



C A M B R I D G E A S S O C I A T E S L L C

GLOBAL MARKET COMMENTARY

TAKING THE MEASURE OF GLOBAL BONDS

September 2006

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Taking the Measure of Global Bonds

Over the last several years, investors have been reducing their home country biases, investing more overseas. This has also been the case within bond investments, although overseas bonds tend to occupy a narrow, but expanding, sliver of generally small bond allocations. The bond market varies significantly across the globe, with the U.S. market including the widest range of non-sovereign issues, ranging from basic investment-grade corporate bonds to mortgage- and asset-backed bonds. As investors shed their home country biases, they should be careful not to inadvertently change the character of the bond portfolio in ways that no longer meet their stated objectives. We have long advised investors to hold a sufficient quantity of intermediate- to long-duration high-quality bonds issued by their home government to hedge against the unlikely, but nonetheless potentially devastating, prospect of deflation. Any potential additions to the deflation-hedging bond allocation should compete for space in the overall portfolio based on their ability to provide diversification and incremental return in the current environment.

Investing in bonds on a global basis does allow for increased portfolio diversification thanks to currency fluctuations and less-than-perfect integration of interest rate markets across geographies, and it provides a broader field from which managers may source potential alpha. These advantages should be weighed against the prospect of fees that are about 10 basis points (bps) higher than those for a domestic active bond mandate (and much higher than fees for an indexed Treasury portfolio),¹ potentially higher volatility resulting from currency fluctuations among unhedged investors, and the potential for diminished deflation-hedging characteristics.

While the deflation-hedging properties of a global bond portfolio are less well-established than those of a domestic sovereign bond portfolio, an *unhedged* allocation to developed markets sovereign bonds can supplement the deflation hedge of U.S. investors, providing protection against the remote risk that nominal U.S. bonds would perform poorly during a prolonged economic downturn should U.S. interest rates need to rise to attract capital to fund the current account deficit. The United States needs roughly three-fourths of global savings to fund its current account deficit. Non-U.S. central banks own about 35% of U.S. Treasuries. If they stop investing at the current rate or sell what they already own, it is possible that U.S. interest rates will rise and Treasury bond values will fall, despite conditions of severe economic contraction.

As issuance of credit, mortgage- and asset-backed issues, and other types of bonds has increased, sovereign bonds have represented a diminishing percentage of the bond market, and of market benchmarks. For example, about half of the Lehman Brothers Global Aggregate and just one-quarter of the value of the U.S. Aggregate is now in sovereign issues (Tables A and B). The addition of higher-yielding spread product, particularly securities with embedded prepayment or call features such as mortgage-backed securities or corporate bonds, tends to raise indices' yields, but changes the characteristics of the portfolio in important and sometimes unhelpful directions. Thanks primarily to the 41% allocation of mortgage- and asset-backed securities within the Lehman Brothers U.S. Aggregate Bond Index, that index has a negative convexity, meaning that the index becomes less sensitive to interest rate changes as yields fall (when portfolios benefit

¹ Fees for global bond managers in our database average about 48 bps, and those for U.S. core mandates average about 40 bps, assuming a \$25 million investment.

from duration the most) and more sensitive as yields rise (when long duration is most painful). Sovereign bonds, on the other hand, have positive convexity, which can cushion price declines during interest rate spikes and add a bit more juice when rates fall. The heavy lading of mortgage product within the U.S. Aggregate gives the Global Aggregate (of which the U.S. index is a subset) a convexity that is still positive but certainly smaller than that exhibited by the Euro-Aggregate, Sterling Aggregate, or Asian-Pacific Aggregate (Table C). Therefore, a U.S.-based investor whose domestic bond allocation tracks the Lehman Brothers Aggregate would see their sovereign bond allocation increase by moving to a Global Aggregate-like allocation, while investors based in Europe or Asia engaging in a similar shift from a domestic to a global Lehman Brothers Aggregate allocation will add mortgage exposure, decreasing both the convexity of the portfolio and the “insurance” boost it would likely receive from an economic scenario where yields fell dramatically.

