



# Evolution of the Global Bond Market

*September 2004*

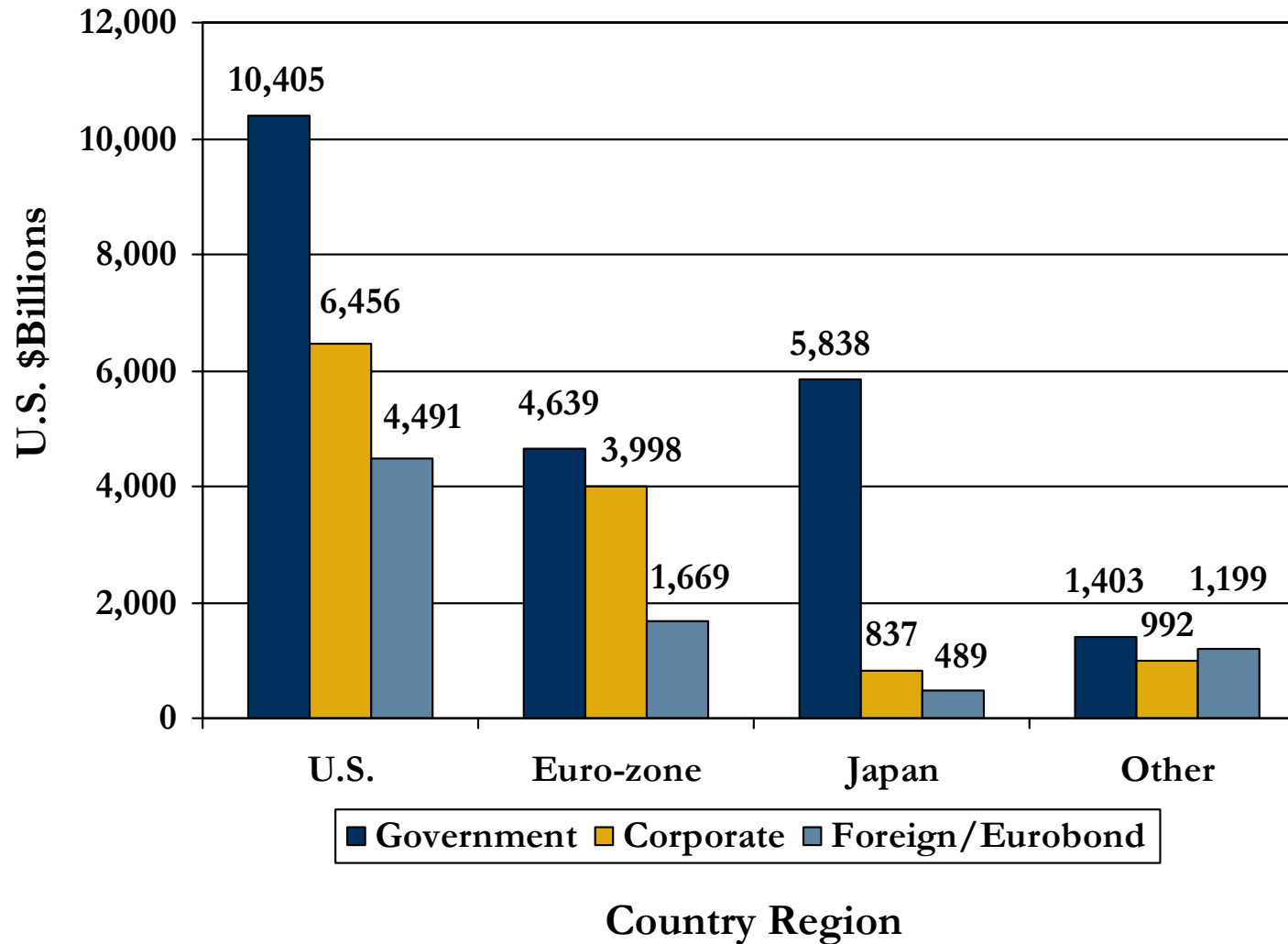
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*Portfolio Manager*

