Investment **Focus**

Going Global in Fixed Income Markets

In recent years, globalization has extended to more and more areas of life. It is therefore astonishing that investors lag far behind the developments of the real economy: Although the share of foreign investments compared to domestic investments has grown steadily in recent years, investments across asset classes still show a pronounced home bias, an over-proportional weighting of the home market. This preference for the native currency historically has been pronounced in the area of fixed income.

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Globalization

In the initial decades of globalization, the process concentrated more or less on the area of trade; that is, on imports and exports of goods, accompanied by an unavoidable amount of direct investment, in order to simplify production and the trade of goods and make the flow of goods more secure. Meanwhile, globalization has now reached a point that goes far beyond the mere flow of goods. This is important, because the more areas of life that are drawn into globalization, the more interconnected and irreversible it becomes.

The financial market crisis of 2007 to 2009 clearly showed the progress of globalization. Despite all fears that politicians and companies would repeat the mistakes of the 1930s (e.g., nationalism and protectionism) during the crisis, there was only a short-term, albeit severe, drop in international trade. The markets remained open, international cooperation in the crisis was thoroughly purposeful, and the international flow of goods and payments was able to recover quickly at the first sign of stabilization itself.

Meanwhile globalization applies to an overwhelming part of social life throughout the world and in individuals' day-to-day life.[1] Whatever we do, we are connected to a global network. Thus, globalization has also entered areas of the service sector that have always been regarded as local. Research divisions of banks are being relocated to the emerging markets, the electronic data processing (EDP) departments of more and more companies are being organized from India, air traffic is being increasingly based on the distribution of work (new international hubs are springing up all over the emerging markets), and even medical treatments are more frequently becoming a part of international tourism.[2] A growing number of people are becoming more mobile and part of a global labor market. Due to the growing importance of sovereign wealth funds and other public institutional investors, states are also becoming an increasingly large part of the marketplace as they participate in the global flow of payments and refinancing.[3]

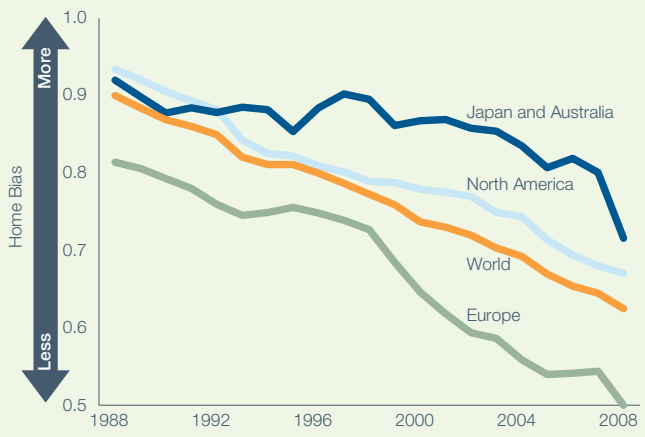
In this extremely fluid environment, it becomes more difficult for people to rely solely on income from wages and salaries earned only from a single (local) employer. In order for people to be able to profit fully from globalization and to spread their risk, they increasingly need earnings from capital investments that are invested globally in the financial markets.

In view of this knowledge, it is surprising that investors were in no way forerunners of globalization with regard to their asset allocation decisions (although capital is supposedly early to the market and discounts the future early), but on the contrary were quite distinctively slow to move.[4] In all the regions of the world a distinctive "home bias" can be seen in investors' portfolios over the decades—investments in the assets of native countries are favored, even if there are hardly any rational reasons for it when viewed fundamentally.[5] Scientific studies have developed a large number of ideas for explaining this home bias, however, they have emphasized that this behavior stands in the way of successful allocation decisions, diminishes the international diversification of risk, and leads to massive loss in wealth (referred to as the "Home Bias Puzzle").[6]

Home Bias

Today, the home bias of investors is still pronounced across all asset classes and all regions, although the share of investments abroad in relation to the national product has increased strongly over the decades.[7] Thus, for example, the proportion of foreign shares in equity portfolios of U.S. investors has increased from eight percent in 1997 to twelve percent in 2004 and to almost twenty percent in 2007.

