

Fixed Income:

WHY INVESTORS SHOULD THINK GLOBALLY

Although the phenomenon of globalization has expanded to more and more areas of the economy in the last few years, capital investors, surprisingly, do not appear to have closely followed this trend. Indeed, investments in all asset classes worldwide still feature a distinctive home bias and an overweight exposure to the domestic currency. And although foreign allocations have steadily increased, year after year, across all asset classes, in the fixed-income sector a home-currency bias is still predominant.

This paper discusses several potential explanations for this “home bias puzzle,” and provides some theoretical and empirical arguments why “going global” may be advantageous for fixed-income investors.

Globalization 2.0

Globalization is one of the biggest socio-economic trends of the last 20 years, but since the turn of the millennium the global environment has changed markedly—to the point where some observers are talking about a “globalization 2.0.”¹ In the beginning, globalization was mainly limited to trade, especially the import and export of commodities. This was accompanied by a flow of foreign direct investment, aimed at simplifying the production and movement of goods and at making the exchange of commodities safer. Eventually, globalization expanded beyond the transfer of goods—a very significant development, considering that the more sectors of the economy, and of consumers’ lives, are globalized, the more irreversible the process becomes.

Indeed, globalization has come to influence a greater and greater share of the lives of people across the world. It has now extended to areas that were previously thought to be predominantly local:² A growing number of employees are mobilizing and becoming part of the global employment market; companies around the world are outsourcing IT and R&D departments to emerging markets like India; air traffic hubs

are sprouting up in many developing countries; and even medical treatment is more and more globalized—as demonstrated by the increasing prevalence of “medical tourism.”³ What’s more, thanks to the rising importance of sovereign funds and other state-owned vehicles that are providing capital to companies, sovereign states are playing a more important role than ever in the flow of global payments and refinancing.⁴ In this rapidly changing environment, it is getting harder for people to rely solely on wages and salaries provided by a single, domestic employer. To supplement working income, and to reduce over-all income risk, we believe it is becoming increasingly important for individuals to consider investing in global financial markets.

Considering all these developments, it is surprising to find that investors worldwide have, generally, maintained only limited international exposure in their asset allocations.⁵ It is not easy to find rational reasons to explain this so-called “home bias,” although there are many different theories.⁶ On the other hand, it is relatively easy to show that this behavior may limit successful allocation decisions, creating what is generally referred to as the “home bias puzzle.”⁷

Home Bias

As noted above, even though the foreign allocation in investment portfolios has generally risen worldwide in recent years, a home bias is still predominant across all asset classes and regions.⁸ For example, non-domestic exposure in equity portfolios of U.S.-based investors rose from 8% in 1997 to 12% in 2004. The United States accounts for approximately 42% of the world's equity market capitalization; therefore, a U.S.-based investor with a typical international exposure of 12% would be 46% underweight (as measured by market capitalization) the international equity market. Yet this underweight position is not due to fundamental valuations: a minimum-variance portfolio constructed on the basis of historical equity market performance would recommend a foreign allocation of 41%.⁹

The existence of a home bias is supported by many other studies on investors in other regions of the world—although it is more pronounced in the United States than in Europe (Exhibit 1), probably due to the size and depth of U.S. capital markets.

Among the various attempts to explain the home bias phenomenon, the following theories are worth noting: Investors feel safer when investing in their domestic markets; they are more open to invest in companies they know by name; they invest with a patriotic spirit; they have easier access to information on, and can better estimate the return potential of, domestic securities; they consider investments in foreign currencies to be more risky; they fear information and transaction costs are

higher abroad; and, finally, they believe investments abroad are too complex for judicial or tax reasons.¹⁰

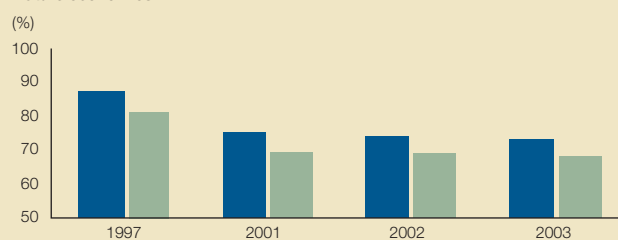
While none of these explanations is completely satisfactory, it is important for investors to recognize the risks associated with foreign-currency exposure. For example, many institutional investors manage their portfolios in terms of asset-liability matching and, therefore, prefer investments in domestic securities, as their liabilities are denominated mainly in their home currency. These investors would take on the currency risk (and thereby create an asset-liability mismatch) only if they expected a considerably higher return from the foreign investment. The increased openness of European investors to capital markets in the Eurozone after the adoption of the euro supports this thesis.¹¹