In addition to examining the *types* of securities included in the global bond market, it is useful to look at the *country* and *currency* exposure. Most popular bond indices do not treat the two (country and currency) synonymously. If a Canadian province or a Japanese insurer issues bonds denominated in U.S. dollars, those bonds may be added to the Lehman Brothers U.S. Aggregate Bond Index, even though they are not issued by a U.S.-based entity. For example, more than 6% of the value of the Lehman Brothers U.S. Aggregate is in non-U.S. issues, and nearly 30% of the Sterling Aggregate is in non-U.K. issues (Table D). This is true because inclusion in a regional or country index is typically determined by currency of denomination rather than the domicile of the issuer. These surprising country allocations may initially raise questions of purity, but to some degree, indices’ economic exposures are likely to be representative. For example, a French manufacturer’s decision to issue yen-denominated bonds may stem in part from the firm’s dependency on Japanese customers, with the yen bonds helping to align the currency of the French company’s interest expense to that of its revenue stream. Credit characteristics of these bonds are likely to be a function of credit spreads in both the issuer’s country and the local country. For high-quality securities, the interest rate characteristic tends to dominate, but credit issues when they occur can be painful.²

As noted above, global bond currency exposures differ from country exposures (Table E). For any given time period, the magnitude of currency movements in an unhedged global bond portfolio will often swamp the direction and magnitude of bond price changes and coupon income (Table F). For example, an unhedged, sterling-based investor who invested £100 in the Lehman Brothers Global Aggregate Bond Index five years ago would have earned a cumulative return of just 7.3% over that time, compared to a 38.1% cumulative return for a hedged sterling-based investor. On the other hand, an unhedged, dollar-based investor in the same index would have seen a cumulative return nearly 15 percentage points greater than a hedged investor, due to the dollar’s decline over the period (Table G). Hedging the currency exposure of a global bond portfolio, of course, removes not only the currency risk, but also much of the vaunted diversification benefit versus domestic bonds.

Sovereign bonds tracked by the Citigroup World Government Bond Index are likely to move somewhat independently of domestic government bonds (particularly if unhedged) and may provide some

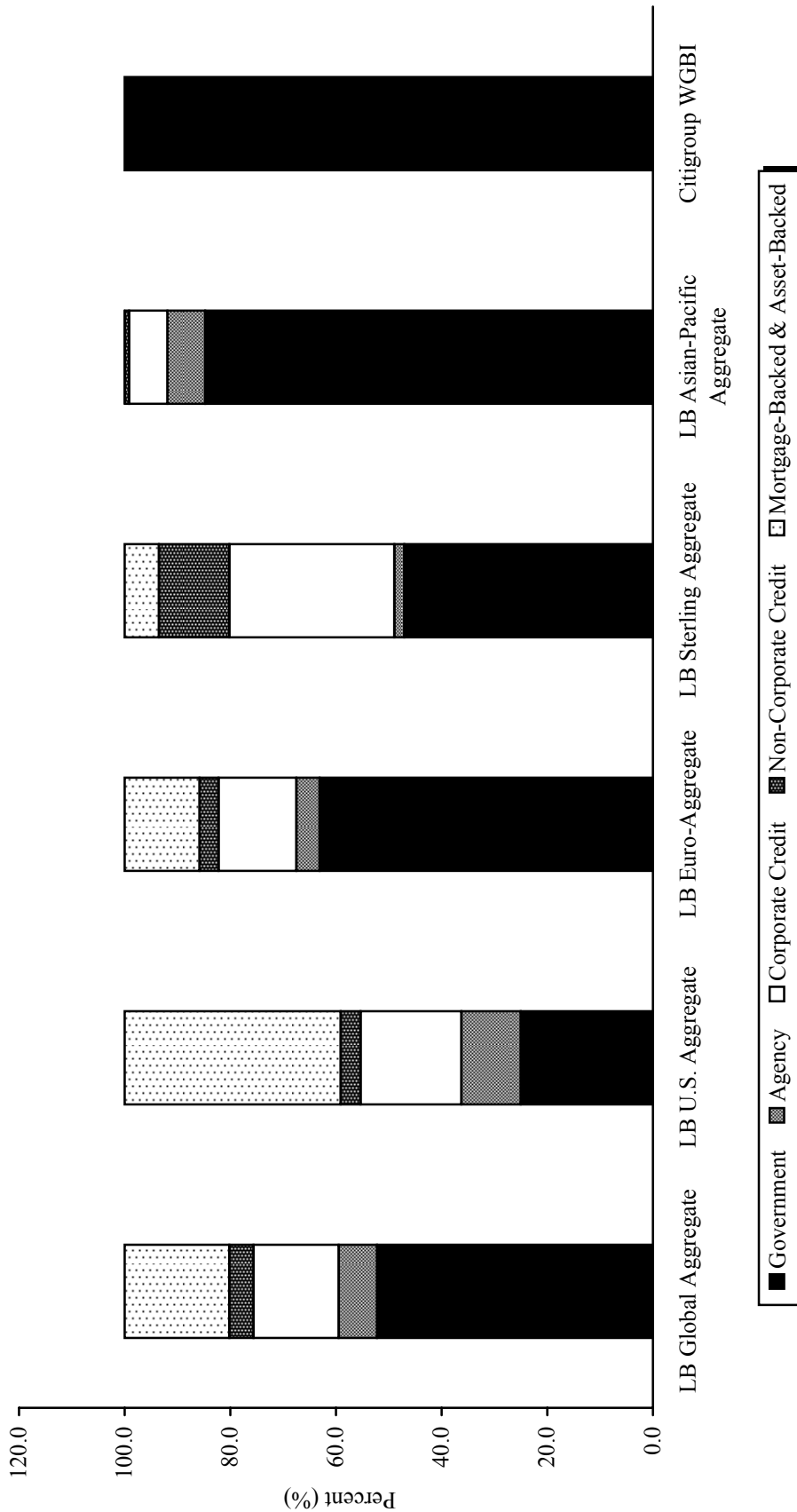
² For example, in December 1997 during the Asian currency crisis, the spread on a dollar-denominated Korean Development Bank bond over comparable Treasuries pushed past 1,000 bps, from 82 bps in July of that year.

