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Emerging markets in a new strategic benchmark index for the Government Pension Fund Global's bond investments

In its letter of 29 November 2011, the Ministry asks Norges Bank to advise on whether the strategic benchmark index for the Government Pension Fund Global's bond investments should be expanded to include emerging market currencies and, if so, which. Our advice builds on the assessments presented in our letter of 3 November 2008 on emerging bond markets and high-yield corporate bonds in the benchmark index for the Fund, our letter of 18 March 2011 on the investment strategy for nominal bonds, and our letter of 25 January 2012 on a new benchmark index for bond investments.

The objective for the management of the Fund is to achieve the highest possible international purchasing power with moderate risk. Risk is limited by diversifying investments. A benchmark index for bond investments that includes more currencies is in line with the strategic role that nominal bonds should play in the Fund.

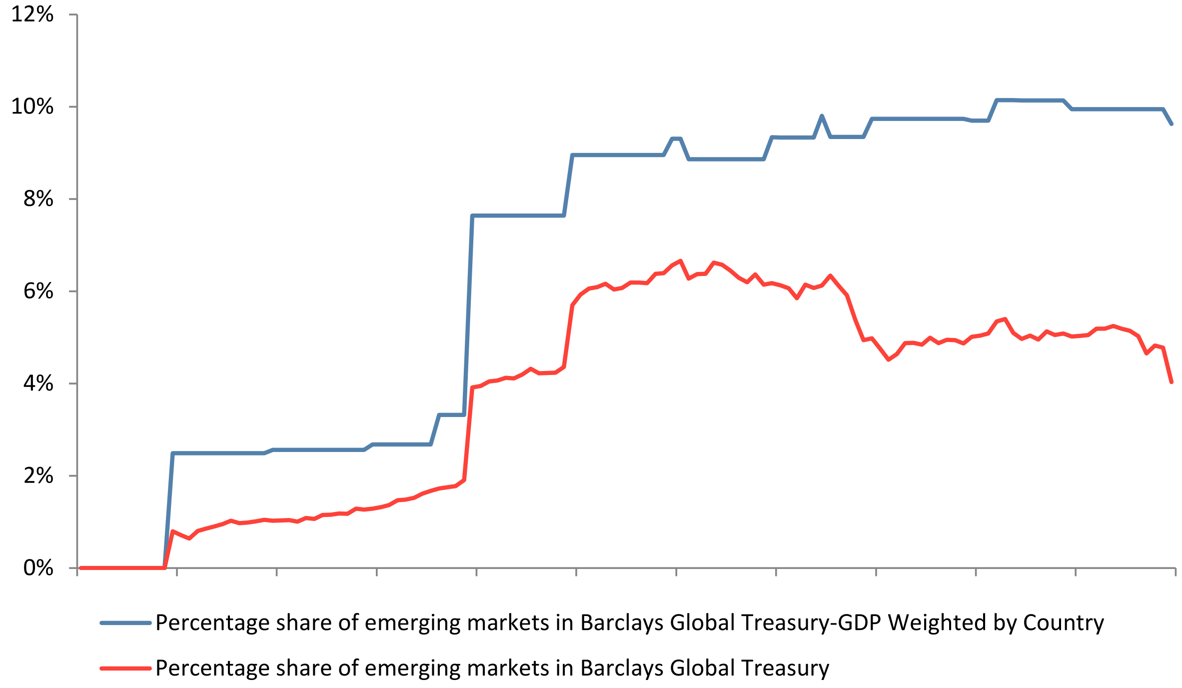
In Norges Bank's letter of 18 March 2011 on the investment strategy for nominal bonds, we stated that the strategic benchmark index should serve as a long-term yardstick for operational management and reflect the asset class's role in the management of the Fund. To ensure the greatest possible openness and transparency, the strategic benchmark index must be based on leading, readily available indices. Changes in the bond index's currency composition will have the greatest impact on risk in the bond portfolio. Expansion could improve the diversification of the bond index's risk. A natural starting point for this index is to weight markets according to each country's GDP.

<u>Expansion of the benchmark index for bonds to include new currencies</u>

In Norges Bank's letter of 3 November 2008, we undertook a broad review of bonds issued in emerging markets. We recommended at that time that the benchmark index for bond investments should not be expanded to include emerging markets. This was because many of the new bond markets would not have been sufficiently investable for the Fund to provide a basis for a strategic change.

The choice of a GDP-weighted index for government bonds as the basis for the benchmark index for government bonds means that the effect of expanding the index to include new currencies will be considerably greater than we envisaged in 2008. The proportion of emerging markets in a GDP-weighted index of government bonds is now close to 10 percent. By way of comparison, the proportion of emerging markets in a market-weighted index of government bonds is around 4 percent. This is illustrated in Chart 1.

