

# Is Credit the New Equity?

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In our Research Note, *Rebalancing Policy: Time to Revisit?* we argue that the recent volatility in equity returns should not deter investors with long-term investment horizons from rebalancing their portfolios to their strategic asset allocations weightings.<sup>1</sup> We recognize, however, that certain groups of investors are particularly sensitive to asset class performance over the short to intermediate term. For these investors, we do believe that revisiting their allocations to equities and fixed income is justified, given the high likelihood that market dislocation and elevated levels of volatility will persist for the next several years. In particular, we recommend that investors who have risk limits, or who target a specific portfolio risk level, should reduce their policy target asset allocation weights for public market equities and increase their target asset allocation weights for fixed income in the credit and mortgage sectors over the intermediate term. In fact, these fixed income sectors appear so depressed that even long-term investors may consider such a policy shift on an opportunistic basis.

Our short- to intermediate-term views on equities and fixed income markets are driven by the following observations:

- Diversification has been harder to achieve and portfolio volatility may be higher than intended as a result of increased risk and correlation among risky asset classes.
- Non-government bond market sectors have borne a disproportionate burden of current dislocations.
- A large increase in the risk premium in non-government bond market sectors suggests the potential for higher-than-normal returns in the short and intermediate term for structured credit, high yield and investment-grade debt, and non-agency mortgages.

We believe our recommendations may be particularly relevant to US corporate pension plan fiduciaries. The Pension Protection Act of 2006, together with changes in how pensions are treated in US corporate accounts, may encourage pension fiduciaries to adopt shorter investment horizons and be more risk-sensitive than many endowment, foundation, or sovereign wealth investors. While an endowment fund may have the ability to bear significant short-term variability in performance, corporate pension plan fiduciaries may find it imprudent to risk burdening the plan sponsor with additional significant mandatory contributions even in the short term.

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<sup>1</sup> *Rebalancing Policy: Time to Revisit?* by Winkelmann et al., (GSAM Global Investment Strategies; November 2008).

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## Higher Volatility and Higher Correlation

The current financial crisis has driven large changes in asset prices and markets. Rather than hope that these dislocations will quickly “snap back” to normalcy, it may be more prudent to assume that it will take several years for markets to revert back to less volatile trading conditions. As a result, investment fiduciaries need to examine their assumptions for forward-looking risk and return for the next three to five years and the consequent implications for their portfolio’s asset allocation.

By almost every measure, markets have been riskier recently – meaning risky asset classes are more volatile and subject to larger short-term price swings – than most models and projections had previously assumed. Correlations among risky asset classes have also materially increased recently, again, to levels significantly above what many fiduciaries had been assuming in their asset allocation models. As a result, diversification has been harder to achieve and portfolio volatility may be higher than intended.

*Exhibits 1 and 2* illustrate the recent increase in risk and correlation. *Exhibit 1* shows long-term capital markets assumptions for the risks and correlations between Treasury bonds, investment-grade (IG) corporate bonds, and stocks, obtained from the performance of the Lehman Brothers US Treasury Index, Lehman Brothers US Corporate Index, and S&P 500 Index.<sup>2</sup> *Exhibit 2* shows illustrative intermediate-term capital markets assumptions for these same asset classes, obtained by weighting recent observations much more heavily.

### Exhibit 1 – Capital markets assumptions in the long term...

	Risk	Correlations		
		Treasury Bonds	IG Corporate Bonds	US Large Cap Stocks
Treasury Bonds	4.9%	1.0	0.7	-0.1
IG Corporate Bonds	5.7%	0.7	1.0	0.2
US Large Cap Stocks	14.7%	-0.1	0.2	1.0

### Exhibit 2 – ...are substantially different than intermediate-term capital markets assumptions<sup>3,4</sup>

	Risk	Correlations		
		Treasury Bonds	IG Corporate Bonds	US Large Cap Stocks
Treasury Bonds	5.0%	1.0	0.1	-0.5
IG Corporate Bonds	12.4%	0.1	1.0	0.5
US Large Cap Stocks	18.1%	-0.5	0.5	1.0

<sup>2</sup> To obtain long-term capital markets assumptions, we use a long data history and apply a 10-year half-life to the observations (i.e., we include all observations in our analysis but weight 10-year old data by half, and 20-year old data by one-quarter, relative to more recent data). Similarly, to obtain intermediate-term capital market assumptions, we apply a 6-month half-life to the observations.