protection from the remote but potentially devastating possibility of a severe economic dislocation. Investors holding global bonds for those reasons may be wise to forgo the higher yields to be had from mortgage and corporate securities, despite the higher yields they pay as compensation for assuming default or prepayment risk. This is particularly true in today's environment, where spreads are tight relative to history. Default rates have been remarkably low, and balance sheets remain generally healthy despite a growing executive appetite for shareholder-friendly transactions such as share buybacks, but once the liquidity tide moves out, current spreads do not offer much compensation for increased defaults and downgrades. A pure, global sovereign bond portfolio will likely offer a lower yield than the Lehman Brothers Global Aggregate, but forgoing credits and structured products does not necessarily entail "leaving money on the table." Indeed, an investor can get the insurance benefit of bonds by investing in a smaller allocation of sovereign bonds, and investing assets that would otherwise have gone to credits, mortgages, etc., in assets offering a higher expected return than bonds.

First and foremost, investors should ensure they have sufficient quality, quantity, and duration of non-callable sovereign bonds denominated in their home currency, offering some protection against economic contraction. Only after ensuring they have sufficient insurance should investors evaluate other bond investments, including high-yield and emerging markets debt, to determine whether they make sense for the portfolio. Non-core bonds such as these, however, should be considered in comparison to equities and alternative investments. In the current low-yielding, tight-spread environment, it is difficult to have much enthusiasm for bonds.

