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CAMBRIDGE ASSOCIATES LLC

EUROPEAN MARKET COMMENT

EUROPEAN BONDS: CHOOSE YOUR BENCHMARK WISELY

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Robert Lang
Rowan Harmer

European Bonds: Choose Your Benchmark Wisely

Since monetary union, continental European bond prices have been driven less by domestic risk factors and more by international influences, particularly the movement of U.S. interest rates. Except for Italy and Spain, where domestic fiscal fundamentals continue to exert significant influence on yield spreads, the U.S. interest rate swap rate and the spread between U.S. corporate and Treasury bonds have been the dominant influence on euro-denominated debt.[1]

In credit markets, corporate bonds have enjoyed a brisk rally this year, and spreads have tightened significantly. Corporates have enjoyed a strong fillip from the persistent demand for yield, especially in structured credit and subordinated debt. However, investors should now be concerned about the prospective risk-reward trade-off since prices in this sector seem ready to discount extremely low (but not unprecedented) default rates and business cycle risk. The credit markets' strength is partly attributable to the fact that corporations on both sides of the Atlantic have been amassing cash. As a result, the main risk to investors in both European and U.S. debt is a corporate spending spree in which cash is used to buy back shares, increase dividends, and fund capital expenditures, rather than to backstop debt service.

The other key to prospective yields is, of course, future inflation, about which there are (as usual) many opinions and little consensus. While most commentators predict a period of below-trend economic growth in Europe, they disagree about the stickiness of inflation and hence the likely response of the European Central Bank (ECB). Central bank officials have underscored their discomfort with the current 2.1% pace of core inflation (non-core, 2.3%), which remains slightly above their 2% target, but the level itself may not be as worrisome as its recent surge, from a four-year low of 1.6% in February to a two-year high of 2.5% in May. According to the futures market, investors currently expect the ECB to raise policy rates 25 basis points (bps) this year and 50 bps in 2005. However, to the extent that persistent economic weakness also relieves inflationary pressures, forcing bond investors—and the ECB—to lower their inflation expectations, bond prices could advance further, confounding general expectations of higher yields. As we have noted elsewhere, however, predicting interest rates is a mug's game, which even the experts lose with remarkable consistency—and so we choose not to play.

A Note on Benchmark Choice and Valuations

There are five commonly used fixed income benchmarks for investors who want exposure to the Continent only: Citigroup EMU Government, Citigroup EuroBig, Merrill Lynch EMU Broad Market, Lehman Brothers Euro-Aggregate, and Lehman Brothers Euro-Aggregate: Corporate indices. The five are strikingly similar—in terms of returns, yields, spreads, risk, and duration (Tables A through E).

The spreads of the two Citigroup indices to the ten-year European Government Bond have remained in a fairly tight range over their five-year history, and current spreads on the EMU Government Index

[1] Codogno, Lorenzo, Carlo Favero, and Alessandro Missalge, "Yield spreads on EMU government bonds," *Economic Policy*, October 2003.

diverge only slightly from their -48.8 bps average, while those of the EuroBig index are modestly below their -41.3 bp mean (see Table F). Immediately after the Lehman Brothers indices were launched, spreads dropped considerably, though they have remained fairly stable since 2000.[2] By themselves, yields and spreads do not tell us very much about their valuations, not only because of their limited history, but also because there are some distinctions among them in terms of liquidity, quality, and sector allocation.

In theory, valuations serve an important function for investors who hold bonds in order to maximize total return. A diversified bond portfolio, including covered and corporate bonds will outperform a plain, boring, government-only bond portfolio most of the time, and investors should be aware of significant price changes and anomalies. However, Table F does not bear this out, probably because five years of history is too short for significant return disparities to emerge. Returns among these indices have been almost identical over the last five years, each posting an average annual compound return between 6.6% and 6.7%, though slightly higher with the Lehman Brothers Euro-Aggregate Corp, 7.0%.

