The following letter was submitted to the Ministry of Finance on 6 February 2003

New evaluation of emerging equity and bond markets

1. Background

In a letter dated 20 September 2002, the Ministry of Finance requested Norges Bank to evaluate whether the Government Petroleum Fund should expand the country list to include additional countries. The evaluation should cover both emerging equity and bond markets.

Emerging equity markets are analysed in several of Norges Bank's submissions to the Ministry of Finance[1]. On the basis of Norges Bank's recommendations, the country list for equity investments was expanded to include Brazil, Mexico, Greece, Turkey, Taiwan, South Korea and Thailand with effect from 1 January 2000. With the exception of Thailand, the same countries were included in the benchmark index for the equity portfolio from 1 February 2001. Greece was later reclassified from an emerging market to a developed market. In 2002, six emerging equity markets were thus included in the Fund's investment universe, and five markets in the benchmark index. These five markets accounted for altogether 1.7% of the strategic benchmark index for equities at the beginning of 2002. The universe of emerging equity markets is defined as the 29 markets that are included in one of the global indices for emerging markets[2].

[1] 16 March 1999, 26 August 1999 and 30 August 2000.
[2] FTSE all-world, Salomon Smith Barney World Equity Index, MSCI world or S&P/IFC Investable Index.

The management mandate for emerging bond markets has traditionally been concentrated on bonds issued by sovereign states or other issuers from countries classified as emerging markets, but issued in US dollars or another international currency. The benchmark index for bonds was expanded from 1 February 2002 to include all types of issues with a minimum investment grade credit rating. As a result, issuers from countries classified as emerging markets with an approved credit rating have been included in the Fund's investment universe and benchmark index. These issuers account for about 0.9% of the benchmark index and are primarily sovereign states. Investments in bonds issued in an emerging market's currency have been less common among international fund managers. So far, such investments have not been permitted in the Petroleum Fund. This submission provides an evaluation of to what extent such investments should be permitted in the benchmark index and investment universe. It is assumed that any expansion shall satisfy existing credit risk requirements. Like emerging equity markets, the potential is defined as the local markets that are included in at least one of the standard global indices[3].

[3] Such indices are supplied, for example, by JP Morgan, Salomon Smith Barney, Merrill Lynch, MSCI and Lehman Brothers.

2. Criteria for evaluating an expanded country list

Evaluations of new emerging markets in this submission will be based on the methodology for market selection that is documented in earlier submissions to the Ministry of Finance. This means that, when assessing an expanded country list, emphasis will be placed on three factors:

i) The markets must be open to foreigners, have legislation that protects investors' rights and satisfy certain minimum requirements concerning
   - settlement systems
   - size
   - liquidity

ii) A certain degree of political and macroeconomic stability must exist in those countries in which investments are made in order to limit country risk

iii) It is also necessary to evaluate the effect of including new countries on the Petroleum Fund's return and risk

Annex 1 shows updated figures for indicators that were presented in earlier submissions concerning emerging equity markets. The annex also presents indicators that attempt to measure the quality of legislation and settlement systems in emerging equity markets. All emerging equity markets that are defined as investable in at least one of the large global equity indices are included in the review.

The indicators used to assess the various markets' settlement systems and political/macroeconomic stability are obtained from external sources. They attempt to measure factors of financial importance to international investors. This means that possible signal effects of permitting investments in the various countries and other issues of a political nature are not evaluated in this submission.

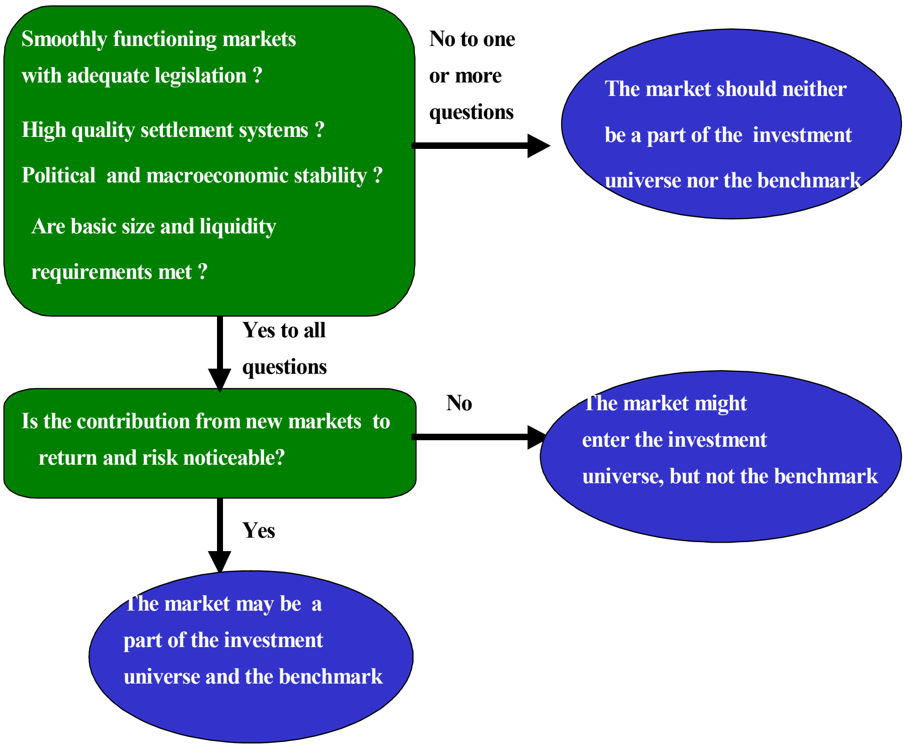
This submission analyses the size and liquidity of local emerging bond markets. The consequences for the portfolio's expected return and risk are also evaluated.

Norges Bank finds it appropriate to distinguish between to what extent a market should be included in the investment universe and to what extent it should be included in the benchmark index. The requirement concerning smoothly functioning markets with adequate legislation that safeguards investors' rights applies to all of the investments made on behalf of the Petroleum Fund, irrespective of whether the market is included in the benchmark index. The quality of settlement systems in the various markets is an important factor that must influence the actual investment universe. However, requirements with regard to size and liquidity may be differentiated according to what extent the market is included in the benchmark index or not. The Petroleum Fund's benchmark index is already broadly diversified across asset classes, regions, sectors in the equity market and issuer categories in the bond market. A further expansion of the benchmark index to include small markets cannot be expected to increase the return to any significant extent for the same risk in the portfolio. Since transaction and management costs rise with an increase, new markets should therefore be of a size that makes it possible to measure the effect on the expected return and risk.

There are clear incentives for a manager to buy a broad portfolio of securities in a market approximately in proportion to the representation in the benchmark index. If the market is included in the benchmark index stipulated by the Ministry of Finance, Norges Bank, as manager, takes a risk if the Bank fails to invest a proportionate amount of the portfolio in this market. Conversely, if the market is not included in the benchmark index, Norges Bank must use its allocated risk quota to invest in the market. In the latter case, Norges Bank and the Bank's external managers will make a separate evaluation of the potential return for each security, in which account is also taken of expected transaction costs.

Chart 1 outlines the approach that will be used in this submission when evaluating whether the investment universe and benchmark index should be expanded.

Chart 1: Selection process



3. Emerging equity markets

In this section, indicators are used to measure various factors relating to the requirement that the Petroleum Fund shall invest in smoothly functioning markets with adequate corporate, stock exchange and securities legislation. The evaluations are presented further in annex 1. The evaluations are grouped according to the three main criteria listed in section 2: i) minimum requirements regarding settlement systems, liquidity and size; ii) macroeconomic stability and iii) effects on the Petroleum Fund's total return and risk.

3.1 Evaluation

3.1.1 Quality of settlement systems

Requirements regarding security in the settlement system and financial market legislation must be considered absolute in the Ministry of Finance's review of permitted markets. Markets that do not satisfy the stipulated requirements should not be included in either the investment universe or the benchmark index.

In this submission, Norges Bank will base its assessments of the quality of settlement systems in the various markets on GSCS[4]. GSCS' ranking of markets is based on evaluations obtained from all leading global settlement institutions. This is a point in favour of using this ranking as a basis instead of using an individual institution's evaluation. GSCS is used as the reference for the quality of settlement systems in emerging markets, for example in the extensive annual publication "Emerging Stock Markets Factbook"[5]. In 1999, it was difficult to use GSCS for all markets since a number of emerging markets were not quantitatively evaluated by GSCS at that time. Since then, the market coverage has been expanded considerably. GSCS' ranking of markets is shown in annex 1 and described further in annex 2.

[4] GSCS Benchmarks is a department of the British publisher Fow Ltd.
[5] Previously published by the International Finance Corporation, but taken over by Standard & Poor's in 2000.

In the submission of 16 March 1999, it was pointed out that markets that had a score for operational risk of 70 or better was characterised as "strong" by GSCS. In the submission, however, the scoring requirement for being considered relevant for the Petroleum Fund was set at 65, partly to avoid the initial exclusion of too many markets.