<sup>3</sup> Risk measured as the annualized standard deviation of returns. Correlation measured as the correlation of annualized returns. Daily data through 30 September 2008. Source: GSAM, Standard & Poor’s, and Barclays Capital (Lehman Brothers).

<sup>4</sup> All numbers reflect GSAM Global Investment Strategies strategic assumptions as of a certain date. Strategic long-term assumptions are subject to high levels of uncertainty regarding future economic and market factors that may affect future performance. They are hypothetical indications of a broad range of possible returns. Please see additional disclosures. Long-Term Capital Markets Assumptions utilize a long history of data and may be more representative of long-term averages. Illustrative Intermediate-Term Capital Markets Assumptions put more weight on more recent observations and therefore may be more representative of more recent market conditions.

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In particular, the volatility of stocks has increased materially, the volatility of corporate bonds has approximately doubled, and the correlation between the two has more than doubled.<sup>5</sup> While our illustrative example uses corporate bonds, the same may generally apply to all risky fixed income sectors.

We will more fully examine the implication of recent market conditions on correlation and risk in a future note. In what follows, we use *Exhibits 1* and *2* as an illustrative example of potential short- and intermediate-term shifts in risk and correlation and study the implications of such a shift.

## Impact of Intermediate- and Long-Term Capital Markets Assumptions on Asset Allocation Policy

The substantially different capital markets assumptions, pertaining to different investment horizons, may have a material impact on asset allocation policy, particularly for risk-constrained investors. In *Exhibit 3*, we show portfolio asset allocation weights resulting from a mean-variance optimization targeting a 10% portfolio risk.<sup>6</sup>

As shown in *Exhibit 3*, an asset allocation targeting 10% risk over the long term would be expected to experience 14% volatility in the intermediate term, using the capital markets assumptions shown in *Exhibits 1* and *2*, respectively. A fiduciary seeking a 10% risk portfolio in intermediate-term market conditions would invest less in equities. Not surprisingly, as markets get riskier, investors that target specific risk levels or have risk limitations are advised to alter their asset allocation policy to favor less stocks (and less risky investments generally) and more bonds.

### Exhibit 3 – A shift from stocks to bonds is necessary to maintain a 10% risk level in the short and intermediate term

Illustrative Stocks / Bonds		
Portfolio Asset Allocation Weights (with no views) <sup>7</sup>		
	Targeted 10% Risk Portfolio over a Long-Term Horizon	Targeted 10% Risk Portfolio over an Intermediate-Term Horizon
Stocks	64%	51%
Bonds (Corporate & Treasury)	36%	49%
<b>Total Portfolio</b>	<b>100%</b>	<b>100%</b>

Portfolio Risk Targets <sup>8</sup>		
Investment Horizon	Long Term	Intermediate Term
Risk over Investment Horizon	10%	10%
<b>Risk over Intermediate-Term Investment Horizon</b>	<b>14%</b>	<b>10%</b>

<sup>5</sup> If the half-life is further shortened, appropriate to a one- to three-month investment horizon, the increases in risk and correlation would be even more marked.

<sup>6</sup> In *Exhibit 3*, we show the asset allocation that maximizes return at a 10% risk target using the long- and intermediate-term capital market assumptions shown in *Exhibits 1* and *2*, respectively. For both horizons, we assume a 7.5% expected return on stocks, based on a 3.5% equity excess return over a 10-year horizon zero-coupon risk-free Treasury yield, with the excess return of other asset classes proportional to the beta of the asset class to the equity market – i.e., we use a CAPM equilibrium approach to estimating asset class expected returns. In a subsequent section, we discuss how the expected return may have changed as a result of recent market conditions and incorporate those views in the analysis.

<sup>7</sup> With no views signifies that we assume unbiased CAPM equilibrium returns for all asset classes in both horizons.

<sup>8</sup> Targets are subject to change and are current as of the date of this presentation. Targets are objectives and do not provide any assurance as to future results.

Expected returns are estimates of hypothetical average returns of economic asset classes derived from statistical models. There can be no assurance that these returns can be achieved. Actual returns are likely to vary. Please see additional disclosures.

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Typically, investors in the US bond markets benchmark their fixed income investments to multi-sector indices like the Lehman Brothers US Aggregate Index or Lehman Brothers US Long Government/Credit Index. However, an explicit policy tilt among fixed income sectors may be more appropriate in the short and intermediate term. For example, a shift from risky to less risky asset classes might imply a shift from corporate bonds to Treasury bonds. However, we believe such a shift is not advisable in today's market environment, as we believe corporate credit risk, and fixed income spread risk generally, may have been overly impacted by recent market events relative to the equity markets.

