Credit Market Volatility and Change

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Mr. Market's brother, Mr. Credit Market, has been something of a rascal lately. At the same time that the corporate bond or credit market is becoming an increasingly large component of the Lehman Government/Credit and other indexes, many corporate bonds have become very volatile. The combined effect of these two trends on the Government/Credit index is to make it substantially riskier than it has been in the past.

Plan sponsors whose U.S. fixed-income assets are benchmarked to the Government/Credit index might consider changing to a benchmark that is more liquid or more diversified. There are several choices for such investors.

A Government-only benchmark achieves a fixed income pure play, has reduced risk, is much more liquid, and is less correlated with equities (which are the asset against which most fixed-income investors are seeking diversification). Therefore, investors who move in and out of fixed income, such as participants in tactical asset allocation (TAA) products and balanced funds, would gain from moving to a Government benchmark.

Investors in Government/Credit products who do not have as great a need for liquidity might consider the more diversified Aggregate, with its more limited exposure to credit risk. Other alternatives are the even more diversified Universal benchmark, or a custom benchmark that weights the different sectors of the bond market in a way that suits the investor's particular needs and risk preferences.

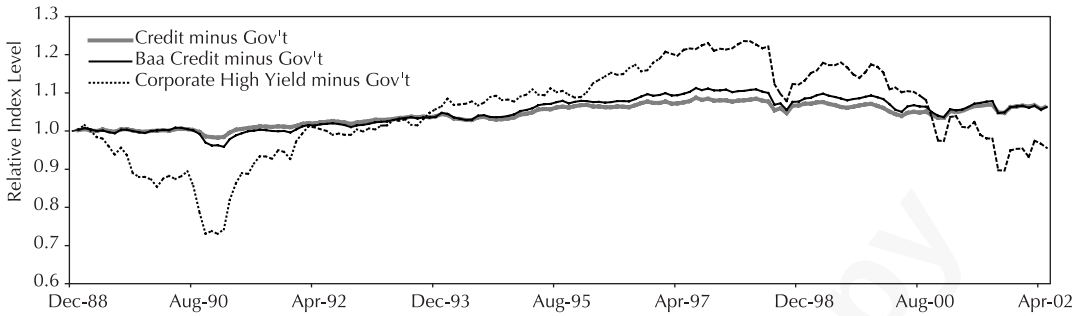
These comments also apply to investors whose benchmarks are intermediate-term. If their products are benchmarked to the Intermediate Government/Credit, they should consider switching to the Intermediate Government if they need liquidity, and to the Intermediate Aggregate or a customized intermediate-term benchmark if their liquidity needs are modest.[1]

From our study, four principal conclusions emerge:

1. Credit has become both riskier and more highly correlated with equities. At the same time, credit is an increasingly large component of broad bond benchmarks, such as the Government/Corporate and Aggregate.
2. Clients in balanced and TAA funds, and in commingled fixed-income funds that need liquidity to handle cash flows, would be better served by switching to a Government-only benchmark, moving away from the contagion that has affected the credit markets.
3. The risk-return profile will not be very different between Government and Government/Credit portfolios. Credit is likely to add risk commensurate with its greater expected return.[2]
4. Even clients who do not need liquidity may benefit from a move away from

EXHIBIT 1

Cumulative Excess Returns of Various Credit Indexes over Lehman Government Index, 1989-2002



Source: Lehman Brothers.

credit by selecting either a pre-existing or a customized benchmark. In either case, they should move to a broadly diversified benchmark that has substantial non-Government components other than credit.

BACKGROUND OF CREDIT MARKET VOLATILITY

The recent turbulence in corporate America—with accounting scandals, the unwinding of excess capacity, and plunging earnings and stock prices—has driven the bonds of many once gilt-edged corporate issuers to junk or near-junk status. Investors fear that more investment-grade issues will follow them downward in rating and price.

This turbulence is reflected in the sharply increased volatility of the excess return of the Lehman Credit index relative to the Lehman Government index.[3] This volatility, which spiked around the time of the Long-Term Capital Management crisis in 1998, first dampened but then rose again after the spring of 2000, recently reaching one of its highest levels in more than a decade.