Exhibit 1
Home Bias of Equity Investments in the Developed World

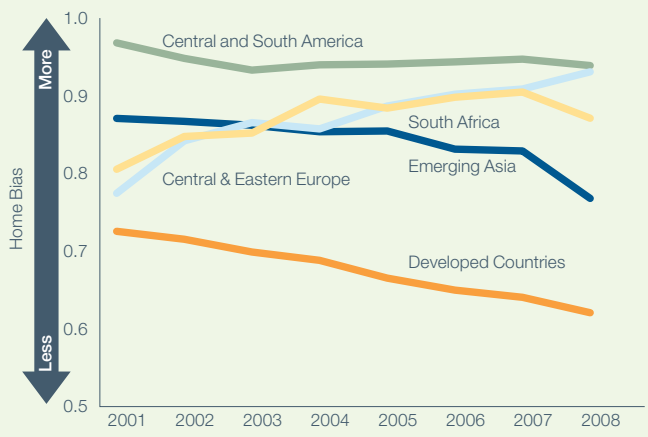


As of September 2010

On the Y-axis 1 represents the highest bias, as if investors invest only at home, and 0, the lowest bias, as if they maintain a completely diversified global portfolio.

Source: Nicolas Coeurdacier; Heléne Ray

Exhibit 2
Home Bias of Equity Investments in the Emerging Markets



As of September 2010

Source: Nicolas Coeurdacier; Heléne Ray

However, since the proportion of U.S. shares of the world market capitalization was about 40% at this time, U.S. investors have grossly underrated the foreign stock markets (based on market capitalization). The fact that the minimum variance portfolio based on the historical stock market performance series at that time would have recommended a proportion of foreign shares of about 41% for the U.S. investor shows that this has little to do with a fundamental risk reward assessment.[8]

Most academic studies in the past have focused on home bias in equity investments. These investigations have shown that home bias can be proved in principle in many regions of the world, but that it is particularly pronounced in those countries in which the size and depth of the domestic capital market offers sufficient investment alternatives. That is why investors in the United States and Japan have an even stronger home bias than those in strongly fragmented Europe, though this has changed since the single currency (euro) was launched over a decade ago as seen in Exhibit 1.[9]

The home bias in the developed world can also be seen with investors in the emerging markets during the early 2000s, as seen in Exhibit 2. In the past five to six years, however, the trend has been changing as many of these countries' sovereign wealth funds need to diversify their reserves overseas due to limited, or more shallow local domestic markets.

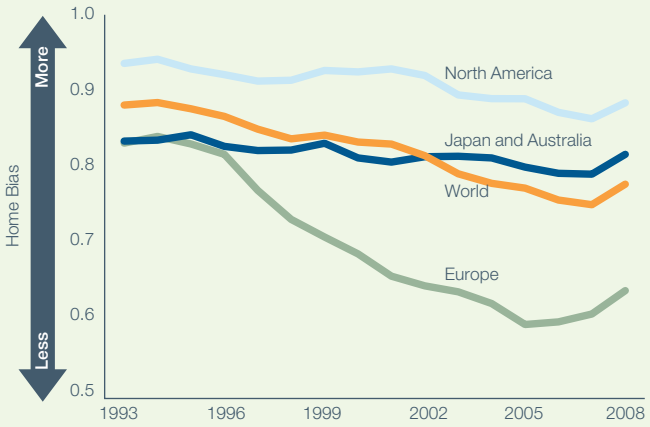
Reasons for Home Bias

In academic literature, there are multiple reasons given for home bias: Their actions stem from a certain patriotism. Investors have a greater feeling of security in domestic investments, and they would rather invest in known names (from their own environment). They have better access to information on these investments and can thus assess profit-earning opportunities better in the domestic market. They generally regard currency investments as risky. Information and transaction costs abroad may possibly be higher than at home. Finally, they regard investments abroad to be too complex due to legal and taxation reasons, and thus prefer to invest in the domestic market.[10]

We believe all these explanations are not really satisfactory, particularly since many of the arguments are supposed to have lost their force over the course of globalization. However, many investors attach great importance to the risk of a currency allocation and this appears to be a lingering concern when they consider investing outside of their home market despite the fact that foreign exchange risk can easily be hedged or may actually add value to the returns of a portfolio. Institutional investors in particular tend to think in terms of asset-liability matching and prefer investments in their native currency since their liabilities are largely in the currency of their home market. They are often prepared to take currency risks only if they assume there will be limited downside risk as a result. For example, the readiness of investors to extend their capital investments to the Euroland after the introduction of the euro took time to gain traction. In the meantime, there has been less talk in Euroland of a home bias and more of a euro bias, even as the latest Euroland crisis of the periphery countries has led to a certain reconsideration of the "real" home market again.[11]