In the overall evaluation, some revision of this methodology is now being proposed. In general, it is assumed here that if GSCS gives a market a score for operational risk that is 65 or better, the market is defined as satisfying the Petroleum Fund's requirements, irrespective of other rankings. If the market has a score that is lower than 60, the marked is excluded irrespective of other rankings. If the market has a score of between 60 and 65 or has not been evaluated at all by GSCS, the market must satisfy minimum requirements that have been established for ranking by the two global custodian institutions which have made their evaluation systems available to Norges Bank (JP Morgan Chase and Citibank). The quality requirements of JP Morgan Chase's evaluation system are unchanged in relation to those presented in Norges Bank's submission of August 1999. Citibank's evaluation system is described in annex 1. Citibank grades the markets from 1-3 (1 is best). It is a requirement here that the market has a score of 1 or 2. Citibank defines settlement risk for markets that are in category 3 as "unacceptably high".

The following emerging markets have a score from GSCS of 65 or better in relation to operational risk, ranked according to GSCS' scores:

> South Korea, Taiwan, South Africa, Pakistan, Malaysia, China, Mexico, Poland, Israel, the Philippines, Thailand, Indonesia, Peru, Turkey, Czech Republic, Brazil and Hungary

The following emerging markets have either a GSCS score of between 60 and 65 or no score at all, but satisfy both of the supplementary requirements that are referred to above:

> India, Chile, Columbia, Egypt, Morocco and Slovenia

Among these countries, only India has been given a score by GSCS.

3.1.2 Size

In Norges Bank's view, the requirement regarding size for the inclusion of emerging markets in the benchmark index should be fairly stringent. First, smaller emerging markets do not make a noticeable contribution to risk diversification. Second, the inclusion of new markets in the benchmark index will automatically make demands of operational resources and will also result in additional operating expenses for the custodian and account maintenance. One practical way to take these costs into account would be to set a limit for inclusion that is stricter than that which applies to developed markets. This principle seems reasonable since the management costs of investing in emerging markets are higher than for investments in developed markets. In the evaluation of new markets in 1999, the size of the Portuguese equity market at the time was used as a criterion for including additional markets in the investment universe. The Portuguese and the Norwegian equity market are approximately the same size. This is then based on the portion of the market that is actually available to institutional investors. It may be an advantage to use an average of the size of the least developed markets. This makes the comparison criterion less sensitive to special changes in a specific market. An average of the five developed markets in the Petroleum Fund's benchmark index with the lowest market capitalisation at any one time would over the last few years correspond to the size of Portugal and Norway. In relation to the FTSE's index, this average market capitalisation was USD 27.3 billion at the end of 2001 and USD 23.6 billion on 31 December 2002. The requirement should also be stipulated as an average over a certain period. This will provide greater stability in the evaluation than if the requirement is set at a specific date. This was the approach applied in the evaluation of size in Norges Bank's submission to the Ministry of Finance of 30 August 2000.

South Africa and Malaysia are the only markets outside the benchmark index with an average market capitalisation over the past three years that is higher than the average market capitalisation of the five developed markets with the lowest market capitalisation[6]. The equity market in South Africa is considerably larger than a number of the emerging markets in the current benchmark index and also considerably larger than the Malaysian market. Turkey, which is included in the existing benchmark index, has a market capitalisation that is substantially lower than this threshold value. Turkey was qualified according to the size criterion when the previous evaluation was made on the basis of average market capitalisation in the period 1996-1998. The conclusion is different now, primarily because the comparison is now being made using free float adjusted stock market data. More than 60% of the Turkish stock market is excluded when free floating adjustments are used. By way of comparison, about 24% of the global stock market is excluded[7]. The Turkish equity index has also shown weaker developments from the period 1996-1998 to the present time than the average for the rest of the world.

[6] For Malaysia, an average market capitalisation has been used from 30 July 2000 and compared with the average for the five least developed markets in the same period. The criteria for Malaysia's country index deviated from other stock markets in the early months of 2000. The index values are therefore not comparable in the period January-June 2000.
[7] Source: Salomon Smith Barney Global Equity Index, December 2002.

Extra transaction costs are incurred when entire markets are added to or removed from the benchmark index. Annex 1 provides further estimates of transaction costs for buying or selling an equity portfolio in new emerging markets.

3.1.3 Liquidity

An average of the five developed markets with the lowest turnover amount per trading day and lowest turnover rate amounts to, respectively, USD 139 billion/33.5% in 2000 and USD 79 billion/31.0% in 2001.

The emerging markets that have a liquidity ratio measured according to <u>either</u> turnover amount per trading day or turnover rate in <u>both</u> 2000 and 2001 that is higher than the defined limits are:

Markets that are represented in the existing benchmark index:

Taiwan, South Korea, Mexico, Brazil, Turkey

Markets that are not represented in the existing benchmark index:

Thailand, South Africa, Malaysia, Israel, India, Russia, Hungary, Czech Republic and Pakistan

3.2 Macroeconomic and political stability

Macroeconomic and political stability has been discussed in earlier submissions concerning emerging markets. Previously, however, there were no explicitly defined requirements that the various markets had to satisfy in this area in order to be included in the Petroleum Fund's investment universe and benchmark index.

Annex 1 presents various indicators that rank each country in relation to macroeconomic and political stability. Factors that are measured are different in the various indicators. These indicators must therefore be considered complementary and not as alternative indicators. The indicators presented were obtained from World Economic Forum's "Global Competitiveness Report", from the journal *Euromoney* and from the credit rating agencies Moody's, Standard & Poor's and Fitch IBCA.

Turkey, which is included in the Petroleum Fund's benchmark index, is among the relevant emerging markets with the lowest score in the various indicators. Brazil's position is also weaker than an average of all emerging markets that are being analysed in this submission. On the other hand, emerging markets in Central Europe (Poland, Hungary, Czech Republic, Slovenia) as well as Chile, Israel, South Africa, Malaysia and China have scores on a par with or better than the average of the emerging markets that are already included in the Petroleum Fund's investment universe.

3.3 Trade-off between return and risk

Table 1 shows average (arithmetic mean) monthly returns and the standard deviation of returns in the 11 largest emerging equity markets plus Turkey and Thailand. This is compared with corresponding figures for the Norwegian equity market in the same period. The table also shows the highest and lowest monthly returns in the period as well as the confidence interval for average returns.[8]

[8] It is assumed here that the return follows a stochastic pattern and is normally distributed. The confidence interval is defined as $X = \bar{\mu} +/- \frac{S}{\sqrt{N}}$, where $\bar{\mu}$ is the arithmetic average return in the period, S is the standard deviation of the return and N is the number of months in the period.

Table 1: Key financial figures, emerging markets 1994-2002[9]

Country	Average monthly return	Standard deviation	Max. monthly return	Min. monthly return	Average monthly return – confidence interval	
Taiwan	-0.1 %	9.9 %	30.7 %	-21.7 %	0.9 %	-1.0 %
South Korea	1.1 %	14.5 %	69.7 %	-31.1 %	2.4 %	-0.3 %
South Africa	0.7 %	8.4 %	19.7 %	-28.8 %	1.6 %	-0.1 %
Mexico	0.4 %	10.4 %	20.9 %	-35.0 %	1.4 %	-0.6 %
Brazil	0.5 %	13.1 %	43.0 %	-41.1 %	1.8 %	-0.8 %
Malaysia	-0.1 %	12.1 %	53.2 %	-32.0 %	1.0 %	-1.3 %
Russia	1.6 %	20.3 %	53.8 %	-62.5 %	4.1 %	-0.9 %
China	0.7 %	11.9 %	51.5 %	-26.2 %	1.8 %	-0.4 %
India	-0.1 %	8.2 %	22.8 %	-16.7 %	0.7 %	-0.9 %
Israel	0.6 %	7.3 %	15.7 %	-18.7 %	1.3 %	-0.1 %
Chile	0.0 %	7.1 %	18.2 %	-25.3 %	0.7 %	-0.7 %
Turkey	1.7 %	19.0 %	73.5 %	-41.0 %	3.5 %	-0.2 %
Thailand	-0.6 %	16.5 %	60.4 %	-36. 0 %	1.1 %	-2.3 %
Norway	0.6 %	6.3 %	16.7 %	-27.9 %	1.2 %	0.0 %

[9] Source for the returns series: FTSE World (in USD) from 31 December 1993, Brazil from December 1994, Thailand from December 1994 and Russia from July 1997.

The table illustrates that emerging markets have been more risky than a developed market like Norway when the markets are assessed in isolation. Variations in returns from month to month are greater. When large positive or negative effects are recorded, the effects are greater in emerging markets. The confidence interval for the expected future average return in the various markets is therefore also greater in emerging markets when historical returns series are used as a basis for the estimate. At the same time, there are considerable differences between the various emerging markets. The table shows, for example, that Turkey, which is included in the benchmark index, is one of the markets that has both the highest standard deviation and the highest extremely positive or negative result in any one month. On the other hand, the risk in markets such as South Africa, India, Israel and Chile has not been substantially higher than in Norway in the period to which the figures apply.

For the Petroleum Fund, the markets' contribution to the portfolio's overall return and risk is more important than the return and risk in the markets in isolation. Even if a market has higher risk than other markets, the overall effect for the portfolio's total risk may still be positive. However, very favourable diversification effects are required.