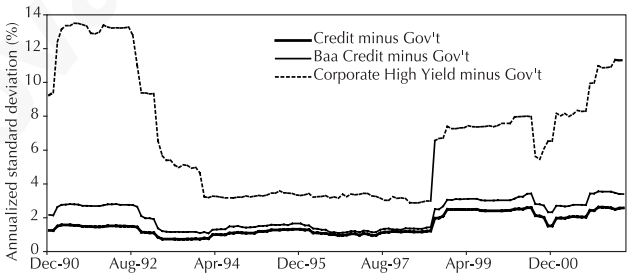
The soaring volatility of the Lehman High Yield index, which absorbs the issues that are downgraded below Baa, makes it clear that corporate bonds are going through an extraordinarily stressful period as seen in Exhibits 1 and 2.

Not only has volatility been high, but performance has also been poor in the credit market. While investment-grade corporate bonds have outperformed governments by a modest amount over the very long run, corporates (despite their much higher running yields) have only broken even with governments over the last six years.

Performance can be expressed by yield spreads over

EXHIBIT 2

Rolling 24-Month Volatility of Excess Returns of Various Credit Indexes
(returns in excess of Lehman Government Index)



Source: Lehman Brothers.

Treasuries as well as by total returns. Exhibit 3 shows the option-adjusted spread (OAS) of the Credit index over Treasuries since June 30, 1989.[4]

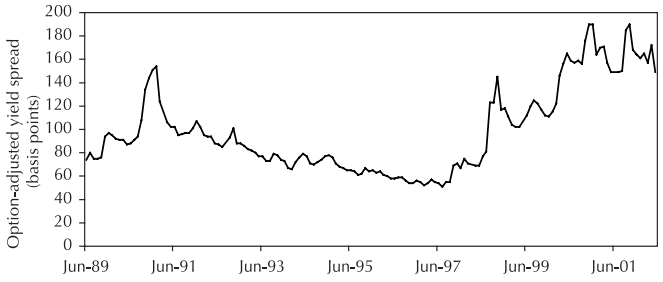
Note that spreads in the last two years have reached the highest levels ever, exceeding the spreads in stress periods such as the junk bond crisis of 1990-1991 and the LTCM débacle in the fall of 1998.

The weight of credit in the Government/Credit and other indexes has been increasing, as companies have issued massive amounts of paper at the same time that the Treasury has been retiring debt. Exhibit 4 shows the changing composition of the Government/Credit and Aggregate benchmarks, and their intermediate-term counterparts, over time.

Note that the weight of credit in the Government/Credit benchmark, and its intermediate-term counterpart, is much greater than the credit weight in more diversified benchmarks such as the Aggregate or Universal.

EXHIBIT 3

Yield Spread of Lehman Credit over Treasury Index 1989-2002



Source: Lehman Brothers.

RECENT DECAY OF THE CREDIT MARKET ENVIRONMENT

The volatile behavior of credit-related benchmarks is a reflection of changes in the fundamentals of the credit market. Among these fundamental changes are:

Greatly increased issuance. Between 1998 and 2000, nearly $1 trillion of investment-grade corporate debt was issued in the United States. This compares to only $425 billion over the previous three-year period.

Of the debt issued in 1998-2000, approximately 10% was telecom debt, reflecting a perceived need for capital to build out bandwidth supply and other capacity. In what we now realize is typical top-of-cycle behavior, this capital was deployed in increasingly unprofitable uses, resulting in massive debt overhang across the telecom sector. In turn, this overhang has further negatively impacted fundamentals, tone, and performance across much of the corporate market.

Declining creditworthiness. The telecom bust of 2001 was one of the most dramatic waves of downgradings and bankruptcies in the current credit cycle. Then, concerns about honesty and accuracy in corporate accounting caused the damage to widen quickly to include other industries, including energy (Enron), conglomerates (Tyco), office equipment (Xerox), and pharmaceuticals (Merck-Medco and Bristol-Myers Squibb). Even AT&T is now trading as a dollar bond—on the basis of the dollar price, rather than on its yield or yield spread over Treasuries (an indication that investors are pricing the bond at junk or near-junk status).

Exhibit 5 shows the recent price path of several formerly high-grade corporate bonds. We examine these price series in greater detail later, when we focus on the process by which bonds become downgraded by the rating agencies.