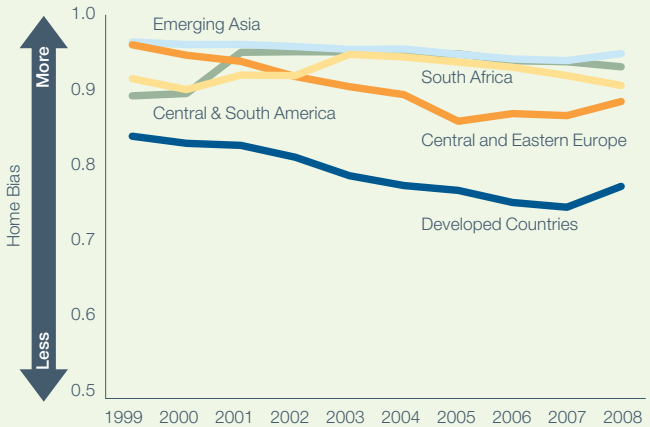
The willingness to "go global" has been moving at a slower pace for fixed income than in the equity market, as demonstrated in Exhibit 3. This could be explained by the fact that investors in the relatively less volatile bond market prefer to keep investing locally, as long as they can generate some profits, because they think that the portfolio volatility would be more likely to grow by mixing currencies. Investors are more willing to use global strategies in an equity allocation because the volatility of the domestic equity market itself is already (unacceptably) high, such that the currency investment cannot make it much worse.[12] The already mentioned home bias in the emerging markets that likely prompts these investors to hedge currency risk for overseas fixed income investments is shown in Exhibit 4.

