

THE Art OF THE Deal

A robust risk management framework is a hybrid of both art and science—the result of information and intuition.

BY JEFF MOORE

At the end of June 2009, it wasn't unusual to see most bond investors looking pale and nervous. After all, they had just experienced an extremely volatile year in the market. The last six months of 2008 had produced massive sell-offs and the first half of 2009 turned in massive rallies. Trying to suppress their queasiness, investors mulled over their concerns for the immediate future. Where would returns come from for the remainder of 2009 and 2010? And what would be the risk or cost of that return?

The whole experience of volatility also had many investors asking more fundamental questions about their approach to the market: "How good is the risk management process that my portfolio is using?" or, "How good is my portfolio manager?" and, "What type of risk management tools do I need to use?"

These are all valid concerns, in stable periods as well as volatile times. And the answer to all of them lies in the art and science of fixed-income risk management.

The science of risk management is based on a set of tenets that have proved effective over time—tenets best followed through a combination of strong quantitative risk management systems and a robust investment process. Measurement techniques that are informative, and thorough, consistent selection and divestment processes are simply fundamental to portfolio building.

The art lies in interpreting market conditions, in reading what the market is saying and acting on it. In this, the past year's volatility has been very instructive. The sell-offs of late 2008 and the subsequent rallies of early 2009 provide

some useful lessons regarding risk management.

To understand how combining the art of interpreting markets and the science of the selection of individual securities can help in risk management, let's review the turbulent events of 2008/09. We'll examine them through the prism of different quantitative measurements, some of which led to mistakes, and others to sounder decisions.

HOW EXCESS RETURNS CAN FOOL MODELS

The first area we are going to look at is excess returns and how the variance in those returns in recent times led investors astray. The measurement of excess returns looks at the degree to which individual securities or sectors of the bond market underperform or outperform a theoretically riskless investment, in this case U.S. government bonds. To take one example, in the second half of 2008, U.S. corporate bonds underperformed U.S. government bonds by 20%, the worst negative excess return we have ever seen. During the first half of 2009, however, U.S. corporate bonds outperformed U.S. government bonds by 12%. For the 12-month period then, corporate bonds had an overall negative excess return of about 8%, calculated simply.

Unfortunately, most corporate bond investors keyed their risk management models to what happened before the second half of 2008, with the result that the models underestimated risk. Had the models been keyed to the more tail-extreme excess returns experienced between July 2008 and June 2009, risk management would have been much more closely aligned with what actually happened

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in the marketplace. In other words, if these investors had modified their models (the science) to allow for the potential behaviour of the market in the first half of 2009 (the art), they might have had better results and certainly would have enjoyed better risk estimates.

Investors had similar experiences during this 12-month period with commercial mortgage-backed securities and high-yield securities. On the positive side, both these latter categories could continue to rebound and produce more positive excess returns through the remainder of 2009.

It is worth pointing out that excess returns in the Canadian market in the second half of 2008 and the first half of 2009 were more muted than in the U.S. For example, provincial bonds had negative excess returns on the order of 4% to 5% versus Government of Canada bonds in latter 2008, but they recouped most of this in the first half of 2009. As it turned out, Canadian risk management models were keyed appropriately to the spread volatility that we experienced and so they worked fairly well.

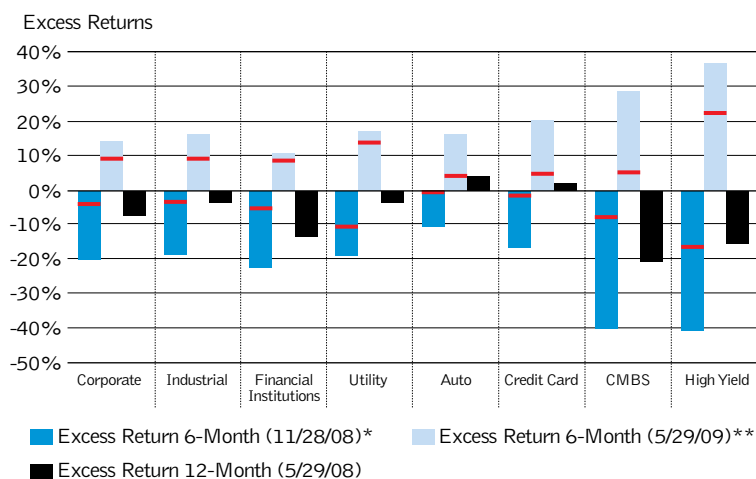
The fact that the U.S. market is relatively more volatile holds a lesson for investors. If you are searching for yield today and you decide to buy a well-known U.S. corporate name and you hedge that U.S. dollar risk back into Canadian dollars, you will have what is known as basis risk, an extra cost that reflects the difference in volatility between the two markets.