For investors who depend on their fixed income allocation to hedge against economic contraction and/or deflation, the benchmark choice may be more important than valuations. Since investors face the fundamental issue of whether their portfolios will likely defease liabilities and meet expenses, they need to ensure that the duration of their portfolio is pure and the quality immaculate. The Citigroup EMU Government seems the best suited for this purpose because it is the most liquid, highest-quality index.

Although the Merrill Lynch EMU Broad Index is the largest index by total market value and number of issues, in terms of the *average* size of constituents, the Citigroup EMU Government Index is the most liquid. The average issue in the Merrill Lynch Index is €1.5 billion, far below the €12.4 billion average issue size in the Citigroup EMU Government Index. (Average issue size in the Citigroup EuroBig is €3.1 billion and in the Lehman Brothers Euro-Aggregate, €2.2 billion.)

In terms of overall quality, four indices are made up predominantly of extremely high-quality debt, with AAA and AA bonds accounting for 85% to 87% of their total market value; the Citigroup EMU Government Index is 95.6%. However, in the event of economic collapse, sovereign debt will probably prove the least risky. The government sector makes up 100% of the Citigroup EMU Government, 75% of the Citigroup EuroBig, 68% of the Lehman Brothers Euro-Aggregate, and 57% of the Merrill Lynch EMU Broad.

For investors who want to maximize total return for a given level of risk, we retain a modest preference for the Lehman Brothers Euro-Aggregate compared to the Merrill Lynch EMU Broad. Country risk favors the Lehman Brothers index, though only slightly; sovereign debt accounts for 67.7% of the index, compared with the ML EMU Broad's 65.6%, which includes quasi and foreign government debt. However, credit accounts for 19.7% of the Lehman Brothers index, with roughly 12.7% in pfandbrief, asset backed, and other mortgages, while the Merrill Lynch index contains 34.4% in credit and securitized/collateralized

[2] Historical data on the Merrill Lynch EMU Broad Market Index are unavailable.

issues. Not surprisingly, the quality of the Lehman Brothers Euro-Aggregate Corp is the lowest, though it is composed entirely of investment-grade debt (26% in AAA and AA, and 72% in A and BBB). None of the indices holds any below-investment grade (i.e., junk) bonds.

Table A

BOND SECTOR ANALYSIS: CITIGROUP INDICES

As of 31 August 2004

	Citigroup EMU Government Bond Index	Citigroup EuroBIG Bond Index
Market Value	€3.05 trillion	€4.70 trillion
Number of Issues	245	1518
Modified Duration (Years)	5.76	5.29
Yield to Maturity	3.42	3.44
Maturity Sector (%)		
Cash and Equivalents	---	---
1-3 Years	25.60	26.07
3-5 Years	22.24	24.67
5-7 Years	12.39	15.23
7-10 Years	19.88	19.45
10-15 Years	4.65	4.10
Over 15 Years	15.24	10.47
Average Maturity (Years)	7.82	6.93
Quality Sector (%)		
AAA	55.63	55.43
AA	39.96	31.69
A	4.41	8.44
BBB	---	4.45
Industry Sector (%)		
Govt/Govt Sponsored		
Sovereign/Sov-Guaranteed	100.00	68.06
Govt Spons/Regional Govt	---	7.19
Collaterized		
Jumbo Pfandbrief	---	7.64
Other Covered	---	4.55
ABS	---	0.31
Corporate		
Industrial	---	4.48
Finance	---	4.29
Utility	---	3.47
Minimum Denomination	€1 billion	€1 billion (sovereigns) €500 million (others)

Source: Citigroup Global Markets.

Note: Sector totals may not add up to 100% due to rounding.

Table B

BOND SECTOR ANALYSIS: MERRILL LYNCH EMU BROAD MARKET INDEX

As of 31 August 2004

	Merrill Lynch EMU Broad Market Index
Market Value	€6.55 trillion
Number of Issues	4360
Effective Duration (Years)	5.19
Effective Yield	3.44
Average Maturity (Years)	6.77
Maturity Sector (%)	
Cash and Equivalents	---
1-3 Years	27.49
3-5 Years	25.02
5-7 Years	15.43
7-10 Years	18.78
Over 10 Years	13.28
Quality Sector (%)	
AAA	53.00
AA	32.11
A	9.78
BBB	5.11
Industry Sector (%)	
Sovereign	56.71
Quasi & Foreign Government	8.88
Securitized/Collateralized	17.17
Corporate	17.24
Minimum Denomination	€1 billion (sovereigns) €100 million (others)

Source: Merrill Lynch.