Table A
SECTOR BREAKDOWN OF GLOBAL AND REGIONAL BOND INDICES

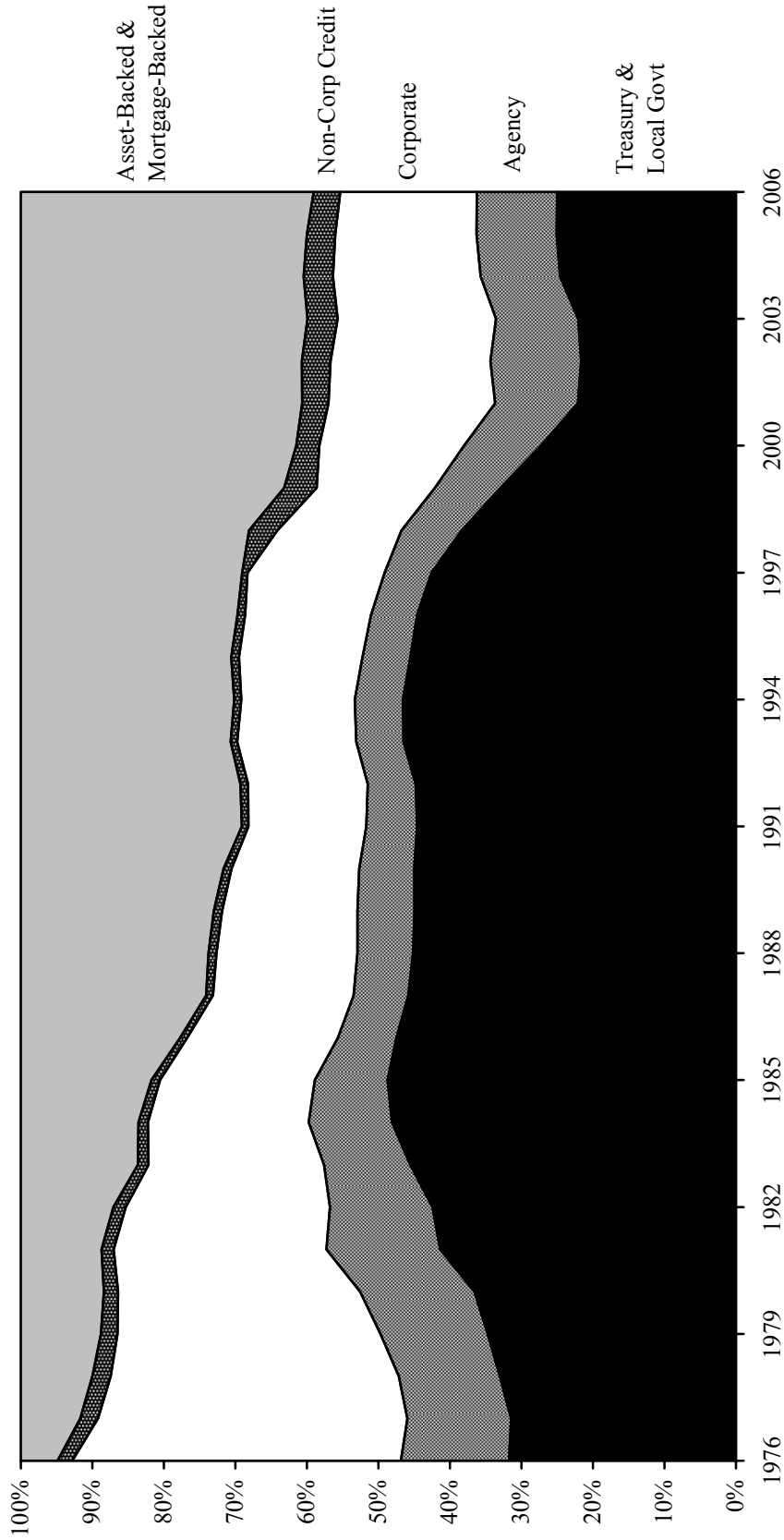
As of August 31, 2006



Sources: Citigroup Global Markets and Lehman Brothers, Inc.

Notes: The Citigroup WGBI represents the Citigroup World Government Bond Index. Government includes