Norwegian Ministry of Finance
Boks 8008 Dep.
0030 Oslo

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The benchmark index for equities – emerging equity markets

In its letter of 6 November 2018, the Ministry asked for Norges Bank's assessment of the geographical distribution and composition of the benchmark index for equities for the Government Pension Fund Global (GPFG). The Executive Board gave its advice in its letters of 21 and 22 August 2019. The Bank recommended that the benchmark index for equities should continue to include all markets in the FTSE Global All Cap index, and that its geographical composition should be adjusted further towards float-adjusted market weights. The Bank also wrote that the importance of country-specific factors in emerging markets indicates that consideration could be given to putting a ceiling on individual emerging equity markets' share of the index.

In its letter of 15 April 2020, the Ministry asked for the Bank's assessment of how such a ceiling might be designed and what consequences this would have. The Bank's response follows.

Pros and cons

The Ministry asks the Bank to assess the pros and cons of a ceiling relative to the current composition of the benchmark index for equities.

The most relevant financial risk for a long-term investor is the risk of permanent losses. A permanent loss might, for example, arise if there is an unexpected event that affects the return in one market alone. Prolonged economic crises, major natural disasters and war are examples of events that can have such an effect.[1] A ceiling on exposure to such a

[1] See Norges Bank's letter of 21 August 2019.

POSTADRESSE
PB 1179 Sentrum,
0107 Oslo

BESØKSADRESSE
Bankplassen 2,
Oslo

Tel. 22 31 60 00
Faks 22 41 31 05
www.norges-bank.no
central.bank@norges-bank.no

Organisasjons-nummer
NO 937 884 117 MVA

market would reduce the fund’s exposure to permanent losses of this kind in that market. It is hard to quantify the probability of such losses occurring or the extent to which this risk is reflected in market prices. At the same time, a ceiling could mean that the return on the fund as a whole will be lower if the market where exposure has been capped significantly outperforms the broad equity market.

Emerging markets are not a homogeneous group of markets. The term covers markets in different parts of the world with varying levels of maturity. This is reflected, for example, in different index suppliers classifying these markets differently, and these classifications changing over time. These big differences are among the reasons why, in previous analyses, we have concluded that country affiliation is more important for equity returns in these markets as a group than for developed equity markets as a group.[2]

A ceiling on the fund’s investments in one or more of the largest emerging equity markets may mean that the share of the fund exposed to developments in this region falls. Emerging equity markets currently have a lower weight in the benchmark index than either full market weights or measures of economic activity would imply.[3] This is due to lower free float and a higher share of overall value creation in emerging markets taking place outside the listed market.

Other options
The Ministry asks the Bank to consider whether a ceiling would be more appropriate than other adjustments to the index.

The Bank assessed various methods and rules for the composition of the subindex for emerging equity markets in its letter of 22 August 2019. The alternatives assessed were constructed using transparent and verifiable criteria such as size of market, size of company, size of economy, and the degree of development as defined by the index provider. The Executive Board’s advice was that the current method and rules should be retained, but that the importance of country-specific factors suggested that consideration could be given to putting a ceiling on exposure to individual markets.

We still believe that a ceiling is the most appropriate approach if the Ministry wishes to limit the fund’s financial exposure to individual markets.

Formulation in the management mandate
The Ministry asks the Bank to consider how such a ceiling might be formulated in the management mandate for the fund.

A ceiling on the equity index’s exposure to individual markets should be expressed as a percentage of the benchmark index for equities. Exposure should be permitted to move

[2] Further information can be found in NBIM Discussion Note 1/2019, available at www.nbim.no.
[3] See Chart 1 in the enclosure.

away from this percentage during the course of the year.

The equities in the benchmark index are currently assigned adjustment factors based on country of origin. A ceiling on a specific market should be implemented as an adjustment of the factor assigned to equities in that market (the country factor). The proposed solution builds on the principles underlying the composition of the fund's benchmark index for equities and permits the most cost-effective implementation of such a ceiling.

The fund's benchmark index for equities is defined in Section 2-3 of the management mandate. The Bank's recommendation for the design of such a ceiling can be reflected in the mandate with the following formulation: *"If the equity index's exposure to a specific emerging equity market at the end of month n exceeds X percent, the adjustment factor assigned to equities in that market shall be reduced at the end of month n+1. The new adjustment factor shall be set such that exposure to that market falls below X percent."*

If a market in the index is reclassified from developed to emerging or vice versa, a special assessment should be made of what consequences this should have, including for how the adjustment to a new adjustment factor should be implemented.

The changes to the management mandate proposed by the Bank mean that capital withdrawn from a market as a result of a ceiling is distributed between all of the other markets in the benchmark index in line with their weight in the index.[4] This means that capping exposure to one or more emerging equity markets would reduce the share of the fund invested in the region.