The inclusion of new emerging markets in the Petroleum Fund's benchmark index in relation to market capitalisation must be expected to have only marginal effects on the Fund's total return and risk, even if the risk in each market may in isolation be substantial. This is because of the size that these countries combined will constitute in a market-weighted benchmark index. The emerging markets that are represented in the benchmark index account for 2.4% of the World Index. All other emerging markets that satisfy the defined requirements for quality of the settlement system and legislation account for 1.8% of the FTSE's World Index.

Table 2 shows the annualised return (arithmetically weighted monthly data) and the standard deviation of an equity portfolio consisting of all developed equity markets where the new regional distribution is applied. This is compared with portfolios that are expanded to include a varying number of emerging markets:

- the four largest markets in the existing benchmark index (Taiwan, South Korea, Mexico and Brazil)
- the five largest markets (above-mentioned markets and South Africa)
- the six largest markets (Malaysia in addition to the five largest)
- the ten largest markets with approved standard for settlement system/legislation

Each market is weighted according to market capitalisation.

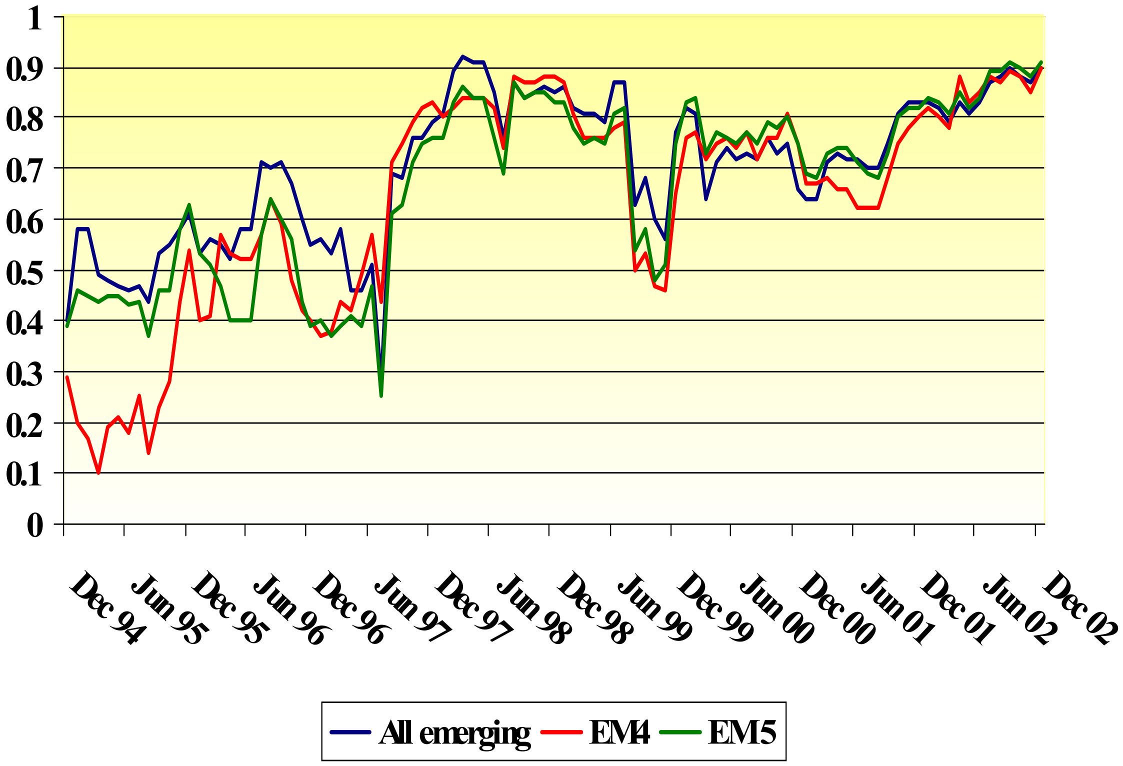
Table 2: Historical returns and volatility, monthly data 1994-2002 (in USD)

Portfolio	Developed only	Developed + 4 EM	Developed + 5 EM	Developed + 6 EM	Developed + 10 EM	World Index (FTSE all-world)
Return	6.5 %	6.4 %	6.4 %	6.2%	6.2 %	6.1 %
Volatility	14.9 %	15.0 %	15.0 %	15.0 %	15.0 %	15.0 %
Annualised tracking error against the world index	58 bp	39 bp	28 bp	13 bp	11 bp	0 bp

The differences in the expected return and risk are entirely marginal.

Chart 2 shows the correlation between emerging markets combined and developed markets in the same period. The correlation is shown for the three different portfolios of emerging markets, i.e. the four (in relative terms) large markets that are included in the existing benchmark index (Brazil, Mexico, South Korea and Taiwan, in the chart called “EM4”, the same four plus South Africa, in the chart called “EM5”, and the sum of all emerging equity markets in the FTSE’s all-world index.

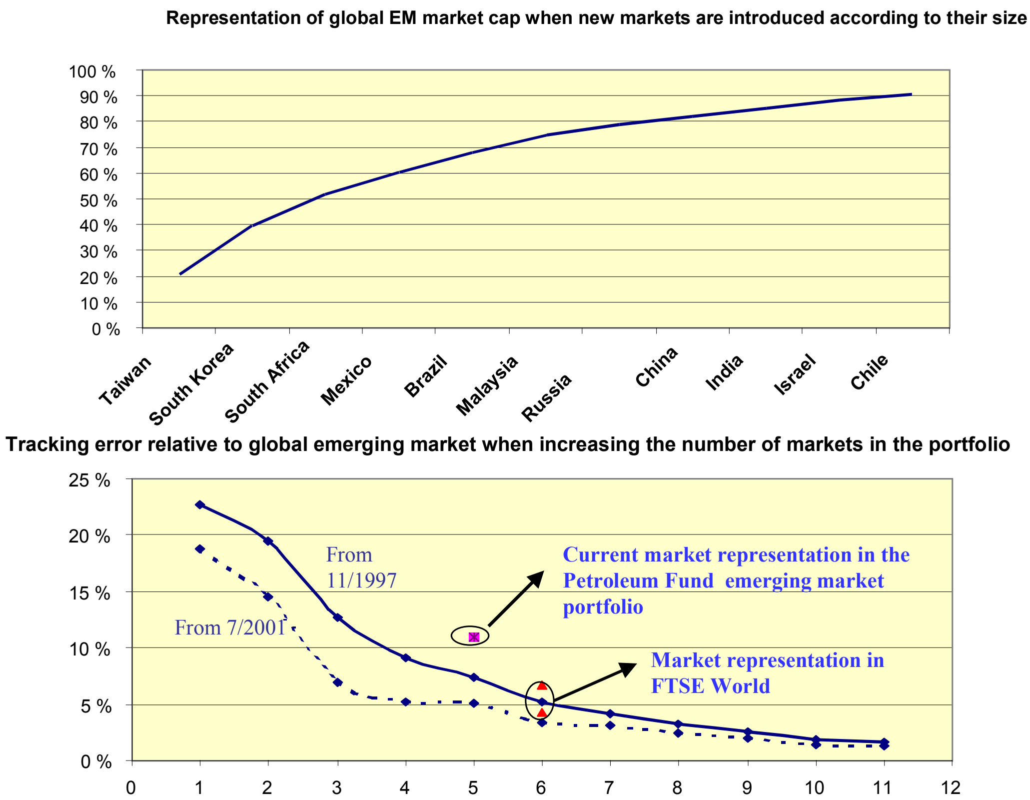
Chart 2: Correlation between developed and emerging equity markets



The chart shows that the correlation between emerging and developed markets has increased over the past ten years. Diversification gains between developed and emerging markets have, in other words, been reduced.

Chart 3 analyses further the marginal improvement in representation of including emerging markets in the benchmark index compared with the universal portfolio of emerging equity markets when the number of markets in the index increases by one at a time. Country weightings in the universal portfolio are kept constant throughout the period, equal to the current country weightings in the FTSE all-world emerging markets at the end of 2002. The markets are included in the portfolio one at a time, with the largest markets first. The analysis is carried out for two different periods. The solid line shows how the tracking error of the index for the entire universe of emerging markets is reduced in the period November 1997-December 2002 by including one country at a time in the benchmark index. This period is the longest period for which data on returns are available for all 25 countries that are included in the FTSE all-world emerging markets at 31 December 2002. The dashed line shows the same for the period from July 2001, which is the period for which each of the various country indices has been free float adjusted. The tracking error for the entire universe of emerging markets is also shown for the country list in the existing benchmark index (5 markets) as well as the country list in the FTSE all-world (6 markets (see description in section 3.4).

Chart 3: Marginal reduction in tracking error for the universe of all emerging markets by increasing the number of countries in the benchmark index



In both periods, the tracking error for the entire universe declines sharply with the inclusion of each of the 3-4 largest markets. However, for each new market that is included after this, the marginal improvement tapers off. The tracking error has been lower in the past 1½ years irrespective of the number of markets. The existing benchmark index does not show the same shift in level in the past 1½ years as the curve of market-weighted indices and the FTSE World. The difference between the existing benchmark index and a market-weighted portfolio with the same number of markets (5) is that South Africa is omitted and Turkey included in the benchmark index.