Treasury and Local Government. U.S. MBS, U.S. CMBS, and Pfandbriefe are included in the mortgage-backed and asset-backed sector.

Table B
SECTOR ALLOCATION OF LEHMAN BROTHERS U.S. AGGREGATE INDEX
1976-2006

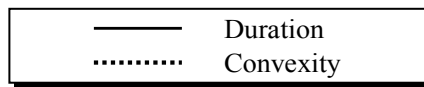
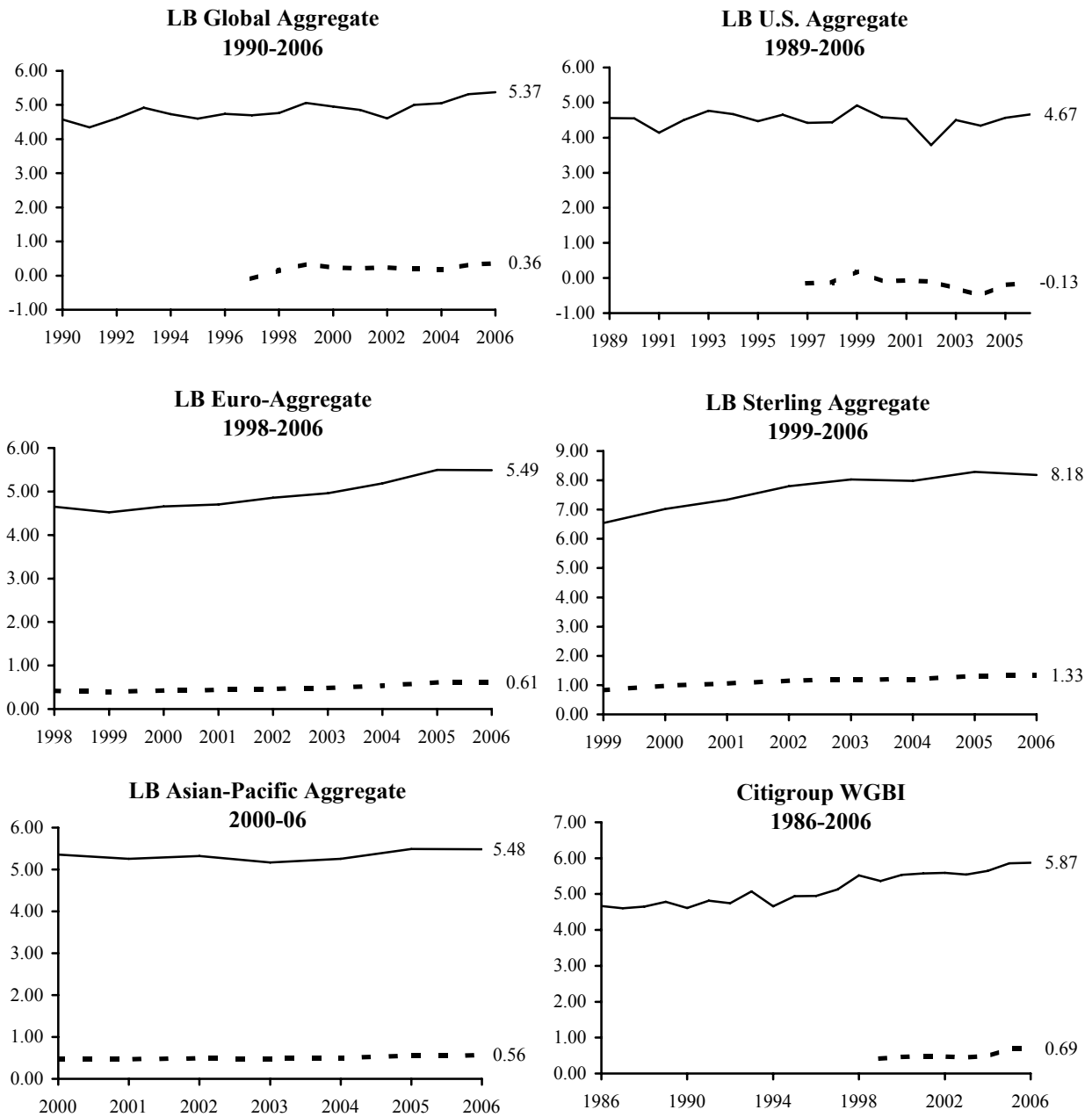