Note: Sector totals may not add up to 100% due to rounding.

Table C

BOND SECTOR ANALYSIS: LEHMAN BROTHERS EURO-AGGREGATE

As of 31 August 2004

	Lehman Brothers Euro-Aggregate Bond Index
Market Value	€5.21 trillion
Number of Issues	2420
Option Adjusted Duration (Years)	5.18
Current Yield	4.61
Maturity Sector (%)	
Cash and Equivalents	---
1-3 Years	26.45
3-5 Years	24.96
5-7 Years	14.75
7-10 Years	19.32
Over 10 Years	14.52
Average Maturity (Years)	6.90
Quality Sector (%)	
AAA	51.86
AA	32.97
A	9.80
BBB	5.37
Industry Sector (%)	
Government	67.69
Credit	19.65
Pfandbrief	8.37
Asset Backed	0.27
Other Mortgages	4.03
Minimum Denomination	€300 million

Source: Lehman Brothers, Inc.

Note: Sector totals may not add up to 100% due to rounding.

Table D

BOND SECTOR ANALYSIS: LEHMAN BROTHERS EURO-AGGREGATE: CORPORATES

As of 31 August 2004

	Lehman Brothers Euro-Aggregate: Corporates Bond Index
Market Value	€836 million
Number of Issues	1063
Option Adjusted Duration (Years)	4.56
Current Yield	5.01
Average Maturity (Years)	5.60
Maturity Sector (%)	
Cash and Equivalents	---
1-3 Years	25.81
3-5 Years	26.74
5-7 Years	20.21
7-10 Years	20.89
Over 10 Years	6.34
Quality Sector (%)	
AAA	9.02
AA	18.71
A	41.56
BBB	30.71
Industry Sector (%)	
Financial Institutions	48.35
Industrial	42.46
Utility	9.19
Minimum Denomination	€300 million