INTERPRETING SPREADS

When you have negative excess returns in the bond market, spreads are widening between risk-bearing and essentially risk-free investments. Historically, investment grade corporate bonds in Canada and the U.S. have traded at a spread of between 50 and 100 basis points over the riskless federal government securities.

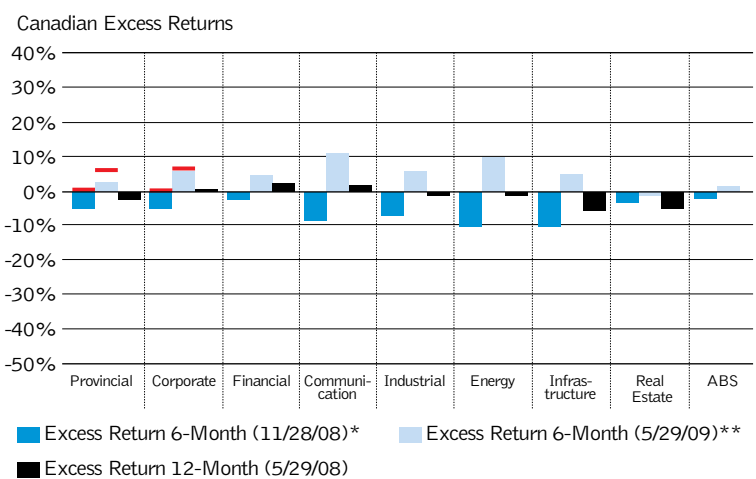
During past financial crises such as the Russian default or the unsettled period following 9/11, spreads widened from the normal level and then fully recovered to pre-crisis levels. The recent period has been different so far. While spreads have rallied significantly from the lows experienced in November 2008, they are still in the range of 250 to 300 basis points for good quality names, suggesting very good investment opportunities. Spread dispersion is even higher for lesser-known corporate names or outliers. Some of these names may deteriorate in credit quality into high-yield securities or potentially default. However, for money managers with solid credit teams that have the ability to do thorough credit research, some of these names will afford opportunities to invest for extraordinary returns with very little risk.

FIG. 1: Extreme Gyration in U.S. Bond Market Excess Returns



Line represents worst 6-month return since inception through 5/31/08.
 **Line represents best 6-month return since inception* through 11/28/08.
 Source: Barclays as of 5/29/09
 * Since Inception for Corporate, Industrial, Financial Inst. & Utility: 1/1/1973.
 Auto & Credit Card: 12/1/1991. CMBS: 7/1/1999, High Yield: 7/1/1983

FIG. 2: Excess Return Volatility in Canada Was Less Pronounced and In Line with Past Crises



*Line represents worst 6-month return since 1985 (the latest data available) through 2006 for Provincial and Corporate
 **Line represents best 6-month return since 1985 (the latest data available) through 2006 for Provincial and Corporate
 Source: DataStream/Fidelity as of 5/29/09

KEEPING AN EYE ON CORRELATIONS

Correlations—how returns in different sectors of the bond market vary against one another—also proved instructive during recent market history. Spreads that had negative correlations from 2000 to 2006 became significantly positive in 2008 with the surge in volatility. Consequently, investors who had bought higher-yielding securities seeking diversification and reduced portfolio risk (via negative correlations) actually took on additional risk. For example, spreads between high-yield securities and commercial mortgage-backed securities had a negative correlation between 2000 and 2006. In the next two years, however, the correlations between the two became significantly positive.