The fact that bond and real estate investors are less prone, compared to equity investors, to invest globally, as illustrated in Exhibit 1—with the exception of emerging markets, where investors have a strong home bias concerning both bonds and equities (and in equities the bias is even higher than in bonds)—is another argument supporting the “currency problem” theory. A possible explanation for this is that investors prefer the relatively nonvolatile domestic bond market because they are concerned about adding volatility to their portfolios through foreign-currency exposure. On the other hand, equity investors are more willing to go global, as they are already used to the higher volatility of equity markets.¹²

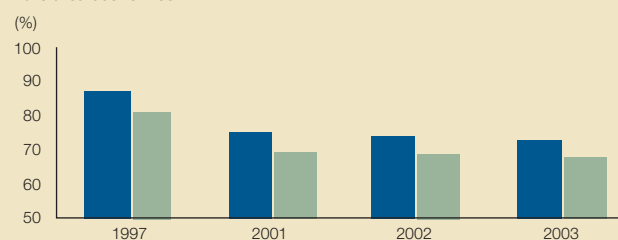
EXHIBIT 1: HOME BIAS IN DIFFERENT REGIONS OF THE WORLD

Arithmetic average of home bias of the country groups

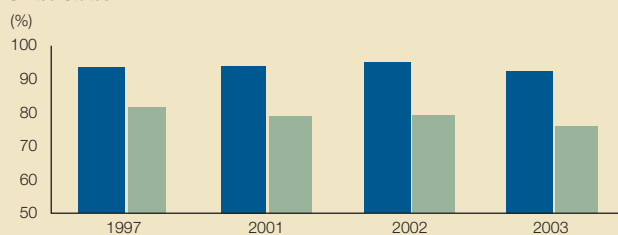
Mature economies



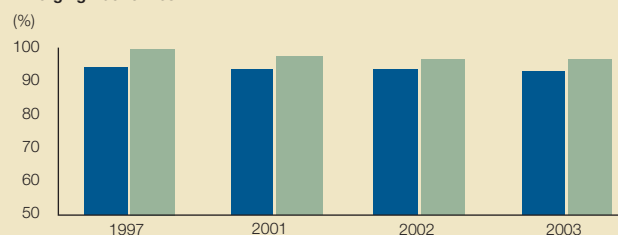
Euro area economies



United States



Emerging Economies



■ Bond home bias
■ Equity home bias

Source: European Central Bank, working paper series, No 685, October 2006

Theoretical Reasons Supporting Global Fixed Income Investing

Exhibit 2 shows the size of local-currency sovereign debt markets by country for the past 10 years, and it illustrates that for U.S.-based investors there are more alternatives in the euro-denominated market than in the domestic one. The same holds true for all investors worldwide. We believe global investing, therefore, is attractive from a quantitative point of view—but there is more to it than that. Outside of domestic markets, investors can find new investment ideas and instruments in abundance.

The principal reason to invest in foreign bonds of course would be to potentially receive a higher yield on the capital deployed. Investors would look to countries with higher interest rates, compared to domestic ones, in order to collect the extra yield. Particularly attractive would be countries where interest rates were expected to sink, as the investor would then also benefit from additional market gains. This scenario is likely when the economic cycles in the home country and the country of invest-

ment are not in sync—and if the foreign country is experiencing a boom that investors expect to cool down quickly.

The performance of foreign investments can be broken down into two components: the currency fluctuation effect and the return generated by the investment in local-currency terms. The currency effect is often the main motivation for international investors, as they anticipate generating returns thanks to a revaluation of the foreign currency versus the home currency. This is particularly relevant when domestic financial markets are unattractive—for instance, in a low-interest-rate environment with a massive current account deficit—and the home currency tends to weaken, making foreign investment alternatives more profitable. Investors, then, choose currencies that have the potential to revalue versus the home currency.