Alternatively, the capital could be divided between the other emerging equity markets in the benchmark index. In practice, that would entail establishing a new sub-index with a separate allocation. Such a change would be a break with the other principles for allocation to individual markets set out in the management mandate.

Such an approach would also increase the benchmark index's average ownership share in emerging equity markets where exposure has not been capped. The lower the ceiling is set, and the more markets affected by the ceiling, the higher these ownership shares would be. Higher ownership shares in the markets where exposure has not been capped may make the benchmark index less investable for the fund in the longer term. This could be a challenge particularly if the index provider decides to include a substantially increased proportion of the stocks in the Chinese equity market.

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[4] Cf. Section 2-3 (3) of the mandate.

Effects on return, risk and transaction costs

The Ministry asks the Bank to estimate the impact of a ceiling on the benchmark index's historical and expected return and risk, and on transaction costs.

The largest emerging equity market currently makes up around 5 percent of the fund's benchmark index for equities. In the enclosure, we show the effect of a ceiling set at that level and four alternatives, based on various assumptions. We have set the ceiling lower than today's exposure in two cases (1 and 3 percent) and higher in the other two (7 and 9 percent).[5] Since emerging markets have historically made up a smaller part of the benchmark index than today, the calculations are based on the weights in the current benchmark index for equities.[6] We find that the impact on historical return and risk (before costs) has been small[7]. The calculations also show that transaction volumes, and hence the cost of tracking the benchmark index, will increase somewhat with a ceiling, especially if it is set at a low level.

The minor differences in historical return and risk are a result of a relatively strong correlation between the global equity market and the market where exposure has been reduced due to the ceiling.[8] The capped market also makes up a relatively small part of the benchmark index. There is, however, reason to believe that this will change in the future. The impact on the fund's overall return and risk may therefore be greater than shown here.

The benchmark index's exposure to the largest emerging equity market consists of a number of equity classes that have historically produced different returns and correlated differently with the global equity market.[9] These differences have decreased in recent years, however, as a result of China A shares being included in global equity indices and becoming more available to foreign investors. This trend is expected to continue.

Summary

Any ceiling on the fund's exposure to individual emerging equity markets should be expressed as a percentage of the benchmark index for equities and can best be reflected in the management mandate as a change to the adjustment factor assigned to equities in the market in question. The mandate should include a provision that ensures that this factor is reviewed annually.

A ceiling of 5 percent would mean only minor changes from the current index and could in principle be implemented with limited transaction costs. The lower the ceiling is set,

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[5] See Table 1 in the enclosure.
[6] See Chart 1 in the enclosure.
[7] The Bank's long-term estimates of the return and risk characteristics of equity investments can be found in the Bank's letter of 1 December 2016.
[8] See Chart 2 in the enclosure.
[9] See Chart 3 in the enclosure.

the higher the transaction costs and the greater the deviation from the broad global equity index that the fund uses as a starting point for the benchmark index. Our calculations show that this applies particularly if the ceiling is set below 3 percent.