Technical changes. In addition, the credit market has been made less liquid by broker consolidation. For example, Donaldson, Lufkin, & Jenrette, the traditional leader in

EXHIBIT 4

Changing Composition of Bond Benchmarks

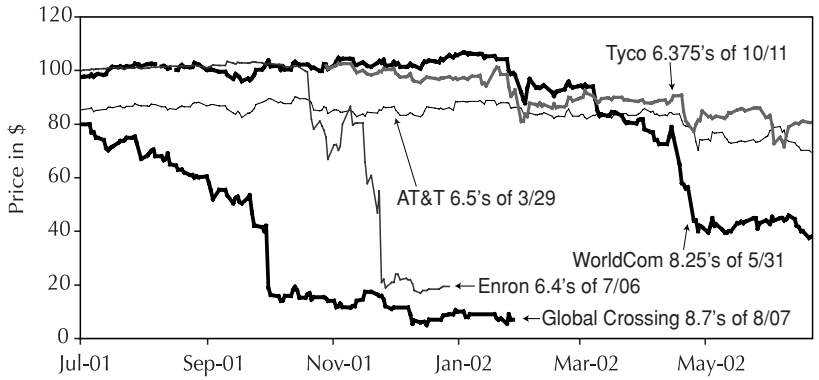
	1976	1986	1991	1996	1997	1998	1999	2000	2001	2002
Lehman Government/Credit										
Treasury	35%	64%	65%	65%	62%	56%	52%	44%	36%	36%
Agency	17%	11%	10%	9%	10%	12%	14%	18%	19%	20%
Credit	46%	25%	24%	26%	28%	32%	34%	38%	45%	44%
Lehman Aggregate										
Treasury	32%	48%	45%	45%	43%	38%	33%	27%	22%	21%
Agency	15%	8%	7%	7%	7%	8%	9%	11%	11%	12%
MBS/ABS	11%	25%	31%	31%	31%	32%	36%	38%	39%	40%
Credit	42%	19%	17%	18%	19%	22%	22%	24%	27%	26%
Lehman Intermediate Government/Credit										
Treasury	56%	69%	69%	67%	65%	56%	50%	39%	32%	31%
Agency	24%	15%	12%	10%	10%	14%	17%	21%	23%	24%
Credit	20%	16%	19%	23%	25%	29%	33%	40%	45%	45%
Lehman Intermediate Aggregate										
Treasury	51%	48%	41%	42%	39%	33%	27%	21%	17%	16%
Agency	22%	10%	7%	6%	6%	9%	9%	11%	12%	13%
MBS/ABS	9%	30%	40%	38%	39%	41%	45%	47%	46%	47%
Credit	18%	11%	12%	14%	15%	17%	18%	21%	24%	24%

Data for 2002 are as of June 29. Data for other years are as of December 31.

Source: Lehman Brothers.

EXHIBIT 5

Recent Price Histories of Prominent Corporate Bond Issues—July 2001-June 2002



Source: INVESCO.

high-yield issuance and also a major player in investment-grade corporates, has been purchased by Credit Suisse Group. The resulting consolidation has reduced the amount of capital committed to making markets in corporate bonds.

In addition, after the credit market débacles in 1998, most of the remaining brokers reduced their position limits in conjunction with heightened risk management. This has further reduced market liquidity, with widening bid-ask spreads and longer waits to move large positions.

Influence of hedge funds. The huge amount of (typically leveraged) money that has gone into hedge funds in the last few years has made these funds major players in the corporate bond market. One popular hedge fund strategy is capital structure arbitrage—buying a corporate bond and shorting the corresponding stock (or occasionally vice versa). Thus, when investors are buying or selling corporate bonds, the party on the other side of the trade is, increasingly, a hedge fund. This has had the effect of escalating volatility in the market, particularly on the downside.

Hedge funds, by their nature, do not represent the type of long-term, stable capital that once dominated the corporate bond market. Historically, insurance companies and other natural investors have formed a relatively patient base of capital for that market. Hedge funds, with their rapid growth in recent years and their ability to employ significant leverage, have altered the market's dynamics by increasing the speed and magnitude of market moves.

Most significantly, hedge funds have greatly increased the market's capacity to sell corporate bonds short, a position not natural, and in some cases not allowed, for more traditional market participants such as insurance companies, mutual funds, and pension funds. As a result, price declines in the corporate bond market are now much faster and more severe than they have been historically.

HISTORICAL RETURNS ON CREDIT BENCHMARKS

History is often a useful guide to the future—if one interprets history sensibly, rather than blindly extrapolating it forward. Let us look at how several Lehman Brothers fixed-income benchmarks have behaved since their inception in 1973, with greater emphasis on the more relevant second half of the period.