Due to the delicate balance between the advantages (e.g., higher yield) and disadvantages (e.g., lower liquidity, exchange-rate risk), investing in foreign currency requires intense analysis. Opportunities and risks need to be carefully and accurately evaluated to find an optimal equilibrium. This

EXHIBIT 2: OUTSTANDING INDEX-QUALIFYING HIGH-GRADE LOCAL-CURRENCY SOVEREIGN DEBT, BY CURRENCY (IN U.S. \$ MILLION)

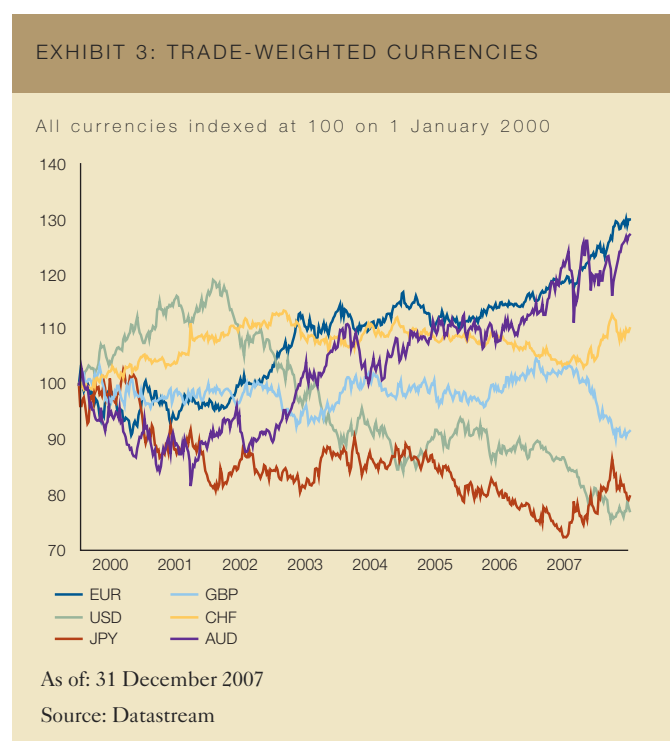
Currency	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	10-year change		Current year change	
												U.S.\$ Chg	% Chg	U.S.\$ Chg	% Chg
Euro	5,769,792	5,605,180	5,421,096	5,185,548	4,843,364	4,623,422	4,322,441	4,015,406	3,774,323	3,419,712	3,203,886	2,565,906	80.1%	164,612	2.9%
U.S. Dollars	4,219,131	4,005,264	3,881,995	3,657,702	3,215,348	3,250,003	2,931,178	2,972,693	3,240,666	3,325,018	3,435,224	783,907	22.8%	213,868	5.3%
Japanese Yen	3,784,262	3,590,209	3,417,807	3,145,070	2,796,450	2,454,744	2,093,048	1,819,862	1,578,549	1,297,765	1,213,410	2,570,852	211.9%	194,052	5.4%
Pound Sterling	824,042	762,317	679,251	589,488	529,723	474,220	467,127	480,756	510,376	514,530	530,149	293,893	55.4%	61,725	8.1%
China Renminbi	358,032	241,582	195,956	166,588	142,762	113,074	75,309	49,823	51,876	45,140	6,161	351,871	5711.3%	116,450	48.2%
Indian Rupee	257,900	222,427	192,546	170,445	161,599	140,629	112,226	90,153	76,954	61,952	34,654	223,246	644.2%	35,473	15.9%
Canadian Dollar	251,812	253,635	254,060	258,705	273,729	243,575	244,517	250,115	254,968	255,583	254,749	-2,937	-1.2%	-1,823	-0.7%
South Korean Won	208,134	196,177	162,203	122,061	76,760	51,315	40,545	33,173	30,984	16,648	6,752	201,382	2982.6%	11,958	6.1%
Swedish Krone	107,848	111,901	112,458	114,763	109,719	100,093	94,526	107,908	119,213	120,971	121,171	-13,323	-11.0%	-4,053	-3.6%
Polish Zloty	100,360	96,574	66,962	56,055	42,921	35,271	21,479	13,519	9,992	7,918	5,583	94,777	1697.5%	3,786	3.9%
Taiwanese Dollar	98,644	92,997	85,172	79,160	69,749	63,128	52,300	41,139	32,707	27,687	26,145	72,499	277.3%	5,647	6.1%
Mexican Peso	89,190	59,590	40,413	32,872	24,132	19,169	17,728	4,449	1,537	498	0	89,190	na	29,600	49.7%