Exhibit 3
Home Bias of Fixed Income Investments in the Developed World



As of September 2010
Source: Nicolas Coeurdacier; Heléne Ray

Exhibit 4
Home Bias of Fixed Income Investments in the Emerging Markets



As of September 2010
Source: Nicolas Coeurdacier; Heléne Ray

Exhibit 5
Global Government Bonds

												10-year change		Current year change	
Currency	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**2004**	**2003**	**2002**	**2001**	**2000**	**$ Chg**	**% Chg**	**$ Chg**	**% Chg**
U.S. Dollar	8,289,479	6,667,662	4,932,430	4,219,131	4,005,264	3,881,995	3,657,702	3,215,348	3,250,003	2,931,178	2,972,693	5,316,787	178.9	1,621,818	24.3
Japanese Yen	8,211,632	7,635,659	6,208,398	5,825,487	5,393,407	5,150,673	4,662,303	4,005,971	3,531,684	3,029,501	2,620,274	5,591,358	213.4	575,973	7.5
Euro	7,085,766	6,469,696	5,727,055	5,305,077	5,151,609	4,981,633	4,763,681	4,448,245	4,244,362	3,968,090	3,685,802	3,399,964	92.2	616,069	9.5
British Pound Sterling	1,495,124	1,260,346	887,798	648,127	599,579	534,245	463,645	416,639	372,984	367,406	378,125	1,116,999	295.4	234,778	18.6
Chinese Renminbi	582,214	502,538	419,416	396,847	267,772	217,200	184,648	158,239	125,332	83,473	55,224	526,990	954.3	79,675	15.9
Indian Rupee	429,582	341,712	274,769	227,331	196,063	169,724	150,243	142,445	123,961	98,924	79,467	350,115	440.6	87,870	25.7
Canadian Dollar	403,329	346,583	261,979	250,114	251,925	252,347	256,960	271,883	241,932	242,868	248,429	154,900	62.4	56,746	16.4
South Korean Won	245,420	218,334	186,536	171,665	161,803	133,782	100,673	63,310	42,324	33,441	27,361	218,059	797.0	27,085	12.4
Brazilian Real	228,999	205,983	193,490	166,757	96,917	35,748	0	0	0	0	0	228,999	na	23,016	11.2
Australian Dollar	149,279	100,474	52,190	50,146	48,602	47,789	51,279	52,650	56,305	58,086	64,546	84,733	131.3	48,805	48.6
Mexican Peso	135,208	120,143	94,826	78,924	52,731	35,762	29,088	21,354	16,963	15,688	3,937	131,271	3334.3	15,065	12.5
Taiwanese Dollar	133,403	122,770	115,225	109,734	103,453	94,748	88,060	77,591	70,225	58,180	45,764	87,638	191.5	10,632	8.7
Polish Zloty	123,366	99,459	87,161	83,542	80,391	55,741	46,661	35,728	29,360	17,880	11,254	112,112	996.2	23,907	24.0
Turkish Lira	105,829	58,998	51,043	46,794	34,367	6,813	0	0	0	0	0	105,829	na	46,832	79.4
Swedish Krona	101,791	99,355	92,814	103,683	107,579	108,114	110,331	105,481	96,227	90,875	103,740	-1,949	-1.9	2,435	2.5
Malaysian Ringgit	96,323	91,582	66,895	62,365	50,819	47,576	0	0	0	0	0	96,323	na	4,742	5.2
South African Rand	94,256	74,837	62,738	57,434	60,757	54,830	53,116	51,895	47,045	48,408	49,063	45,193	92.1	19,419	25.9
Danish Krone	92,768	81,960	73,368	62,029	70,295	74,594	83,389	85,035	89,108	88,308	91,202	1,566	1.7	10,807	13.2
Swiss Franc	82,771	86,313	92,084	100,475	100,764	99,510	97,184	83,785	71,427	60,500	53,529	29,242	54.6	-3,542	-4.1
Israeli Shekel	70,241	64,850	54,504	45,225	38,596	35,084	18,736	0	0	0	0	70,241	na	5,392	8.3
Thailand Baht	62,776	58,649	50,040	47,732	41,912	38,235	36,461	18,813	18,527	0	0	62,776	na	4,127	7.0
Russian Ruble	60,901	32,293	26,613	26,266	22,399	17,881	10,532	10,008	4,000	0	0	60,901	na	28,608	88.6
Singapore Dollar	49,725	48,242	45,900	44,183	38,874	40,123	34,191	29,741	28,297	25,724	19,308	30,417	157.5	1,483	3.1
Colombian Peso	42,149	46,737	27,418	25,960	27,438	29,263	24,625	19,125	16,948	10,752	4,196	37,953	904.5	-4,588	-9.8
Philippine Peso	40,572	21,804	14,121	16,950	10,737	4,330	3,027	0	0	0	0	40,572	na	18,768	86.1
Czech Koruna	39,465	36,688	34,014	32,895	27,688	22,965	20,052	14,986	10,420	7,372	4,598	34,866	758.2	2,776	7.6
Indonesian Rupiah	39,021	34,503	30,153	26,173	21,450	17,344	17,279	0	0	0	0	39,021	na	4,518	13.1
Hungarian Forint	33,649	30,411	33,247	36,487	30,659	24,913	22,459	20,068	12,923	8,796	7,238	26,411	364.9	3,238	10.6
Norwegian Krone	32,758	33,610	27,760	31,365	24,585	25,394	22,297	18,566	20,114	16,860	18,512	14,246	77.0	-852	-2.5
New Zealand Dollar	27,757	25,498	16,174	17,870	19,309	12,877	17,191	19,346	18,459	18,967	17,276	10,481	60.7	2,259	8.9
Egyptian Pound	22,784	11,329	1,722	3,446	4,652	4,823	2,411	1,205	1,206	1,206	1,206	21,578	1789.6	11,455	101.1
Chilean Peso	21,996	18,171	14,891	7,134	6,006	5,105	3,669	2,531	0	0	0	21,996	na	3,825	21.0
Moroccan Dirham	15,858	15,144	15,489	17,488	19,069	18,212	11,685	7,230	4,153	0	0	15,858	na	713	4.7
Hong Kong Dollar	9,442	7,590	6,624	6,496	6,085	5,609	5,156	4,950	4,682	4,322	3,653	5,789	158.5	1,852	24.4
Total	**28,655,632**	**25,069,925**	**20,278,887**	**18,351,331**	**17,173,555**	**16,284,982**	**15,048,734**	**13,402,168**	**12,548,972**	**11,286,804**	**10,566,396**	**18,089,236**	**171.2**	**3,585,707**	**14.3**
Annual $ Change	**3,585,707**	**4,791,038**	**1,927,555**	**1,177,777**	**888,573**	**1,236,248**	**1,646,566**	**853,196**	**1,262,168**	**720,408**					
Annual % Change	**14.3**	**23.6**	**10.5**	**6.9**	**5.5**	**8.2**	**12.3**	**6.8**	**11.2**	**6.8**					

As of December 2010

Source: BofA Merrill Lynch Bond Indices

(Theoretical) Arguments for Going Global

At the end of 2010, the Euroland government bond market had a volume of $7,085 billion making it about one quarter of the volume of the global government bond market of approximately $28,656 billion.[13] The Euroland share in certain market segments, such as the high yield market, corporate bonds, or securitization, is still much lower because the Euroland fixed income market was strongly dominated by government bonds and quasi-government bonds for a long time. Exhibit 5 illustrates the growth in the global government bond markets over the past decade.