# World Bond Market Size

December 31, 2003

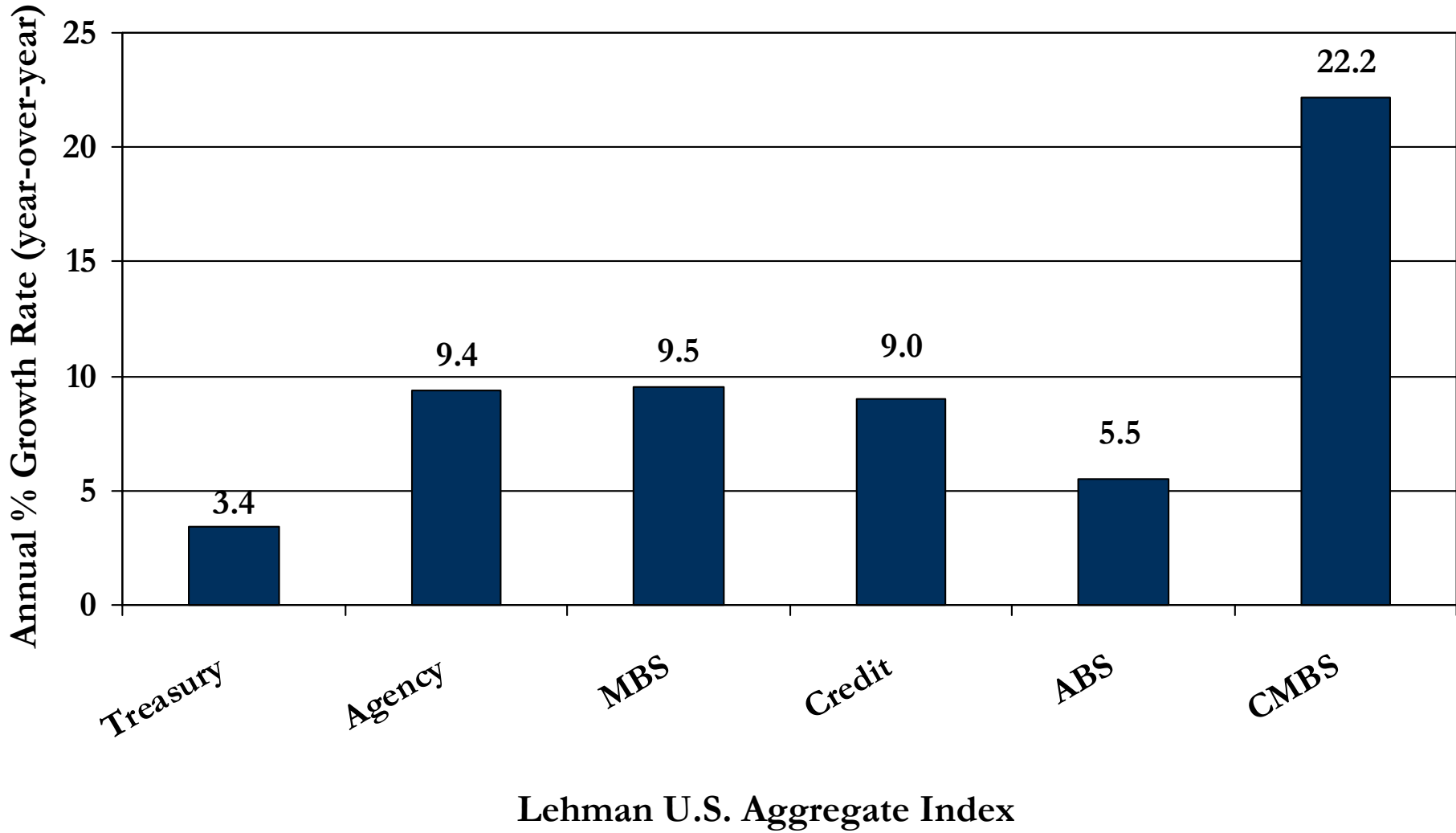


\*The other category consists of U.K., Canada, Switzerland, Denmark, Australia, Sweden, Norway and New Zealand