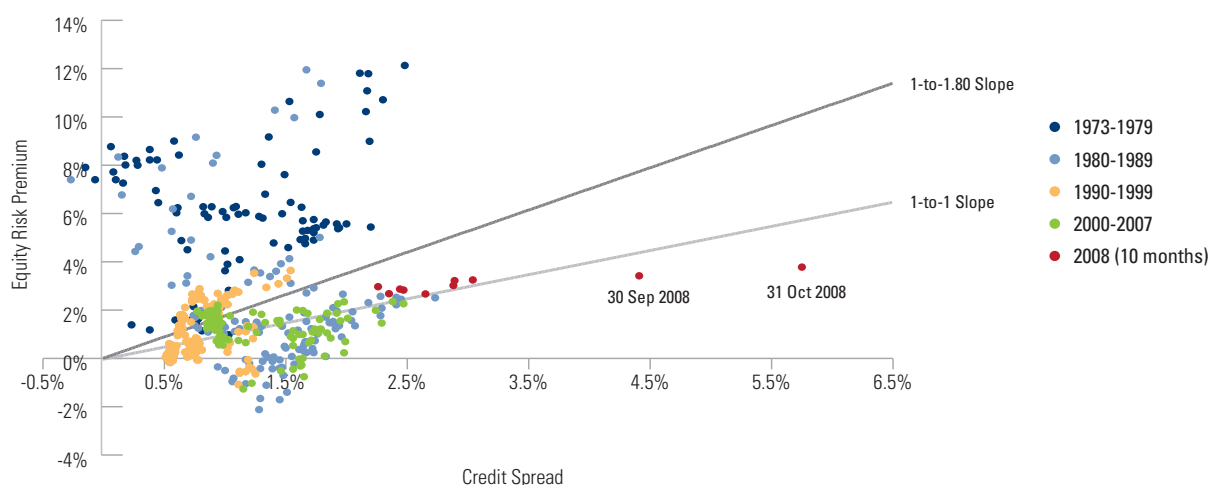
## Expected Return Adjustments – Risky Bonds More Depressed than Risky Stocks

In formulating *Exhibit 3*, we assume that the equity risk premium is unchanged regardless of whether we use a long- or intermediate-term investment horizon. In fact, many measures of the equity risk premium have increased recently, suggesting that we might assign a higher expected return to risky assets in the intermediate-term horizon.<sup>9</sup>

More importantly, the relative attractiveness of stocks and bonds has been temporarily altered, as outside of the Treasury sector, credit- and mortgage-sensitive fixed income instruments appear to have been particularly depressed by recent market conditions. If the risk premium on risky fixed income sectors has increased more than the equity risk premium, there may be a larger asset allocation shift from stocks to bonds and more of the bond investments would be in the corporate, mortgage, or other spread sectors.

*Exhibit 4* seeks to illustrate the relative movement in the equity risk premium versus the credit risk premium.<sup>10</sup> To quantify the equity risk premium, we use the model outlined in Jagannathan et al., which is based on a Gordon growth model for equity valuations.<sup>11</sup>

### Exhibit 4 – Credit markets are more impacted than equities by recent dislocations



Source: GSAM and Barclays Capital (Lehman Brothers). Daily data through 31 Oct 2008.

<sup>9</sup> See also our recent note *Equity Returns: Is a Regime Change Upon Us?* by Winkelmann et al., (GSAM Global Investment Strategies; November 2008).

<sup>10</sup> For the credit risk premium, we use monthly data for the option-adjusted spread (OAS) of the Lehman Brothers US Credit Index and, before 1989 when the OAS was not calculated, the yield spread between the yield of the Lehman Brothers US Credit and Lehman Brothers Treasury Indices. Our findings do not change if we use the spread between the Lehman Brothers US Credit and Lehman Brothers Treasury Indices over the entire period (1973-present).

<sup>11</sup> See Ravi Jagannathan, Ellen McGrattan and Anna Scherbina, "The Declining US Equity Premium," *The Federal Reserve Bank of Minneapolis Quarterly Review*, Vol. 24, pp. 3-19 (Fall 2000). This information discusses general market activity, industry or sector trends, or other broad-based economic, market or political conditions and should not be construed as research or investment advice. Please see additional disclosures.