Swiss Franc	82,721	82,959	81,926	80,012	68,980	58,806	49,809	44,070	36,785	32,226	28,794	53,927	187.3%	-238	-0.3%
Brazil Real	72,479	28,976	6,038	0	0	0	0	0	0	0	0	72,479	na	43,503	150.1%
Danish Krone	67,561	76,563	81,245	90,825	92,619	97,054	96,183	99,335	103,822	104,401	102,096	-34,536	-33.8%	-9,003	-11.8%
Turkish Lira	61,435	45,119	8,944	0	0	0	0	0	0	0	0	61,435	na	16,316	36.2%
Malaysian Ringgit	58,150	47,384	44,360	0	0	0	0	0	0	0	0	58,150	na	10,765	22.7%
South African Rand	55,597	58,814	53,077	51,417	50,235	45,540	46,860	47,494	42,246	40,377	20,642	34,955	169.3%	-3,217	-5.5%
Hungarian Forint	43,783	36,790	29,894	26,950	24,080	15,508	10,555	8,685	6,075	4,179	1,950	41,833	2145.7%	6,993	19.0%
Australian Dollar	42,954	41,632	40,936	43,926	45,100	48,230	49,756	55,290	58,481	63,249	67,242	-24,287	-36.1%	1,322	3.2%
Thailand Baht	42,716	37,508	34,217	32,629	16,836	16,580	0	0	0	0	0	42,716	na	5,208	13.9%
Singapore Dollar	39,321	34,597	35,708	30,428	26,468	25,183	22,893	17,183	14,235	11,422	9,046	30,275	334.7%	4,724	13.7%
Czech Koruna	33,829	28,474	23,617	20,621	15,411	10,715	7,581	4,729	2,859	2,749	1,925	31,904	1657.7%	5,354	18.8%
Norwegian Krone	33,575	26,317	27,183	23,868	19,874	21,532	18,048	19,816	21,658	19,153	22,100	11,475	51.9%	7,257	27.6%
Russian Ruble	32,676	27,865	22,245	13,102	12,450	4,977	0	0	0	0	0	32,676	na	4,811	17.3%
Indonesian Rupiah	25,107	20,576	16,638	16,575	0	0	0	0	0	0	0	25,107	na	4,531	22.0%
Israeli Shekel	22,808	19,777	18,004	17,239	0	0	0	0	0	0	0	22,808	na	3,031	15.3%
Philippines Peso	17,991	11,397	4,596	3,213	0	0	0	0	0	0	0	17,991	na	6,594	57.9%
New Zealand Dollar	17,603	19,021	12,685	16,935	19,057	18,184	18,684	17,019	16,056	16,871	14,648	2,955	20.2%	-1,418	-7.5%
Slovakia Koruna	10,575	8,207	7,167	5,392	3,971	1,950	1,856	1,309	0	785	552	10,023	1816.7%	2,367	28.8%
Hong Kong Dollar	6,477	6,066	5,592	5,140	4,935	4,668	4,309	3,642	3,514	3,540	3,078	3,399	110.4%	410	6.8%
Grand Total	16,836,503	15,895,895	15,063,992	14,056,728	12,686,271	11,937,568	10,798,957	10,197,568	9,987,877	9,392,374	9,109,957	7,726,546	84.8%	940,608	5.9%
Annual U.S.\$ Change	940,608	831,903	1,007,265	1,370,456	748,703	1,138,611	601,390	209,691	595,503	282,417					
Annual % Change	5.9%	5.5%	7.2%	10.8%	6.3%	10.5%	5.9%	2.1%	6.3%	3.1%					