Exhibit 6 shows that, over the full 1973-2002 period, the Credit benchmark has outperformed the Government benchmark by only a small margin (0.16 percentage point per year), while having substantially more risk. Hence, the Sharpe ratio is higher for the Government benchmark than for the Credit.[5]

These patterns persist if one looks only at 1989-2002, when Credit won by 0.42 percentage point per year (enough to give it a slightly higher Sharpe ratio). The Aggregate and High Yield indexes are not available for the full period; over 1989-2002, the Aggregate slightly outperformed the Government (by 0.20 percentage point per year), and the High Yield underperformed.

Over these long periods, corporate credit risk was either not rewarded, or it was rewarded by an amount so small that one would have to be exceptionally risk-tolerant to regard the reward as a fair deal.

How could that happen? Capital market theory says that riskier investments produce higher returns if one waits long enough. For example, corporate bonds, which have higher yields than Treasury bonds, should also offer higher expected total returns than Treasuries—otherwise no one would buy them. If investors expected all the corporates' higher yield to be consumed by defaults, or by losses related to default concerns, they would hold Treasuries instead. Therefore, we can conclude that investors did expect higher returns on corporates and that these expectations were frustrated.

These unanticipated losses in the credit market were concentrated in three periods: 1990, 1998, and 2000-2002. Each period is associated with either a recession, a liquidity crisis, or both. Setting aside 1998, the periods of losses for the credit market are characterized by over-

EXHIBIT 6

Summary Statistics of Monthly Total Returns on Lehman Fixed-Income Benchmarks

	Aggregate	Gov't./ Credit	MBS/ ABS	Credit	Government	Corporate High Yield
Compound Annual Return						
1973-2002	n/a	8.72%	n/a	8.92%	8.76%	n/a
1989-2002	8.52%	8.45%	8.64%	8.82%	8.32%	8.09
Annualized Standard Deviation						
1973-2002	n/a	6.11%	n/a	7.63%	5.45%	n/a
1989-2002	3.91%	4.30%	3.31%	4.64%	4.29%	7.50%
Sharpe Ratio						
1973-2002	n/a	0.365	n/a	0.320	0.417	n/a
1989-2002	0.911	0.813	1.114	0.835	0.784	0.419

Data through May 31, 2002.

Source: Lehman Brothers.

capacity and sharp retrenchment in industries that had previously experienced a credit-fueled boom.

It is perhaps surprising that investors did not demand a yield high enough to protect against the next wave of downgradings and defaults—that is, high enough to generate a substantially positive excess return over the Government benchmark averaged over good and bad periods for the credit market. Yet the experience of 1990-1991 gave what we might now regard as a false sense of safety. After spreads widened and capital losses occurred, spreads narrowed sharply and investors made huge gains. All you had to do was to hold on through the bad times, and everything would come out right.

Of course, it was different the next time. The credit market never fully recovered from the LTCM-related liquidity crunch of 1998, and when the economy and stock market began to turn sour in 2000, the credit markets continued to perform poorly. Spreads that had widened did not narrow.

Thus, there was risk in the credit market that could not be discovered by studying history. Investors who had come to rely on history—or, more specifically, on one historical event (1990-1991) to assess the probable behavior of the credit market in the wake of a spread widening—have been sorely disappointed.

This does not mean there is anything wrong with the underlying theory positing a relationship between risk and expected return. The market got the price wrong, once, and has presumably learned from the experience.

At some level of yield spread, corporate bonds offer an expected return sufficient to beat Treasuries. Maybe the current high level is sufficient. If so, less risk-averse investors should hold corporate bonds as part of a diversified portfolio (say, one benchmarked to the Aggregate).

Risk due to Capitalization Weights

At least some of the high risk and low return of the Credit benchmark is due to the large weight of newly issued, iffy bonds in capitalization-weighted bond benchmarks (both investment-grade and high-yield) since about 1998.

Cap-weighted benchmarks have become standard for pretty much all asset classes, including fixed-income. This practice has had some unfortunate and confusing consequences for bond investors.

The relevance of a cap-weighted benchmark derives from equities, for which the capital asset pricing model of William Sharpe [1964] says that such a benchmark is the mean-variance efficient portfolio if one does not have special insight into the value of any particular security.[6] It is tempting but not entirely reasonable to extend this logic to fixed-income, especially with a credit component.