Source: Lehman Brothers, Inc.

Notes: Data for 2006 are as of August 31. Sector totals may not add up to 100% due to rounding.

Table C

DURATION AND CONVEXITY OF BOND INDICES



Sources: Citigroup Global Markets and Lehman Brothers, Inc.

Notes: Data for 2006 are as of August 31. The Citigroup WGBI represents the Citigroup World Government Bond Index. Modify adjusted durations are used in the exhibit. Convexity data for the LB Global Aggregate and the LB U.S. Aggregate indices start in 1997 and in 1999 for the Citigroup WGBI.

Table D

COUNTRY ALLOCATIONS

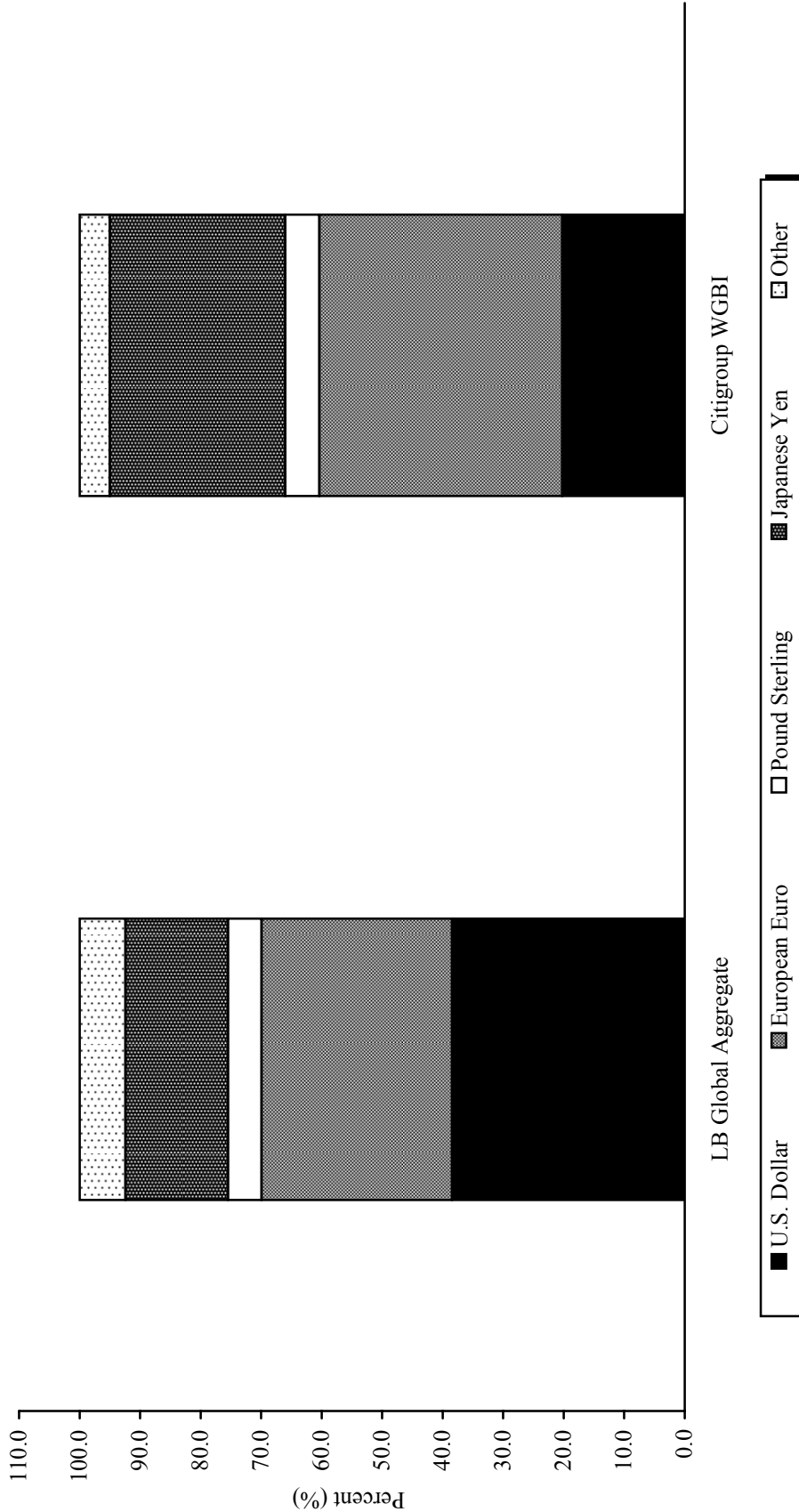
As of August 31, 2006

<u>Country/Region</u>	<u>Lehman Brothers U.S. Aggregate</u>	<u>Lehman Brothers Global Aggregate</u>	<u>Lehman Brothers Euro- Aggregate</u>	<u>Lehman Brothers Sterling Aggregate</u>	<u>Lehman Brothers Asian-Pacific Aggregate</u>	<u>Citigroup WGBI</u>
U.S.	93.8	35.4	2.4	6.7	0.5	20.2
Europe ex U.K.	3.0	35.2	93.9	21.5	0.8	42.6
France	0.1	6.2	18.6	2.7	0.0	8.1
Germany	0.7	10.2	29.3	5.8	0.2	9.4
Italy	0.5	5.1	15.1	1.3	0.1	8.8
Spain	0.1	3.1	9.3	0.8	0.0	3.2
U.K.	0.8	5.2	2.4	70.3	0.0	5.7
Pacific ex Japan	0.3	3.3	0.3	0.7	14.0	0.6
Australia	0.1	0.6	0.2	0.7	1.9	0.3
South Korea	0.2	1.5	0.0	---	7.1	---
New Zealand	---	0.1	---	0.0	0.3	---
Japan	0.2	17.0	0.3	0.4	84.7	29.0
Other	1.9	4.0	0.7	0.4	0.1	2.0

Sources: Citigroup Global Markets and Lehman Brothers, Inc.

Notes: Country allocations represent the issuers' country of origin rather than the currency of the issue. All figures are shown in percent points. Totals may not add up to 100% due to rounding.