As of 31 December 2007

Source: Merrill Lynch Global Index System

applies, in particular, to euro-based investors whose currency has highly revaluated against many others, due to the success of the European Central Bank's stabilization policy. While exchange-rate risk needs to be factored into the decision to invest abroad, on the other hand international diversification has been easier for investors who operate in soft-currency countries or regions, as has been the case for investors in the U.S. dollar or yen areas over the last few years, as illustrated in Exhibit 3.

Risk reduction through diversification is critical when going global. The time-tested strategy of “not putting all your eggs in one basket” is especially relevant to bond investing.



International diversification reduces the dependency on any individual market and economic cycle, and decreases overall portfolio risk. The more uncorrelated the individual markets are to each other, the higher the benefit.

Even if it appears that currency exposure increases overall risk, the risk/reward profile—as measured by the Sharpe ratio, for example—can be considerably improved by interest-rate and currency diversification. In fact, despite the additional currency risk, international diversification has historically abated risk in the long term.¹³

There are additional reasons to go global. Investors in foreign bond markets, for example, can profit from the fact that economic and interest-rates cycles of different countries and currencies are not in sync, reducing their dependency on the

phases of their domestic market. International diversification is also an answer to the limited size of certain segments of the domestic market. For example, the high-yield, inflation-linked, and securitized markets are available in much greater scale in countries outside the euro area. And global investing affords the opportunity to strategically invest in markets that are expected to be more profitable in the long term—for example, local-currency emerging markets.¹⁴

The recent market crisis was a harsh reminder to bond investors that diversification within different segments of a domestic market is not enough to mitigate risk. External shocks, which strongly impact the home market, can be better absorbed by international diversification. There are many bond markets in the world that have been very little affected by the credit crisis, while in the United States, and even the Eurozone, investors have had a hard time finding safe havens in their own bond markets—thus increasing the demand for global bond portfolios.¹⁵

Historical Reasons Supporting Global Fixed Income Investing

Generally speaking, the performance of global portfolios depends on the strength of the home currency, asset-allocation decisions (countries, bond asset classes, yield curves), and currency risk management. A number of research papers have attempted to describe the effects of global investing for bond investors. Nearly all analyses proffer strong evidence in favor of global diversification when starting from a portfolio of domestic assets.¹⁶

Many papers underscore that, given the complexity of the decisions-making environment, the portfolio manager and the investment process play an important role in successfully “globalizing” a bond portfolio. Historical results show that it is possible to achieve higher returns, or lower risk, through the combination of a limited number of international, low-correlated bond markets than through a “naïve,” market-capitalization-based approach (i.e., passive investing according to market-weighted global benchmarks), or through a concentration in the domestic market.¹⁷

As the “naïve” approach to global investing has not proven to lead to more efficient portfolios,¹⁸ successful global bond investing requires active management, particularly for allocation decisions about countries, currencies, and asset classes (Exhibit 4).¹⁹ When investing in global bond markets, therefore, we believe it is better to follow an absolute-return approach rather than to manage to a benchmark.

On the other hand, historical evidence does not support any particular thesis on how to manage the currency risk within

global portfolios.²⁰ For example, it is not surprising that research papers have shown U.S.-based investors would have been better off by systematically hedging their currency exposures during the long period of U.S. dollar strength in the 1990s; whereas unhedged currency positions would have been more successful during the period of U.S. dollar weakness that followed the introduction of the euro.²¹ The bottom line is that returns depend on single paths of historical currency fluctuations, and it is not appropriate, therefore, to formulate general policy recommendations.

However, it can be argued that the foreign currency diversification effect is one of the main reasons to go global and that, in principle, currency positions should be left unhedged. The decision to hedge should be made only if there are fundamental concerns about certain currencies, or if a strong revaluation of the domestic currency is expected. A currency overlay can, therefore, be part of the portfolio management strategy.²² In this regard, the decision about currency exposures can be considered as an investment in a separate asset class, independent from the fixed-income component of the portfolio.²³

Summary

A home-currency bias is still predominant in the fixed-income asset class. The most plausible explanation for this is that investors, seeking to maintain a level of asset-liability matching, tend to concentrate their investments in the domestic currency, in which their liabilities are mainly denominated. On the other hand, theoretical and empirical evidence supports the thesis that global bond portfolios, compared to domestic portfolios, offer the opportunity to increase return and reduce risk through diversification. Additionally, the global bond market offers the possibility of disengaging from domestic interest-rate cycles, which is particularly advantageous during a capital-market crisis similar to the one roiling global markets in 2008.

Empirical evidence also shows that active management in global bond markets is more efficient than a passive, market-weighted approach based on global benchmarks. Through active, top-down exposure to a limited number of different international, low-correlated bond markets, it is possible to achieve better returns or lower risk than through a “naïve” market-capitalization-based approach.