Source: Merrill Lynch

# U.S. Bond Market Growth

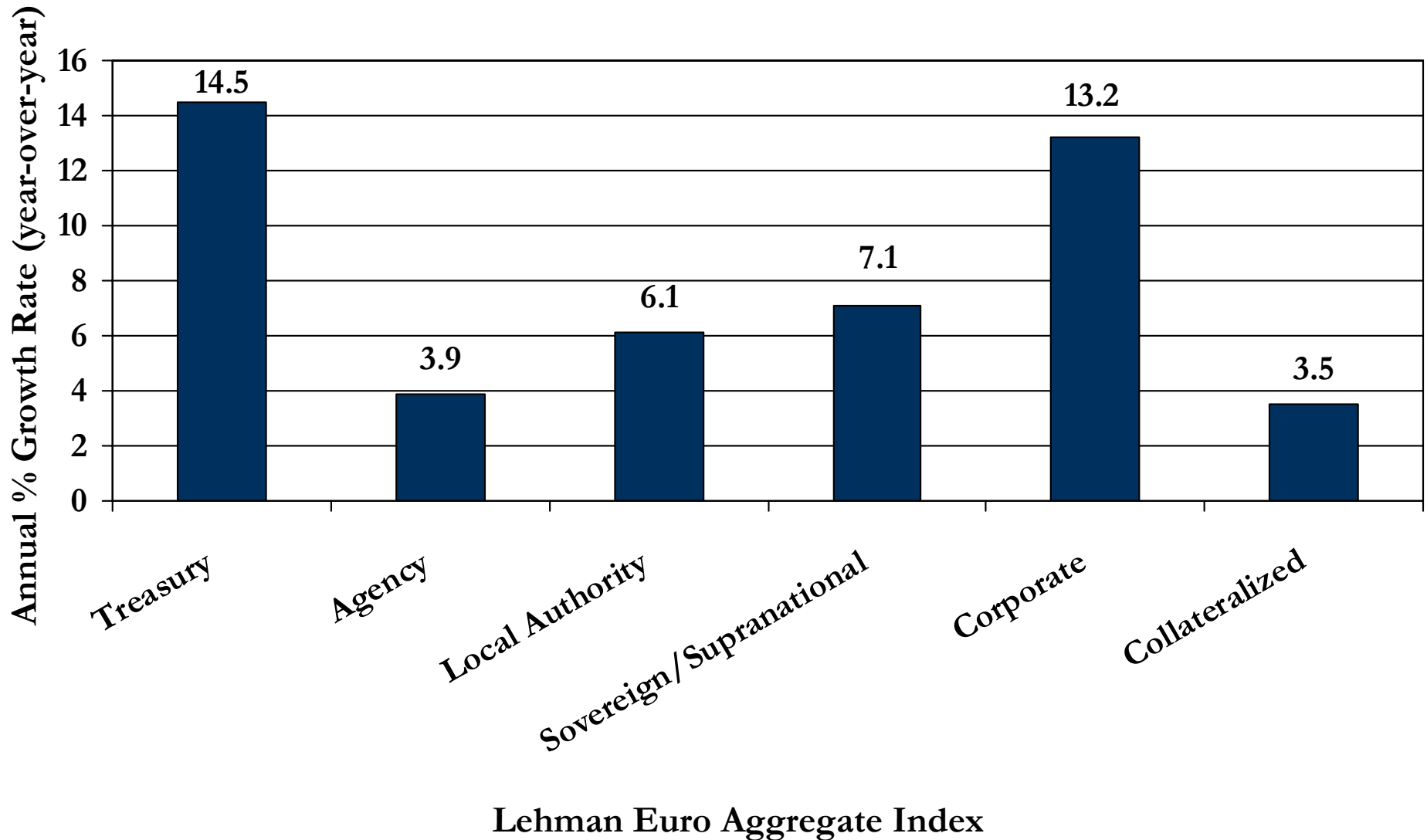
1989-Aug. 2004



Source: Lehman Brothers

# Growth In European Market

1989-Aug. 2004



Source: Lehman Brothers

# U.S. Bond Market Changes In Past Five Years

- Increased use of structured debt
  - Asset-Back Security (ABS) - securities that reference a pool of securities collateralized by loans, leases or receivables on personal property
  - Commercial mortgage-backed securities (CMBS) - securities that reference a pool of debt securities backed by commercial real estate property
  - Credit Default Swaps (CDS) - an over the counter (OTC) derivative contract that allows the investor to take additional or reduce exposure to a referenced credit or referenced type of credit risk.
  - Collateralized Debt Obligation (CDO) - a class of securities for which the performance is linked to the credit performance of a specific pool of assets (e.g. bonds, loans, credit default swaps). Within a given CDO, there are several securities characterized by a specific risk/reward profile that is based on their position within the capital structure.
  - Mortgage Backed Securities (MBS) - a debt security collateralized by a pool of residential mortgages that passes income from debtors to investors

# Performance Improvement Through Diversification

- Reduce risk and volatility of portfolio returns by combining assets with low correlations
- Different asset classes are not perfectly correlated
- Including lower credit quality within a bond fund provides better risk/return characteristics

# Asset Class Correlation

Monthly Correlations from June 1994-June 2004

	U.S. Aggregate Index	Global Treasury Index (ex. US) Unhedged	Global Treasury Index (ex. US) USD Hedged	U.S. Corporate High Yield Index	U.S. Dollar Emerging Markets Index	S&P 500
U.S. Aggregate Index	1.00					
Global Treasury Index (ex. US) Unhedged	0.41	1.00				
Global Treasury Index (ex US) USD Hedged	0.71	0.34	1.00			
U.S. Corporate High Yield Index	0.17	0.04	0.11	1.00		
U.S. Dollar Emerging Markets Index	0.15	-0.03	0.16	0.49	1.00	
S&P 500	0.01	-0.02	0.02	0.51	0.54	1.00

