B corporates, whose risk characteristics are much higher than these other, higher quality bonds, but whose returns have been below even BBB's. Clearly, risk has not been rewarded for single-B bond investors, who have taken on a lot of credit risk but have little to show for it. The relatively poor risk-adjusted performance of single-B's also helps explain why the combined non-investment grade category (which includes all credits rated BB and

lower) didn't compare particularly well in the analysis in last month's *Investment Update*, where the S&P 500 Index returned 11.2% over the same 20-year period with a standard deviation of approximately 17%—off the scale of this chart, and clearly superior to single-B corporates.

The second chart shows this data in an alternate format, the hypothetical growth of \$1,000 invested in each of these asset classes over the past 20 years. While the end results are the same, it's useful to observe how the growth patterns have differed over time. Single-B's suffered through two long periods of decline, in 1988-90 and a more protracted period of poor performance from 1998-2002 (both periods of poor equity



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performance). Compared to single-B's, double-B's have showed much better price stability, although in the credit crunch of 2002, BB's gave back a decade's worth of gains compared to BBB's.

This is the point in the discussion that we have to step back and ask why BB's produced such great returns over the most recent credit cycle. Studying the data, we are more than a little bit surprised that they didn't suffer as much in the 98-02 period and have bounced back as much as they have since mid-2002. Their recent performance has left single-B's and triple-B's in the dust.

The answer is not a simple one, but we'll try to make the explanation understandable. The first thing we have to consider is the dynamic nature of the bond market, and the lags that are associated with investors' perceptions and actions. Typically, credit quality is well into the downward

swing of the cycle before investors start to lighten up on credits. As a result, lower quality corporate bonds' prices tend to drop fairly dramatically once evidence of a credit downturn builds, as investors all try to get out the door at the same time. To make matters worse, this drop typically occurs before the companies actually get downgraded by the agencies. For weakening triple-B credits, price moves can be particularly dramatic, as so many managers have to sell before the bonds get downgraded to junk status.

The most recent credit cycle was more exaggerated than any in the modern history of the US bond market. The over reliance on debt financing to fund the expansion of the "New Economy" made many companies vulnerable to the inevitable downturn in the business cycle. The high profile collapses of Enron and Global Crossing fairly early in the downturn, both of which were widely owned by investment grade bond managers, put bond investors in a nervous mood. On top of that was a decline in investors' confidence in the ratings agencies, who were late in recognizing the problems at Enron (which was still rated triple-B less than 30 days before they defaulted in December of 2001).

All this was prelude to the near-meltdown of the US credit market in the first nine months of 2002. Credit spreads (the yield differential between corporates and Treasuries) widened dramatically as investors first shunned, and then began dumping corporates, not knowing whether their bonds were the next Enron. Rumors (as well as actual instances) of corporate malfeasance spread like a contagion, and the rout was on. By September, an estimated 1/3 of the Lehman (invest-

ment grade) Credit Index was quoted on a dollar price basis, the convention for junk bonds.

There were many, many credits that fell on hard times during this period; some were simply victims of overleverage and the business cycle, others (WorldCom, Qwest, Adelphia) were guilty of far worse. Tyco International was a typical "troubled" credit, and the chart on this page shows the volatile price history of one of their benchmark 30-year bonds over the past few years. Notice how badly these bonds performed while they were still rated "Baa" (Moody's version of triple-

B), falling in price by more than 30% in early 2002. Like Tyco, many weak credits took it on the proverbial chin while rated triple-B, and were subsequently downgraded to double-B. The interesting thing, in the current discussion, is how many companies saw most of their price depreciation occur while rated triple-B,

but saw their bonds

improve while rated BB. By the time Tyco got upgraded back to triple-B, most of their price recovery had already occurred. Even companies (e.g., WorldCom) that eventually sought bankruptcy protection very often saw most of their price damage done while they were still rated BBB.

As a result, BBB-rated bonds disappointed in the most recent credit cycle—triple-B's experienced the lion's share of pain, but little recovery, while double-B's earned an unusual degree of price appreciation in the recovery part of the cycle. Single-B rated bonds performed poorly as well, as many of these credits eventually declared bankruptcy, forcing their bondholders to look for a negotiated settlement. In short, double-B's were the "sweet spot," as the charts amply demonstrate.

In terms of diversification, however, there is little difference between single-B and double-B credits—both are highly positively correlated (0.72 and 0.69, respectively, over the past five years) with the S&P 500. We stand by the conclusion reached last month: junk bonds (of all grades) do a much poorer job of diversifying equity risk than high-grade bonds.

As for the future of junk bonds, we continue to believe that carefully-selected BB's have value, in limited quantities, for those clients with higher risk tolerances, especially at the bottom of the credit cycle when prices are set by emotions, not fundamentals. Importantly, that is not currently the case, as investors today are willing to accept very low yield spreads in the BB market, a sure sign of trouble for this often-volatile subset of the US bond market.