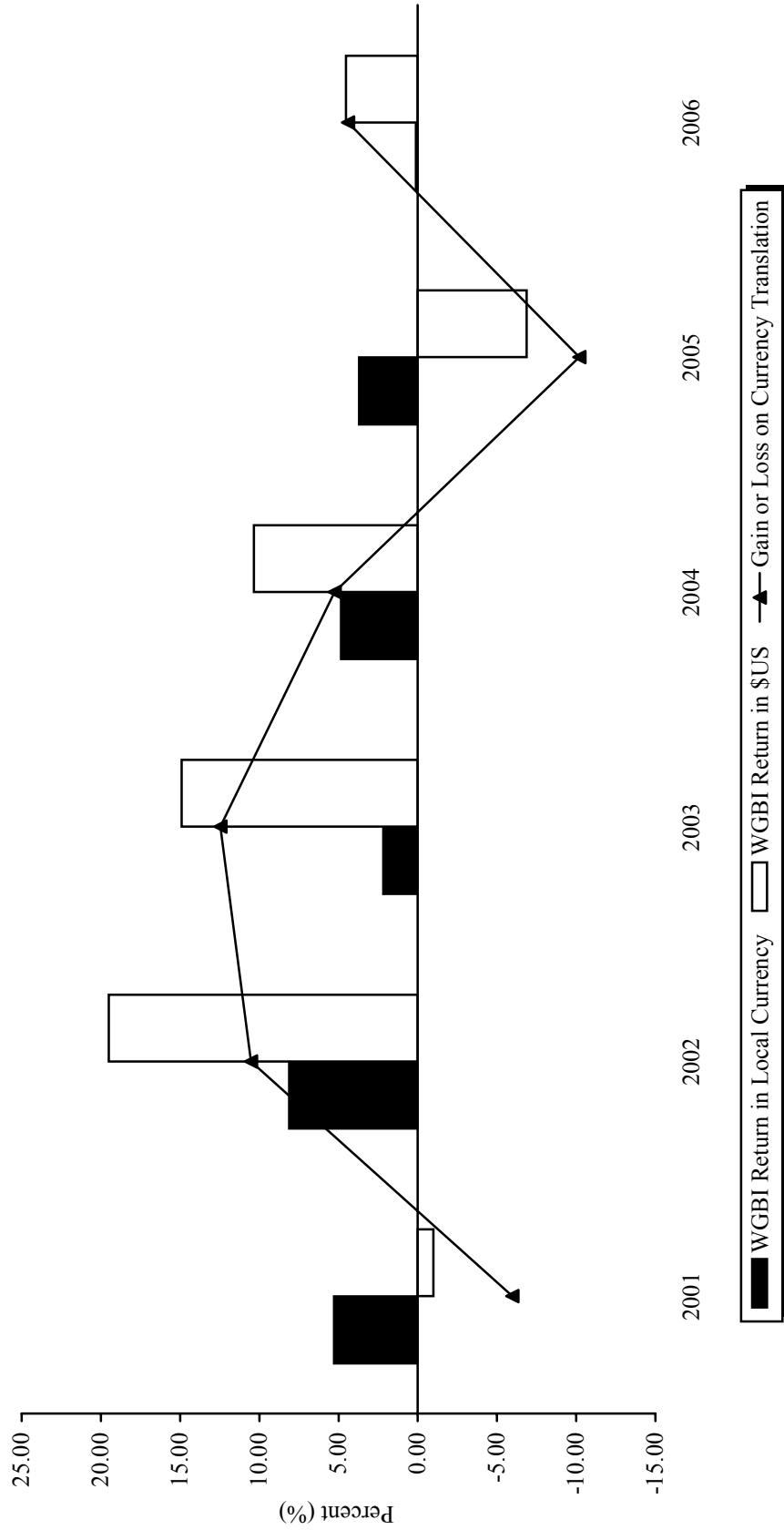
Table E
CURRENCY EXPOSURE FOR GLOBAL BOND INDICES
As of August 31, 2006



Sources: Citigroup Global Markets and Lehman Brothers, Inc.

Note: The Citigroup WGBI represents the Citigroup World Government Bond Index.