While credit spreads are not a precise measure of risk premium, given that they also carry information about default expectations, *Exhibit 4* strongly suggests that credit markets, and by extension all risk-sensitive fixed income sectors (structured credit, high yield and investment grade credit, and non-agency mortgages), are significantly more stressed than equity markets today. *Exhibit 4* makes a strong statement, as the historical data period includes credit events such as the bursting of the internet bubble in 2001-02 when credit spreads last peaked, the LTCM and Asian currency crises of the late 1990s, the severe bond market disruptions surrounding the 1994 Fed rate hikes, the savings and loan crisis of the late 1980s, the crash of 1987, and earlier events. Surely, default expectations rose in these earlier cases as well. However, current bond market conditions appear to be markedly worse, relative to equity market conditions, than those earlier episodes.

*Exhibit 4* suggests that while the equity risk premium was highly exaggerated relative to bonds in the 1970s and early 1980s, today the opposite is true. The dashed line is the result of a historical regression of the entire data set where we force the regression line to go through the origin, under the reasonable assumption that if there is no risk premium in equities, there should also be no risk premium in bonds. This 1.75 to 1 relationship between changes in the equity risk premium and changes in credit risk approximates the relationship between the Sharpe ratio of stocks to the Sharpe ratio of corporate bonds in our CAPM equilibrium model. The solid line in *Exhibit 4* illustrates a 1-to-1 slope which approximates more recent experience, and which we will use as a proxy for intermediate-term expectations.

## Investors Should Favor Corporate Bonds over Government Bonds

In *Exhibit 5*, we repeat the long- versus intermediate-horizon asset allocation exercise first described in *Exhibit 3*, but we enhance the expected return of corporate bonds in the intermediate-term capital markets assumptions so that the Sharpe ratio of corporate bonds equals the Sharpe ratio of stocks. We also break out the bond allocation explicitly between the Treasury and corporate sectors. The return enhancement that we apply to corporate bonds is equivalent to the view that corporate bonds will earn approximately 60 bps more annual return over an intermediate-term horizon than otherwise predicted by our CAPM equilibrium model. The results are striking, implying even further reductions in equity allocations and additions to corporate bond allocations.

### Exhibit 5 – When credit markets are depressed, the bond portfolio should emphasize credit

#### Illustrative Stocks / Corporate Bonds / Government Bonds

##### Portfolio Asset Allocation Weights (with view on corporate bond returns)

	Targeted 10% Risk Portfolio over a Long-Term Horizon <sup>12</sup>	Targeted 10% Risk Portfolio over an Intermediate-Term Horizon <sup>12</sup>
Stocks	64%	35%
Corporate Bonds	35%	43%
Treasury Bonds	1%	22%
<b>Total Portfolio</b>	<b>100%</b>	<b>100%</b>

<sup>12</sup> Targets are subject to change and are current as of the date of this presentation. Targets are objectives and do not provide any assurance as to future results. Expected returns are estimates of hypothetical average returns of economic asset classes derived from statistical models. There can be no assurance that these returns can be achieved. Actual returns are likely to vary. Please see additional disclosures.

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## Conclusion

In summary, current market conditions have altered short- and intermediate-term expectations and these changes signal necessary adjustments in asset allocation weights for risk-sensitive investors with intermediate-term horizons or shorter. We believe investors who have risk limits or who target a specific portfolio risk level should seek to reduce the policy target asset allocation weights for stocks, and increase target asset allocation weights for risk-sensitive bonds. While we have illustrated our points with investment-grade credit spreads, for convenience because of the long credit data history available, we believe our results apply to all of structured credit, high yield and investment-grade debt, and non-agency mortgages.

At the heart of our conclusions are the expectations that the markets are currently more volatile than their long-term averages and that these conditions are likely to continue for the short and intermediate term. In addition, the correlation between risky asset classes has increased, particularly the correlation between equities and the riskier parts of the bond markets. Most importantly, the risk-sensitive sectors of the bond markets appear to have borne a disproportionate burden of the current dislocations, leading to expansion of the risk premiums in the bond markets in excess of that experienced in equities.

Our view is that the higher risk expectation implies that risk-sensitive fiduciaries concerned about short- and intermediate-term results should be reducing risk overall in their portfolios, shifting from stocks to bonds. The higher correlation expectation implies that the links between stocks and risk-sensitive sectors of the bond markets are stronger, although stocks remain the riskier of the two. And the larger increase in risk premium in the bond markets suggests the potential for higher-than-normal returns in structured credit, high yield and investment-grade debt, and non-agency mortgages, and hence, an increased asset allocation weight to those areas. These conclusions apply both to portfolios with intermediate-term investment horizons or shorter, and to longer-term investors seeking tactical opportunities.

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