Chart 1: Percentage of government bonds from emerging markets



Source: Barclays Capital

Enclosure 1 shows how the introduction of new currencies into the benchmark index from Barclays Capital, the index supplier, would have impacted on return and risk over the past decade. It can be seen there that the inclusion of emerging markets would have resulted in a somewhat higher return and helped improve the trade-off between return and risk when the analysis is performed in a common currency such as Norwegian kroner.

However, the Fund's return is measured in international currency. A better starting point is therefore the return in local currency and in the currency basket defined by the index. In Enclosure 1, we show that introducing investments in emerging markets would have resulted in a substantially higher return with reduced volatility during this period. The improvement in the trade-off between return and risk now appears to be greater.

These calculations are based on leading and readily available indices. A number of large emerging markets do not meet the criteria for inclusion in the most widely used indices, partly because the regulatory system means that some markets are not investable for many investors. The Fund is currently invested in bond markets such as Brazil, Turkey, India and Indonesia which are not included in readily available and transparent bond indices.

In some cases, the Fund is in a different position compared to the average investor. For example, Norges Bank has been allocated a quota for investment in India. Another example is bond investments in Taiwan, which limits investments by foreign investors in its government bonds to 30 percent of an investor's overall investments in the country. Taiwan is therefore not included in the Barclays Capital benchmark index. The Fund, on the other hand, has a substantial portfolio of equities in Taiwan, and so this restriction does not limit the Fund's options. As mentioned in our letter of 18 March 2011, we have therefore chosen to include the Taiwanese dollar in Norges Bank's operational benchmark portfolio.

Norges Bank recommends that the expansion of the strategic benchmark index for bond investments to include emerging market currencies is based on leading, readily available indices.

<u>Choice of benchmark index with new currencies</u>

The Ministry of Finance requests a separate assessment of the possibility of including all of the currencies currently included in the Barclays Capital Global Aggregate (BCGA) index. The instrument-specific criteria such as size, credit quality and liquidity are the same for this index and the Barclays Capital Global Treasury GDP Weighted by Country index, as set out in the Ministry's letters of 13 December 2011 and 30 January 2012 on a new benchmark index for the bond portfolio. The new benchmark index for bond investments is to contain both a government segment (government bonds, inflation-linked bonds and bonds issued by international organisations) and a private segment (corporate and covered bonds).

Besides the specific criteria for the selection of bonds, the index supplier performs a separate assessment of each individual currency. Emphasis is given to any restrictions on capital movements that limit investability. If a sovereign issuer no longer meets the criteria, government bonds in the currency in question will be excluded, while bonds issued by institutions and companies that still meet the criteria will remain part of the index.

The BCGA index included currencies from ten emerging markets at the end of 2011 (see Enclosure 2). Expansion of the Fund's benchmark index for bond investments to include all the currencies included in the BCGA index will improve diversification across issuers but will entail a certain weakening of the benchmark index's credit quality as currently rated by the large credit rating agencies. In a GDP-weighted portfolio of government bonds, the proportion of bonds with a credit rating of A or below will, in the event of such expansion, rise from 6.5

percent to 14.6 percent, and 3 percent of government bonds will have a credit rating of BBB (cf. Enclosure 2).

The introduction of a new benchmark index with these currencies will entail a change to the requirement set out in section 3-7 paragraph 2 of the management mandate that the Bank is to organise its management of the Fund with the aim that high-yield bonds do not exceed 3 percent of the market value of the bond portfolio.

The market for corporate bonds and covered bonds issued by financial institutions is still relatively undeveloped in many emerging markets. Emerging markets account for less than 1 percent of a market-weighted global index of bonds of these types. Norges Bank does not recommend including these new currencies in the strategic benchmark index for these types of bonds.

Norges Bank recommends that the strategic benchmark index for government bonds, inflation-linked bonds and bonds issued by international organisations is expanded to include all currencies included from time to time in the Barclays Capital Global Treasury GDP Weighted by Country index. Norges Bank does not recommend including these currencies in the strategic benchmark index for corporate and covered bonds.

<u>Introduction of a new benchmark index with a broader currency distribution</u>
In our letter on a new benchmark index for bond investments of 25 January 2012, we recommended that the transition to a new benchmark index is carried out using adjustment factors. The same method can be used if the Ministry decides to expand the benchmark index to include bonds from emerging markets. The transition can be made gradually over a period with changing factors starting from 30 June 2012.