Table F
CURRENCY CONTRIBUTION FOR US\$-BASED INVESTOR IN GLOBAL BONDS
2001-06



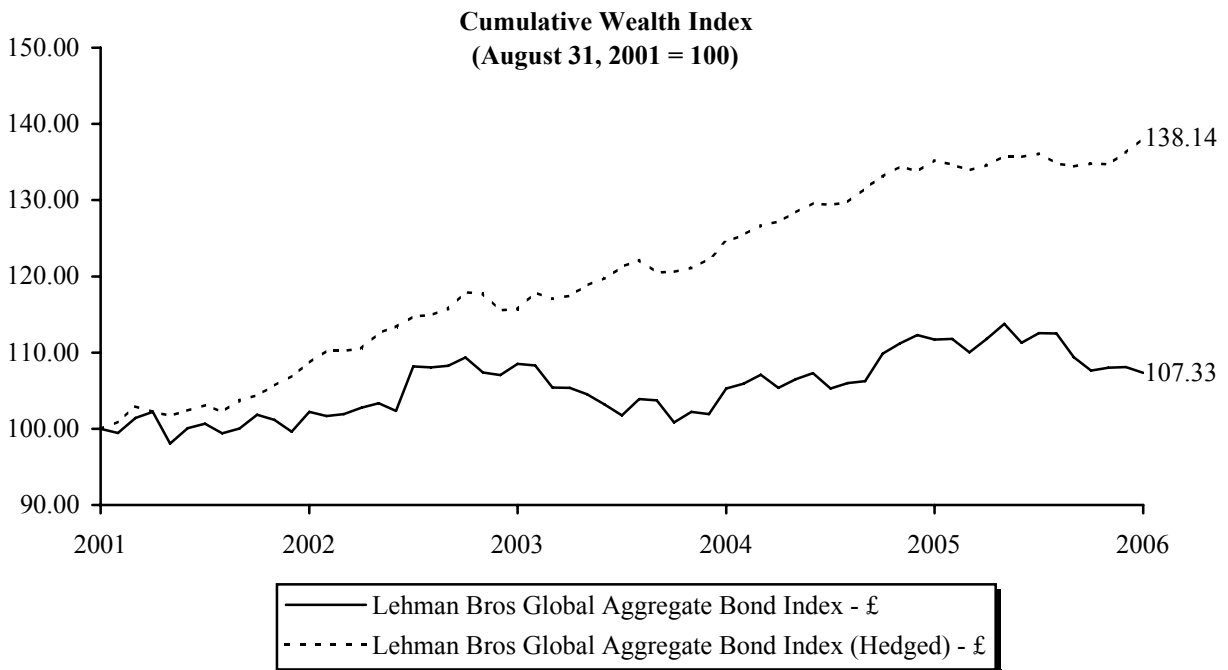
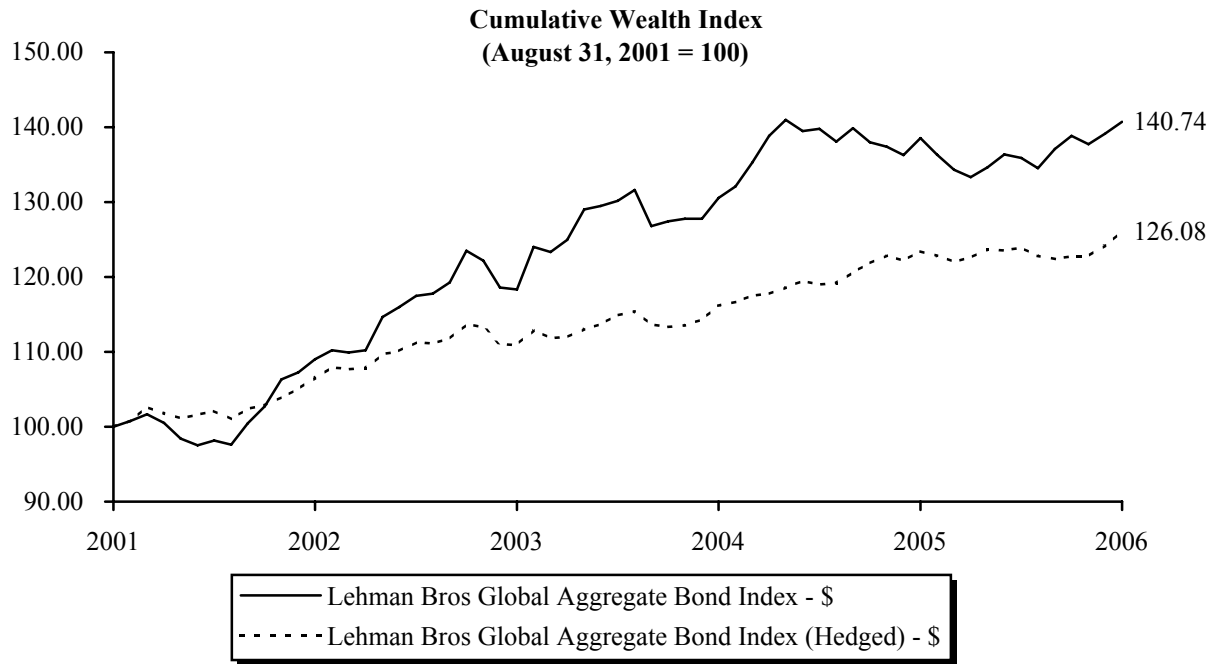
Source: Citigroup Global Markets.

Notes: Data for 2006 are through August 31. WGBI refers to Citigroup World Government Bond Index.

Table G

LEHMAN BROTHERS GLOBAL AGGREGATE BOND INDEX

September 1, 2001 - August 31, 2001



Source: Lehman Brothers, Inc.

Note: Cumulative wealth for the top graph is based on total returns in U.S. dollars and in pounds sterling for the bottom graph.