Since the issuers who manage to get deepest into debt have the largest weights in a cap-weighted benchmark, it seems to us that such a benchmark is not likely to be mean-variance efficient. To track such a benchmark, when a piece of paper is issued it is important to buy it in proportion to its cap weight to minimize tracking error to the benchmark. This applies even if the paper is only marginally of high enough quality to make it into the benchmark (and even if the size of the issue, and hence the weight in the benchmark, is inordinately large).

This cannot be good investment practice, taking on real risk to reduce risk-as-measured-by-tracking-error.

As a result of cap weighting, companies that have the greatest leverage—and that are most likely to have debt that is correlated with their stock and with the stock market—have had the greatest weights in many investors' portfolios. It is no wonder that the performance of the Credit benchmark has been disappointing.

Correlation with Stocks

Exhibit 7 shows the correlation of the various fixed-income benchmarks with the S&P 500 over the two time periods we have been studying plus the shorter 2000-2002

EXHIBIT 7

Correlations of Lehman Fixed-Income Benchmarks with S&P 500

	Aggregate	Gov't./ Credit	MBS/ ABS	Credit	Government	Corporate High Yield
Correlations of Total Returns						
1973-2002	n/a	0.31	n/a	0.37	0.24	n/a
1989-2002	0.26	0.25	0.29	0.35	0.19	0.47
2000-2002	-0.19	-0.21	-0.15	-0.04	-0.30	0.38
Correlations of Returns in Excess of Government Benchmark*						
1973-2002	n/a	0.40	n/a	0.42	0.00	n/a
1989-2002	0.26	0.44	0.07	0.46	0.00	0.34
2000-2002	0.48	0.47	0.40	0.45	0.00	0.45

**Correlation of excess return on fixed-income benchmark with the S&P 500 total (not excess) return.*

Source: Lehman Brothers, Ibbotson Associates.

period. Looking at the total return correlations, all the fixed-income benchmarks give the appearance of becoming less stock-like over time. This is the result of the sharply decreasing correlation of Treasuries—and anything priced on the Treasury curve—with equities, however.

The excess return correlations are more revealing, since they remove the effect of moves in the general level of interest rates. The excess returns of all spread products—even mortgages—have become, surprisingly, highly correlated with stocks in the 2000-2002 period.

In excess return space, only the Government benchmark (by construction) is uncorrelated with equities. Notably, the correlation of high-yield bonds with the S&P 500 is no higher than that of investment-grade bonds.

Beta Relative to Stocks

Correlation, of course, does not tell the whole story. It describes the consistency of the co-movements but not the size, which is better revealed by beta (the coefficient from regressing the return on a given fixed-income benchmark, in excess of the Government Index, on the S&P 500).

The beta of the Credit benchmark soared from 0.05 to over 0.15 from June 2001 to May 2002, meaning a 10% decline in the stock market was associated with a 1.5% decline in the Credit benchmark. As one would expect, the beta of High Yield was much higher, rising from 0.15 in 1989-1999 to an incredible 0.66 in the last 12 months.

Implications of Data Study

Most investors are multiasset-class investors, holding fixed-income assets to diversify away the risk of equities. Conceptually, though, a corporate bond is a debt instrument minus a put on the stock. Being short in a put is similar to being long in the stock, potentially with leverage.

When you have corporate bonds issued by a company whose credit quality and stock price are deteriorating in tandem, you lose on both sides—equity and fixed income. Investors should instead be trying to diversify away this risk by investing in fixed-income portfolios that are less sensitive to fluctuations in corporate fortunes.

IMPACT OF DOWNGRADINGS

Actual defaults are almost unknown in the investment-grade credit market; losses occur because of deterioration in the credit quality of an issuer. The rating agencies (Moody's, Standard & Poor's, and Fitch) monitor credit quality and downgrade a bond when their concern about quality reaches a certain level.

The market's response to such downgradings has changed recently, exposing credit investors to greater risk. The rating agencies have also changed, becoming quicker to downgrade a bond than they once were.

Exhibit 8 shows the returns on the bonds in Exhibit 5, but on a scale that permits us to show the Moody's ratings on a daily basis, as well as the bond prices. AT&T represents a fairly typical picture of an orderly deterioration in credit. Until right at the end of the period, in the last week of April 2002, rating changes were generally ahead of dramatic bond price declines, so that investors could benefit from information provided by the rating changes.