Given this, the largest portion of investment alternatives for the Euroland investor, for instance, lies in the bond area outside their own currency area (one can argue analogously for all other investor groups, including the U.S. investor). Investments outside the home market offer the domestic investor not only a quantitatively wider investment range, but the markets of foreign countries are of great interest to them qualitatively too. They can implement a wealth of new investment ideas outside the Eurozone and find additional investment instruments. This becomes particularly conspicuous in the case of emerging markets investments or the credit segment, the importance of which as investment categories has grown explosively since the turn of the century.[14]

The dominating interest for investing in fixed income abroad is naturally to achieve potentially higher total return from those investments than would be possible at home. This can be because the interest rate level in other countries is more attractive than at home as Exhibit 6 details for various yield curves of a number of developed and emerging markets.

This applies particularly in phases or cycles, in which decreasing interest rates may be expected in the country of investment, such that the investor can seek to improve their return compared to the domestic market. This can be the case if the business and/or interest rate cycles do not run synchronously between the home country and the country of investment, but are rather considerably different (for example, if the country of investment has a booming economy, which the investor is expecting to cool down soon). Here, rotating between fixed income markets and currency areas can be potentially profitable for the investor.

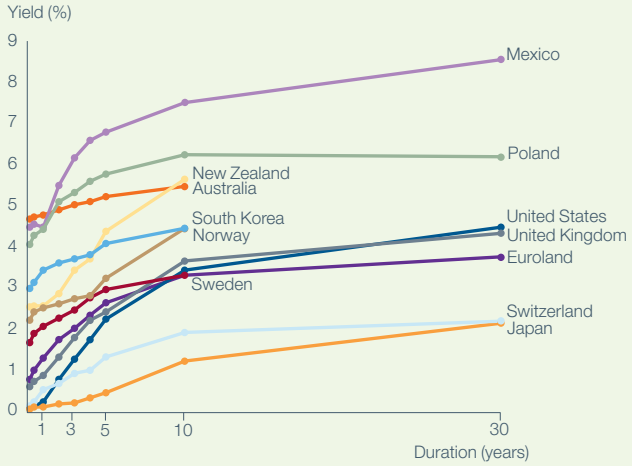
In general, the success of an investment in foreign markets consists of two components. In addition to the returns from the individual investment itself, there is the profit or loss from the appreciation or depreciation of the currency. The currency aspect is often a main motivation for international investment. The investor then relies on an appreciation of the foreign currency (or currencies) against the native currency. For example, if the domestic financial markets are unattractive because of a low interest rate environment and a heavy balance of payments deficit, the native currency may be weak and more profitable investment alternatives are available abroad. Since the investor expects currency gains abroad, they invest in currencies expected to appreciate against the native currency.

Foreign investments come under very intensive analysis because the danger of exchange rate losses may outweigh the advantages of a higher return. This is particularly true in the emerging markets. Therefore, in the case of foreign investments (as in the case of all investments but more conspicuously here), the advantages and disadvantages, and the opportunities and risks, need to be weighed against each other very critically to find an optimal balance. The risk of avoiding currency losses, therefore, must then be strategically included in decisions with regard to foreign investments.

Risk reduction through diversification plays an important role in going global. This is the implementation of the strategy of not putting all your eggs in one basket with regard to fixed income investments. The investor spreads their assets in different bond markets and currencies, which develop as independently of each other as possible. Here it is very important to diversify, particularly in those countries and segments which do not correlate too closely with the home market, especially in phases of stress, and therefore, offer a real risk diversification.[15] The diversification reduces the dependence on the individual market and thus lowers the overall risk. In fact, the more often this occurs, the more independent the individual markets are of each other.