The marginal gain in relation to representation must be weighed against higher transaction costs with the inclusion of additional countries in the index. A change in the benchmark index results in a need to adapt the entire portfolio. This results in one-off adaptation costs that affect the entire portfolio. Transaction costs will then increase at the margin with the investment of capital that is allocated to the Fund because new emerging markets must be expected to have higher transaction costs than the average level in the existing benchmark index.

Table 3 shows estimates for transaction costs per market if the Petroleum Fund were to buy an equity portfolio in the markets based on the size of the Petroleum Fund and the market at the end of 2002. The markets that satisfy the criteria in sections 3.1.1-3.1.3, and which are not included in the existing benchmark index, are included in the table. The table also shows figures for Turkey. Transaction costs consist of a commission, half of the bid-offer spread in the market and an estimated negative market impact. The last element is estimated in a separate transaction cost model and is very uncertain.

Table 3: Estimated transaction costs per market (costs in basis points of the portfolio's size per market)[10]

Country	Commission and 50 % of bid-offer spread	Estimated market impact	Total costs[11]
Chile	95	93	133
Poland	59	41	81
Czech Republic	77	40	80
Hungary	124	98	138
Turkey	84	92	132
China	84	97	137
India	55	40	80
The Philippines	106	138	178
Malaysia	73	94	124
Thailand	121	93	133
Israel	59	66	106
South Africa	44	64	84

[10] Sources: SSSB Stockfacts Pro/Norges Bank
[11] Total costs are not equal to the sum of the other columns in the table since the bid-offer spread is included in both sums underlying the total estimated cost.

3.4 Other factors

The FTSE is the supplier of index data for the Petroleum Fund's benchmark index. The FTSE publishes data for two global stock indices: FTSE World and FTSE all-world. FTSE World covers all developed markets and the relatively most developed of the emerging markets. The FTSE classifies Taiwan, South Korea, Mexico, Brazil, South Africa and Israel as the most advanced emerging markets. FTSE all-world includes all the markets that the FTSE defines as investable for institutional investors[12].

[12] In the classification of developed, advanced emerging markets and other emerging markets, the FTSE places most emphasis on the following primary factors: data quality, absence of currency restrictions, GDP per capita, the market's depth and breadth, reliable equity prices, market capitalisation of quoted companies as a share of GDP and the absence of restrictions on foreign ownership. Emphasis is then placed on the following secondary factors: efficient settlement systems, liquidity, the market's maturity, membership in an economic group or in a currency bloc as well as the total market capitalisation of the stock exchange.

FTSE World is widely used as a global benchmark index among external managers that are measured against an FTSE index. Since the universe in FTSE World does not fully correspond to the universe in the Petroleum Fund's benchmark index, Norges Bank therefore decided to give external managers the universe in FTSE World with the exception of Norway, South Africa and Israel as the investment universe. Internally, Norges Bank manages a Turkish equity portfolio with a low tracking error against FTSE all-world Turkey in order to avoid unintentional deviations against the Fund's total benchmark index at total portfolio level. The exclusion of countries from the investment universe in relation to FTSE World's coverage does not involve operational challenges. The inclusion of countries that are only included in FTSE all-world results in extra operational efforts.

With effect from September 2003, FTSE World and FTSE all-world will be replaced by a new index series from the FTSE, with the preliminary name FTSE Global Equity Index Series (FTSE GEIS). Data for FTSE World and FTSE all-world will continue to be supplied, but GEIS will be the FTSE's most important index.

The main classification in FTSE GEIS will be based on regions and developed versus emerging markets. Four regions (North America, Europe, Japan and Asia excluding Japan) are defined within developed markets. There are also four emerging regions (Latin America, Europe, Middle East/Africa and Asia excluding Japan). Within each of these regions it will be possible to separate companies both according to country and sector. In other words, it will still be possible to define a benchmark index based on permitted markets.

The greatest change in relation to the FTSE's existing global indices is that FTSE GEIS will also be able to sort companies by size. Large and medium-sized companies are included in FTSE World and FTSE all-world, but no separate indices are supplied, for example, for only large companies in a region. FTSE GEIS will calculate separate indices for large, medium-sized and small companies in each of the developed regions. The definition of "medium-sized companies" will be changed from FTSE World and all-world to GEIS so that the number of medium-sized companies and their market capitalisation will increase in GEIS.

It would be an advantage for the Petroleum Fund's benchmark index for equities to be based on the classification of FTSE GEIS when this is introduced. As noted, it is not necessary to change the list of permitted markets when GEIS is introduced even though it would be an operational advantage to limit the benchmark index to, for example, the four developed regions. However, the Ministry of Finance must decide whether small companies are also to be included in the benchmark index from the time GEIS is introduced or whether the parts of this index that cover small companies are to be excluded. It would be a definite operational advantage if this decision were taken well before the index is introduced since the change from FTSE World/all-world to GEIS will in any event involve portfolio adjustments. A combined adaptation to a new benchmark index will result in lower transaction costs than adjustments that take place over several rounds.

3.5 Evaluation

Stock markets in South Africa and Malaysia satisfy all the requirements that have been stipulated earlier for inclusion in the benchmark index. Even though Malaysia is qualified for inclusion in the benchmark index in relation to the criteria applied in this and earlier submissions, Norges Bank will nevertheless recommend that the market not be included in the benchmark index. In the Bank's view, there should be a greater margin between the requirement for inclusion that has been applied earlier and the market's actual size. This will reduce the likelihood that the market again falls outside the benchmark index due to possible future index changes or changes in relative returns. The benchmark index covers in any case a substantial portion of a global market-weighted portfolio of emerging markets. Adding Malaysia to the benchmark index improves only marginally the correlation with the global portfolio of emerging equity markets. Transaction costs associated with a change in the benchmark portfolio will be lower if only South Africa is included compared with the inclusion of both South Africa and Malaysia. 99.0% of the capital that is represented in FTSE all-world excluding Norway will be included in the benchmark index if this recommendation is followed.

Annex 1 refers to several indicators that attempt to measure political and macroeconomic stability. South Africa scores higher according to these indicators than several of the countries that are included in the existing benchmark index. It must nevertheless be emphasised that the risk associated with future macroeconomic and political stability must be expected to be higher in emerging markets than in developed markets. In the case of South Africa, a special risk is linked to the country's major social problems and to what extent the HIV/AIDS epidemic will hamper the economy's growth potential in the future.

Norges Bank would have no objections to expanding the investment universe for equity investments to include additional markets that are not included in the benchmark index. Some emerging markets will not be qualified for inclusion in the investment universe based on the assessments made of the standard of settlement systems, legislation and market supervision. Some of the remaining emerging markets are either very small or appear to have a political and macroeconomic risk that is higher than what is generally the case even in emerging markets. One practical way of evaluating to what extent a market is too small or has inadequate liquidity to be included in the investment universe may be to use the market coverage of the Petroleum Fund's index supplier, FTSE. It is the FTSE's intention that the equity indices will have global coverage. Only markets with very low market capitalisation or are marked by other factors that make them unsuitable for international investors will be excluded from the FTSE's universe.

Norges Bank's recommendation concerning emerging equity markets in the benchmark index and the investment universe may be summarised as follows:

Chart 4: Recommendation

Executive Board member Vivi Lassen is of the view that investments in the stock market in Israel should not be permitted because of the political situation in Israel and the areas governed by the Palestinian Authority.

In spring 2003, Norges Bank will evaluate whether the benchmark index for equities should be expanded to include small companies. It is assumed that any decision to expand the benchmark index may be taken well before the FTSE introduces its new global equity index series in which small companies are also included.

4. Emerging bond markets

4.1 Introduction

According to the existing guidelines for the Petroleum Fund, it is not permitted to invest in local emerging bond markets. However, it is permitted to invest in bonds issued by borrowers that are domiciled in developing economies if the borrower has a credit rating defined as investment grade and the bond is issued in an approved market's currency. The benchmark index for the fixed income portfolio of the Petroleum Fund includes issuers from emerging markets with a share of 1.0%. This portion of the benchmark index is dominated by sovereign states that issue bonds in the US dollar or euro. Table 4 shows the nationality of issuers from emerging markets that accounted for 0.03% or more of the benchmark portfolio at end-November 2002[13].

[13] Account has not been taken of the gradual phasing in of the actual benchmark index. The weights are based on a fully adapted benchmark index.

Table 4: Issuers from emerging markets in the Petroleum Fund's benchmark index for bonds

Country	Share in the benchmark
Mexico	0.36 %
South Korea	0.11 %
Malaysia	0.10 %
Poland	0.07 %
South Africa	0.05 %
China	0.04 %
Chile	0.04 %
Hungary	0.04 %
Israel	0.03 %
Cayman Islands	0.03 %
Qatar	0.03 %
All other countries	0.13 %
Collective share of issuers from emerging markets	1.03 %

The following section provides a further evaluation of emerging bond markets in local currency. The evaluations are grouped according to the three main categories that were listed in section 2: i) minimum requirements for settlement systems, liquidity and size; ii) macroeconomic stability and iii) effects on the Petroleum Fund's overall return and risk.

