Fixed Income
Portfolio Modeling

20 December 2005

Diversification in Emerging Markets

(Extracted from the Emerging Markets Annual Outlook 2006: Weathering the Gusts, 20 December 2005)

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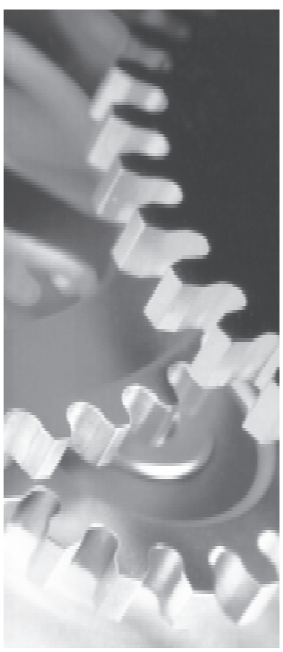

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Diversification in Emerging Markets

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The diversification benefit of adding emerging markets to a portfolio remains, despite large flows into the asset class over the past couple of years. Since systematic risk is the greatest source of volatility in emerging markets, the diversification benefit of having many different US-dollar-denominated EM bonds in a portfolio is smaller than in other asset classes. Instead, investors may want to consider expanding their portfolios to include local currency bonds (FX-hedged) for diversification purposes, as demonstrated by our risk-factor analysis of Mexican USD and peso bonds.

AN ALTERNATIVE APPROACH

A principal driver of flows into the emerging markets asset class in the past few years has been the high total return accruing to investors, both from coupon payments and spread tightening. Risk-conscious investors might point out that EM has historically been more volatile than other asset classes, and for that reason, recent outperformance is merely compensation for the added risk. Nevertheless, once we consider the small covariance of EM with other asset classes and take into account the fact EM will typically represent a very small portion of an investor's portfolio, we discover that adding EM to a portfolio can both reduce portfolio risk and increase returns.

The mean-variance frontier methodology is the most typical way to make the latter argument. Here, we focus on its risk component. The analysis is based on the emerging markets risk model recently developed by Lehman Brothers' POINT modeling group. This new model, fully integrated with Lehman Brothers' risk models for many other fixed income asset classes, is available on the POINT proprietary web-based system and helps investors understand the systematic and idiosyncratic risk of the active positions in their portfolio.[1]

We start by examining the correlation between various segments of the emerging markets asset class and comparable segments of other credit classes. We perform this analysis both for the entire nine years for which we have data as well as for just the last two years to detect any changes in historical patterns.

Figure 1 shows the correlation of monthly spread changes between investment grade emerging markets bonds and other non-EM investment grade bonds denominated in dollars, euros and sterling. (Since we are looking at spread changes, we have assumed that the investor is hedged against movements in FX.)

Figure 1. Correlations between IG-rated EM and other IG-rated asset classes

		USD IG credit	EUR IG credit	GBP IG credit
Emerging Markets	1997-2005	0.53	0.60	0.41
(Investment-Grade Rated only)	2003-2005	0.37	0.49	0.51

Source: Lehman Brothers.

The correlation coefficients indicate that emerging markets are only partially correlated with other credit assets and that, in general, correlations have actually decreased. Figure 2 performs a similar analysis using lower-rated emerging markets bonds and comparable corporate credits from five different broad industry categories.

1 *For a review of the models, please refer to D. Joneja/L. Dynkin et al. "The Lehman Brothers Global Risk Model: A Portfolio Manager's Guide," April 2005 and A. Silva, "Emerging Markets in the Lehman Brothers Global Risk Model", September 2005.*

Figure 2. Correlations across Ba/B credit risk factors

		Cyclicals	Energy	Financials	Non-cyclicals	Utilities
1997 to 2005	EM America	0.57	0.62	0.51	0.59	0.43
	EM Asia	0.59	0.62	0.58	0.63	0.29
	EM Europe	0.54	0.61	0.54	0.60	0.24
2003 to 2005	EM America	0.53	0.44	0.41	0.41	0.45
	EM Asia	0.69	0.66	0.74	0.71	0.72
	EM Europe	0.32	0.26	0.34	0.24	0.25

Source: Lehman Brothers.

The data again show that correlations between EM and other securities are about 0.5, indicating that adding emerging markets assets to a portfolio of other credits can bring substantial diversification benefits.

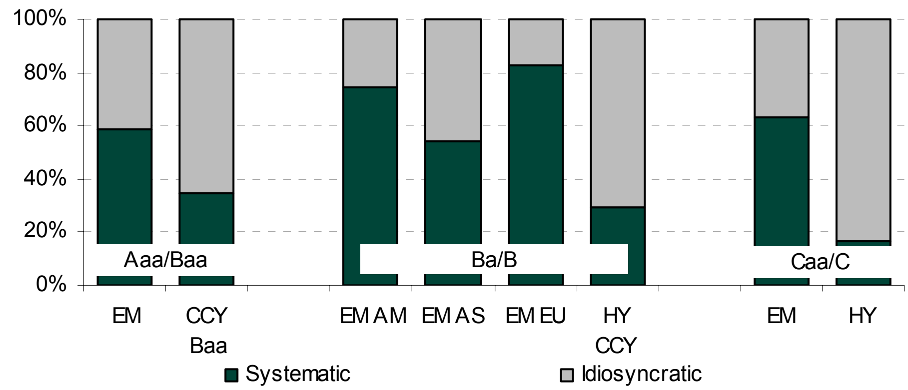
With the exception of EM Asia, correlations have been especially low in the last two years. This fact is encouraging. One might have expected that, as the EM asset class matured and the investor pool expanded, correlations with other credit assets would have increased. For example, suppose movements in asset prices were largely driven by changes in risk aversion. If EM and HY had more common investors today than five years ago, then both asset classes would be more affected by the same changes in risk preferences, resulting in an increased correlation. Despite increased liquidity in the asset class, the diversification benefits remain.