The risk/reward ratio (measured for example by the Sharpe Ratio) can be considerably improved by interest rate and currency diversification. The international distribution has an important risk-reducing function here, even if at first glance the additional acceptance of currency risks seems to increase the overall risk. Historical experience shows that the distribution of capital in international investments has the effect of reducing risk in the long run despite additional currency risks.[16]

Exhibit 6
Selected Interest Rate Curves



As of March 31, 2011
Source: Bloomberg

There are more reasons besides the profit and diversification motives to invest globally in the fixed income markets. If investors allocate a portion of their portfolios to foreign markets, then they reduce their dependence on the home market. They can potentially profit from the different phases of the business cycles in the various countries and currency areas as well as make use of the different interest rate cycles. Markets undergoing constant change are particularly attractive at times: Investors reduce their dependence on the respective phase of the home market through international diversification. In the context of global investments, investors can actively use a possible asynchronism of the economies by rotating investments between the countries.

Moreover, international distribution permits investors to avoid the limited nature of certain markets, such as the Euroland. Here, for example, this has become even more worthwhile since 2008 in view of the crisis of the Euroland periphery. Also worth mentioning is the high yield segment of the market, plus inflation-indexed bonds, or certain securitization structures, which are available in other countries in completely different scales and depths. Among them one could include the local currency investments in the emerging markets.[17]

The financial market crisis in particular has made it clear to many investors that pure diversification of their fixed income allocation in different bond market segments within the home market is not enough to manage risk. External shocks which strongly affect the home market can be cushioned better by international distribution of investments. There are many fixed income markets in the world which have been less affected by (or correlated to) the credit crisis, while it is difficult for U.S. or Euroland investors to find properly protected areas in their own bond market. Recently, this has considerably strengthened the interest in global bond portfolios including the emerging markets.[18]

(Practical) Experiences with Global Fixed Income Portfolios

One can find various reports of experiences investing in global bond portfolios, which reveal that by investors' going global has produced mixed results. The performance results of global portfolios depend to a great extent on the strength of the native currency, various asset allocation decisions (countries, sectors, interest rate curves), and the ways of managing currency risks. In the bond area it is by no means certain that going global has to lead to more efficient portfolios straight away.[19] However, it is emphasized in almost all analyses that there are strong arguments for an allocation to global portfolios when the existing portfolio structure is built almost entirely on domestic assets.[20]

Because of the complexity of the decisions, we believe the portfolio manager and the investment process have a central importance for successfully going global. Global bonds are not a topic for passive investments based on capitalization-weighted benchmarks. The question of whether Euroland investments should include the government bonds of Greece, Portugal, or Spain at present, or whether non-European portfolios should count on U.S. government bonds, are standard tasks for the active manager. Historical experiences have shown that considerably better performance or lower risk can be achieved in the long run through the combination of various international bond markets that are less correlated with each other (the degree of synchronization of markets is referred to as "co-movement")[21], than through going global based on market capitalization (a complete diversification in global portfolios is suboptimal) or through concentrating on the home market.

The selection of suitable investment countries or asset classes is of decisive significance in the composition of global bond portfolios, because the relative profits of individual bond segments and regions to each other—the relative attractiveness—often changes rapidly from time to time. We believe it makes little sense for investors to orient themselves around bond market benchmarks when investing globally. Thus, investing in fixed income globally requires active management, particularly for active allocation decisions about countries, currencies, and sectors, given the various outcomes in the market, as shown in Exhibit 7.[22]

Neither does history provide a clear answer to the question of how one should manage currency risk in the framework of global portfolios.[23] For example, it is also not at all surprising that U.S. investors are often advised that it would have been best during a long phase of dollar strength to hedge currencies systematically in USD, whereas since the establishment of the euro (USD weakness), open currency positions would have been more successful.[24]

However, it could be argued that a part of the justification to go global is the diversifying effect of currencies; therefore, in principle, currency positions are kept open. We believe hedging decisions should only be taken if there are fundamental doubts about certain currencies or a strong appreciation of the native currency is expected. Active currency exposure can therefore be part of the bond portfolio management.[25] In this context, there is the perception that investment in currencies has found acceptance even as a separate asset class, independent of a fixed income allocation.[26]

Summary

In recent years, globalization has extended to more and more areas of life. It is therefore astonishing that investors lag far behind the developments of the real economy: Although the share of foreign investments compared to domestic investments has grown steadily in recent years, investments across asset classes still show a pronounced home bias, an over-proportional weighting of the home market. This preference for the native currency historically has been pronounced in the area of fixed income.