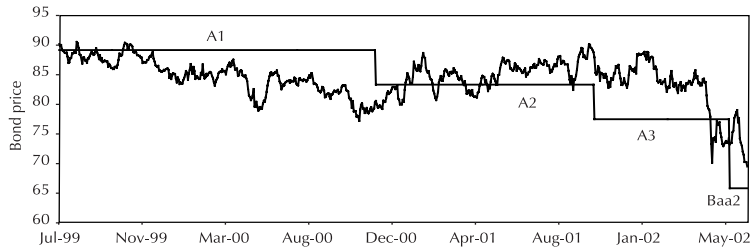
Global Crossing presents the opposite picture. A week before the downgrading, the bond was down 50% from its price only three months before, and by the day the downgrading actually took place (October 11, 2001), the bond was down 82.5%. With rating agencies like that, one doesn't need enemies.

When Enron got in serious trouble in November 2001, downgradings became a jump process as the rating agencies tried to get ahead of the plunging bond price. Instead of bond prices reacting to information from the rating agencies, the agencies had begun (with Global Crossing and like issues) to react to bond prices—and, with Enron in November 2001, they were apparently determined not to let it happen again.

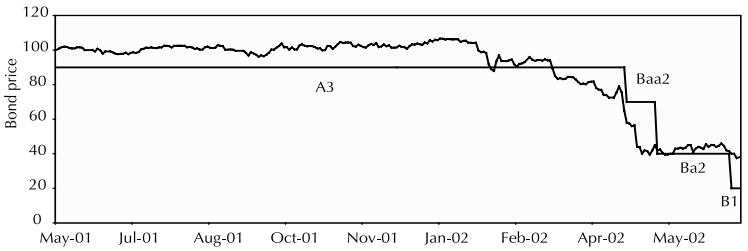
When WorldCom started to fall apart in April 2002, the agencies once again downgraded aggressively—or at

EXHIBIT 8
Rating History

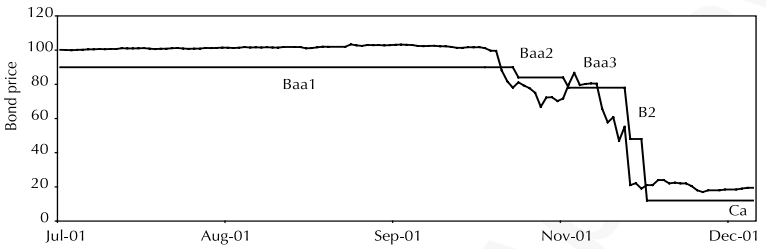
AT&T



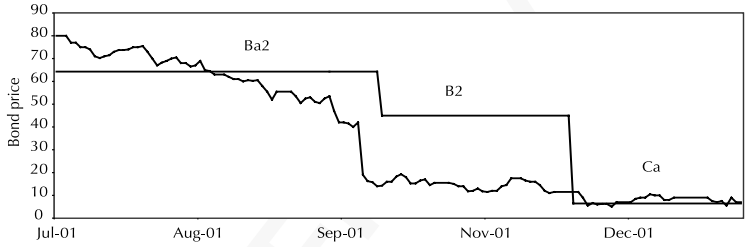
WorldCom



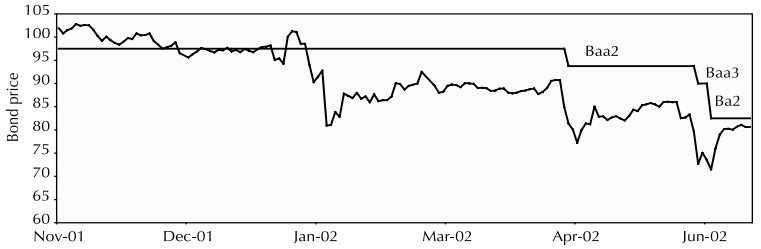
Enron



Global Crossing



Tyco



Source: INVESCO. Historical information for illustrative purposes only.

least jumpily, in the sense of multiple rating changes all at once. In terms of timing, however, they did not act aggressively enough; the WorldCom bond was down 45.6% from its high by the time they changed its rating.

All these changes—including the lack of bond ratings' predictive power—add uncertainty to the corporate bond market at the same time as that market has become outsized relative to what we are accustomed to.

IMPLICATIONS FOR BENCHMARK CHOICE

Our recommendations are different for investors needing different levels of liquidity.