INVESTORS WANT TO BE PAID FOR THE RISKS THEY TAKE. IN THIS RESPECT, TACTICAL ASSET ALLOCATION WILL HELP THEM TAKE ADVANTAGE OF MARKET DISLOCATIONS.

Hence, investors realized portfolio risk even though they bought both types of securities in search of diversification.

Our experience at Pyramis has led us to believe that high volatility environments are characterized by high correlations. When volatility is low, we find that there are beneficial positive and negative correlations across various sectors of the bond market. In a broad sense, how can you deal with this? One way is to use your market interpretation skills—the art side of risk management—to develop a team investment view on whether the current market is high or low volatility.

MORE THAN DIVERSITY

Once you have a view on volatility, how do you apply it to portfolio construction? Let's consider the choices in the context of a Core Plus portfolio, a popular “cover-the-waterfront” construction technique that combines government and corporate bonds with “plus” categories, including high-yield or emerging market debt, non-dollar securities that are hedged back into Canadian dollars, and leveraged loans.

In a low-volatility environment, portfolio diversification along these broad lines will allow you to enjoy excess returns regardless of the level of interest rates. You can add yield and diversify away the risk, thereby improving your portfolio construction.

But in a high-volatility environment such as we had in late 2008 when correlations were positive, portfolio diversification did not provide the same benefits. In fact, not only did excess returns diminish, portfolio risk increased. Diversification is necessary, but if investors lack a view of market volatility, it will not be sufficient.

SIX KEY TENETS

A close study of market volatility and how it affects excess returns is an important element in building a successful fixed-income portfolio. So is paying attention to spreads and correlations. But investment success also depends on adherence to what I call the six key principles or tenets of rigorous fixed-income risk management. If anything, the volatile market experience of the last half of 2008 and the first half of 2009 confirms the value of these tenets. They are as follows:

First, investors require a robust partnership between their quantitative risk management analysts and the other team members who work on fundamental macro and micro analysis. Only a strong balanced team composed of

all these analysts can be in a sufficiently informed position to take advantage of changing markets.

Second, investors need to dynamically manage their risk budget in order to discern the levels of risk in different market conditions. In the volatile market of late 2008, for example, it was important to have the capacity to take on additional risk because of the potentially higher rewards. Investors naturally want to be paid for the risks they take. In this respect, tactical asset allocation will help them take advantage of market dislocations.

Third, diversification is necessary, but it is not enough to prevail in all market conditions. Portfolio construction is a necessary tool, and it has many benefits, but it can also break down when the market undergoes a crisis. As we have seen, in a volatile environment, correlations rise and the benefits of diversification are not there.

Fourth, it is important to understand the embedded leverage in a given security, whether it is economic leverage, accounting leverage, or some other variant. When an investor buys a corporate bond, he essentially sells an option to the company to pay him back. The value of the option is the spread. But the bond may have leveraged characteristics that must be understood and valued in the spread. These characteristics may diminish the value of a bond as market volatility shifts, hence the importance of fully understanding what is being purchased.

Fifth, investors must limit the temptation to over-invest in new types of securities. Experience shows that the market continually throws up new forms of securities, and they become tempting partly because they trade at a discount to more established forms. But as the experience of the asset-backed commercial paper market demonstrated, investment in a new, complex security can backfire. Be careful that the security has enough intelligible historical data. Even when you think the risks are fungible, think twice about doing it for a small spread pickup.

Sixth, and last, investors should rely on their experience. The ultimate lesson of late 2008 and early 2009 is that investors cannot rely solely on quantitative risk management tools. While quantitative tools are essential for understanding different types of risks, managers must also enforce a robust investment process in which opportunities are thoroughly evaluated. ■

Written in collaboration with Hien Nguyen and James Gerrard, Quantitative Analysts and Sean Walker, Institutional Portfolio Manager.