Norges Bank recommends that a strategic benchmark index for government bonds, inflation-linked bonds and bonds issued by international organisations that includes emerging markets is phased in gradually using adjustment factors.

Yours faithfully

Øystein Olsen | Yngve Slyngstad

Enclosures

1. Return and risk characteristics
2. Presentation of the Barclays Capital Global Treasury GDP Weighted by Country index

Enclosure 1: Return and risk characteristics

(Source: Barclays Capital, Norges Bank's calculations)

Table 1: Return characteristics of the Barclays Capital Global Treasury GDP Weighted by Country index expressed in a common currency (NOK)

	Barclays Global Treasury-GDP Weighted by Country	Barclays Global Treasury-GDP Weighted by Country (developed markets*)	Barclays Global Treasury-GDP Weighted by Country (emerging markets**)
Average return (geometric, annualised)	3,42 %	3,32 %	4,28 %
Average return (arithmetic, annualised)	4,20 %	4,14 %	5,39 %
Standard deviation	9,48 %	9,79 %	9,60 %
Average return / standard deviation ratio	0,44	0,42	0,56
Max monthly return	10,67 %	11,38 %	9,20 %
Min monthly return	-5,57 %	-5,40 %	-7,13 %
Skewness* **	0,77	0,86	0,23

*Developed markets: USD, CAD, EUR, GBP, DKK, SEK, CHF, JPY, AUD, NZD, SGD
**Emerging markets: CLP, MXN, CZK, HUF, ILS, PLN, ZAR, HKD, MYR, KRW, TWD, THB
***Skewness is a statistical measure of asymmetry in the probability distribution.

Chart 1: Historical return on the Barclays Capital Global Treasury GDP Weighted by Country index in NOK

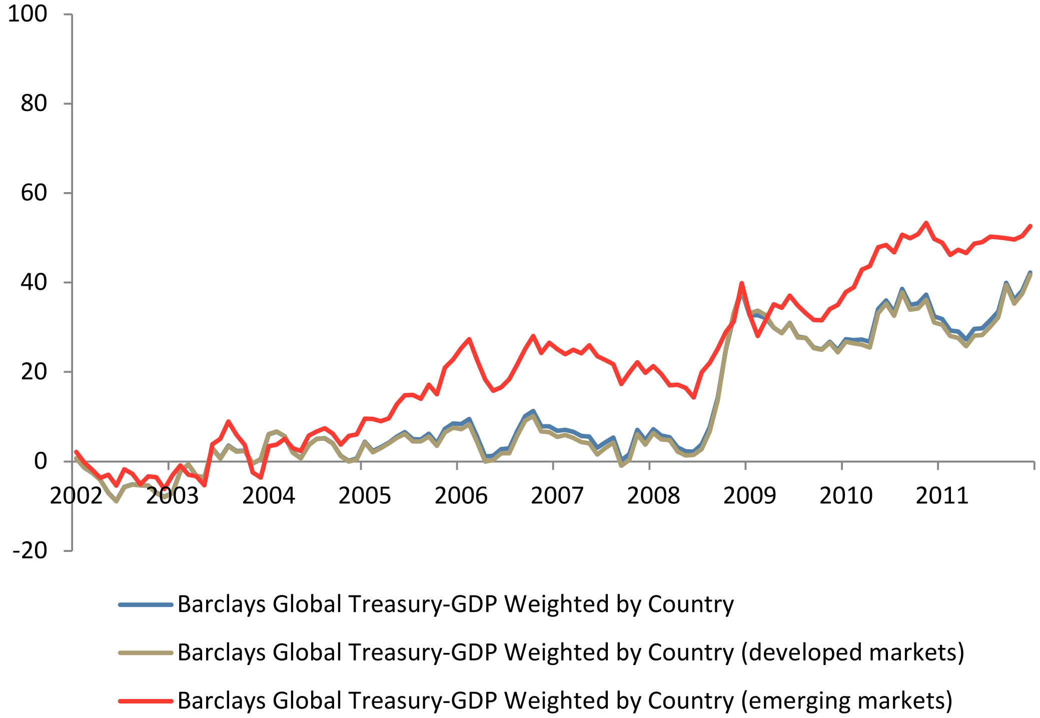

100
80
60
40
20
0
-20
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Barclays Global Treasury-GDP Weighted by Country
Barclays Global Treasury-GDP Weighted by Country (developed markets)
Barclays Global Treasury-GDP Weighted by Country (emerging markets)

Table 2: Return characteristics of the Barclays Capital Global Treasury GDP Weighted by Country index in international currency