4.2 Size and liquidity

At end-2001, the global bond market had a total value of altogether USD 37 200 billion[14]. Of this amount, bonds issued by borrowers in emerging markets accounted for USD 2 100 billion, or 5.6% of the total market. This includes both bonds issued in domestic currency and in international markets. Bonds issued in domestic markets by issuers from emerging markets amounted to USD 1 600 billion (4.3% of the total universe) with sovereign states as dominating borrowers.

[14] Source: Bank for International Settlements.

The investment universe that is available to the Petroleum Fund in emerging markets' currency is considerably lower than the USD 1 600 billion referred to above. First, this figure also includes bonds that have not been issued in the open capital market. Second, a number of issuers in emerging markets have a credit rating for domestic debt that does not satisfy the Petroleum Fund's requirements (see Table V1-6 in annex 1)). This applies, for example, to domestic government debt issued by Brazil, Turkey, Russia and India. Liquidity in the markets is also generally weak. The international capital market, primarily USD, has been and still is the dominating marketplace for investors that want exposure to borrowers from emerging economies.

Market-weighted bond indices from various index suppliers provide a better picture of the actual investment universe. These indices will typically exclude bonds that have not been issued in the open market as well as very small bonds that are not regularly traded. Only a limited number of local emerging markets are represented in such indices. This is because the number of international investors in local markets has been modest, which limits the need for such indices in the markets.

Table 5 shows the market value of bond indices that follow local emerging markets at end-December 2002. This is compared with the market value of bonds that are included in the Norwegian index from the same supplier on the same date.

Table 5: Local emerging markets and Norway in selected bond indices, 31 December 2002 (in millions of USD)

Country	MSCI Govt. Bond	Merrill Lynch Govt. Bond	Lehman Global Aggregate + Emerging Markets Index
Norway	15919	17823	19316
Poland	22762	24876	
Czech Republic	7353	7505	
Hungary	12459	12554	
South Africa	37937	35960	
South Korea		43378	119847
Taiwan		70585	
Mexico			20591[15]

[15] The portion of Lehman's peso index that is made up of Mexican bonos (fixed-rate bonds).

Among these markets, the South Korean market stands out with a substantial share of non-government issuers. This can be seen in the difference in the market value for Lehman Global Aggregate and Merrill Lynch Government Bond Index in Korea. The first index includes all bonds over a certain size with investment grade credit rating, while the latter index is a pure government bond index.

Investments in Korean won-denominated securities account for 0.7% of Lehman Global Aggregate and 3.6% of the Asian sub-index. The sum of all emerging markets' bonds in local currency account for about 1% of Merrill Lynch's broad global bond index. The minimum requirement for each bond's size, the requirement that the bonds are available to investors in general and the exclusion of securities with less than one year's residual maturity may explain why the share is lower than local emerging markets' domestic bond debt as a share of the total global market. Taiwan is the largest single market in Merrill Lynch's global government bond index, but due to extensive regulation of foreigners' participation in the Taiwan bond market this market cannot be recommended as part of the investment universe. The restrictions on foreign investors' access to the market are also among the reasons for Taiwan's not being included as a market in Lehman Global Aggregate.

Table 6 shows total turnover in the domestic bond market in 2001 in the emerging markets presented in Table 5, sorted by turnover amount[16]. By way of comparison, bond turnover on the Oslo Stock Exchange came to NOK 1 733 billion (USD 192 billion valued based on the average dollar exchange rate) in 2001. Repo trades accounted for 62% of the turnover.

[16] Sources: Bond Exchange of South Africa, Bloomberg, Emerging Market Traders Association.

Table 6: Annual turnover (in billions of USD) 2001

Country	Turnover (USD bn)
South Africa	1356.2
Mexico	868.4
Poland	73.2
Hungary	29.0
South Korea	17.9
Czech Republic	10.6

The table shows that turnover was highest by far in the market for bonds denominated in the South African rand and the Mexican peso. These were also the only emerging markets where turnover was clearly higher than the Norwegian market.

Domestic investors dominate in most local markets. According to the IMF[17], foreign participation in local government bond markets declined considerably following the Russian crisis in 1998, and the share of foreign participation only appears to have increased in the Czech Republic, Hungary and Poland. In these markets, there have been expectations that future membership in EMU will result in lower inflation and falling nominal interest rates. German funds in particular have been active in these markets. The IMF points out that foreigners' ownership share of the total bond market in Hungary and Poland is between 12 and 15%, while the share in larger local markets such as Korea and Mexico is no higher than 2-3%. Foreign participation in the above-mentioned markets shows an increase, however, when the ownership share is seen in relation to marketable bond debt or as a share of market transactions. In South Africa, foreigners accounted for 17% of turnover in bonds registered with the Bond Exchange in the country in 2001.

[17] Global Financial Stability report, September 2002

4.3 Settlement systems

JP Morgan Chase Bank has an identical system for evaluating the quality of settlement systems for both equities and bonds (see Table V1-2 in annex 1). Table 7 shows their main scores based on the evaluation of the respective bond markets' settlement system in February 2002:

Table 7: JP Morgan Chase Bank's evaluation of quality in the settlement systems of selected emerging bond markets

	Market exposure	Counterparty risk - buyer	Counterparty risk - seller	Average
Europe and Africa				
Poland	1.5	1.7	1.3	1.50
Czech Republic	1.6	1.7	2.0	1.77
Hungary	1.5	2.0	1.7	1.73
South Africa	1.8	1.3	1.3	1.50
America				
Mexico	1.4	1.3	2.0	1.57
Asia				
South Korea (govt. bonds and corp. bonds)	1.6	1.7	2.0	1.77

If any investments in emerging markets' bond markets are limited to government bonds in Mexico, South Africa, Poland, the Czech Republic and Hungary and to bonds with an investment grade rating in South Korea, the quality of the bond settlement systems in these markets will not constitute a limiting factor for investments.

4.4 Return, risk and diversification features

Both the existing portfolio of issuers from emerging markets and any expansion to include local emerging markets will only account for a very small share of the

Petroleum Fund's benchmark index. It is then assumed that any expansion is based on market values for the various markets in accordance with the prevailing principle. The effect on the portfolio's total return and risk must therefore be expected to be very limited.

The time series published for returns on local emerging markets only covers a limited historical period. The status as a potential investment market is fairly new in a number of these markets. The empirical basis for analysing the return and risk is therefore generally limited in these markets.

Table 8 shows the annualised return and risk in local currency and in the main market's currency (USD, EUR, JPY) for local emerging markets in each region for the period for which data are available in each market. South Africa is included here in the European region. For the purpose of comparison, data are also included for the main market in each region.

Table 8: Return and risk in local emerging bond markets

Country	*Source*	*Period*	*Return (local curr.)*	*Standard deviation (local curr.)*	*Return (DEM/EUR)*	*Standard deviation (DEM/EUR)*
Czech Republic	MSCI	7/97 – 12/02	14.1%	4.9 %	17.5 %	9.8 %
Hungary	MSCI	8/98 – 12/02	14.0 %	4.3 %	14.6 %	7.9 %
Poland	MSCI	8/98 – 12/02	17.6 %	7.0 %	17.0 %	9.8 %
South Africa	MSCI	7/95 – 12/02	19.5 %	11.6 %	12.0 %	22.3 %
Germany	Salomon	7/95-12/02 7/97-12/02 8/98-12/02	7.0 % 6.0 % 5.6 %	3.1 % 3.2 % 3.4 %	7.0 % 6.0 % 5.6 %	3.1 % 3.2 % 3.4 %

Country	*Source*	*Period*	*Return (local currency)*	*Standard deviation (local curr.)*	*Return (JPY)*	*Standard deviation (JPY)*
South Korea	Lehman	9/00 – 12/02	10.1 %	3.4 %	12.1 %	6.8 %
Japan	Salomon	9/00 – 12/02	3.6 %	1.5 %	3.6 %	1.5 %

Country	Source	Period	Return (local currency)	Standard deviation (local curr.)	Return (USD)	Standard deviation (USD)
Mexico	Lehman	1/01 – 10/02	19.6 %	5.1 %	15.2 %	10.6 %
USA	Salomon	1/01-10/02	9.2 %	5.4 %	9.2 %	5.4 %

Interest rates in the three emerging Central European markets have converged with the level in EMU in this period. The yield spread (5-year government bonds) against Germany was 8-9 percentage points lower at end-2002 than in summer 1998. Over the period as a whole, the same countries' currencies have been stable against the German mark/euro. Investors with the bond market in EMU as a benchmark index have therefore recorded considerable excess returns by investing capital in bond markets in the Czech Republic, Hungary and Poland in this period.

South African interest rates have also fallen to a greater extent than German rates, but the gains derived from higher interest rates and a declining yield spread have been partly offset by a depreciation of the South African rand against European currencies in the period.

Risk in the South African bond market has also been considerably higher than risk in other emerging markets. Even though the risk measured by the return's standard deviation has declined somewhat in recent years, volatility is still higher in this market than in other emerging markets.