Scientific studies have discussed the home bias of investors in many articles. The most plausible argument for explaining the behavior of institutional investors, besides the regulatory constraints, appears to us to be that investors, because of the attempt to ensure certain asset-liability matching, concentrate their investments on their native currencies in order to keep the "mismatch" with the liabilities low on the currency side too. They are then only ready to make foreign investments if they expect considerably higher profits abroad than in their home market, or if the foreign investments are worth considering in the case of a clear diversification of risk. Currency risk can easily be hedged, however, to meet an investor's objectives as needed.

In our view these arguments recommend thinking globally even in the fixed income area. Global bond portfolios in comparison to purely domestic investments offer both the possibility of increasing returns and the possibility of reducing risk through diversification. This applies particularly when domestic interest rates are low and the interest rate curve is very flat because the number of domestic trade possibilities is limited. The range of the global bond markets, with its variety of investment alternatives, is tempting due to its diversification potential, but also due to the possibility of breaking away from the interest rate cycle of the home market. In the latest capital market crisis, global bond portfolios were generally able to fare considerably better than pure Euroland or pure U.S. fixed income strategies.

The domestic bond market is only a small part of the global bond market. The investor can find a number of investment alternatives outside the home market, which they do not find at home. Thus, from the point of view of a Euroland investor, for example, the home bond market is approximately one third of the global fixed income market. There are many sub-segments, such as the high yield market or inflation linked bonds, with a completely different volume and depth. Emerging markets debt, a particularly attractive variant of risk diversification, in our view, exists naturally only outside developed markets.

Historical experiences show that, in the case of global fixed income markets, active management is a key driver for performance and risk control. With the combination of a number of different international bond markets, which have little correlation with each other, better performance or lower risk can potentially be obtained in the long run than through going global based on market capitalization or by concentrating on the home market. Because of the complexity of the decisions involved, we believe the portfolio manager and the investment process have central importance for successfully going global in bond portfolios.

Exhibit 7
Annual Returns of Key Fixed-Income Markets (1992-2010)

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
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%	Australia 20.19%	Italy 8.27%	United Kingdom 7.26%
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%	New Zealand 17.64%	France 2.97%	New Zealand 6.86%
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%	Sweden 15.40%	Norway 2.78%	Germany 6.20%
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%	United States 13.89%	Germany 1.95%	Canada 6.18%
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%	Norway 3.69%	United Kingdom 13.58%	New Zealand 1.10%	United States 5.81%
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%	Australia 3.69%	Germany 12.30%	Japan 0.89%	France 5.23%
Australia 9.92%	Germany 14.32%	Sweden -4.74%	United Kingdom 16.50%	Norway 8.46%	Norway 7.24%	Australia 10.35%	United States -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%	Canada 12.00%	United Kingdom -0.81%	Australia 5.11%
Canada 9.50%	New Zealand 14.09%	France -5.67%	Germany 16.27%	United Kingdom 7.41%	France 7.15%	United States 10.00%	Australia -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%	France 11.83%	Sweden -1.19%	Norway 4.95%
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%	Norway 10.62%	Canada -1.71%	Sweden 2.94%
	United States 10.69%	United Kingdom -6.89%	Japan 13.29%	Japan 5.26%	Japan 6.60%	Norway 4.42%	Italy -2.59%	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%	Italy 5.81%	Australia -2.60%	Japan 2.40%
				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%	Japan 3.72%	United States -3.69%	Italy -0.82%

As of December 31, 2010

The performance quoted represents past performance. Past performance is not a reliable indicator of future results.

The table shows annual total returns of 11 major components of the Citigroup World Government Bond Index Unhedged (WGBI Unhedged), in local currency terms. The WGBI Unhedged covers the most significant and liquid government bond markets, currently including 23 government bond markets, worldwide.

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

Data Source: Citigroup

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Important Information

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An investment in bonds carries risk. If interest rates rise, bond prices usually decline. The longer a bond's maturity, the greater the impact a change in interest rates can have on its price. If you do not hold a bond until maturity, you may experience a gain or loss when you sell. Bonds also carry the risk of default, which is the risk that the issuer is unable to make further income and principal payments. Other risks, including inflation risk, call risk, and pre-payment risk, also apply. Securities in certain non-domestic countries may be less liquid, more volatile, and less subject to governmental supervision than in one's home market. The values of these securities may be affected by changes in currency rates, application of a country's specific tax laws, changes in government administration, and economic and monetary policy.

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