Source: Global Financial Data, Lehman Brothers Fixed-Income Research

Note: CMBS returns begin July 30, 1999

# Sector And Quality Correlation

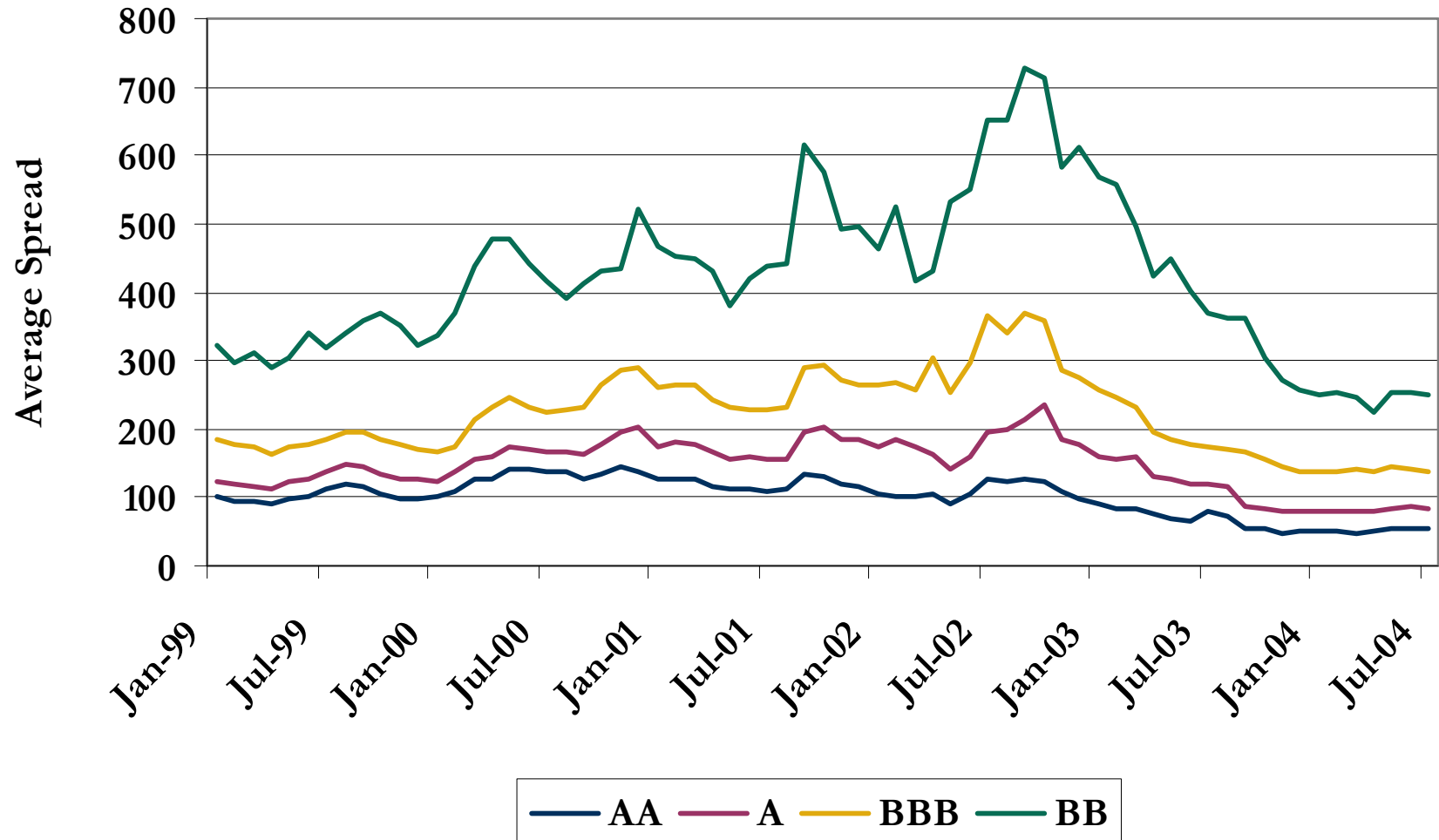
Monthly Correlations from June 1994-June 2004