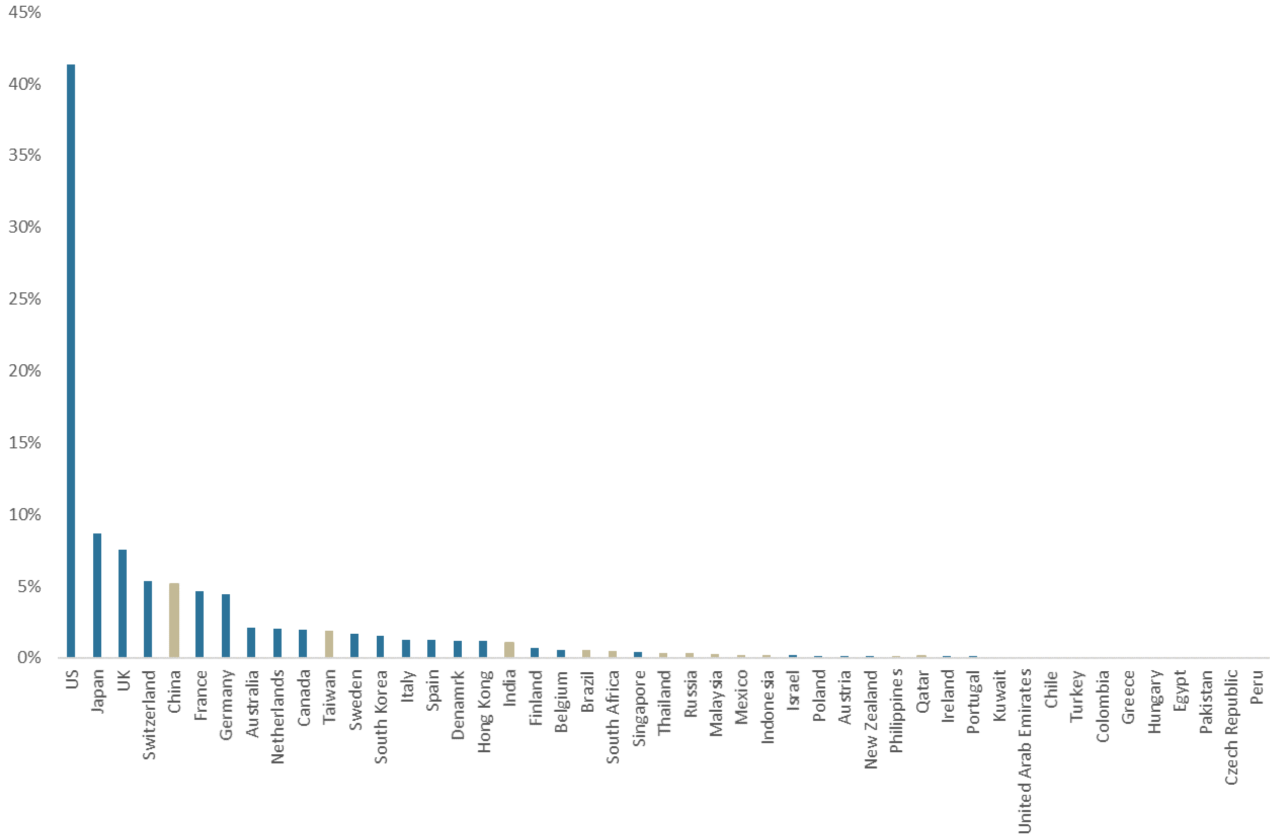
Yours faithfully

Øystein Olsen | Jon Nicolaisen

Enclosure

Enclosure

Chart 1: Composition of the GPFG's benchmark index for equities



Source: FTSE

Chart 1 shows the weights in the fund's benchmark index for equities at the end of May 2020, when the index included 47 markets: 24 developed and 23 emerging. A total of 18 markets had a weight in the index of more than 1 percent. Three of those were classified as emerging: China, Taiwan and India. Equities in the benchmark index are assigned country codes on the basis of rules set by FTSE. Equities with the country code for China (CN) include Chinese shares listed on the Hong Kong exchange (H shares, red chips and P chips), shares listed on the Shenzhen and Shanghai exchanges that are traded in Hong Kong dollars and US dollars respectively (B shares), shares traded on the Shenzhen and Shanghai exchanges in local currency (A shares) and shares in Chinese companies listed on exchanges in the US and Singapore (N shares and S chips). A not insignificant part of the shares assigned the country code CN are registered in the Cayman Islands.

Table 1 A: Impact of a ceiling based on historical performance

	No ceiling	1% ceiling	3% ceiling	5% ceiling	7% ceiling	9% ceiling
Annualised return before transaction costs	10.47 %	10.54 %	10.50 %	10.47 %	10.47 %	10.47 %
Annualised standard deviation	14.21 %	14.20 %	14.20 %	14.21 %	14.21 %	14.21 %
Turnover		4.9 %	1.7 %	0.0 %	0.0 %	0.0 %
Number of markets capped		3	1	0	0	0

Table 1 B: Effect of a ceiling based on historical performance, but with a higher starting weight for China

	No ceiling	1% ceiling	3% ceiling	5% ceiling	7% ceiling	9% ceiling
Annualised return before transaction costs	10.45 %	10.57 %	10.52 %	10.49 %	10.46 %	10.45 %
Annualised standard deviation	14.18 %	14.17 %	14.16 %	14.17 %	14.18 %	14.18 %
Turnover		7.6 %	4.4 %	2.4 %	0.4 %	0.0 %
Number of markets capped		3	1	1	1	0

Source: FTSE Russell and Norges Bank Investment Management

Table 1 shows what the impact of a ceiling of 1, 3, 5, 7 or 9 percent would have been if the market distribution in the benchmark index had been the same ten years ago as it is today, and if the returns in these markets had moved in the same way as they have done over the past decade. We have used monthly data and measured the return on the benchmark index in US dollars with and without a ceiling. Exposure has been measured against the ceiling at the end of December each year. The results of this type of calculation will depend on the time period chosen. Turnover measures the proportion of the benchmark index for equities that we would have needed to sell in the markets where exposure is capped as a result of a ceiling. The capital released through these sales is distributed evenly between all of the other markets in the benchmark index. The total transaction volume is therefore twice that shown by the turnover figures in the table. FTSE currently assumes that only 30 percent of China A shares are available to foreign investors, and has included only 25 percent of these shares considered available in the FTSE Global All Cap index. Table 1 A is based on how China A shares are currently represented in the fund's benchmark index. Table 1 B shows the effect if FTSE were to increase the proportion of China A shares included from 25 to 100 percent.

Chart 2: Three-year rolling correlation with a global equity index from MSCI

Source: MSCI and Norges Bank Investment Management

Chart 3: Three-year rolling correlation with a global equity index from MSCI

Source: MSCI and Norges Bank Investment Management