	Barclays Global Treasury-GDP Weighted by Country	Barclays Global Treasury-GDP Weighted by Country (developed markets*)	Barclays Global Treasury-GDP Weighted by Country (emerging markets**)
Average return (geometric, annualised)	4,89 %	4,74 %	6,32 %
Average return (arithmetic, annualised)	5,16 %	5,03 %	7,01 %
Standard deviation	3,53 %	3,64 %	3,13 %
Average return / standard deviation ratio	1,46	1,39	2,24
Max monthly return	3,94 %	3,97 %	4,36 %
Min monthly return	-2,49 %	-2,53 %	-1,80 %
Skewness* **	0,10	0,05	0,49

*Developed markets: USD, CAD, EUR, GBP, DKK, SEK, CHF, JPY, AUD, NZD, SGD
**Emerging markets: CLP, MXN, CZK, HUF, ILS, PLN, ZAR, HKD, MYR, KRW, TWD, THB
***Skewness is a statistical measure of asymmetry in the probability distribution.

Chart 2: Historical return on Barclays Capital Global Treasury GDP Weighted by Country index in local currency

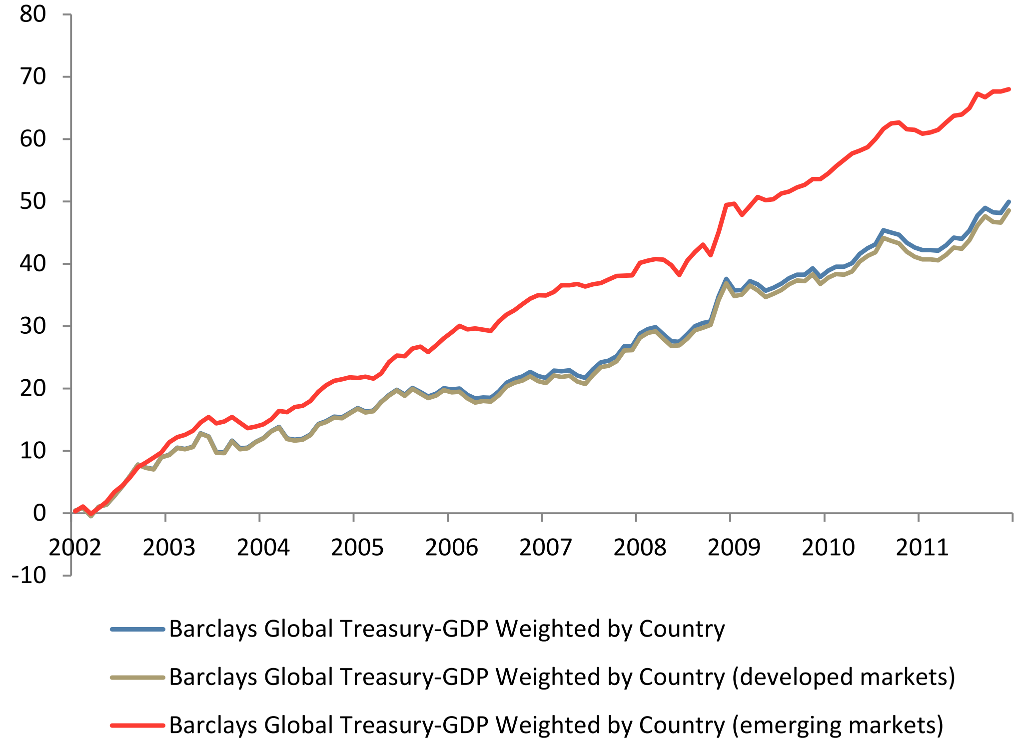


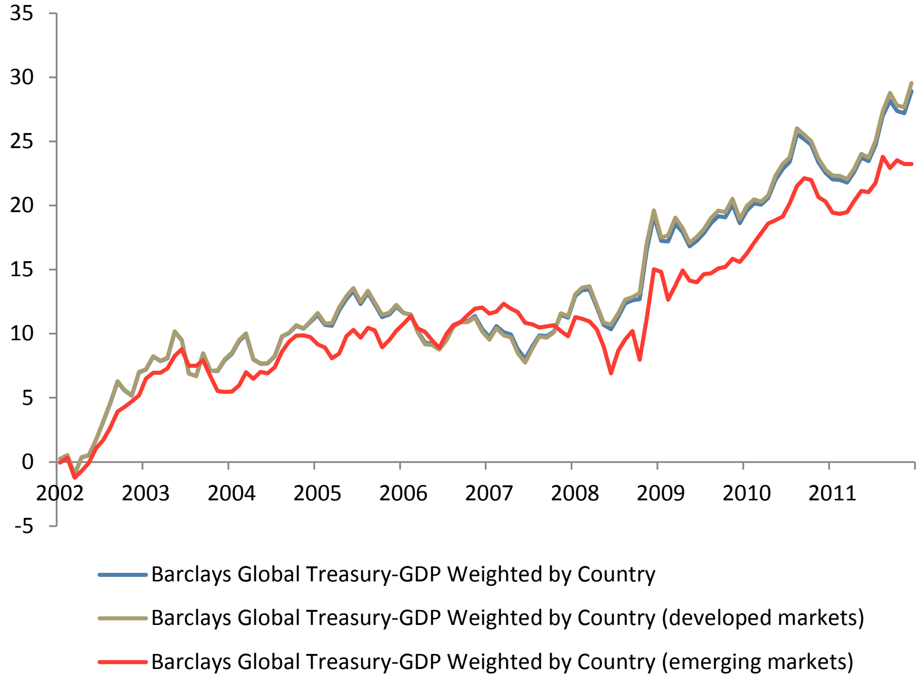
Table 3/Chart 3: Return characteristics of the Barclays Capital Global Treasury GDP Weighted by Country index in international currency adjusted for risk-free short-term interest rate

Tables 1 and 2 show a substantial improvement in the trade-off between return and risk when emerging markets are included. It is customary to adjust for the “risk-free” alternative as expressed by short-term interest rates. Emerging markets then produce a smaller improvement in the index’s risk-adjusted return. The difference is due to short-term interest rates.

	Barclays Global Treasury-GDP Weighted by Country	Barclays Global Treasury-GDP Weighted by Country (developed markets*)	Barclays Global Treasury-GDP Weighted by Country (emerging markets**)
Average return (geometric, annualised)	2,69 %	2,73 %	2,32 %