A caveat is in order here. Our comparison of correlations over time did not control for the fact that spreads have fallen. Correlations could be high when spreads are high, which would imply that the benefits of diversification through emerging markets are smaller precisely when it would be most valuable. A more careful study would be necessary to test if this were the case. Still, even in the period of 1997 to 2005 which covers a number of emerging markets crises, correlations were low enough to suggest significant diversification benefits.

HOW TO ADD EM EXPOSURE

Our risk model is particularly useful for the design of EM portfolios. In figure 3, we have broken down the spread volatility of EM bonds into systematic and idiosyncratic components. Systematic risk refers to common movements between bonds caused by changes in a common market factor while idiosyncratic risk refers to risk specific to a particular bond that is diversifiable.

Figure 3. Decomposition of monthly spread volatilities (1997-2005)

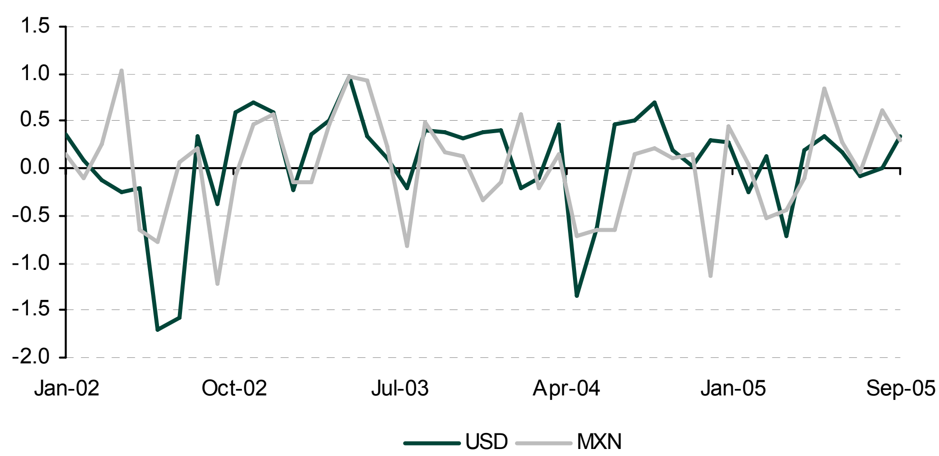


Source: Lehman Brothers.

In the investment grade category, for example, systematic risk accounts for about 60% of all spread volatility. No matter how many different EM investment grade bonds an investor bought, spread volatility could only be reduced to 60%. The graph also shows that systematic risk is larger for emerging markets than for other corporate bonds of similar ratings. That is, EM bonds move closer together than bonds in other asset classes, so the benefit of diversifying among a large number of EM bonds is limited. Investors considering entering EM would be well off initially considering just the more liquid EM bonds since the marginal-diversification benefit of the less liquid names would be small.

However, there does seem to be substantial benefit in diversifying among EM global and local currency bonds. Figure 4 shows the time series of returns (excluding coupon return) for two hypothetical, well diversified portfolios of Mexican bonds—one denominated in USD, the other in MXN.

Figure 4. Returns for USD and MXN denominated portfolios of Mexican bonds



Source: Lehman Brothers.

It is clear that, although correlated, the two time series are different and that there is therefore substantial diversification between the two portfolios. One can break down the systematic return of the USD denominated bond into two components: one associated with the changes in the USD yield curve (YC) and the other with the spread over that curve. While risk in the MXN bond is associated only with the volatility of the MXN yield curve, risk on the USD bond can be attributed to two risk factors: changes in the USD yield curve and changes in the spread of USD Mexican bonds above the USD treasury rate. Figure 5 details the volatility and correlations of these components. We note that the volatility of the two portfolios is very close—56 bps for the USD-denominated against 53 for the MXN-denominated portfolio. However, the correlation of these returns is only around 44%. This low correlation—graphed above—comes from a very low correlation between the MXN and the USD curve and between the MXN curve and the spread to the USD curve of the USD-denominated bonds. This analysis, although over a short and relatively quiet period, suggests that another source of risk diversification of emerging market risk is to go into local-denominated issues.

Figure 5. Volatilities and correlations of components of systematic return for Mexican USD vs. MXN bonds

		US YC	US OAS	US TOT	MXN
Volatilities	(bps)	25	59	56	53
Correlations	US YC				
	OAS	(0.34)			
	US TOT	0.09	0.91		
	MXN	0.34	0.27	**0.44**	

Source: Lehman Brothers.

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