Investors Who Need Liquidity

We have already covered two of the three major sets of reasons one might question the use of the Government/Credit benchmark or its intermediate counterpart as the basis for a fixed-income investment. These are 1) the risk inherent in today's credit markets, along with the risk that comes from their correlation with equities; and 2) the problems with cap-weighted benchmarks when one is dealing with credit product.

The third reason is liquidity—the ability to trade in and out of the bond market quickly and at a low cost.

Most investors and managers think of fixed-income as a more or less permanent allocation, requiring only the occasional rebalancing or cash flow trade. Yet a surprisingly large asset base is managed in accounts that use fixed-income opportunistically, so one must periodically trade to increase or reduce exposure to the whole fixed-income asset class.

Such accounts include:

- Tactical asset allocation accounts.
- Balanced accounts (with tactical or directional bets away from the fixed-weight benchmark).

A Government/Credit benchmark has historically been used as the basis for managing the fixed-income component of many such accounts.

This choice of benchmark, while not ideal today due to the large size and illiquidity of the corporate bond component, made sense originally since the Government/Credit was a good proxy for the entire U.S. investment-grade bond market.

Today, however, investors who need to trade into and out of fixed-income should be looking to switch out of the Government/Credit, if that is the benchmark to which their portfolios are managed. This is because credit is the least liquid component of the investment-grade bond market. Investors or funds that trade into and out of credit, for asset allocation purposes or for any other reason, subject themselves to extremely high transaction costs and to the possibility of missed trades.

In addition, credit makes up a near-record-high 44% of the Government/Credit benchmark, causing that whole benchmark to have limited liquidity as well as price risk. Balanced and TAA investors are looking for bonds to be a source of liquidity, and to behave differently from stocks. A benchmark with a large weight in credit is not right for them.

But switch to what? Looking at other benchmarks, the Aggregate has become representative of the entire U.S. investment-grade bond market, as the Government/Credit once was. This benchmark too suffers from lack of liquidity, since it is 26% credit, and, as we have seen, the correlation of mortgages (the Aggregate's largest component) with equities is high.

For investors who need to trade into and out of fixed-income, the Government-only benchmark is a better choice, as we suggested at the outset. Corporates simply are not liquid enough.

With a Government-only instead of a Government/Credit benchmark, the manager could still try to add value by taking credit risk in off-benchmark bets. However, tracking error concerns would not force a manager to take large positions in illiquid or otherwise risky corporate issues.

Investors Who Are Less Concerned with Liquidity

Many investors, however, are basically buy-and-hold. They may make occasional trades, to handle pension contributions and payouts (or equivalent cash flows for non-pension institutions), but do these investors need to respond to concerns about the liquidity of credit products?

That depends on their benchmark. If they are using the Aggregate, Intermediate Aggregate, or another broad-based benchmark such as the Universal, their credit exposure will be fairly low. (The Aggregate has only a 26% exposure to credit product, and the Universal has less.) An investor using the Government/Credit or Intermediate Government/Credit, however, should consider switching to the Aggregate or a similarly diversified benchmark, to reduce credit exposure.[7]

One benchmark to consider is the Universal. This index includes non-dollar and high-yield exposure on top of the Aggregate, so it has a more diverse set of potential alpha sources than the Aggregate. Diversifying one's alpha sources—rather than focusing just on credit, or mortgages—is a good principle for any portfolio.

Another approach, which should appeal to conservative investors for whom 26% in credit (or 40% in mortgages) is too much, is to create a custom benchmark, re-weighting the government, credit, and mortgage components of the Aggregate to suit the investor's preferences.

OTHER ISSUES

Portfolio size and a search for alpha are other considerations.

Minimum Portfolio Size

One issue that impacts the decision on whether to invest in corporate bonds is the number of different issuers for a diversified position. According to Dynkin, Hyman, and Konstantinovsky [2002], who analyze tracking error caused by corporate bond rating downgrades, a diversified portfolio of corporates should hold bonds of some 100 different issuers.[8]

The recent experience of investors in Enron, Tyco, and the other companies we survey in Exhibit 5 should convince readers, if they are not convinced already, that concentrated portfolios are a bad idea in the corporate bond market.

Assuming the Lehman study is close to target, one can calculate how big a portfolio needs to be to invest efficiently in the credit markets. Our experience is that even at $1 million per position, execution is just good enough, and it only improves as position sizes increase beyond that. An investor would need a $333 million fixed-income portfolio (assuming that Credit represents 30% of amount) to invest $1 million in each of 100 corporate bonds.