The yield spread between Korea and Japan was reduced by about 250 basis points from summer 2000 to December 2002. In the same period, the Korean won appreciated marginally against the yen. Investors with the Japanese bond market have therefore recorded considerable excess returns by investing capital in bond markets in Korea in this period.

Both a substantially higher interest rate level and reduced yield spreads have resulted in higher local returns in the respective periods in Mexico than in the US. The USD has appreciated against the Mexican peso in the measurement period, but not sufficiently to counteract the entire effect of a higher return in local currency.

Table 8 shows the degree to which risk on investments in emerging markets increases when account is taken of exchange rate risk for each market's currency measured against the main currency in the region[18]. This risk will figure prominently in the evaluations of investors who have their financial commitments and benchmark index denominated in the region's main currency. US, Japanese or European pension funds within the euro area are examples of such investors. If these investors want exposure to issuers from emerging markets, this can be achieved by investing in local markets without hedging the exchange rate risk. The exchange rate risk will then constitute a considerable portion of the overall risk. The foreign exchange risk can be limited or eliminated through hedging transactions. In the period analysed, however, interest rate differentials in the money market have made these transactions costly. The lowest risk can be achieved by buying bonds issued in the investor's home currency.

[18] The currency against which it is natural to measure the South African rand is not obvious. The euro has been selected here since the euro area is South Africa's most important trading partner, measured by turnover value.

The Petroleum Fund's objective of maximising future international purchasing power implies the broadest possible spread in available equity and bond markets. If one has no views as to what extent a currency is overvalued in the market, an expansion at the margin will entail risk reduction. To what extent this risk reduction is noticeable at portfolio level will depend both on the portion of the portfolio covered and on whether the new markets are highly correlated with other markets or not.

If the correlation between local markets and the same country's bonds in the region's main currency is high, this indicates that country-specific factors dominate the total return irrespective of these are local or international bond markets. In this case, diversification gains through local markets in relation to the same country's bonds issued in international markets will be small. If the correlation is low, this implies that the exchange rate risk between the local market and the main currency in the region has a low correlation with interest rate differentials in the main market. This means that developments in interest rate differentials in the main market, the exchange rate risk and the interest rate risk in general in the main market dominate the total return on bonds issued by the various countries.

It is also interesting to analyse to what extent return differentials between local emerging markets and developed markets are highly correlated with return differentials between the same countries' international bonds and developed markets' government bonds. Exchange rate movements will then be disregarded. This provides a picture of whether market views concerning future inflation differentials, which should influence return differentials between markets, are also decisive for international market pricing of credit and liquidity risk for each issuer.

Table 9: Correlation in and between markets

Country	**Correlation against**	**Correlation against**	**Correlation between**
	Germany (EUR)	*The same country's euro-denominated bonds*	*Return differences in euro and between euro and local markets*
Czech Republic	-0.17		
Hungary	-0.12	-0.08	0.00
Poland	-0.05	0.01	0.02
South Africa	0.11	0.53	0.69
	Japan(JPY)	*South Korea's yen-denominated bonds*	*Return differences in yen and between yen and local markets*
South Korea[19]	-0.16		
	USA(USD)	*Mexico's USD-denominated bonds*	*Return differences in dollar and between dollar and local markets*
Mexico	-0.31	0.38	0.70

[19] Korea has not issued bonds denominated in yen. The Korean Development Bank, which is guaranteed by South Korea, has issued yen-denominated bonds, but satisfactory price performance data have not been found.

In general, there have been no signs of correlation between local emerging markets and the main markets in each region for the short periods behind the return figures. With the exception of South Africa in relation to European markets, there have also been no signs of correlation in local markets' and emerging markets' government issuers in the main markets' currency. The table indicates that yield spreads between South Africa's euro-denominated bonds and German government bonds have moved together with yield spreads between South African government bonds (in rand) and German government bonds. The same also applies to yield spreads between Mexican and US government bonds.

4.5 Other factors

If local emerging markets are to be of interest for active management in the long term, liquid bonds along the entire maturity curve, liquid futures contracts and a functioning swap market should be available. This increases the possibility of using any incorrect pricing in the market in investment management. Short, medium-term and long government bonds are found in the respective markets. A functioning swap market in all currencies also exists. South Africa has a smoothly functioning futures market. South Africa's bond market has a long history and must be considered the most developed of all local emerging bond markets. Bond futures are also quoted in Hungary, but turnover is fairly limited there.

4.6 Evaluation

Local emerging bond markets are still only represented to a very limited extent in international institutional investors' portfolios. If markets discussed in this section were included in the benchmark index, the effect on the fixed income portfolio's expected return and risk would be entirely marginal because these markets are still small.

If desired, it is possible to construct a benchmark index for bonds that also includes local bond markets in Mexico, Poland, Hungary, the Czech Republic, South Africa and South Korea. These are all markets in which the government has a credit rating that satisfies the Petroleum Fund's requirements. However, it will not be possible to cover all these markets with one and the same index supplier. It is operationally advantageous to have only one index supplier for the benchmark index in the same asset class. The benchmark index will then be constructed by using thorough and consistent criteria in all markets. An increase in index suppliers within the same asset class will increase the challenges associated with data maintenance even though the actual methodology behind the index construction shares a number of features. There should be a clear gain for the portfolio's return and and/or risk to warrant an even more complex benchmark index. Due to the limited size of emerging bond markets, this precondition does not exist.

Korea is the only market that could be included in the benchmark index without increasing the number of index suppliers since this market is included in Lehman Global Aggregate. The Korean won is not a convertible currency. The currency can only be traded with domestic operators in the Korean market. For practical reasons, all necessary currency transactions would have to be carried out with the same bank that is used as custodian agent in the local market. With cash flows in the securities portfolio, the exact amount between won and a convertible currency would have to be exchanged throughout in order to avoid investment requirements or borrowing requirements in the Korean won. This arrangement is in place between the Petroleum Fund's custodian agent for equities and Norges Bank with respect to the management of the equity portfolio. The arrangement can be replicated for any bond investments. Viewed in relation to the very marginal diversification gains that are achieved by moving 0.28% of the fixed income portfolio to the Korean bond market, it is doubtful whether this would be profitable. As noted earlier, the participation of other international investors in this market is also very limited. Norges Bank therefore recommends that South Korea should not be included in the benchmark index at this time.

If the Ministry of Finance wants to expand the investment universe to include bonds with investment grade in Mexico, South Africa, Poland, Hungary, the Czech Republic and South Korea, Norges Bank finds that the quality requirements for settlement systems or other factors do not represent a barrier to inclusion.

5. Recommendations

Norges Bank recommends that South Africa be included in the benchmark index for the Petroleum Fund's equity portfolio and that Turkey be removed from the benchmark index from the time further stipulated by the Ministry of Finance. The date for the inclusion of new markets in the benchmark portfolio must be set in such a way that operational preparations can be completed by Norges Bank. It would be advantageous to coordinate this with changes that may be carried out due to the introduction of FTSE Global Equity Series.

Norges Bank recommends that no change be made in permitted markets in the benchmark index for bonds at this time.

Norges Bank has no objections to expanding the investment universe for equities and bonds to include additional countries, as shown in sections 3 and 4, but presupposes that these countries are not included in the benchmark index.

Reference is made to the special comment of Executive Board member Vivi Lassen in section 3.5

Svein Gjedrem

Helge Eide

ANNEX 1: Indicators in emerging equity markets

Evaluation of the quality of settlement systems by various settlement institutions

GSCS ranks routines for securities settlement and custodian functions in various countries. In the submission of 16 March 1999, the threshold for sufficient quality in legislation and settlement systems, measured by the score for operational risk, was set at 65. The highest possible score is 100, which would mean that, in the view of GSCS, there was no operational risk at all in the respective market.

Table VI-1: GSCS' scores for markets' operational risk

	1998	2001	Q2 2002
Emerging markets within the Petroleum Fund's investment universe			
Americas			
Brazil	66.2	65.8	67.2
Mexico	68.9	70.6	72.6
Europe			
Turkey	72.2	72.1	68.8
Asia			
South Korea	75.0	76.9	77.6
Taiwan	NA	NA	76.6
Thailand	71.4	73.3	71.1
Emerging markets outside the Petroleum Fund's investment universe			
Americas			
Argentina	70.6	71.4	34.5
Chile	NA	NA	NA
Colombia	NA	NA	NA
Peru	67.4	68.2	69.3
Venezuela	54.8	52.5	55.9
Europe			
Poland	63.1	68.2	72.1
Russia	NA	NA	44.5
Slovenia	NA	NA	NA
Czech Republic	63.6	67.7	68.7
Hungary	47.4	69.1	65.5
Asia			
The Philippines	62.9	70.8	71.2
India	36.5	59.1	61.8
Indonesia	63.8	64.1	69.9
China	70.9	70.2	72.9

Malaysia	73.0	71.6	73.6
Pakistan	NA	NA	74.0
The Middle East and Africa			
Egypt	NA	NA	NA
Israel	NA	NA	72.0
Jordan	**NA**	**NA**	**NA**
Morocco	NA	NA	NA
Nigeria	NA	NA	NA
South Africa	26.2	51.7	74.9

The following table shows the scores given by JP Morgan Chase with regard to the risk associated with equity trades in various countries. 1.0 is the best score. The settlement risk can in a simplified way be divided into two parts: the market value of the security might change from transaction day to settlement day and the counterparty might not fulfil its settlement obligation.