	U.S. Treasur y Index	U.S. MBS Index	U.S. ABS Index	U.S. CMBS Index	U.S. Credit Index Aa	U.S Credit Index A	U.S. Credit Index Baa	U.S. High Yield Index Ba
U.S. Treasury Index	1.00							
U.S. MBS Index	0.85	1.00						
U.S. ABS Index	0.93	0.90	1.00					
U.S. CMBS Index	0.94	0.90	0.95	1.00				
U.S. Credit Index Aa	0.94	0.90	0.93	0.96	1.00			
U.S. Credit Index A	0.90	0.85	0.88	0.88	0.98	1.00		
U.S. Credit Index Baa	0.79	0.77	0.78	0.73	0.91	0.95	1.00	
U.S. High Yield Index Ba	0.21	0.33	0.24	0.04	0.41	0.50	0.67	1.00

Source: Global Financial Data, Lehman Brothers Fixed-Income Research

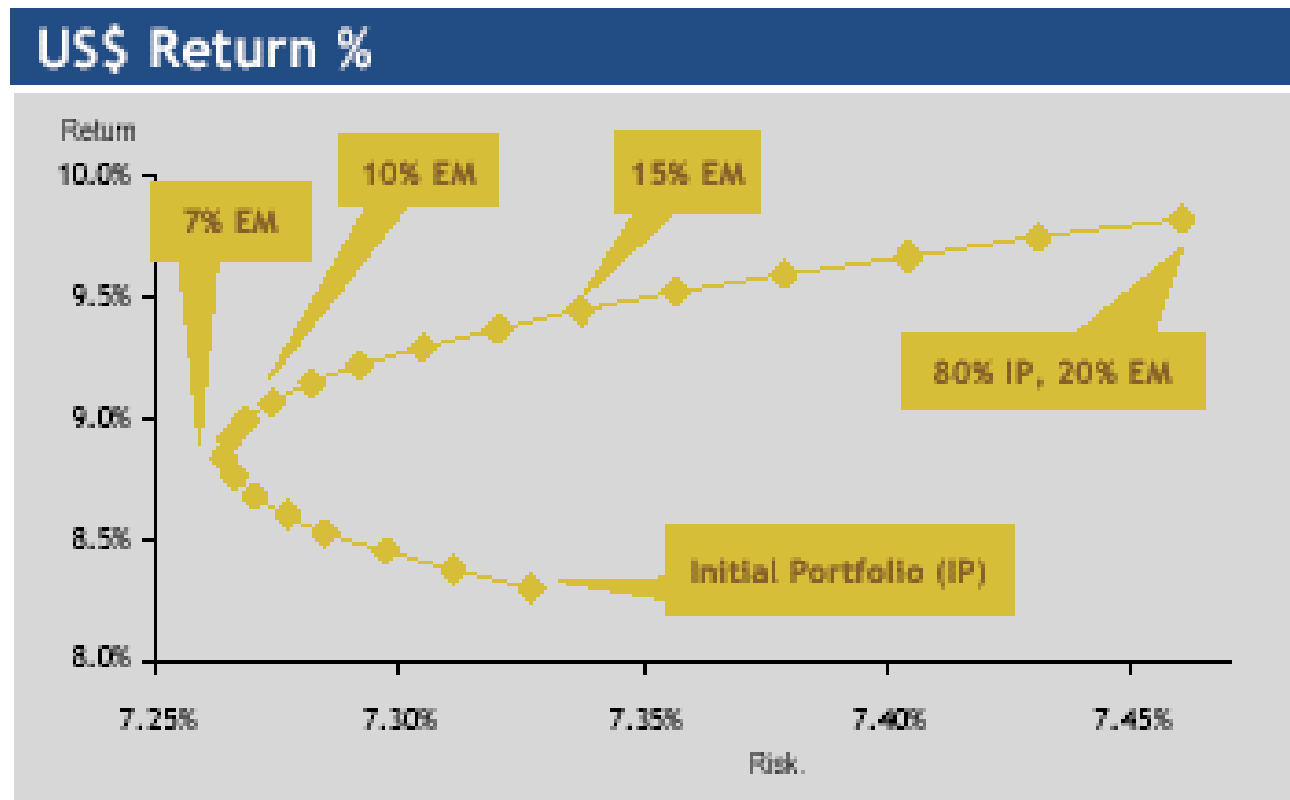
Note: CMBS returns begin July 30, 1999

# Average Credit Quality Spreads



Source: Lehman Brothers

# Efficient Frontier Of A Diversified Portfolio



Initial portfolio is 100% Global Aggregate Fixed

Source: JP Morgan December 1990 to December 2003

# Changes In Quantitative Analysis of Bond Portfolios



# Summary

- Asset managers have a greater universe of fixed income assets available for investment
- Structured products have allowed asset managers to more easily obtain desired risk characteristics
- Derivative products have provided avenues to obtain excess returns with equal levels of risk
- Technology has provided the bond markets better analytics to analyze risks within a portfolio