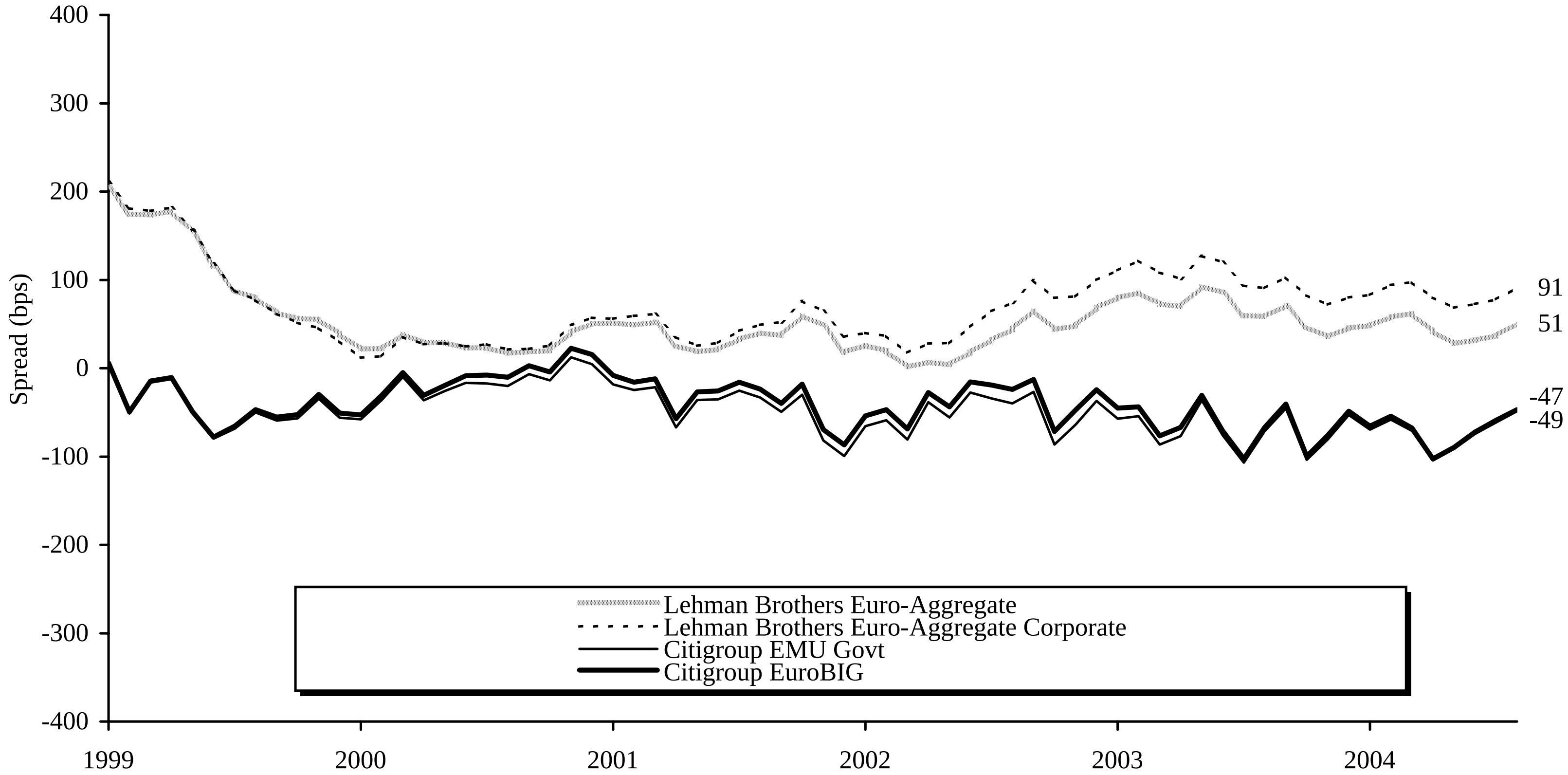
Source: Lehman Brothers, Inc.

Note: Sector totals may not add up to 100% due to rounding.

Table E

SPREADS OF EUROPEAN FIXED INCOME INDICES TO TEN-YEAR EUROPEAN GOVERNMENT BOND YIELDS

31 January 1999 - 31 August 2004



Sources: Lehman Brothers, Inc. and Thomson Datastream.

Note: Ten-year European government bond yields are provided by the European Central Bank.

Table F

ANNUAL TOTAL RETURNS

1 January 1999 - 31 August 2004

Year	Citigroup EMU Government Bond Index Total Return (%)	Citigroup EuroBIG Bond Index Total Return (%)	Merrill Lynch EMU Broad Market Bond Index Total Return (%)	Lehman Brothers Euro-Aggregate Bond Index Total Return (%)	Lehman Brothers Euro-Aggregate Corporate Bond Index Total Return (%)	MSCI Europe ex U.K. Index Total Return (%)
1999	---	-2.42	-2.01	-1.74	-1.63	37.46
2000	7.19	6.97	6.75	6.74	6.18	-1.21
2001	6.12	6.33	6.19	6.10	6.46	-18.15
2002	9.53	9.29	9.31	9.46	8.53	-32.38
2003	3.97	4.46	4.51	4.54	6.77	18.66
2004	4.26	4.26	4.24	4.22	4.53	2.52
AACR (%)	6.65	6.70	6.64	6.65	6.96	-8.37
Cumulative Return	35.06	35.37	34.98	35.06	36.92	-33.48
Standard Deviation	2.28	2.06	2.04	2.10	1.43	19.67
Sharpe Ratio	0.94	1.01	1.03	1.00	1.19	-0.52

Sources: Citigroup, Lehman Brothers, Inc., Merrill Lynch, and Morgan Stanley Capital International. MSCI data provided "as is" without any express or implied warranties.

Notes: Average Annual Compound Returns (AACR), Cumulative Return, Standard Deviation, and Sharpe Ratio are all calculated from 1 January 2000 through 31 August 2004.