Table VI-2: Evaluation criteria

	Market exposure	Counterparty risk buyer	Counterparty risk seller	Average
Americas				
Argentina	1.6	1.7	2	1.77
Brazil	1.3	2	2	1.77
Chile	2.1	2	1.7	1.93
Colombia	2	1.7	1.7	1.80
Mexico	1.4	1.3	2	1.57
Peru	1.6	1.7	2	1.77
Venezuela	2.3	2.3	3	2.53
Europe				
Poland	1.5	1.7	1.3	1.50
Russia	2.8	2.3	2.7	2.60
Slovenia	1.5	2	2.3	1.93
Czech Republic	1.6	1	2	1.53
Turkey	1.9	1.3	1.3	1.50
Hungary	1.5	2	1.7	1.73
Asia				
The Philippines, CDI	2.1	2	2.7	2.27
China, Shanghai	2	1.7	2	1.90
China, Shenzhen	2	1.7	2	1.90
India, NSDL	1.8	1.3	1.3	1.47
Indonesia, dematerialized	2.1	1.7	2	1.93
Indonesia	2.6	2.7	3	2.77

Malaysia	1.6	1.3	2	1.63
Pakistan, CDC	1.9	1.3	2	1.73
Pakistan, physical	2.6	2.3	2	2.30
Sri Lanka	1.8	1.3	2.3	1.80
South Korea	1.6	1.3	2	1.63
Taiwan	1.6	1.3	2	1.63
Thailand	1.3	1.7	2	1.67
The Middle East and Africa				
Egypt	1.9	1.3	2	1.73
Israel	2	2.3	2.3	2.20
Jordan	2.3	2.3	2.7	2.43
Morocco	2.3	1.7	1.3	1.77
Nigeria	2.1	2	2.3	2.13
South Africa	1.6	1.3	2	1.63

In 1999, an average threshold value of 2.0 was set.

The following table shows the scores given by Citibank with regard to settlement systems in emerging equity markets. The highest rating is 1, which indicates few, if any, potential problems among the evaluated items. On the other hand, 3 indicates higher-than-average settlement risk, where investors are left relatively unprotected.

Table VI-3: Evaluation of settlement systems in emerging equity markets

Market	Rating level
Americas	
Argentina	3
Brazil*	2
Chile	1
Colombia*	2
Mexico	1
Peru	2
Venezuela	3
Europe	
Poland*	1
Russia*	2
Slovenia	2
Czech Republic	2
Turkey*	2
Hungary	1
Asia	
The Philippines*	2
China*	3
India*	2
Indonesia	3

Malaysia*	2
Pakistan, CDC	2
Pakistan, State Bank of Pakistan	3
South Korea	2
Taiwan	2
Thailand	2
The Middle East and Africa	
Egypt	2
Israel	1
Jordan	NA
Morocco	2
Nigeria	NA
South Africa*	2

Political/macroeconomic stability

Reference is made to the following publications/institutions for evaluations of political/macroeconomic stability:

- World Economic Forum (Global Competitiveness Report)
- The publication *Euromoney*, which presents an overall evaluation of country risk
- The credit rating agencies Moody's, Standard & Poor's and Fitch IBCA, which evaluate the credit risk associated with buying government bonds issued in foreign currency by various countries.

Table VI-4: World Economic Forum; Global Competitiveness Report
(High grade indicates high competitiveness)

Country	Macroeconomic environment	Public Institutions	Average grade[22]
Developed markets			
Greece	4.02	4.53	4.28
Norway	4.99	5.89	5.44
Portugal	4.20	5.50	4.85
Highest score	5.72 (Singapore)	6.60 (Finland)	

Emerging markets within the investment universe			
Americas			
Brazil	3.51	4.45	3.98
Mexico	4.50	3.99	4.25
Europe			
Turkey	2.80	3.52	3.16
Asia			
South Korea	4.86	4.96	4.91
Taiwan	5.00	5.25	5.13
Thailand	4.85	4.68	4.77
Emerging markets outside the investment universe			
Americas			
Argentina	3.62	3.38	3.50
Chile	4.71	5.62	5.17
Colombia	3.95	4.10	4.03
Peru	3.95	4.24	4.10
Venezuela	3.35	3.07	3.21
Europe			
Poland	3.90	3.83	3.87
Russia	4.23	3.45	3.84
Slovenia	3.95	5.33	4.64
Czech Republic	3.77	4.20	3.99
Hungary	3.98	5.15	4.57
Asia			
The Philippines	4.29	3.11	3.70
China	4.98	4.68	4.83
India	4.57	3.96	4.27
Indonesia	3.92	2.90	3.41
Malaysia	4.53	4.94	4.74
Pakistan	NA	NA	
Sri Lanka	3.66	4.57	4.12
The Middle East and Africa			
Egypt	NA	NA	
Israel	3,66	5,76	4.71
Jordan	3,83	4,67	4.25
Morocco	4,07	4,05	4.06
Nigeria	3,67	2,89	3.28
South Africa	4,36	4,93	4.65

[22] This is Norges Bank's own weighting where the two scores are given equal weight. WEI itself operates with its own growth competitiveness index, which in addition to the two factors specified in the table contains a sub-score for technology.

Table VI-5: Euromoney country risk, autumn 1999 and autumn 2002

(100 is best and indicates no country risk according to evaluated items)

Country	1999	2002
Developed markets		
Greece	76.8	81.9
Norway	94.1	97.7
Portugal	82.8	85.0
Emerging markets within the investment universe		
Americas		
Brazil	46.8	42.6
Mexico	55.7	60.8
Europe		
Turkey	48.5	43.8
Asia		
South Korea	64.1	69.5
Taiwan	NA	82.6
Thailand	56.0	56.3
Emerging markets outside the investment universe		
Americas		
Argentina	53.8	27.1
Chile	65.0	64.5
Colombia	50.8	47.4
Peru	44.6	46.6
Venezuela	41.3	39.9
Europe		
Poland	62.5	64.6
Russia	23.0	45.0
Slovenia	69.0	75.4
Czech Republic	60.8	65.6
Hungary	64.3	69.3
Asia		
The Philippines	54.4	51.0
China	55.1	56.4
India	51.8	55.1
Indonesia	36.4	37.5
Malaysia	57.0	63.1
Pakistan	30.2	38.9
Sri Lanka		40.5
The Middle East and Africa		
Egypt	52.3	50.3
Israel	71.0	68.7
Jordan	46.2	45.4
Morocco	53.0	53.6
Nigeria	31.2	24.5
South Africa	53,7	59,1

Table VI-6: Credit evaluation of countries' long-term bond debt

Country	Moodys	S&P	Fitch IBCA	Satisfies the Petroleum fund's fixed income credit rating requirements
Developed markets				
Greece	A1	A	A	Yes
Norway	Aaa	AAA	AAA	Yes
Portugal	Aa2	AA	AA	Yes
Emerging markets within the investment universe				
Americas				
Brazil	B2	B+	B	
Mexico	Baa2	BBB-	BBB-	Yes
Europe				
Turkey	B1	B-	B	
Asia				
South Korea	A3	A-	A	Yes
Taiwan	Aa3	A	A+	Yes
Thailand	Baa3	BBB-	BBB-	Yes
Emerging markets outside the investment universe				
America				
Argentina	Ca	D	DDD	
Chile	Baa1	A-	A-	Yes
Colombia	Ba2	BB	BB	
Peru	Ba3	BB-	BB-	
Venezuela	B3	B-	B	
Europe				
Poland	Baa1	BBB+	BBB+	Yes
Russia	Ba3	BB-	BB-	
Slovakia	Baa3	BBB-	BBB-	Yes
Slovenia	A2	A	A	Yes
Czech Republic	Baa1	A-	BBB+	Yes
Hungary	A3	A-	A-	Yes
Asia				
The Philippines	Ba1	BB+	BB++	
India	Ba2	BB	BB	
Indonesia	B3	CCC+	B	
China	A3	BBB	A-	Yes
Malaysia	Baa1	BBB+	BBB+	Yes
Pakistan	B3	B-	NA	
The Middle East and Africa				
Egypt	Ba1	BB+	BB+	
Israel	A2	A-	A-	Yes
Jordan	Ba3	BB-	NA	
Morocco	Ba1	BB	NA	

Nigeria	NA	NA	NA	
South Africa	Baa2	BBB-	BBB-	Yes

[23] This market is not included in any of the relevant indices for investable emerging equity markets, but is nevertheless included here due to its relevance to the review of emerging bond markets.

Evaluation for California Public Employees Retirement System (CalPERS)

Wilshire Associates prepared a report on emerging markets for CalPERS' Investment Committee in February 2002. The report is available to the public.[24] Wilshire gave scores for eight different factors in each market, ranging from 1 to 3 where 3 is the highest standard. In the report to CalPERS' Investment Committee, Wilshire recommended that markets should have an average minimum score of 1.75 in order to be included in the investment universe.