Average return (arithmetic, annualised)	2,93 %	2,99 %	2,35 %
Standard deviation	3,55 %	3,67 %	3,13 %
Sharpe ratio	0,82	0,82	0,75
Max monthly return	3,79 %	3,86 %	3,86 %
Min monthly return	-2,61 %	-2,65 %	-2,22 %
Skewness* **	0,15	0,11	0,33

*Developed markets: USD, CAD, EUR, GBP, DKK, SEK, CHF, JPY, AUD, NZD, SGD
**Emerging markets: CLP, MXN, CZK, HUF, ILS, PLN, ZAR, HKD, MYR, KRW, TWD, THB

***Skewness is a statistical measure of asymmetry in the probability distribution.



Enclosure 2: Presentation of the Barclays Capital Global Treasury GDP Weighted by Country index

		GDP Weights	Global Treasury-GDP Weighted by Country	Aaa	Aa	A	Baa
Australia	AUD	1,7	2,7	2,7			
Canada	CAD	2,9	3,5	3,5			
Chile	CLP	0,3	0,4			0,4	
Czech Republic	CZK	0,3	0,5		0,5		
Denmark	DKK	0,6	0,7	0,7			
Eurozone	EUR	24,7	28,4	17,8	4,7	5,3	0,6
Hong Kong	HKD	0,4	0,5		0,5		
Israel	ILS	0,3	0,5			0,5	
Japan	JPY	9,9	12,4		12,4		
South Korea	KRW	2,1	2,2			2,2	
Malaysia	MYR	0,4	0,5			0,5	
Mexico	MXN	1,9	2,4				2,4
New Zealand	NZD	0,2	0,3		0,3		
Poland	PLN	0,8	1,1			1,1	
United Kingdom	GBP	5,2	5,5	5,5			
South Africa	ZAR	0,6	0,8			0,8	
Singapore	SGD	0,3	0,5	0,5			
Sweden	SEK	0,9	1,1	1,1			
Switzerland	CHF	0,9	1,2	1,2			
Thailand	THB	0,5	0,7			0,7	
United States	USD	29,6	34,0	34,0			
		84,5	**100,0**	**67,0**	**18,5**	**11,6**	**3,0**
China	CNY**	7,1					
Brazil	BRL**	2,5					
India	INR**	2,2					
Russia	RUB**	2,1					
Turkey	TRY**	0,9					
Indonesia	IDR**	0,8					
		15,5					
		100,0					
Share of global GDP		**91,5**					

* Five-year average GDP (fixed 2005 prices) to 2011 (source: US Department of Agriculture).
**CNY, BRL, INR, RUB, TRY and IDR are not included in the Barclays Capital Global Treasury GDP Weighted by Country index.