EXHIBIT 4: ANNUAL TOTAL RETURNS OF DIFFERENT BOND MARKETS FROM 1992-2007, IN LOCAL CURRENCY

RANK	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	United Kingdom 18.58%	Italy 28.75%	Italy -0.91%	Sweden 20.20%	Italy 21.90%	United Kingdom 14.76%	United Kingdom 19.55%	Japan 4.83%	United States 13.48%	Canada 7.50%	United States 11.64%	Norway 11.08%	Sweden 8.47%	United Kingdom 8.00%	New Zealand 4.02%	United States 9.00%
2	Germany 13.03%	United Kingdom 22.00%	Germany -1.84%	Canada 20.03%	Sweden 18.25%	Italy 13.82%	New Zealand 14.23%	Norway 2.64%	Australia 13.39%	Italy 6.90%	Australia 9.55%	New Zealand 6.49%	Italy 8.40%	New Zealand 7.25%	Canada 3.54%	Canada 5.02%
3	Sweden 12.04%	Sweden 21.11%	Japan -2.67%	Australia 19.85%	France 11.94%	Australia 13.24%	Sweden 13.86%	New Zealand -0.55%	New Zealand 11.64%	United States 6.73%	Italy 9.49%	Canada 5.61%	France 7.48%	Canada 7.02%	United States 3.12%	United Kingdom 4.70%
4	France 10.98%	France 20.88%	United States -3.36%	United States 18.30%	Canada 11.83%	Canada 9.73%	France 12.59%	United Kingdom -1.20%	Canada 10.50%	France 5.72%	United Kingdom 9.47%	Sweden 4.86%	Norway 7.44%	Italy 5.97%	Australia 2.06%	New Zealand 3.91%
5	Japan 10.81%	Australia 17.40%	New Zealand -3.63%	Italy 17.31%	Australia 11.75%	United States 9.64%	Italy 12.19%	Canada -1.46%	Sweden 9.63%	Norway 5.71%	France 9.31%	France 3.98%	Germany 7.34%	Australia 5.73%	Sweden 0.81%	Australia 3.69%
6	Italy 10.78%	Canada 16.68%	Canada -4.50%	France 17.01%	New Zealand 9.05%	Sweden 7.85%	Germany 10.94%	Germany -2.08%	United Kingdom 8.99%	Germany 5.39%	New Zealand 9.06%	Italy 3.86%	Australia 7.26%	France 5.47%	United Kingdom 0.50%	Norway 3.69%
7	Australia 9.92%	Germany 14.32%	Sweden -4.74%	United Kingdom 16.50%	Norway 8.46%	Norway 7.24%	Australia 10.35%	Australia -2.45%	Germany 7.31%	New Zealand 4.57%	Germany 9.05%	Germany 3.78%	Canada 7.01%	Germany 5.38%	Japan 0.30%	Japan 2.64%
8	Canada 9.50%	New Zealand 14.09%	France -5.67%	Germany 16.27%	United Kingdom 7.41%	France 7.15%	United States 10.00%	United States -2.45%	France 7.18%	Australia 4.03%	Sweden 8.94%	Australia 2.65%	United Kingdom 6.61%	Sweden 5.22%	Norway -0.01%	Germany 1.99%
9	United States 7.21%	Japan 14.04%	Australia -6.47%	New Zealand 13.55%	Germany 7.29%	New Zealand 6.69%	Canada 9.41%	Sweden -2.51%	Italy 6.91%	Japan 3.35%	Norway 8.83%	United States 2.27%	New Zealand 5.34%	Norway 3.53%	Germany -0.36%	Sweden 1.79%
10	United States 10.69%	United Kingdom -6.89%	Japan 13.29%	Japan 5.26%	Japan 6.60%	Norway 4.42%	Italy -2.59%	Japan 2.13%	Norway 6.45%	United Kingdom 3.08%	Canada 8.03%	United Kingdom 2.09%	United States 3.53%	United States 2.80%	France -0.44%	France 1.72%
11	United States 2.73%	Germany 6.16%	Japan 0.50%	France -2.95%	Japan 2.13%	Sweden 3.06%	Japan 3.19%	Japan -0.74%	Japan 1.26%	Japan 0.72%	Italy -0.65%	Italy 1.59%				

Source: Citigroup

The above are annual total returns of 11 major components of the Citigroup World Government Bond Index (WGBI), in local currency terms. Citigroup World Government Bond Index unhedged (WGBI unhedged) covers the most significant and liquid government bond markets, currently including 22 government bond markets, worldwide.

Credit: Callan Associates Inc. and the Callan Periodic Table of Investment Returns.

An investment cannot be made directly in an index. Indices are unmanaged and have no fees. The performance quoted represents past performance. Past performance is not a reliable indicator of future results.

NOTES

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IMPORTANT INFORMATION

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