Most fixed-income portfolios, including the trading-oriented and commingled vehicles we referred to earlier,

are not this large—and the portfolio should ideally be several times larger to get both diversification and good execution.

As our earlier comments suggest, it is important to think carefully about the liquidity of a strategy before embarking on it. If one is going to trade into and out of an asset, a high degree of liquidity is of paramount importance.

The Lehman study makes it clear that a well-diversified corporate bond portfolio will be illiquid unless it is very large. With a government-only benchmark, one does not face this constraint since diversification among issuers is not a concern.

Off-Benchmark Bets for Return Enhancement

Using a particular benchmark does not mean holding only securities in that benchmark. One should try to add alpha while controlling risk.

There are a wide variety of potential alpha sources. These include:

- U.S. credit/corporate.
- European and other non-U.S. credit/corporate.
- Mortgages (U.S. and non-U.S.) and asset-backed securities.
- Non-dollar sovereign debt (investment-grade).
- Emerging market debt.
- Structured product.
- Inflation-protected bonds (TIPS, corporates, non-dollar).
- Active duration management.
- Hedging and use of derivatives.

Some of these will be in an investor's benchmark, and some will not. In the absence of specific holdings restrictions or liquidity needs, all should be considered as potential opportunities to add alpha.

Also, adding return through high-yield bonds makes sense. While investment-grade corporates face mostly downside risk, a high-yield bond has both an upside and a downside. In the simplest possible terms, an investment-grade corporate bond can go from $97 to $100 or from $97 to zero. A high-yield bond can go from $50 to $100 or from $50 to zero.

In portfolios that need liquidity, such as balanced or TAA funds, alpha can be added through asset-backed securities (which are in the MBS/ABS component of the Aggregate), or by tactically introducing other bonds into the product.

Basic Points

Finally, our examination of the issues surrounding credit market volatility and change leads us to several additional observations:

Investors should not confuse yield with return. Bonds are not value stocks.

The primary decision in corporate bonds is picking what not to own. If you own more of a bond than the benchmark, and the bond goes against you, it is hard to make up the loss.

The Government benchmark has nothing to underweight. The only issuer bets that managers can make are those that detract from the creditworthiness of the portfolio.

In the broadly diversified Aggregate index, credit is a much smaller portion of the overall benchmark. If one does not have to trade into and out of bonds, the higher yields should be expected to enhance return over the long run, but with higher risk.

CONCLUSIONS

The increased volatility and uncertainty in credit markets currently suggest that tactical investors who have to trade in and out of the bond market, and conservative investors who seek an alternative to the credit-heavy Government/Credit benchmark, should consider a Government-only portfolio. Less conservative investors, who select the Aggregate or a similar benchmark, can expect to outperform a Government-only portfolio by an amount commensurate with the added risk.

ENDNOTES

[1]While non-corporate issuers make up a part of the credit market, one may safely use the terms "corporate" and "credit" interchangeably (except, of course, when referring to a benchmark or product by name). This report deals only with the United States, and uses only Lehman Brothers indexes and Moody's ratings. Salomon Brothers and other fixed-income indexes have characteristics similar to those described here.

[2]If Government and Credit have (hypothetically) the same risk-reward profile, or expected Sharpe ratio, there would still be some diversification benefit from combining the two, but we anticipate that this benefit will be minimal.

[3]Where volatility is measured by the standard deviation of monthly returns.

[4]The option-adjusted spread is a measure of the yield spread of a bond (over Treasuries) that removes the effect that call provisions and other unique characteristics of the bond have on its yield, so as to isolate the pure effect of credit on the spread.

[5]The Sharpe ratio is the annualized return in excess of the riskless (Treasury bill) rate, divided by the annualized standard deviation. It measures the amount of return earned per unit of risk taken.

[6]John Lintner, Jan Mossin, and Jack Treynor all discovered the CAPM at about the same time as Sharpe.

[7]For an investor using the Intermediate Government/Credit benchmark, we would recommend a switch to the intermediate-term version of the alternative benchmark.

[8]Dynkin, Hyman, and Konstantinovsky use an optimization model, and assume 1) that analysts have skill ("imperfect foresight") in selecting bonds (otherwise one would index if the portfolio is sufficiently large); 2) that research is costly; and 3) that the variable investors want to maximize is information ratio (tracking error divided by the standard deviation of tracking error). Diversification beyond 100 bonds, they find, reduces the information ratio of the portfolio.

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