[24] www.calpers.ca.gov/invest/emergingmkt/emergingmkt.htm

Table VI-7: CalPERS/Wilshire – scores for various factors

Factor	Political Stability	Financial Transparency	Productive Labor practices	Market Liquidity and volatility	Market regulation Legal systems Investor protection	Capital Market openness	Settlement Proficiency	Transaction costs	CalPERS average grade	Equally weighted average grade
CalPERS Weight to each factor	17.00 %	16.00 %	17.00 %	10.00 %	15.00 %	10.00 %	10.00 %	5.00 %		
	Emerging markets within the Petroleum Fund's investment universe									
Americas										
Brazil	2	2	2	2	3	1	2	3	2.10	2.13
Mexico	2	2	2	3	1	2	3	3	2.10	2.25
Europe										
Turkey	1	1	2	3	2	3	3	3	2.02	2.25
Asia										
South Korea	3	3	3	3	1	2	3	2	2.55	2.50
Taiwan	3	2	2	3	3	2	3	2	2.52	2.50
Thailand	2	1	2	1	1	2	3	1	1.64	1.63
	Emerging markets outside the Petroleum Fund's investment universe									
Americas										
Argentina	2	3	3	2	3	3	2	3	2.63	2.63
Chile	3	2	3	1	3	3	2	1	2.44	2.25
Colombia	1	1	2	1	1	3	1	2	1.42	1.50
Peru	2	3	2	1	2	3	2	3	2.21	2.25
Venezuela	1	1	2	1	1	2	1	2	1.32	1.38
Europe										
Poland	3	2	3	3	1	3	2	2	2.39	2.38

Russia	1	1	1	2	1	1	1	2	1.15	1.25
Czech Republic	3	3	3	1	1	3	1	2	2.25	2.13
Hungary	3	3	3	3	1	3	1	3	2.50	2.50
Asia										
The Philippines	2	3	2	1	2	1	3	2	2.06	2.00
India	2	2	1	3	2	1	1	2	1.73	1.75
Indonesia	1	1	1	1	1	2	2	2	1.25	1.38
China	1	1	1	3	1	1	3	2	1.45	1.63
Malaysia	1	1	1	2	2	1	2	3	1.45	1.63
Pakistan	1	1	1	1	2	2	2	2	1.40	1.50
Sri Lanka	1	2	1	1	1	2	1	2	1.31	1.38
Middle East/ Africa										
Egypt	2	2	1	2	1	1	2	2	1.58	1.63
Israel	2	1	3	2	3	3	3	2	2.36	2.38
Jordan	2	1	2	2	1	2	2	3	1.74	1.88
Morocco	1	1	1	2	1	2	1	2	1.25	1.38
South Africa	2	2	3	1	3	2	1	3	2.17	2.13

Size of equity markets

The market capitalisation of global equity markets has fallen substantially since the end of 1999. If, as in 1999, we applied the requirement that market capitalisation should amount to a minimum USD 40 billion to be included in the Petroleum Fund's investment universe, several developed markets would now have been excluded from the investment universe. Valued at end-September 2002, for example, the value of all equities quoted on the Oslo Stock Exchange was lower than this threshold value when equities owned by the state are excluded.[25]

[25] The National Insurance Fund's equity holdings are in this connection defined as state-owned.

The total size of equity markets in autumn 1998 was the basis for the evaluations presented in Norges Bank's submission of March 1999. Since that time, all of the major suppliers of market capitalisation-based global equity indices have started to publish so-called free float-adjusted indices. In these indices, direct government holdings/cross-holdings and larger, strategic holdings in companies are excluded. These indices provide a better picture of the overall market that is actually available to institutional investors and are therefore more relevant in the evaluation of new emerging markets. In general, the share of equity capital that is considered available to international institutional investors is lower in emerging markets than in developed markets. In China, for example, only 13% of quoted equities are included in free float-adjusted indices.[26]

[26] Source: Salomon Smith Barney World Equity Index, October 2002.

Table VI-8 shows the market capitalisation of equities in emerging markets that are available to international investors, valued at end-2001 and at end-November 2002. The source for 2001 figures is S&P/IFC Investable Index, which was also the source for the figures referred to in earlier submissions from Norges Bank. The figures on market capitalisation in November 2002 from S&P have been supplemented by market capitalisation figures from Salomon Smith Barney Broad Market Index and FTSE All-world index on the same date. The latter index is the basis for the composition of the Petroleum Fund's benchmark index.[27]

[27] All three indices attempt to measure the return on the market segment that is available to international investors. The definition of an emerging market deviates somewhat between index suppliers. Requirements for index eligibility also vary between index suppliers, but, in general, requirements concerning a certain size and liquidity have been maintained. Detailed information concerning the rules for constructing the indices can be found on the following websites:

www.2.standardandpoors.com/spf/pdf/index/method.pdf (S&P/IFCI)
www.ftseall-world.com (FTSE All-world index)
www.ssbgei.com (SSB Broad Market Index)

Table V1-8 Emerging equity markets, 2001-2002 (in millions of USD)

Country	S&P/IFCI 2001	SSB 12/2002	FTSE 12/2002	S&P IFCI 11/2002
Within the Petroleum Fund's investment universe				
Americas				
Brazil	62164	47099	43733	40181
Mexico	61256	54088	52973	49046
Europe				
Turkey	19332	8737	7544	12842
Asia				
South Korea	130170	128818	113961	146335
Taiwan	99185	174838	122607	82115
Thailand	7295	8930	9541	9114
Sum	*379402*	*422510*	*350359*	*339633*
Outside the Petroleum Fund's investment universe				
Americas				
Argentina	4142	2827	969	1548

Chile	17705	15101	14300	15473
Colombia		2354	1386	
Peru	3262	3520	2366	3396
Venezuela		897	583	
Europe				
Poland	8423	6760	7644	8599
Russia	28573	34081	26202	38593
Slovenia		1562		
Czech Republic	2470	2739	2711	2367
Hungary	5870	7082	7477	6326
Asia				
The Philippines	4035	2951	3505	4044
India	21310	35722	18358	23824
Indonesia	5574	6357	7007	6010
China	45284	19758	18742	40957
Malaysia	28277	39307	39788	33680
Pakistan		1675	1790	
The Middle East and Africa				
Egypt	1880	1125	1477	1309
Israel	28927	20837	17082	23394
Jordan		2320		
Morocco	3488	2485	2237	2797
Nigeria		1904		
South Africa	46895	84753	70328	63354
Total all emerging markets	*635517*	*718628*	594312	*615304*

The market capitalisation of all emerging markets accounts for 4.4% of total market capitalisation in Salomon Smith Barney's index and 4.0% in the FTSE's index. The sum of all countries that are not included in the Petroleum Fund's investment universe accounts for about 1.6% of the FT's all-world index.

Stock market liquidity

Table V1-9 shows for the years 2000 and 2001 average turnover per trading day (assuming 260 trading days) and annual turnover rate (annual turnover/average total market value) in emerging equity markets.[28]

[28] Source: Standard and Poor's: Emerging Stock Market Factbook 2000 and 2001. 260 trading days annually per market have been assumed.

Table V1-9: Liquidity in emerging markets, 2000 and 2001

Country	Daily turnover 2000 (mill. USD)	Velocity 2000	Daily turnover (mill. USD)	Velocity 2001
Within the Petroleum Fund's investment universe				
Americas				
Brazil	390	44.6 %	250	34.5 %
Mexico	174	32.3 %	154	31.6 %
Europe				
Turkey	689	196.5 %	300	161.5 %
Asia				
South Korea	4106	362.3 %	2708	380.3 %
Taiwan	3783	315.4 %	2095	199.4 %
Thailand	89	52.9 %	137	109.3 %
Outside the Petroleum Fund's investment universe				
Americas				
Argentina	23	4.8 %	16	2.3 %
Chile	23	9.5 %	16	7.5 %
Colombia	2	3.8 %	1	3.2 %
Peru	6	12.6 %	3	7.9 %
Venezuela	3	8.9 %	2	5.5 %
Europe				
Poland	56	49.9 %	29	26.1 %
Russia	78	36.9 %	88	39.8 %
Slovenia	2	20.7 %	3	30.5 %
Czech Republic	25	60.3 %	13	34.1 %
Hungary	47	90.7 %	19	44.5 %
Asia				
The Philippines	32	15.8 %	12	6.8 %
India	1961	306.5 %	959	191.4 %
Indonesia	55	31.5 %	37	39.3 %
China	2775	158.3 %	1727	81.3 %
Malaysia	225	44.6 %	80	17.5 %
Pakistan	127	475.5 %	48	226.8 %
The Middle East and Africa				
Egypt	43	34.7 %	15	14.2 %
Israel	90	36.3 %	115	44.7 %
Jordan	2	7.7 %	4	16.6 %
Morocco	4	9.2 %	4	10.0 %
Nigeria	1	7.3 %	2	10.2 %
South Africa	298	33.2 %	268	25.4 %